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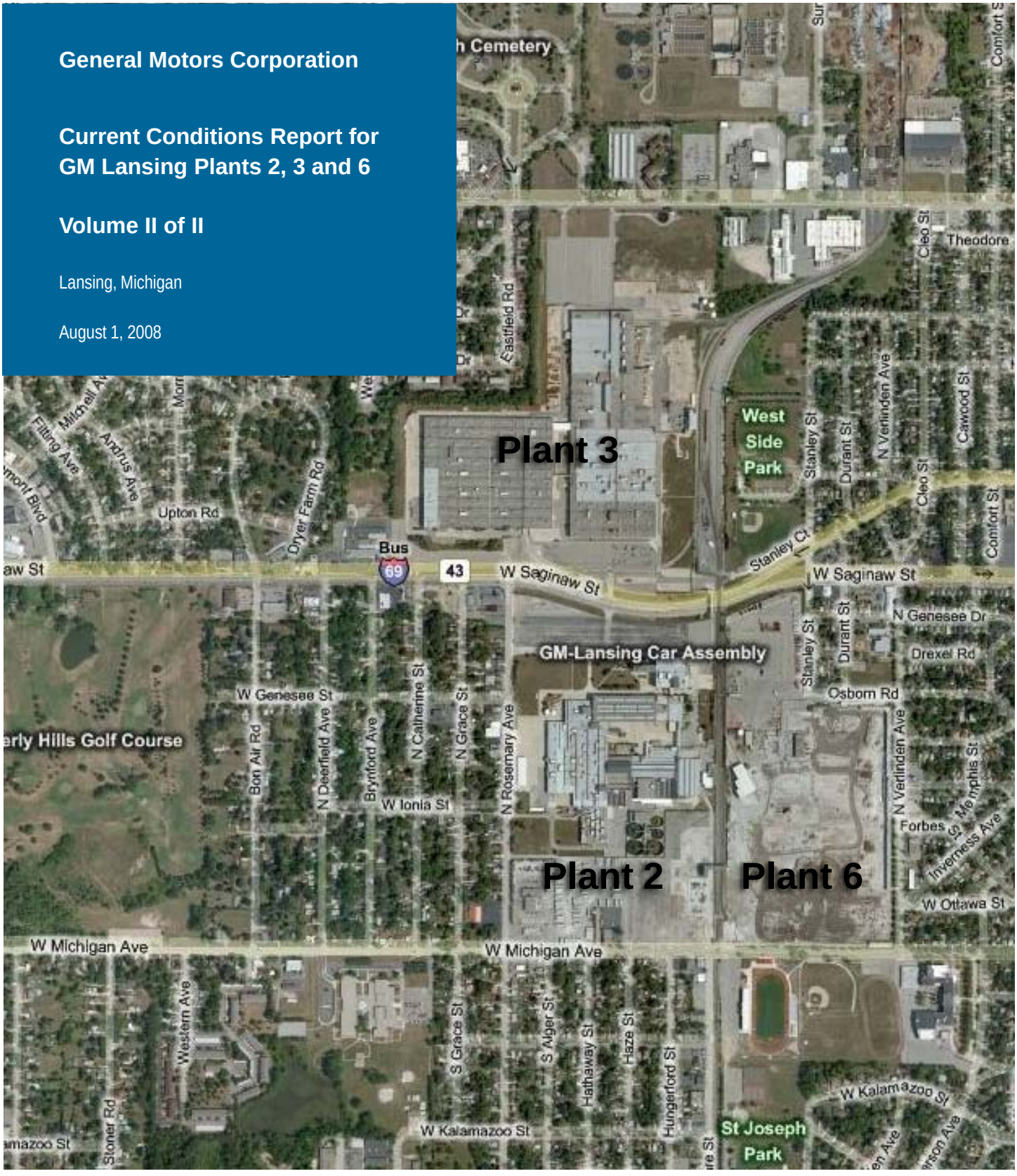
General Motors Corporation

Current Conditions Report for GM Lansing Plants 2, 3 and 6

Volume II of II

Lansing, Michigan

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Appendix A

Scenarios for Potential Human Exposure, GM Lansing Plants 2, 3 and 6

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Data Evaluation Methodology

Appendix A
Data Evaluation and Databox Figure Development Methodology

Purpose and Scope

This appendix summarizes the process and screening levels used to evaluate soil and groundwater data collected at the General Motors Corporation (GM) Lansing Plants 2, 3, and 6, located at 2801 West Saginaw Street, 2800 West Saginaw Street, and 401 North Verlinden Street, respectively, in Lansing, Michigan (the "Facilities"). The evaluation process follows the general approach presented in GM's 2003 *Health-Based Evaluation of Data to Streamline RCRA Facility Investigations (RFIs) at General Motors Facilities* ("Streamlining Document"), which has been implemented previously for RCRA corrective action programs at other GM facilities in USEPA Region 5, including at facilities in Michigan. The same general process will be used to evaluate data from Lansing Plant 1, located at 920 Townsend Street, Lansing, Michigan.

The results of the data evaluation will be used, in conjunction with other information and considerations, to guide decisions regarding the need for and objectives and scope of further sampling to be conducted during the Remedial Investigation/RCRA Facility Investigation (RI/RFI) at the Facilities, which GM intends to conduct voluntarily.

Overview of Data Evaluation Process and Databox Figure Development

The data evaluation process entails a comparison of soil and groundwater data against human health risk-based screening levels to segregate the characterization data that indicate a higher potential for health significance under current and reasonably expected future land use from those that indicate a low potential. The screening levels are used in two successively focused levels of data segregation. The first level of data segregation identifies for review a sub-set of the chemicals with detected concentrations above conservative risk-based levels while the second level of segregation highlights the concentrations that have the highest potential for health significance among this sub-set of chemicals.

The screening levels for the evaluation presented in this Current Conditions Report (CCR) are based on the Michigan Part 201 Generic Cleanup Criteria as well as supplemental risk-based criteria developed by GM. They were selected based on exposure scenarios for the Facility, summarized on the preliminary Conceptual Site Model (CSM) (Table B-1).

The results of the data screening are summarized on tables and are presented on databox figures. The tables present ratios of the highest Facility-related[1] concentrations at an area

[1] Facility-related concentrations are those in excess of background levels. Background levels may be based upon facility-specific background data collected during the field investigations, if any, or background data obtained from public sources appropriate to the region in which the Facility is located (e.g., statewide default background levels published with Part 201 Generic Cleanup Criteria and Screening Levels). Common earth metals (e.g., calcium, iron, magnesium, potassium, sodium) are not considered Facility-related.

to each of the screening levels. The databox figures show the site-wide spatial distribution of chemicals with concentrations that exceed screening levels used in the first level of data segregation. They further focus the data review by highlighting concentrations that exceed screening levels used in the second level of segregation and by identifying the specific screening levels exceeded.

As discussed in the Streamlining Document, the presence of concentrations higher than the screening levels does not necessarily mean that additional investigation is warranted. Similarly, the absence of concentrations higher than the screening levels does not necessarily mean that additional investigation is unnecessary. Decisions regarding the need for and scope and objectives of further investigation should be made based on professional judgment, the screening results, the magnitude of the concentrations, the spatial distribution of chemicals present, reasonably expected future land and groundwater use, and other factors (ENVIRON 2003).

Evaluation of Data

Soil

The chemical list presented on databox figures for soil at each Facility is based on a comparison of the highest Facility-related soil concentrations against the following conservative screening levels:

- Part 201 Residential Volatile Soil Inhalation Criteria[2];
- Part 201 Residential Particulate Soil Inhalation Criteria;
- Part 201 Residential Direct Contact Criteria;
- Part 201 Residential Soil Volatilization to Indoor Air Inhalation Criteria;
- Risk-based screening levels developed by GM for protection of facility construction workers, assuming worker exposure to soil via direct contact and inhalation during excavation activities associated with a one-year site redevelopment scenario (calculated at a target cancer risk level (TCRL) of 10^{-5} and a target hazard quotient (HQ) of 1).[3]

Additional chemicals are added to the soil chemical list based on and the following conservative screening levels for water protection:

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[2] Based on the assumption of an infinite source.

[3] The Michigan Part 201 Criteria do not include risk-based screening levels for protection of workers engaged in large-scale decommissioning, demolition, or redevelopment ("facility construction workers"). Since this exposure scenario is reasonably expected at Plants 2, 3, and 6, as indicated in the preliminary CSM, screening levels for this scenario were developed by GM. These screening levels were calculated using the same methodologies used by GM for developing screening levels for this scenario in other GM RFIs and RIs.

- Part 201 Residential Drinking Water Protection (DWP) Criteria[4];
- Part 201 Groundwater Surface Water Interface Protection (GSIP) Criteria[5];

All chemicals with Facility-related concentrations exceeding one or more these screening levels are presented on the databox figures.

Because either residential and/or commercial/industrial development is reasonably expected in the future at each Facility, soil concentrations are highlighted on the databox figures when the Facility-related concentrations are higher than the following conservative risk-based screening levels:

- Part 201 Residential Soil Volatilization to Indoor Air Inhalation Criteria;
- Part 201 Residential Volatile Soil Inhalation Criteria[6];
- Part 201 Residential Particulate Soil Inhalation Criteria;
- Part 201 Residential Direct Contact Criteria;
- Part 201 Industrial Soil Volatilization to Indoor Air Inhalation Criteria;
- Part 201 Industrial Volatile Soil Inhalation Criteria[7];
- Part 201 Industrial Particulate Soil Inhalation Criteria;
- Part 201 Industrial Direct Contact Criteria;
- Risk-based screening levels developed by GM for protection of redevelopment workers, as described above.

Additional concentrations in the deepest samples collected above groundwater from each sampling location are highlighted on the databox figures when the Facility-related concentrations are higher than the following conservative risk based screening levels:

- Part 201 Residential Drinking Water Protection Criteria;
- Part 201 GSIP Criteria.

Additional soil concentrations are highlighted on the databox figures for Plant 3 when the Facility-related concentrations are higher than the Part 201 GSIP and the sample is the deepest soil sample located above a zone of perched water.

"Codes" are assigned to the concentrations in the databox figures identifying the specific screening levels exceeded.

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4 DWP Criteria are used to identify soil with constituent concentrations that may adversely affect a drinking water aquifer if a pathway for such migration exists. The presence or absence of such migration pathways will be determined during the RFI/RI.

5 GSIP Criteria are used to identify soil with constituent concentrations that may adversely affect surface water if a pathway for such migration exists. The presence or absence of such migration pathways will be determined during the RFI/RI.

6 Based on the assumption of an infinite source.

7 Based on the assumption of an infinite source.

Groundwater

The chemical list presented on databox figures for groundwater at each Facility is based on a comparison of the highest Facility-wide groundwater concentrations against the following conservative screening levels:

- Part 201 Residential Drinking Water Criteria[8];

Additional chemicals are added to the groundwater chemical list at each Facility based on a comparison of the highest Facility-wide shallow[9] groundwater concentrations against the following conservative screening levels:

- Part 201 Groundwater Surface Water Interface (GSI) Criteria[10];

All chemicals with any detected concentration exceeding either of these screening levels are presented on the databox figures for each Facility.

Shallow groundwater concentrations are then highlighted on the databox figures when they are higher than the following conservative risk-based screening levels:

- Part 201 Residential Drinking Water Criteria;
- Part 201 Residential Groundwater Volatilization to Indoor Air Inhalation Criteria;
- Part 201 Groundwater Contact Criteria;
- Part 201 GSI Criteria;

Deep ("bedrock") groundwater concentrations are then highlighted on the databox figures when they are higher than the Part 201 Residential Drinking Water Criteria. In addition, intermediate ("overburden") groundwater concentrations at Plant 3[11] are highlighted on

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[8] Residential Drinking Water Criteria are used to identify groundwater with constituent concentrations that may adversely affect a drinking water aquifer if a pathway for migration to such an aquifer exists. The presence or absence of such migration pathways will be determined during the RFI/RI.

[9] At Plant 2, only "overburden" groundwater (which is estimated to be present at approximately 7-8 ft bgs) is considered shallow.

At Plant 3, only "perched" groundwater (which is estimated to be present at approximately 6-7 ft bgs) is considered shallow.

At Plant 6, only "overburden" groundwater (which is believed to be present at approximately 20 ft bgs) is considered shallow.

[10] GSI Criteria are used to identify groundwater with constituent concentrations that may adversely affect surface water if a pathway for migration to surface water exists. The presence or absence of such migration pathways will be determined during the RFI/RI. The selected Part 201 GSI Criteria included values based upon protection of the Grand River as a non-drinking water supply. In addition, Part 201 GSI Criteria that are hardness- or pH-dependent were calculated based on a hardness of 267 mg/L $CaCO_3$ and a pH of 7.9.

[11] At Plant 3, "overburden" groundwater is estimated to be present at approximately 40 ft bgs.

the databox figures when they are higher than the Part 201 Residential Drinking Water Criteria or Part 201 Residential Groundwater Volatilization to Indoor Air Inhalation Criteria.

For each Facility, “codes” are assigned to the concentrations in the databox figures identifying the specific screening levels exceeded.

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Plants 2, 3 and 6 Data Screening Tables

Table A-2a: Summary of Soil Screening against Residential and Water Protection Criteria
GM: Lansing Plant 2, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
15	VOC	Benzene	71-43-2	A	54	13	1.10E-03	2.50E+00		1.0E-01	**2.5E+01**	1.6E+00	**1.6E+00**	1.3E+01	1.9E-01	3.8E+05	6.6E-06	1.8E+02	1.4E-02	4.0E+00	6.3E-01
15	VOC	Chlorobenzene	108-90-7	D	54	3	2.00E-02	8.00E-02		2.0E+00	4.0E-02	1.2E+02	6.7E-04	7.7E+02	1.0E-04	4.7E+06	1.7E-08	2.6E+02	3.1E-04	9.4E-01	8.5E-02
15	VOC	Chloroethane	75-00-3	LC	54	3	6.70E-02	4.30E-01		8.6E+00	5.0E-02	9.5E+02	4.5E-04	3.0E+04	1.4E-05	6.7E+08	6.4E-10	9.5E+02	4.5E-04		
15	VOC	1,2-Dichlorobenzene	95-50-1	D	54	4	3.20E-02	7.50E-01		1.4E+01	5.4E-02	2.1E+02	3.6E-03	3.9E+04	1.9E-05	1.0E+08	7.5E-09	2.1E+02	3.6E-03	3.6E-01	**2.1E+00**
15	VOC	1,3-Dichlorobenzene	541-73-1	D	54	4	1.40E-02	1.60E-01		1.7E-01	9.4E-01							1.7E+02	9.4E-04	1.1E+00	1.5E-01
15	VOC	1,4-Dichlorobenzene	106-46-7	C	54	4	7.40E-02	5.00E-01		1.7E+00	2.9E-01	1.9E+01	2.6E-02	7.7E+01	6.5E-03	4.5E+05	1.1E-06	4.0E+02	1.3E-03	2.9E-01	**1.7E+00**
15	VOC	1,1-Dichloroethane	75-34-3	SC	54	30	1.10E-03	3.90E+00		1.8E+01	2.2E-01	2.3E+02	1.7E-02	2.1E+03	1.9E-03	3.3E+07	1.2E-07	8.9E+02	4.4E-03	1.5E+01	2.6E-01
15	VOC	1,1-Dichloroethene	75-35-4	C	54	17	1.10E-03	1.60E+01		1.4E-01	**1.1E+02**	6.2E-02	**2.6E+02**	1.1E+00	**1.5E+01**	6.2E+04	2.6E-04	2.0E+02	8.0E-02	1.3E+00	**1.2E+01**
15	VOC	1,2-Dichloropropane	78-87-5	B2	54	1	2.30E-02	2.30E-02		1.0E-01	2.3E-01	4.0E+00	5.8E-03	2.5E+01	9.2E-04	2.7E+05	8.5E-08	1.4E+02	1.6E-04	5.8E+00	4.0E-03
15	VOC	Ethyl Benzene	100-41-4	D	54	3	1.20E-01	1.30E+00		1.5E+00	8.7E-01	8.7E+01	1.5E-02	7.2E+02	1.8E-03	1.0E+07	1.3E-07	1.4E+02	9.3E-03	3.6E-01	**3.6E+00**
15	VOC	Methylene Chloride	75-09-2	B2	54	5	1.20E-03	5.70E-03		1.0E-01	5.7E-02	4.5E+01	1.3E-04	2.1E+02	2.7E-05	6.6E+06	8.6E-10	1.3E+03	4.4E-06	1.9E+01	3.0E-04
15	VOC	Tetrachloroethene	127-18-4	C-B2	54	4	3.10E-02	1.50E+00		1.0E-01	**1.5E+01**	1.1E+01	1.4E-01	1.8E+02	8.3E-03	5.4E+06	2.8E-07	8.8E+01	1.7E-02	9.0E-01	**1.7E+00**
15	VOC	Toluene	108-88-3	ID	54	37	1.20E-03	3.90E+00		1.6E+01	2.4E-01	2.5E+02	1.6E-02	2.8E+03	1.4E-03	2.7E+07	1.4E-07	2.5E+02	1.6E-02	2.8E+00	**1.4E+00**
15	VOC	1,1,1-Trichloroethane	71-55-6	ID	54	46	1.30E-03	3.10E+02		4.0E+00	**7.8E+01**	2.5E+02	**1.2E+00**	3.8E+03	8.2E-02	6.7E+07	4.6E-06	4.6E+02	6.7E-01	4.0E+00	**7.8E+01**
15	VOC	Trichloroethene	79-01-6	C-B2	54	1	1.40E-01	1.40E-01		1.0E-01	**1.4E+00**	7.1E+00	2.0E-02	7.8E+01	1.8E-03	1.8E+06	7.8E-08	5.0E+02	2.8E-04	4.0E+00	3.5E-02
15	VOC	Vinyl Chloride	75-01-4	A	54	1	1.00E-03	1.00E-03		4.0E-02	2.5E-02	2.7E-01	3.7E-03	4.2E+00	2.4E-04	3.5E+05	2.9E-09	3.8E+00	2.6E-04	3.0E-01	3.3E-03
15	VOC	Xylenes (total)	1330-20-7	ID	54	11	3.80E-03	4.90E+00		5.6E+00	8.8E-01	1.5E+02	3.3E-02	4.6E+04	1.1E-04	2.9E+08	1.7E-08	1.5E+02	3.3E-02	7.0E-01	**7.0E+00**
16	VOC	Benzene	71-43-2	A	38	1	2.30E-02	2.30E-02		1.0E-01	2.3E-01	1.6E+00	1.4E-02	1.3E+01	1.8E-03	3.8E+05	6.1E-08	1.8E+02	1.3E-04	4.0E+00	5.8E-03
16	VOC	Ethyl Benzene	100-41-4	D	38	7	1.60E-03	1.40E+00		1.5E+00	9.3E-01	8.7E+01	1.6E-02	7.2E+02	1.9E-03	1.0E+07	1.4E-07	1.4E+02	1.0E-02	3.6E-01	**3.9E+00**
16	VOC	Toluene	108-88-3	ID	38	4	1.00E-03	7.80E-01		1.6E+01	4.9E-02	2.5E+02	3.1E-03	2.8E+03	2.8E-04	2.7E+07	2.9E-08	2.5E+02	3.1E-03	2.8E+00	2.8E-01
16	VOC	Xylenes (total)	1330-20-7	ID	38	5	1.40E-02	8.00E+00		5.6E+00	**1.4E+00**	1.5E+02	5.3E-02	4.6E+04	1.7E-04	2.9E+08	2.8E-08	1.5E+02	5.3E-02	7.0E-01	**1.1E+01**
16	SVOC	Anthracene	120-12-7	D	23	1	1.80E+00	1.80E+00		4.1E+01	4.4E-02	1.0E+06	1.8E-06	1.4E+06	1.3E-06	6.7E+07	2.7E-08	2.3E+05	7.8E-06		
16	SVOC	Benzo(b)fluoranthene	205-99-2	B2	23	1	4.10E-01	4.10E-01										2.0E+01	2.1E-02		
16	SVOC	2-Methylnaphthalene	91-57-6	ID	13	3	4.00E-01	1.20E+00		5.7E+01	2.1E-02							8.1E+03	1.5E-04		
16	SVOC	Naphthalene	91-20-3	C	23	2	8.00E-01	3.00E+00		3.5E+01	8.6E-02	2.5E+02	1.2E-02	3.0E+02	1.0E-02	2.0E+05	1.5E-05	1.6E+04	1.9E-04	8.7E-01	**3.4E+00**
16	SVOC	Phenanthrene	85-01-8	D	23	1	1.60E+00	1.60E+00		5.6E+01	2.9E-02	2.8E+03	5.7E-04	1.6E+02	1.0E-02	6.7E+03	2.4E-04	1.6E+03	1.0E-03	5.3E+00	3.0E-01
16	PDIST	Petroleum Hydrocarbons	68334-30-5		15	11	2.30E-02	3.35E+01													
16	INORG	Cadmium	7440-43-9	B1	2	2	5.00E-01	6.00E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
16	INORG	Chromium VI	18540-29-9	A	2	2	1.10E+01	1.40E+01		3.0E+01	4.7E-01					2.6E+02	5.4E-02	2.5E+03	5.6E-03	3.3E+00	**4.2E+00**
16	INORG	Lead	7439-92-1	B2	21	21	2.10E+00	2.70E+01	2.10E+01	7.0E+02	8.6E-03					1.0E+05	6.0E-05	4.0E+02	1.5E-02	5.2E+03	1.2E-03

Notes:

Only constituents detected in each area are shown.

The criteria for 2-Methylnaphthalene are the criteria provided by the agency for Naphthalene.

The criteria for Phenanthrene are the criteria provided by the agency for Pyrene.

Ratios are calculated using the maximum detected concentrations, except for inorganics. Ratios for inorganics use the facility-related concentrations, which are those in excess of background.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM: Lansing Plant 2, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
15	VOC	Benzene	71-43-2	A	54	13	1.10E-03	2.50E+00		8.4E+00	3.0E-01	4.5E+01	5.6E-02	4.7E+05	5.3E-06	4.0E+02	6.3E-03	3.4E+01	7.5E-02
15	VOC	Chlorobenzene	108-90-7	D	54	3	2.00E-02	8.00E-02		2.2E+02	3.6E-04	9.2E+02	8.7E-05	2.1E+06	3.8E-08	2.6E+02	3.1E-04	7.7E+01	1.0E-03
15	VOC	Chloroethane	75-00-3	LC	54	3	6.70E-02	4.30E-01		9.5E+02	4.5E-04	3.6E+04	1.2E-05	2.9E+08	1.5E-09	9.5E+02	4.5E-04	1.9E+03	2.2E-04
15	VOC	1,2-Dichlorobenzene	95-50-1	D	54	4	3.20E-02	7.50E-01		2.1E+02	3.6E-03	4.6E+04	1.6E-05	4.4E+07	1.7E-08	2.1E+02	3.6E-03	5.3E+03	1.4E-04
15	VOC	1,3-Dichlorobenzene	541-73-1	D	54	4	1.40E-02	1.60E-01								1.7E+02	9.4E-04	3.1E+02	5.1E-04
15	VOC	1,4-Dichlorobenzene	106-46-7	C	54	4	7.40E-02	5.00E-01		1.0E+02	5.0E-03	2.6E+02	1.9E-03	5.7E+05	8.8E-07	1.9E+03	2.6E-04	2.9E+02	1.7E-03
15	VOC	1,1-Dichloroethane	75-34-3	SC	54	30	1.10E-03	3.90E+00		4.3E+02	9.1E-03	2.5E+03	1.6E-03	1.5E+07	2.6E-07	8.9E+02	4.4E-03	2.5E+03	1.5E-03
15	VOC	1,1-Dichloroethene	75-35-4	C	54	17	1.10E-03	1.60E+01		3.3E-01	**4.8E+01**	3.7E+00	**4.3E+00**	7.8E+04	2.1E-04	5.7E+02	2.8E-02	6.3E+01	2.5E-01
15	VOC	1,2-Dichloropropane	78-87-5	B2	54	1	2.30E-02	2.30E-02		7.4E+00	3.1E-03	3.0E+01	7.7E-04	1.2E+05	1.9E-07	5.5E+02	4.2E-05	9.6E+00	2.4E-03
15	VOC	Ethyl Benzene	100-41-4	D	54	3	1.20E-01	1.30E+00		1.4E+02	9.3E-03	2.4E+03	5.4E-04	1.3E+07	1.0E-07	1.4E+02	9.3E-03	1.1E+03	1.2E-03
15	VOC	Methylene Chloride	75-09-2	B2	54	5	1.20E-03	5.70E-03		2.4E+02	2.4E-05	7.0E+02	8.1E-06	8.3E+06	6.9E-10	2.3E+03	2.5E-06	7.6E+02	7.5E-06
15	VOC	Tetrachloroethene	127-18-4	C-B2	54	4	3.10E-02	1.50E+00		6.0E+01	2.5E-02	6.0E+02	2.5E-03	6.8E+06	2.2E-07	8.8E+01	1.7E-02	1.2E+02	1.2E-02
15	VOC	Toluene	108-88-3	ID	54	37	1.20E-03	3.90E+00		2.5E+02	1.6E-02	3.3E+03	1.2E-03	1.2E+07	3.3E-07	2.5E+02	1.6E-02	4.1E+03	9.6E-04
15	VOC	1,1,1-Trichloroethane	71-55-6	ID	54	46	1.30E-03	3.10E+02		4.6E+02	6.7E-01	4.5E+03	6.9E-02	2.9E+07	1.1E-05	4.6E+02	6.7E-01	9.7E+03	3.2E-02
15	VOC	Trichloroethene	79-01-6	C-B2	54	1	1.40E-01	1.40E-01		3.7E+01	3.8E-03	2.6E+02	5.4E-04	2.3E+06	6.1E-08	5.0E+02	2.8E-04	2.8E+02	5.0E-04
15	VOC	Vinyl Chloride	75-01-4	A	54	1	1.00E-03	1.00E-03		2.8E+00	3.6E-04	2.9E+01	3.4E-05	8.9E+05	1.1E-09	3.4E+01	2.9E-05	1.8E+01	5.7E-05
15	VOC	Xylenes (total)	1330-20-7	ID	54	11	3.80E-03	4.90E+00		1.5E+02	3.3E-02	5.4E+04	9.1E-05	1.3E+08	3.8E-08	1.5E+02	3.3E-02	3.6E+02	1.4E-02
16	VOC	Benzene	71-43-2	A	38	1	2.30E-02	2.30E-02		8.4E+00	2.7E-03	4.5E+01	5.1E-04	4.7E+05	4.9E-08	4.0E+02	5.8E-05	3.4E+01	6.9E-04
16	VOC	Ethyl Benzene	100-41-4	D	38	7	1.60E-03	1.40E+00		1.4E+02	1.0E-02	2.4E+03	5.8E-04	1.3E+07	1.1E-07	1.4E+02	1.0E-02	1.1E+03	1.3E-03
16	VOC	Toluene	108-88-3	ID	38	4	1.00E-03	7.80E-01		2.5E+02	3.1E-03	3.3E+03	2.4E-04	1.2E+07	6.5E-08	2.5E+02	3.1E-03	4.1E+03	1.9E-04
16	VOC	Xylenes (total)	1330-20-7	ID	38	5	1.40E-02	8.00E+00		1.5E+02	5.3E-02	5.4E+04	1.5E-04	1.3E+08	6.2E-08	1.5E+02	5.3E-02	3.6E+02	2.2E-02
16	SVOC	Anthracene	120-12-7	D	23	1	1.80E+00	1.80E+00		1.0E+06	1.8E-06	1.6E+06	1.1E-06	2.9E+07	6.2E-08	7.3E+05	2.5E-06	1.1E+06	1.7E-06
16	SVOC	Benzo(b)fluoranthene	205-99-2	B2	23	1	4.10E-01	4.10E-01								8.0E+01	5.1E-03	3.3E+02	1.3E-03
16	SVOC	2-Methylnaphthalene	91-57-6	ID	13	3	4.00E-01	1.20E+00								2.6E+04	4.6E-05	6.2E+01	1.9E-02
16	SVOC	Naphthalene	91-20-3	C	23	2	8.00E-01	3.00E+00		4.7E+02	6.4E-03	3.5E+02	8.6E-03	8.8E+04	3.4E-05	5.2E+04	5.8E-05	3.4E+01	8.7E-02
16	SVOC	Phenanthrene	85-01-8	D	23	1	1.60E+00	1.60E+00		5.1E+03	3.1E-04	1.9E+02	8.4E-03	2.9E+03	5.5E-04	5.2E+03	3.1E-04	7.3E+04	2.2E-05
16	PDIST	Petroleum Hydrocarbons	68334-30-5		15	11	2.30E-02	3.35E+01											
16	INORG	Cadmium	7440-43-9	B1	2	2	5.00E-01	6.00E-01	1.20E+00					2.2E+03		2.1E+03		4.3E+02	
16	INORG	Chromium VI	18540-29-9	A	2	2	1.10E+01	1.40E+01						2.4E+02	5.8E-02	9.2E+03	1.5E-03	5.7E+02	2.5E-02
16	INORG	Lead	7439-92-1	B2	21	21	2.10E+00	2.70E+01	2.10E+01					4.4E+04	1.4E-04	9.0E+02	6.7E-03		

Notes:

Only constituents detected in each area are shown.

The criteria for 2-Methylnaphthalene are the criteria provided by the agency for Naphthalene.

The criteria for Phenanthrene are the criteria provided by the agency for Pyrene.

Ratios are calculated using the maximum detected concentrations, except for inorganics. Ratios for inorganics use the facility-related concentrations, which are those in excess of background.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-2c: Soil Samples Exceeding Screening Criteria
GM: Lansing Plant 2, Lansing, Michigan

Area	Location	Sample ID	Sample Type	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	CASRN	Conc	Qual	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Conc to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Conc to Residential Direct Contact Criteria	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Industrial Particulate Inhalation Criteria	Industrial/ Commercial II Direct Contact Criteria (mg/kg)	Ratio of Conc to Industrial/ Commercial II Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Conc to GSI Protection Criteria	Risk-Based Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Conc to Risk-Based Construction Worker Soil Contact Criteria	Deepest Soil Sample
15	B-1	B-1-22.5	N	22.5	30	06/13/89	VOC	1,1-Dichloroethene	75-35-4	8.40E-02			1.4E-01	6.0E-01	6.2E-02	**1.4E+00**	1.1E+00	7.6E-02	6.2E+04	1.4E-06	2.0E+02	4.2E-04	3.3E-01	2.5E-01	3.7E+00	2.3E-02	7.8E+04	1.1E-06	5.7E+02	1.5E-04	1.3E+00	6.5E-02	6.3E+01	1.3E-03	Yes
15	B-2	B-2-00.0	N	0	7.5	06/15/89	VOC	Benzene	71-43-2	2.50E+00			1.0E-01	2.5E+01	1.6E+00	**1.6E+00**	1.3E+01	1.9E-01	3.8E+05	6.6E-06	1.8E+02	1.4E-02	8.4E+00	3.0E-01	4.5E+01	5.6E-02	4.7E+05	5.3E-06	4.0E+02	6.3E-03	4.0E+00	6.3E-01	3.4E+01	7.5E-02	No
15	B-2	B-2-00.0	N	0	7.5	06/15/89	VOC	1,1-Dichloroethene	75-35-4	1.20E+00			1.4E-01	8.6E+00	6.2E-02	**1.9E+01**	1.1E+00	**1.1E+00**	6.2E+04	1.9E-05	2.0E+02	6.0E-03	3.3E-01	**3.6E+00**	3.7E+00	3.2E-01	7.8E+04	1.5E-05	5.7E+02	2.1E-03	1.3E+00	9.2E-01	6.3E+01	1.9E-02	No
15	B-2	B-2-07.5	N	7.5	15	06/15/89	VOC	1,1-Dichloroethene	75-35-4	9.10E-02			1.4E-01	6.5E-01	6.2E-02	**1.5E+00**	1.1E+00	8.3E-02	6.2E+04	1.5E-06	2.0E+02	4.6E-04	3.3E-01	2.8E-01	3.7E+00	2.5E-02	7.8E+04	1.2E-06	5.7E+02	1.6E-04	1.3E+00	7.0E-02	6.3E+01	1.4E-03	No
15	B-4	B-4-15.0	N	15	22.5	06/14/89	VOC	1,1-Dichloroethene	75-35-4	9.40E-02			1.4E-01	6.7E-01	6.2E-02	**1.5E+00**	1.1E+00	8.5E-02	6.2E+04	1.5E-06	2.0E+02	4.7E-04	3.3E-01	2.8E-01	3.7E+00	2.5E-02	7.8E+04	1.2E-06	5.7E+02	1.6E-04	1.3E+00	7.2E-02	6.3E+01	1.5E-03	No
15	B-6	B-6-00.0	N	0	7.5	06/12/89	VOC	1,1-Dichloroethene	75-35-4	7.60E-02			1.4E-01	5.4E-01	6.2E-02	**1.2E+00**	1.1E+00	6.9E-02	6.2E+04	1.2E-06	2.0E+02	3.8E-04	3.3E-01	2.3E-01	3.7E+00	2.1E-02	7.8E+04	9.7E-07	5.7E+02	1.3E-04	1.3E+00	5.8E-02	6.3E+01	1.2E-03	No
15	B-7	B-7-00.0	N	0	7.5	06/12/89	VOC	1,1-Dichloroethene	75-35-4	1.80E-01			1.4E-01	1.3E+00	6.2E-02	**2.9E+00**	1.1E+00	1.6E-01	6.2E+04	2.9E-06	2.0E+02	9.0E-04	3.3E-01	5.5E-01	3.7E+00	4.9E-02	7.8E+04	2.3E-06	5.7E+02	3.2E-04	1.3E+00	1.4E-01	6.3E+01	2.9E-03	No
15	B-7	B-7-00.0	N	0	7.5	06/12/89	VOC	1,1,1-Trichloroethane	71-55-6	3.10E+02			4.0E+00	7.8E+01	2.5E+02	**1.2E+00**	3.8E+03	8.2E-02	6.7E+07	4.6E-06	4.6E+02	6.7E-01	4.6E+02	6.7E-01	4.5E+03	6.9E-02	2.9E+07	1.1E-05	4.6E+02	6.7E-01	4.0E+00	7.8E+01	9.7E+03	3.2E-02	No
15	B-7	B-7-07.5	N	7.5	15	06/12/89	VOC	1,1-Dichloroethene	75-35-4	1.60E+01			1.4E-01	**1.1E+02**	6.2E-02	**2.6E+02**	1.1E+00	**1.5E+01**	6.2E+04	2.6E-04	2.0E+02	8.0E-02	3.3E-01	**4.8E+01**	3.7E+00	**4.3E+00**	7.8E+04	2.1E-04	5.7E+02	2.8E-02	1.3E+00	**1.2E+01**	6.3E+01	2.5E-01	Yes
15	B-7	B-7-07.5	N	7.5	15	06/12/89	VOC	Tetrachloroethene	127-18-4	1.20E-01			1.0E-01	**1.2E+00**	1.1E+01	1.1E-02	1.8E+02	6.7E-04	5.4E+06	2.2E-08	8.8E+01	1.4E-03	6.0E+01	2.0E-03	6.0E+02	2.0E-04	6.8E+06	1.8E-08	8.8E+01	1.4E-03	9.0E-01	1.3E-01	1.2E+02	9.9E-04	Yes
15	B-7	B-7-07.5	N	7.5	15	06/12/89	VOC	Toluene	108-88-3	3.90E+00			1.6E+01	2.4E-01	2.5E+02	1.6E-02	2.8E+03	1.4E-03	2.7E+07	1.4E-07	2.5E+02	1.6E-02	2.5E+02	1.6E-02	3.3E+03	1.2E-03	1.2E+07	3.3E-07	2.5E+02	1.6E-02	2.8E+00	**1.4E+00**	4.1E+03	9.6E-04	Yes
15	B-7	B-7-07.5	N	7.5	15	06/12/89	VOC	1,1,1-Trichloroethane	71-55-6	3.10E+02			4.0E+00	**7.8E+01**	2.5E+02	**1.2E+00**	3.8E+03	8.2E-02	6.7E+07	4.6E-06	4.6E+02	6.7E-01	4.6E+02	6.7E-01	4.5E+03	6.9E-02	2.9E+07	1.1E-05	4.6E+02	6.7E-01	4.0E+00	**7.8E+01**	9.7E+03	3.2E-02	Yes
15	B-7	B-7-07.5	N	7.5	15	06/12/89	VOC	Trichloroethene	79-01-6	1.40E-01			1.0E-01	**1.4E+00**	7.1E+00	2.0E-02	7.8E+01	1.8E-03	1.8E+06	7.8E-08	5.0E+02	2.8E-04	3.7E+01	3.8E-03	2.6E+02	5.4E-04	2.3E+06	6.1E-08	5.0E+02	2.8E-04	4.0E+00	3.5E-02	2.8E+02	5.0E-04	Yes
15	TP-4	TP-4-02.5	N	2.5	2.5	10/31/93	VOC	Benzene	71-43-2	1.30E-01			1.0E-01	**1.3E+00**	1.6E+00	8.1E-02	1.3E+01	1.0E-02	3.8E+05	3.4E-07	1.8E+02	7.2E-04	8.4E+00	1.5E-02	4.5E+01	2.9E-03	4.7E+05	2.8E-07	4.0E+02	3.3E-04	4.0E+00	3.3E-02	3.4E+01	3.9E-03	Yes
15	TP-4	TP-4-02.5	N	2.5	2.5	10/31/93	VOC	Ethyl Benzene	100-41-4	1.30E+00			1.5E+00	8.7E-01	8.7E+01	1.5E-02	7.2E+02	1.8E-03	1.0E+07	1.3E-07	1.4E+02	9.3E-03	1.4E+02	9.3E-03	2.4E+03	5.4E-04	1.3E+07	1.0E-07	1.4E+02	9.3E-03	3.6E-01	**3.6E+00**	1.1E+03	1.2E-03	Yes
15	TP-4	TP-4-02.5	N	2.5	2.5	10/31/93	VOC	Xylenes (total)	1330-20-7	4.90E+00			5.6E+00	8.8E-01	1.5E+02	3.3E-02	4.6E+04	1.1E-04	2.9E+08	1.7E-08	1.5E+02	3.3E-02	1.5E+02	3.3E-02	5.4E+04	9.1E-05	1.3E+08	3.8E-08	1.5E+02	3.3E-02	7.0E-01	**7.0E+00**	3.6E+02	1.4E-02	Yes
16	B25012	B25012-04.0	N	4	6	04/19/91	INORG	Chromium VI	18540-29-9	1.10E+01			3.0E+01	3.7E-01					2.6E+02	4.2E-02	2.5E+03	4.4E-03					2.4E+02	4.6E-02	9.2E+03	1.2E-03	3.3E+00	**3.3E+00**	5.7E+02	1.9E-02	Yes
16	B25013	B25013-04.0	N	4	6	04/19/91	INORG	Chromium VI	18540-29-9	1.40E+01			3.0E+01	4.7E-01					2.6E+02	5.4E-02	2.5E+03	5.6E-03					2.4E+02	5.8E-02	9.2E+03	1.5E-03	3.3E+00	**4.2E+00**	5.7E+02	2.5E-02	Yes
16	S250N	S250N-10.0	N	10	12	10/11/91	VOC	Ethyl Benzene	100-41-4	1.40E+00			1.5E+00	9.3E-01	8.7E+01	1.6E-02	7.2E+02	1.9E-03	1.0E+07	1.4E-07	1.4E+02	1.0E-02	1.4E+02	1.0E-02	2.4E+03	5.8E-04	1.3E+07	1.1E-07	1.4E+02	1.0E-02	3.6E-01	**3.9E+00**	1.1E+03	1.3E-03	Yes
16	S250N	S250N-10.0	N	10	12	10/11/91	VOC	Xylenes (total)	1330-20-7	7.80E+00			5.6E+00	**1.4E+00**	1.5E+02	5.2E-02	4.6E+04	1.7E-04	2.9E+08	2.7E-08	1.5E+02	5.2E-02	1.5E+02	5.2E-02	5.4E+04	1.4E-04	1.3E+08	6.0E-08	1.5E+02	5.2E-02	7.0E-01	**1.1E+01**	3.6E+02	2.2E-02	Yes
16	S250N	S250N-10.0	N	10	12	10/11/91	SVOC	Naphthalene	91-20-3	3.00E+00			3.5E+01	8.6E-02	2.5E+02	1.2E-02	3.0E+02	1.0E-02	2.0E+05	1.5E-05	1.6E+04	1.9E-04	4.7E+02	6.4E-03	3.5E+02	8.6E-03	8.8E+04	3.4E-05	5.2E+04	5.8E-05	8.7E-01	**3.4E+00**	3.4E+01	8.7E-02	Yes

Notes:

Sample Types: "N" = normal or parent sample, "FD" = field duplicate sample

Ratios for inorganics use the facility-related concentrations, which are those in excess of background.

Ratios of concentrations to groundwater protection criteria are only highlighted for the deepest sample in the boring in which that chemical was analyzed.

Table A-3a: Groundwater Screening Results
GM Lansing Plant 2, Lansing, Michigan

Area	Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Max Detected (mg/L)	Residential Drinking Water Criteria (mg/L)	Ratio of Max Detected to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Max Detected to Groundwater Surface water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
15	Overburden	VOC	Benzene	71-43-2	T	A	7	1	8.98E-01	8.98E-01	5.0E-03	**1.8E+02**	2.0E-01	**4.5E+00**	5.6E+00	1.6E-01	1.1E+01	8.2E-02
15	Overburden	VOC	Chloroethane	75-00-3	T	LC	7	3	5.20E-03	1.36E+00	4.3E-01	**3.2E+00**			5.7E+03	2.4E-04	4.4E+02	3.1E-03
15	Overburden	VOC	1,1-Dichloroethane	75-34-3	T	SC	7	2	9.00E-03	3.01E+01	8.8E-01	**3.4E+01**	7.4E-01	**4.1E+01**	1.0E+03	3.0E-02	2.4E+03	1.3E-02
15	Overburden	VOC	1,2-Dichloroethane	107-06-2	T	B2	7	2	1.00E-03	2.27E-01	5.0E-03	**4.5E+01**	3.6E-01	6.3E-01	9.6E+00	2.4E-02	1.9E+01	1.2E-02
15	Overburden	VOC	1,1-Dichloroethene	75-35-4	T	C	7	1	2.20E+00	2.20E+00	7.0E-03	**3.1E+02**	6.5E-02	**3.4E+01**	2.0E-01	**1.1E+01**	1.1E+01	2.0E-01
15	Overburden	VOC	trans-1,2-Dichloroethene	156-60-5	T		7	1	9.05E-01	9.05E-01	1.0E-01	**9.1E+00**	1.5E+00	6.0E-01	8.5E+01	1.1E-02	2.2E+02	4.1E-03
15	Overburden	VOC	Ethyl Benzene	100-41-4	T	D	7	1	8.90E-03	8.90E-03	7.0E-01	1.3E-02	1.8E-02	4.9E-01	1.1E+02	8.1E-05	1.7E+02	5.2E-05
15	Overburden	VOC	Tetrachloroethene	127-18-4	T	C-B2	7	1	2.14E-02	2.14E-02	5.0E-03	**4.3E+00**	4.5E-02	4.8E-01	2.5E+01	8.6E-04	1.2E+01	1.8E-03
15	Overburden	VOC	Toluene	108-88-3	T	ID	7	1	1.56E+00	1.56E+00	1.0E+00	**1.6E+00**	1.4E-01	**1.1E+01**	5.3E+02	2.9E-03	5.3E+02	2.9E-03
15	Overburden	VOC	1,1,1-Trichloroethane	71-55-6	T	ID	7	1	9.72E+01	9.72E+01	2.0E-01	**4.9E+02**	2.0E-01	**4.9E+02**	6.6E+02	1.5E-01	1.3E+03	7.5E-02
15	Overburden	VOC	1,1,2-Trichloroethane	79-00-5	T	C	7	1	4.87E-01	4.87E-01	5.0E-03	**9.7E+01**	3.3E-01	**1.5E+00**	1.7E+01	2.9E-02	2.1E+01	2.3E-02
15	Overburden	VOC	Trichloroethene	79-01-6	T	C-B2	7	1	1.44E-01	1.44E-01	5.0E-03	**2.9E+01**	2.0E-01	7.2E-01	1.5E+01	9.6E-03	2.2E+01	6.5E-03
15	Overburden	VOC	Vinyl Chloride	75-01-4	T	A	7	1	1.74E-02	1.74E-02	2.0E-03	**8.7E+00**	1.5E-02	**1.2E+00**	1.1E+00	1.6E-02	1.0E+00	1.7E-02
16	Overburden	VOC	Xylenes (total)	1330-20-7	T	ID	4	1	2.10E-02	2.10E-02	1.0E+01	2.1E-03	3.5E-02	6.0E-01	1.9E+02	1.1E-04	1.9E+02	1.1E-04
16	Overburden	SVOC	Fluorene	86-73-7	T	D	4	1	2.10E-02	2.10E-02	8.8E-01	2.4E-02	1.2E-02	**1.8E+00**	2.0E+00	1.1E-02	2.0E+00	1.1E-02
16	Overburden	SVOC	Naphthalene	91-20-3	T	C	4	1	2.10E-02	2.10E-02	5.2E-01	4.0E-02	1.3E-02	**1.6E+00**	3.1E+01	6.8E-04	3.1E+01	6.8E-04
16	Overburden	SVOC	Phenanthrene	85-01-8	T	D	4	1	6.60E-02	6.60E-02	5.2E-02	**1.3E+00**	2.4E-03	**2.8E+01**	1.0E+00	6.6E-02	1.0E+00	6.6E-02

Notes:

Only constituents detected in each area are shown.

The criteria for Phenanthrene are the criteria provided by the agency for Pyrene.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Meas Basis - measured basis; T = total, D = dissolved

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 2, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	Benzene	71-43-2	8.98E-01		5.0E-03	**1.8E+02**	2.0E-01	**4.5E+00**	5.6E+00	1.6E-01	1.1E+01	8.2E-02
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	Chloroethane	75-00-3	1.36E+00		4.3E-01	**3.2E+00**			5.7E+03	2.4E-04	4.4E+02	3.1E-03
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	1,1-Dichloroethane	75-34-3	3.01E+01		8.8E-01	**3.4E+01**	7.4E-01	**4.1E+01**	1.0E+03	3.0E-02	2.4E+03	1.3E-02
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	1,2-Dichloroethane	107-06-2	2.27E-01		5.0E-03	**4.5E+01**	3.6E-01	6.3E-01	9.6E+00	2.4E-02	1.9E+01	1.2E-02
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	1,1-Dichloroethene	75-35-4	2.20E+00		7.0E-03	**3.1E+02**	6.5E-02	**3.4E+01**	2.0E-01	**1.1E+01**	1.1E+01	2.0E-01
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	trans-1,2-Dichloroethene	156-60-5	9.05E-01		1.0E-01	**9.1E+00**	1.5E+00	6.0E-01	8.5E+01	1.1E-02	2.2E+02	4.1E-03
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	Tetrachloroethene	127-18-4	2.14E-02		5.0E-03	**4.3E+00**	4.5E-02	4.8E-01	2.5E+01	8.6E-04	1.2E+01	1.8E-03
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	Toluene	108-88-3	1.56E+00		1.0E+00	**1.6E+00**	1.4E-01	**1.1E+01**	5.3E+02	2.9E-03	5.3E+02	2.9E-03
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	1,1,1-Trichloroethane	71-55-6	9.72E+01		2.0E-01	**4.9E+02**	2.0E-01	**4.9E+02**	6.6E+02	1.5E-01	1.3E+03	7.5E-02
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	1,1,2-Trichloroethane	79-00-5	4.87E-01		5.0E-03	**9.7E+01**	3.3E-01	**1.5E+00**	1.7E+01	2.9E-02	2.1E+01	2.3E-02
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	Trichloroethene	79-01-6	1.44E-01		5.0E-03	**2.9E+01**	2.0E-01	7.2E-01	1.5E+01	9.6E-03	2.2E+01	6.5E-03
15	Overburden	MW-8	MW-8-19850701	N	07/01/85	T	VOC	Vinyl Chloride	75-01-4	1.74E-02		2.0E-03	**8.7E+00**	1.5E-02	**1.2E+00**	1.1E+00	1.6E-02	1.0E+00	1.7E-02
16	Overburden	W-250	W-250-19910426	N	04/26/91	T	SVOC	Fluorene	86-73-7	2.10E-02		8.8E-01	2.4E-02	1.2E-02	**1.8E+00**	2.0E+00	1.1E-02	2.0E+00	1.1E-02
16	Overburden	W-250	W-250-19910426	N	04/26/91	T	SVOC	Naphthalene	91-20-3	2.10E-02		5.2E-01	4.0E-02	1.3E-02	**1.6E+00**	3.1E+01	6.8E-04	3.1E+01	6.8E-04
16	Overburden	W-250	W-250-19910426	N	04/26/91	T	SVOC	Phenanthrene	85-01-8	6.60E-02		5.2E-02	**1.3E+00**	2.4E-03	**2.8E+01**	1.0E+00	6.6E-02	1.0E+00	6.6E-02

Notes:

Sample Types: "N" = normal or parent sample, "FD" = field duplicate sample

Meas Basis - measured basis; T = total, D = dissolved

Table A-2a: Summary of Soil Screening against Residential and Water Protection Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
10	INORG	Arsenic	7440-38-2	A	251	251	6.30E-01	4.20E+01	5.80E+00	4.6E+00	**7.9E+00**					7.2E+02	5.0E-02	7.6E+00	**4.8E+00**	7.0E+01	5.2E-01
10	INORG	Cadmium	7440-43-9	B1	250	4	2.00E-01	6.50E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
10	INORG	Chromium (total)	7440-47-3		25	25	3.30E+00	4.60E+03		3.0E+01	**1.5E+02**					2.6E+02	**1.8E+01**	2.5E+03	**1.8E+00**	3.3E+00	**1.4E+03**
10	INORG	Chromium III	16065-83-1	D	250	250	3.30E+00	4.07E+01	1.80E+01	1.0E+06	2.3E-05					3.3E+05	6.9E-05	7.9E+05	2.9E-05	4.8E+06	4.8E-06
10	INORG	Copper	7440-50-8	D	418	404	5.70E-01	1.50E+03	3.20E+01	5.8E+03	2.5E-01					1.3E+05	1.1E-02	2.0E+04	7.3E-02	1.2E+02	**1.2E+01**
10	INORG	Cyanide (total)	57-12-5	D	409	132	5.00E+00	2.07E+03	3.90E-01	4.0E+00	**5.2E+02**					2.5E+02	**8.3E+00**	1.2E+01	**1.7E+02**	1.0E-01	**2.1E+04**
10	INORG	Lead	7439-92-1	B2	250	244	1.30E+00	1.30E+01	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
10	INORG	Nickel	7440-02-0	A	386	386	2.50E+00	1.20E+04	2.00E+01	1.0E+02	**1.2E+02**					1.3E+04	9.2E-01	4.0E+04	3.0E-01	1.2E+02	**9.7E+01**
10	INORG	Zinc	7440-66-6	ID	375	375	7.30E+00	1.96E+02	4.70E+01	2.4E+03	6.2E-02							1.7E+05	8.8E-04	2.7E+02	5.5E-01
6	INORG	Chromium (total)	7440-47-3		6	6	7.10E+00	2.00E+01		3.0E+01	6.7E-01					2.6E+02	7.7E-02	2.5E+03	8.0E-03	3.3E+00	**6.1E+00**
6	INORG	Copper	7440-50-8	D	6	6	1.20E+01	2.10E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
6	INORG	Nickel	7440-02-0	A	31	31	1.40E+01	6.30E+03	2.00E+01	1.0E+02	**6.3E+01**					1.3E+04	4.8E-01	4.0E+04	1.6E-01	1.2E+02	**5.1E+01**
6	INORG	Zinc	7440-66-6	ID	6	6	2.80E+01	9.90E+01	4.70E+01	2.4E+03	2.2E-02							1.7E+05	3.1E-04	2.7E+02	1.9E-01
9	VOC	Benzene	71-43-2	A	149	23	1.00E-02	5.70E+00		1.0E-01	**5.7E+01**	1.6E+00	**3.6E+00**	1.3E+01	4.4E-01	3.8E+05	1.5E-05	1.8E+02	3.2E-02	4.0E+00	**1.4E+00**
9	VOC	Chlorobenzene	108-90-7	D	86	2	2.80E-02	2.80E-02		2.0E+00	1.4E-02	1.2E+02	2.3E-04	7.7E+02	3.6E-05	4.7E+06	6.0E-09	2.6E+02	1.1E-04	9.4E-01	3.0E-02
9	VOC	Chloroethane	75-00-3	LC	86	2	2.70E-01	2.80E-01		8.6E+00	3.3E-02	9.5E+02	2.9E-04	3.0E+04	9.3E-06	6.7E+08	4.2E-10	9.5E+02	2.9E-04		
9	VOC	Chloroform	67-66-3	B2	86	2	1.20E-02	1.20E-02		1.6E+00	7.5E-03	7.2E+00	1.7E-03	4.5E+01	2.7E-04	1.3E+06	9.2E-09	1.2E+03	1.0E-05	3.4E+00	3.5E-03
9	VOC	1,1-Dichloroethane	75-34-3	SC	85	3	1.40E-02	3.60E-01		1.8E+01	2.0E-02	2.3E+02	1.6E-03	2.1E+03	1.7E-04	3.3E+07	1.1E-08	8.9E+02	4.0E-04	1.5E+01	2.4E-02
9	VOC	Ethyl Benzene	100-41-4	D	149	16	1.00E-02	5.80E+00		1.5E+00	**3.9E+00**	8.7E+01	6.7E-02	7.2E+02	8.1E-03	1.0E+07	5.8E-07	1.4E+02	4.1E-02	3.6E-01	**1.6E+01**
9	VOC	Methylene Chloride	75-09-2	B2	86	8	1.60E-02	2.70E-02		1.0E-01	2.7E-01	4.5E+01	6.0E-04	2.1E+02	1.3E-04	6.6E+06	4.1E-09	1.3E+03	2.1E-05	1.9E+01	1.4E-03
9	VOC	Toluene	108-88-3	ID	149	33	1.00E-02	2.00E+01		1.6E+01	**1.3E+00**	2.5E+02	8.0E-02	2.8E+03	7.1E-03	2.7E+07	7.4E-07	2.5E+02	8.0E-02	2.8E+00	**7.1E+00**
9	VOC	1,1,1-Trichloroethane	71-55-6	ID	86	11	1.20E-02	2.60E+00		4.0E+00	6.5E-01	2.5E+02	1.0E-02	3.8E+03	6.8E-04	6.7E+07	3.9E-08	4.6E+02	5.7E-03	4.0E+00	6.5E-01
9	VOC	Trichloroethene	79-01-6	C-B2	86	1	4.20E-02	4.20E-02		1.0E-01	4.2E-01	7.1E+00	5.9E-03	7.8E+01	5.4E-04	1.8E+06	2.3E-08	5.0E+02	8.4E-05	4.0E+00	1.1E-02
9	VOC	Trichlorofluoromethane	75-69-4		86	4	1.40E-02	4.70E-02		5.2E+01	9.0E-04	5.6E+02	8.4E-05	9.2E+04	5.1E-07	3.8E+09	1.2E-11	5.6E+02	8.4E-05		
9	VOC	Vinyl Chloride	75-01-4	A	86	1	1.90E-01	1.90E-01		4.0E-02	**4.8E+00**	2.7E-01	7.0E-01	4.2E+00	4.5E-02	3.5E+05	5.4E-07	3.8E+00	5.0E-02	3.0E-01	6.3E-01
9	VOC	Xylenes (total)	1330-20-7	ID	149	23	3.50E-02	3.20E+01		5.6E+00	**5.7E+00**	1.5E+02	2.1E-01	4.6E+04	7.0E-04	2.9E+08	1.1E-07	1.5E+02	2.1E-01	7.0E-01	**4.6E+01**

Notes:

Only constituents detected in each area are shown.

The criteria for Benzo(g,h,i)perylene are the criteria provided by the agency for Pyrene.

The criteria for Chromium (total) are the criteria provided by the agency for Chromium VI, unless otherwise noted.

The criteria for Phenanthrene are the criteria provided by the agency for Pyrene.

The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the criteria for Xylenes (total).

Ratios are calculated using the maximum detected concentrations, except for inorganics. Ratios for inorganics use the facility-related concentrations, which are those in excess of background.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
10	INORG	Arsenic	7440-38-2	A	251	251	6.30E-01	4.20E+01	5.80E+00					9.1E+02	4.0E-02	3.7E+01	9.8E-01	1.9E+02	1.9E-01
10	INORG	Cadmium	7440-43-9	B1	250	4	2.00E-01	6.50E-01	1.20E+00					2.2E+03		2.1E+03		4.3E+02	
10	INORG	Chromium (total)	7440-47-3		25	25	3.30E+00	4.60E+03						2.4E+02	**1.9E+01**	9.2E+03	5.0E-01	5.7E+02	**8.1E+00**
10	INORG	Chromium III	16065-83-1	D	250	250	3.30E+00	4.07E+01	1.80E+01					1.5E+05	1.5E-04	1.0E+06	2.3E-05	7.6E+05	3.0E-05
10	INORG	Copper	7440-50-8	D	418	404	5.70E-01	1.50E+03	3.20E+01					5.9E+04	2.5E-02	7.3E+04	2.0E-02	2.0E+04	7.3E-02
10	INORG	Cyanide (total)	57-12-5	D	409	132	5.00E+00	2.07E+03	3.90E-01					2.5E+02	**8.3E+00**	2.5E+02	**8.3E+00**	1.0E+04	2.1E-01
10	INORG	Lead	7439-92-1	B2	250	244	1.30E+00	1.30E+01	2.10E+01					4.4E+04		9.0E+02			
10	INORG	Nickel	7440-02-0	A	386	386	2.50E+00	1.20E+04	2.00E+01					1.6E+04	7.5E-01	1.5E+05	8.0E-02	1.0E+04	**1.2E+00**
10	INORG	Zinc	7440-66-6	ID	375	375	7.30E+00	1.96E+02	4.70E+01							6.3E+05	2.4E-04	1.5E+05	9.9E-04
6	INORG	Chromium (total)	7440-47-3		6	6	7.10E+00	2.00E+01						2.4E+02	8.3E-02	9.2E+03	2.2E-03	5.7E+02	3.5E-02
6	INORG	Copper	7440-50-8	D	6	6	1.20E+01	2.10E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
6	INORG	Nickel	7440-02-0	A	31	31	1.40E+01	6.30E+03	2.00E+01					1.6E+04	3.9E-01	1.5E+05	4.2E-02	1.0E+04	6.1E-01
6	INORG	Zinc	7440-66-6	ID	6	6	2.80E+01	9.90E+01	4.70E+01							6.3E+05	8.3E-05	1.5E+05	3.4E-04
9	VOC	Benzene	71-43-2	A	149	23	1.00E-02	5.70E+00		8.4E+00	6.8E-01	4.5E+01	1.3E-01	4.7E+05	1.2E-05	4.0E+02	1.4E-02	3.4E+01	1.7E-01
9	VOC	Chlorobenzene	108-90-7	D	86	2	2.80E-02	2.80E-02		2.2E+02	1.3E-04	9.2E+02	3.0E-05	2.1E+06	1.3E-08	2.6E+02	1.1E-04	7.7E+01	3.6E-04
9	VOC	Chloroethane	75-00-3	LC	86	2	2.70E-01	2.80E-01		9.5E+02	2.9E-04	3.6E+04	7.8E-06	2.9E+08	9.7E-10	9.5E+02	2.9E-04	1.9E+03	1.4E-04
9	VOC	Chloroform	67-66-3	B2	86	2	1.20E-02	1.20E-02		3.8E+01	3.2E-04	1.5E+02	8.0E-05	1.6E+06	7.5E-09	1.5E+03	8.0E-06	1.7E+01	7.1E-04
9	VOC	1,1-Dichloroethane	75-34-3	SC	85	3	1.40E-02	3.60E-01		4.3E+02	8.4E-04	2.5E+03	1.4E-04	1.5E+07	2.4E-08	8.9E+02	4.0E-04	2.5E+03	1.4E-04
9	VOC	Ethyl Benzene	100-41-4	D	149	16	1.00E-02	5.80E+00		1.4E+02	4.1E-02	2.4E+03	2.4E-03	1.3E+07	4.5E-07	1.4E+02	4.1E-02	1.1E+03	5.3E-03
9	VOC	Methylene Chloride	75-09-2	B2	86	8	1.60E-02	2.70E-02		2.4E+02	1.1E-04	7.0E+02	3.9E-05	8.3E+06	3.3E-09	2.3E+03	1.2E-05	7.6E+02	3.6E-05
9	VOC	Toluene	108-88-3	ID	149	33	1.00E-02	2.00E+01		2.5E+02	8.0E-02	3.3E+03	6.1E-03	1.2E+07	1.7E-06	2.5E+02	8.0E-02	4.1E+03	4.9E-03
9	VOC	1,1,1-Trichloroethane	71-55-6	ID	86	11	1.20E-02	2.60E+00		4.6E+02	5.7E-03	4.5E+03	5.8E-04	2.9E+07	9.0E-08	4.6E+02	5.7E-03	9.7E+03	2.7E-04
9	VOC	Trichloroethene	79-01-6	C-B2	86	1	4.20E-02	4.20E-02		3.7E+01	1.1E-03	2.6E+02	1.6E-04	2.3E+06	1.8E-08	5.0E+02	8.4E-05	2.8E+02	1.5E-04
9	VOC	Trichlorofluoromethane	75-69-4		86	4	1.40E-02	4.70E-02		5.6E+02	8.4E-05	1.1E+05	4.3E-07	1.7E+09	2.8E-11	5.6E+02	8.4E-05	1.9E+03	2.5E-05
9	VOC	Vinyl Chloride	75-01-4	A	86	1	1.90E-01	1.90E-01		2.8E+00	6.8E-02	2.9E+01	6.6E-03	8.9E+05	2.1E-07	3.4E+01	5.6E-03	1.8E+01	1.1E-02
9	VOC	Xylenes (total)	1330-20-7	ID	149	23	3.50E-02	3.20E+01		1.5E+02	2.1E-01	5.4E+04	5.9E-04	1.3E+08	2.5E-07	1.5E+02	2.1E-01	3.6E+02	8.8E-02

Notes:

Only constituents detected in each area are shown.

The criteria for Benzo(g,h,i)perylene are the criteria provided by the agency for Pyrene.

The criteria for Chromium (total) are the criteria provided by the agency for Chromium VI, unless otherwise noted.

The criteria for Phenanthrene are the criteria provided by the agency for Pyrene.

The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the criteria for Xylenes (total).

Ratios are calculated using the maximum detected concentrations, except for inorganics. Ratios for inorganics use the facility-related concentrations, which are those in excess of background.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-2c: Soil Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Location	Sample ID	Sample Type	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	CASRN	Conc	Qual	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Conc to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Conc to Residential Direct Contact Criteria	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Industrial Particulate Inhalation Criteria	Industrial/ Commercial II Direct Contact Criteria (mg/kg)	Ratio of Conc to Industrial/ Commercial II Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Conc to GSI Protection Criteria	Deepest Soil Analysis - DWP	Deepest Soil Analysis - GSIP	Risk-Based Redevelop-ment Worker Soil Contact Criteria (mg/kg)	Ratio of Conc to Risk-Based Redevelop-ment Worker Soil Contact Criteria
10	13	13(11-12.5)	N	11	12.5	01/01/88	INORG	Copper	7440-50-8	3.90E+02		3.20E+01	5.8E+03	6.2E-02					1.3E+05	2.8E-03	2.0E+04	1.8E-02					5.9E+04	6.1E-03	7.3E+04	4.9E-03	1.2E+02	**3.0E+00**	No	Yes	2.0E+04	1.8E-02
10	13	13(11-12.5)	N	11	12.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.75E+02		3.90E-01	4.0E+00	4.4E+01					2.5E+02	7.0E-01	1.2E+01	**1.5E+01**					2.5E+02	7.0E-01	2.5E+02	7.0E-01	1.0E-01	**1.7E+03**	No	Yes	1.0E+04	1.7E-02
10	13	13(11-12.5)	N	11	12.5	01/01/88	INORG	Nickel	7440-02-0	4.70E+03		2.00E+01	1.0E+02	4.7E+01					1.3E+04	3.6E-01	4.0E+04	1.2E-01					1.6E+04	2.9E-01	1.5E+05	3.1E-02	1.2E+02	**3.8E+01**	No	Yes	1.0E+04	4.6E-01
10	13	13(43.5-45)	N	43.5	45	01/01/88	INORG	Arsenic	7440-38-2	4.20E+01		5.80E+00	4.6E+00	7.9E+00					7.2E+02	5.0E-02	7.6E+00	**4.8E+00**					9.1E+02	4.0E-02	3.7E+01	9.8E-01	7.0E+01	5.2E-01	No	No	1.9E+02	1.9E-01
10	13	13(6-7.5)	N	6	7.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.75E+01		3.90E-01	4.0E+00	4.3E+00					2.5E+02	6.8E-02	1.2E+01	**1.4E+00**					2.5E+02	6.8E-02	2.5E+02	6.8E-02	1.0E-01	1.7E+02	No	No	1.0E+04	1.7E-03
10	14	14(11-12.5)	N	11	12.5	01/01/88	INORG	Cyanide (total)	57-12-5	8.20E+02		3.90E-01	4.0E+00	2.0E+02					2.5E+02	**3.3E+00**	1.2E+01	**6.8E+01**					2.5E+02	**3.3E+00**	2.5E+02	**3.3E+00**	1.0E-01	8.2E+03	No	No	1.0E+04	8.1E-02
10	14	14(13.5-15)	N	13.5	15	01/01/88	INORG	Copper	7440-50-8	4.00E+02		3.20E+01	5.8E+03	6.3E-02					1.3E+05	2.8E-03	2.0E+04	1.8E-02					5.9E+04	6.2E-03	7.3E+04	5.0E-03	1.2E+02	**3.1E+00**	No	Yes	2.0E+04	1.8E-02
10	14	14(13.5-15)	N	13.5	15	01/01/88	INORG	Cyanide (total)	57-12-5	5.25E+02		3.90E-01	4.0E+00	1.3E+02					2.5E+02	**2.1E+00**	1.2E+01	**4.4E+01**					2.5E+02	**2.1E+00**	2.5E+02	**2.1E+00**	1.0E-01	**5.2E+03**	No	Yes	1.0E+04	5.2E-02
10	14	14(13.5-15)	N	13.5	15	01/01/88	INORG	Nickel	7440-02-0	1.90E+02		2.00E+01	1.0E+02	1.7E+00					1.3E+04	1.3E-02	4.0E+04	4.3E-03					1.6E+04	1.1E-02	1.5E+05	1.1E-03	1.2E+02	**1.4E+00**	No	Yes	1.0E+04	1.7E-02
10	14	14(16-17.5)	N	16	17.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.40E+02		3.90E-01	4.0E+00	**3.5E+01**					2.5E+02	5.6E-01	1.2E+01	**1.2E+01**					2.5E+02	5.6E-01	2.5E+02	5.6E-01	1.0E-01	1.4E+03	Yes	No	1.0E+04	1.4E-02
10	15	15(11-12.5)	N	11	12.5	01/01/88	INORG	Nickel	7440-02-0	6.50E+03		2.00E+01	1.0E+02	6.5E+01					1.3E+04	5.0E-01	4.0E+04	1.6E-01					1.6E+04	4.1E-01	1.5E+05	4.3E-02	1.2E+02	**5.2E+01**	No	Yes	1.0E+04	6.3E-01
10	16	16(11-12.5)	N	11	12.5	01/01/88	INORG	Nickel	7440-02-0	7.50E+03		2.00E+01	1.0E+02	7.5E+01					1.3E+04	5.8E-01	4.0E+04	1.9E-01					1.6E+04	4.7E-01	1.5E+05	5.0E-02	1.2E+02	**6.0E+01**	No	Yes	1.0E+04	7.3E-01
10	16	16(11-12.5)DP	FD	11	12.5	01/01/88	INORG	Nickel	7440-02-0	6.60E+03		2.00E+01	1.0E+02	6.6E+01					1.3E+04	5.1E-01	4.0E+04	1.6E-01					1.6E+04	4.1E-01	1.5E+05	4.4E-02	1.2E+02	**5.3E+01**	No	Yes	1.0E+04	6.4E-01
10	17	17(6-7.5)	N	6	7.5	01/01/88	INORG	Arsenic	7440-38-2	3.60E+01		5.80E+00	4.6E+00	6.6E+00					7.2E+02	4.2E-02	7.6E+00	**4.0E+00**					9.1E+02	3.3E-02	3.7E+01	8.2E-01	7.0E+01	4.3E-01	No	No	1.9E+02	1.6E-01
10	19	19(11-12.5)	N	11	12.5	01/01/88	INORG	Cyanide (total)	57-12-5	8.13E+01		3.90E-01	4.0E+00	2.0E+01					2.5E+02	3.2E-01	1.2E+01	**6.7E+00**					2.5E+02	3.2E-01	2.5E+02	3.2E-01	1.0E-01	**8.1E+02**	No	Yes	1.0E+04	8.0E-03
10	19	19(16-17.5)	N	16	17.5	01/01/88	INORG	Cyanide (total)	57-12-5	9.00E+01		3.90E-01	4.0E+00	2.2E+01					2.5E+02	3.6E-01	1.2E+01	**7.5E+00**					2.5E+02	3.6E-01	2.5E+02	3.6E-01	1.0E-01	9.0E+02	No	No	1.0E+04	8.9E-03
10	19	19(21-22.5)	N	21	22.5	01/01/88	INORG	Cyanide (total)	57-12-5	3.25E+01		3.90E-01	4.0E+00	8.0E+00					2.5E+02	1.3E-01	1.2E+01	**2.7E+00**					2.5E+02	1.3E-01	2.5E+02	1.3E-01	1.0E-01	3.2E+02	No	No	1.0E+04	3.2E-03
10	19	19(23.5-25)	N	23.5	25	01/01/88	INORG	Cyanide (total)	57-12-5	4.20E+01		3.90E-01	4.0E+00	**1.0E+01**					2.5E+02	1.7E-01	1.2E+01	**3.5E+00**					2.5E+02	1.7E-01	2.5E+02	1.7E-01	1.0E-01	4.2E+02	Yes	No	1.0E+04	4.1E-03
10	19	19(6-7.5)	N	6	7.5	01/01/88	INORG	Cyanide (total)	57-12-5	3.00E+01		3.90E-01	4.0E+00	7.4E+00					2.5E+02	1.2E-01	1.2E+01	**2.5E+00**					2.5E+02	1.2E-01	2.5E+02	1.2E-01	1.0E-01	3.0E+02	No	No	1.0E+04	2.9E-03
10	19	19(6-7.5)DP	FD	6	7.5	01/01/88	INORG	Cyanide (total)	57-12-5	3.75E+01		3.90E-01	4.0E+00	9.3E+00					2.5E+02	1.5E-01	1.2E+01	**3.1E+00**					2.5E+02	1.5E-01	2.5E+02	1.5E-01	1.0E-01	3.7E+02	No	No	1.0E+04	3.7E-03
10	20	20(16-17.5)	N	16	17.5	01/01/88	INORG	Cyanide (total)	57-12-5	3.20E+02		3.90E-01	4.0E+00	8.0E+01					2.5E+02	**1.3E+00**	1.2E+01	**2.7E+01**					2.5E+02	**1.3E+00**	2.5E+02	**1.3E+00**	1.0E-01	3.2E+03	No	No	1.0E+04	3.2E-02
10	21	21(11-12.5)	N	11	12.5	01/01/88	INORG	Copper	7440-50-8	7.60E+02		3.20E+01	5.8E+03	1.3E-01					1.3E+05	5.6E-03	2.0E+04	3.6E-02					5.9E+04	1.2E-02	7.3E+04	1.0E-02	1.2E+02	**6.1E+00**	No	Yes	2.0E+04	3.6E-02
10	21	21(11-12.5)	N	11	12.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.55E+02		3.90E-01	4.0E+00	3.9E+01					2.5E+02	6.2E-01	1.2E+01	**1.3E+01**					2.5E+02	6.2E-01	2.5E+02	6.2E-01	1.0E-01	**1.5E+03**	No	Yes	1.0E+04	1.5E-02
10	21	21(16-17.5)	N	16	17.5	01/01/88	INORG	Cyanide (total)	57-12-5	2.95E+02		3.90E-01	4.0E+00	7.4E+01					2.5E+02	**1.2E+00**	1.2E+01	**2.5E+01**					2.5E+02	**1.2E+00**	2.5E+02	**1.2E+00**	1.0E-01	2.9E+03	No	Yes	1.0E+04	2.9E-02
10	21	21(21-22.5)	N	21	22.5	01/01/88	INORG	Cyanide (total)	57-12-5	3.25E+01		3.90E-01	4.0E+00	8.0E+00					2.5E+02	1.3E-01	1.2E+01	**2.7E+00**					2.5E+02	1.3E-01	2.5E+02	1.3E-01	1.0E-01	3.2E+02	No	No	1.0E+04	3.2E-03
10	23	23(11-12.5)	N	11	12.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.00E+01		3.90E-01	4.0E+00	2.4E+00					2.5E+02	3.8E-02	1.2E+01	8.0E-01					2.5E+02	3.8E-02	2.5E+02	3.8E-02	1.0E-01	**9.6E+01**	No	Yes	1.0E+04	9.5E-04
10	23	23(23.5-25)	N	23.5	25	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	**3.7E+00**					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	Yes	No	1.0E+04	1.5E-03
10	24	24(23.5-25)	N	23.5	25	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	**3.7E+00**					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	Yes	No	1.0E+04	1.5E-03
10	25	25(23.5-25)	N	23.5	25	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	**2.4E+00**					2.5E+02	3.8E-02	1.2E+01	8.0E-01					2.5E+02	3.8E-02	2.5E+02	3.8E-02	1.0E-01	9.6E+01	Yes	No	1.0E+04	9.5E-04
10	26	26(16-17.5)	N	16	17.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	3.7E+00					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	No	No	1.0E+04	1.5E-03
10	26	26(23.5-25)	N	23.5	25	01/01/88	INORG	Cyanide (total)	57-12-5	1.25E+01		3.90E-01	4.0E+00	**3.0E+00**					2.5E+02	4.8E-02	1.2E+01	1.0E+00					2.5E+02	4.8E-02	2.5E+02	4.8E-02	1.0E-01	1.2E+02	Yes	No	1.0E+04	1.2E-03
10	27	27(1-2.5)	N	1	2.5	01/01/88	INORG	Arsenic	7440-38-2	1.70E+01		5.80E+00	4.6E+00	2.4E+00					7.2E+02	1.6E-02	7.6E+00	**1.5E+00**					9.1E+02	1.2E-02	3.7E+01	3.0E-01	7.0E+01	1.6E-01	No	No	1.9E+02	5.9E-02
10	27	27(21-22.5)	N	21	22.5	01/01/88	INORG	Arsenic	7440-38-2	1.60E+01		5.80E+00	4.6E+00	2.2E+00					7.2E+02	1.4E-02	7.6E+00	**1.3E+00**					9.1E+02	1.1E-02	3.7E+01	2.8E-01	7.0E+01	1.5E-01	No	No	1.9E+02	5.3E-02
10	27	27(23.5-25)	N	23.5	25	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	**3.0E+00**					2.5E+02	4.8E-02	1.2E+01	1.0E+00					2.5E+02	4.8E-02	2.5E+02	4.8E-02	1.0E-01	1.2E+02	Yes	No	1.0E+04	1.2E-03
10	28	28(28.5-30)	N	28.5	30	01/01/88	INORG	Cyanide (total)	57-12-5	3.50E+01		3.90E-01	4.0E+00	8.7E+00					2.5E+02	1.4E-01	1.2E+01	**2.9E+00**					2.5E+02	1.4E-01	2.5E+02	1.4E-01	1.0E-01	3.5E+02	No	No	1.0E+04	3.4E-03
10	28	28(48.5-50)	N	48.5	50	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	**3.7E+00**					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	Yes	No	1.0E+04	1.5E-03
10	30	30(11-12.5)	N	11	12.5	01/01/88	INORG	Cyanide (total)	57-12-5	3.40E+01		3.90E-01	4.0E+00	8.4E+00					2.5E+02	1.3E-01	1.2E+01	**2.8E+00**					2.5E+02	1.3E-01	2.5E+02	1.3E-01	1.0E-01	**3.4E+02**	No	Yes	1.0E+04	3.3E-03
10	30	30(11-12.5)	N	11	12.5	01/01/88	INORG	Nickel	7440-02-0	1.30E+03		2.00E+01	1.0E+02	1.3E+01					1.3E+04	9.8E-02	4.0E+04	3.2E-02					1.6E+04	8.0E-02	1.5E+05	8.5E-03	1.2E+02	**1.0E+01**	No	Yes	1.0E+04	1.3E-01
10	30	30(16-17.5)	N	16	17.5	01/01/88	INORG	Cyanide (total)	57-12-5	2.13E+02		3.90E-01	4.0E+00	5.3E+01					2.5E+02	8.5E-01	1.2E+01	**1.8E+01**					2.5E+02	8.5E-01	2.5E+02	8.5E-01	1.0E-01	2.1E+03	No	No	1.0E+04	2.1E-02
10	30	30(21-22.5)	N	21	22.5	01/01/88	INORG	Cyanide (total)	57-12-5	3.20E+02		3.90E-01	4.0E+00	8.0E+01					2.5E+02	**1.3E+00**	1.2E+01	**2.7E+01**					2.5E+02	**1.3E+00**	2.5E+02	**1.3E+00**	1.0E-01	3.2E+03	No	No	1.0E+04	3.2E-02
10	30	30(23.5-25)	N	23.5	25	01/01/88	INORG	Cyanide (total)	57-12-5	2.85E+02		3.90E-01	4.0E+00	**7.1E+01**					2.5E+02	**1.1E+00**	1.2E+01	**2.4E+01**					2.5E+02	**1.1E+00**	2.5E+02	**1.1E+00**	1.0E-01	2.8E+03	Yes	No	1.0E+04	2.8E-02
10	30	30(6-7.5)	N	6	7.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	3.7E+00					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	No	No	1.0E+04	1.5E-03
10	31	31(16-17.5)	N	16	17.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	3.7E+00					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	No	No	1.0E+04	1.5E-03
10	31	31(21-22.5)	N	21	22.5	01/01/88	INORG	Arsenic	7440-38-2	1.10E+01		5.80E+00	4.6E+00	**1.1E+00**					7.2E+02	7.2E-03	7.6E+00	6.8E-01					9.1E+02	5.7E-03	3.7E+01	1.4E-01	7.0E+01	7.4E-02	Yes	No	1.9E+02	2.7E-02
10	31	31(21-22.5)	N	21	22.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	3.7E+00					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	No	No	1.0E+04	1.5E-03
10	32	32(10-10.6)	N	10	10.6	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	**3.7E+00**					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	**1.5E+02**	Yes	No	1.0E+04	1.5E-03
10	33	33(21-22.5)	N	21	22.5	01/01/88	INORG	Arsenic	7440-38-2	2.10E+01		5.80E+00	4.6E+00	3.3E+00					7.2E+02	2.1E-02	7.6E+00	**2.0E+00**					9.1E+02	1.7E-02	3.7E+01	4.1E-01	7.0E+01	2.2E-01	No	No	1.9E+02	8.0E-02
10	35	35(21-22.5)	N	21	22.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.75E+01		3.90E-01	4.0E+00	4.3E+00					2.5E+02	6.8E-02	1.2E+01	**1.4E+00**					2.5E+02	6.8E-02	2.5E+02	6.8E-02	1.0E-01	1.7E+02	No	No	1.0E+04	1.7E-03
10	36	36(11-12.5)	N	11	12.5	01/01/88	INORG	Nickel	7440-02-0	3.70E+03		2.00E+01	1.0E+02	3.7E+01					1.3E+04	2.8E-01	4.0E+04	9.2E-02					1.6E+04	2.3E-01	1.5E+05	2.5E-02	1.2E+02	**3.0E+01**	No	Yes	1.0E+04	3.6E-01
10	37	37(11-12.5)	N	11	12.5	01/01/88	INORG	Nickel	7440-02-0	5.10E+02		2.00E+01	1.0E+02	4.9E+00					1.3E+04	3.8E-02	4.0E+04	1.2E-02					1.6E+04	3.1E-02	1.5E+05	3.3E-03	1.2E+02	**3.9E+00**	No	Yes	1.0E+04	4.8E-02
10	40	40(11-12.5)	N	11	12.5	01/01/88	INORG	Cyanide (total)	57-12-5	2.00E+01		3.90E-01	4.0E+00	3.7E+00					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	**1.5E+02**	No	Yes	1.0E+04	1.5E-03
10	40	40(11-12.5)DP	FD	11	12.5	01/01/88	INORG	Cyanide (total)	57-12-5	2.00E+01		3.90E-01	4.0E+00	3.7E+00					2.5E+02	7.8E-02	1.2E+01	**1.6E+00**					2.5E+02	7.8E-02	2.5E+02	7.8E-02	1.0E-01	**2.0E+02**	No	Yes	1.0E+04	1.9E-03
10	40	40(16-17.5)	N	16	17.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	3.7E+00					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	No	No	1.0E+04	1.5E-03
10	41	41(38.5-40)	N	38.5	40	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	3.7E+00					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	No	No	1.0E+04	1.5E-03
10	41	41(43.5-45)	N	43.5	45	01/01/88	INORG	Cyanide (total)	57-12-5	2.00E+01		3.90E-01	4.0E+00	4.9E+00					2.5E+02	7.8E-02	1.2E+01	**1.6E+00**					2.5E+02	7.8E-02	2.5E+02	7.8E-02	1.0E-01	2.0E+02	No	No	1.0E+04	1.9E-03
10	41	41(48.5-50)	N	48.5	50	01/01/88	INORG	Cyanide (total)	57-12-5	1.00E+01		3.90E-01	4.0E+00	**2.4E+00**					2.5E+02	3.8E-02	1.2E+01	8.0E-01					2.5E+02	3.8E-02	2.5E+02	3.8E-02	1.0E-01	9.6E+01	Yes	No	1.0E+04	9.5E-04
10	42	42(21-22.5)	N	21	22.5	01/01/88	INORG	Cyanide (total)	57-12-5	2.24E+01		3.90E-01	4.0E+00	5.5E+00					2.5E+02	8.8E-02	1.2E+01	**1.8E+00**					2.5E+02	8.8E-02	2.5E+02	8.8E-02	1.0E-01	2.2E+02	No	No	1.0E+04	2.2E-03
10	42	42(43.5-45)	N	43.5	45	01/01/88	INORG	Cyanide (total)	57-12-5	1.75E+01		3.90E-01	4.0E+00	4.3E+00					2.5E+02	6.8E-02	1.2E+01	**1.4E+00**					2.5E+02	6.8E-02	2.5E+02	6.8E-02	1.0E-01	1.7E+02	No	No	1.0E+04	1.7E-03
10	42	42(48.5-50)	N	48.5	50	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	**3.7E+00**					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	Yes	No	1.0E+04	1.5E-03
10	43	43(48.5-50)	N	48.5	50	01/01/88	INORG	Cyanide (total)	57-12-5	1.00E+01		3.90E-01	4.0E+00	**2.4E+00**					2.5E+02	3.8E-02	1.2E+01	8.0E-01					2.5E+02	3.8E-02	2.5E+02	3.8E-02	1.0E-01	9.6E+01	Yes	No	1.0E+04	9.5E-04
10	46	46(38.5-40)DP	FD	38.5	40	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	3.7E+00					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	No	No	1.0E+04	1.5E-03
10	46	46(43.5-45)	N	43.5	45	01/01/88	INORG	Cyanide (total)	57-12-5	1.75E+01		3.90E-01	4.0E+00	4.3E+00					2.5E+02	6.8E-02	1.2E+01	**1.4E+00**					2.5E+02	6.8E-02	2.5E+02	6.8E-02	1.0E-01	1.7E+02	No	No	1.0E+04	1.7E-03
10	46	46(48.5-50)	N	48.5	50	01/01/88	INORG	Cyanide (total)	57-12-5	1.50E+01		3.90E-01	4.0E+00	**3.7E+00**					2.5E+02	5.8E-02	1.2E+01	**1.2E+00**					2.5E+02	5.8E-02	2.5E+02	5.8E-02	1.0E-01	1.5E+02	Yes	No	1.0E+04	1.5E-03
10	50	50(21-22.5)	N	21	22.5	01/01/88	INORG	Cyanide (total)	57-12-5	1.00E+01		3.90E-01	4.0E+00	**2.4E+00**					2.5E+02	3.8E-02	1.2E+01	8.0E-01					2.5E+02	3.8E-02	2.5E+02	3.8E-02	1.0E-01	9.6E+01	Yes	No	1.0E+04	9.5E-04
10	55	55(48.5-50.5)	N	48.5	50.5	04/06/89	INORG	Cyanide (total)	57-12-5	2.50E+01		3.90E-01	4.0E+00	6.2E+00					2.5E+02	9.8E-02	1.2E+01	**2.1E+00**					2.5E+02	9.8E-02	2.5E+02	9.8E-02	1.0E-01	2.5E+02	No	No	1.0E+04	2.4E-03
10	62	62(10)	N	10	10	02/24/89	INORG	Cyanide (total)	57-12-5	8.50E+01		3.90E-01	4.0E+00	2.1E+01					2.5E+02	3.4E-01	1.2E+01	**7.1E+00**					2.5E+02	3.4E-01	2.5E+02	3.4E-01	1.0E-01	**8.5E+02**	No	Yes	1.0E+04	8.4E-03
10	62	62(20)	N	20	20	02/24/89	INORG	Cyanide (total)	57-12-5	2.50E+01		3.90E-01	4.0E+00	6.2E+00					2.5E+02	9.8E-02	1.2E+01	**2.1E+00**					2.5E+02	9.8E-02	2.5E+02	9.8E-02	1.0E-01	2.5E+02	No	No	1.0E+04	2.4E-03
10	62	62(40)	N	40	40	02/24/89	INORG	Cyanide (total)	57-12-5	2.00E+01		3.90E-01	4.0E+00	**4.9E+00**					2.5E+02	7.8E-02	1.2E+01	**1.6E+00**					2.5E+02	7.8E-02	2.5E+02	7.8E-02	1.0E-01	2.0E+02	Yes	No	1.0E+04	1.9E-03
10	63	63(10)	N	10	10	02/23/89	INORG	Cyanide (total)	57-12-5	1.00E+01		3.90E-01	4.0E+00	2.4E+00					2.5E+02	3.8E-02	1.2E+01	8.0E-01					2.5E+02	3.8E-02	2.5E+02	3.8E-02	1.0E-01	**9.6E+01**	No	Yes	1.0E+04	9.5E-04
10	63	63(10)	N	10	10	02/23/89	INORG	Nickel	7440-02-0	6.10E+03		2.00E

Table A-2c: Soil Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Location	Sample ID	Sample Type	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	CASRN	Conc	Qual	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Conc to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Conc to Residential Direct Contact Criteria	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Industrial Particulate Inhalation Criteria	Industrial/ Commercial II Direct Contact Criteria (mg/kg)	Ratio of Conc to Industrial/ Commercial II Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Conc to GSI Protection Criteria	Deepest Soil Analysis - DWP	Deepest Soil Analysis - GSIP	Risk-Based Redevelop-ment Worker Soil Contact Criteria (mg/kg)	Ratio of Conc to Risk-Based Redevelop-ment Worker Soil Contact Criteria
10	CH-1-G	CH-1-G(13)	N	13	13	05/15/89	INORG	Chromium (total)	7440-47-3	8.30E+01			3.0E+01	**2.8E+00**					2.6E+02	3.2E-01	2.5E+03	3.3E-02					2.4E+02	3.5E-01	9.2E+03	9.0E-03	3.3E+00	**2.5E+01**	Yes	Yes	5.7E+02	1.5E-01
10	CH-1-G	CH-1-G(13)	N	13	13	05/15/89	INORG	Nickel	7440-02-0	2.70E+02		2.00E+01	1.0E+02	**2.5E+00**					1.3E+04	1.9E-02	4.0E+04	6.3E-03					1.6E+04	1.6E-02	1.5E+05	1.7E-03	1.2E+02	**2.0E+00**	Yes	Yes	1.0E+04	2.4E-02
10	CH-2-B	CH-2-B(13-15.5)	N	13	15.5	07/18/89	INORG	Chromium (total)	7440-47-3	1.20E+02			3.0E+01	**4.0E+00**					2.6E+02	4.6E-01	2.5E+03	4.8E-02					2.4E+02	5.0E-01	9.2E+03	1.3E-02	3.3E+00	3.6E+01	Yes	No	5.7E+02	2.1E-01
10	CH-2-B	CH-2-B(15.5-18)	N	15.5	18	07/18/89	INORG	Chromium (total)	7440-47-3	3.30E+02			3.0E+01	**1.1E+01**					2.6E+02	**1.3E+00**	2.5E+03	1.3E-01					2.4E+02	**1.4E+00**	9.2E+03	3.6E-02	3.3E+00	**1.0E+02**	Yes	Yes	5.7E+02	5.8E-01
10	CH-2-G	CH-2-G(13)	N	13	13	05/15/89	INORG	Chromium (total)	7440-47-3	4.20E+03			3.0E+01	**1.4E+02**					2.6E+02	**1.6E+01**	2.5E+03	**1.7E+00**					2.4E+02	**1.8E+01**	9.2E+03	4.6E-01	3.3E+00	**1.3E+03**	No	Yes	5.7E+02	**7.4E+00**
10	CH-3-B	CH-3-B(13-15.5)	N	15.5	18	07/19/89	INORG	Chromium (total)	7440-47-3	2.60E+03			3.0E+01	**8.7E+01**					2.6E+02	**1.0E+01**	2.5E+03	1.0E+00					2.4E+02	**1.1E+01**	9.2E+03	2.8E-01	3.3E+00	7.9E+02	Yes	No	5.7E+02	**4.6E+00**
10	CH-3-G	CH-3-G(13)	N	13	13	05/15/89	INORG	Chromium (total)	7440-47-3	1.80E+03			3.0E+01	**6.0E+01**					2.6E+02	**6.9E+00**	2.5E+03	7.2E-01					2.4E+02	**7.5E+00**	9.2E+03	2.0E-01	3.3E+00	**5.5E+02**	Yes	Yes	5.7E+02	**3.2E+00**
10	CH-3-G	CH-3-G(13)	N	13	13	05/15/89	INORG	Copper	7440-50-8	2.10E+02		3.20E+01	5.8E+03	3.1E-02					1.3E+05	1.4E-03	2.0E+04	8.9E-03					5.9E+04	3.0E-03	7.3E+04	2.4E-03	1.2E+02	**1.5E+00**	Yes	Yes	2.0E+04	8.8E-03
10	CH-5	CH-5(5-8.5)	N	5	8.5	07/01/89	INORG	Chromium (total)	7440-47-3	1.10E+01			3.0E+01	3.7E-01					2.6E+02	4.2E-02	2.5E+03	4.4E-03					2.4E+02	4.6E-02	9.2E+03	1.2E-03	3.3E+00	**3.3E+00**	Yes	Yes	5.7E+02	1.9E-02
10	CH-6	CH-6(7-10.5)	N	7	10.5	07/01/89	INORG	Chromium (total)	7440-47-3	6.80E+01			3.0E+01	**2.3E+00**					2.6E+02	2.6E-01	2.5E+03	2.7E-02					2.4E+02	2.8E-01	9.2E+03	7.4E-03	3.3E+00	**2.1E+01**	Yes	Yes	5.7E+02	1.2E-01
10	CH-7	CH-7(7-10.5)	N	7	10.5	07/01/89	INORG	Chromium (total)	7440-47-3	7.40E+01			3.0E+01	**2.5E+00**					2.6E+02	2.8E-01	2.5E+03	3.0E-02					2.4E+02	3.1E-01	9.2E+03	8.0E-03	3.3E+00	**2.2E+01**	Yes	Yes	5.7E+02	1.3E-01
10	CH-7	CH-7(7-10.5)	N	7	10.5	07/01/89	INORG	Copper	7440-50-8	1.70E+02		3.20E+01	5.8E+03	2.4E-02					1.3E+05	1.1E-03	2.0E+04	6.9E-03					5.9E+04	2.3E-03	7.3E+04	1.9E-03	1.2E+02	**1.2E+00**	Yes	Yes	2.0E+04	6.9E-03
10	CH-8-B	CH-8-B(13-15.5)	N	13	15.5	07/20/89	INORG	Chromium (total)	7440-47-3	1.50E+03			3.0E+01	5.0E+01					2.6E+02	**5.8E+00**	2.5E+03	6.0E-01					2.4E+02	**6.3E+00**	9.2E+03	1.6E-01	3.3E+00	**4.5E+02**	No	Yes	5.7E+02	**2.6E+00**
10	CH-8-B	CH-8-B(15.5-18)	N	15.5	18	07/20/89	INORG	Chromium (total)	7440-47-3	9.30E+02			3.0E+01	**3.1E+01**					2.6E+02	**3.6E+00**	2.5E+03	3.7E-01					2.4E+02	**3.9E+00**	9.2E+03	1.0E-01	3.3E+00	2.8E+02	Yes	No	5.7E+02	**1.6E+00**
10	CH-8-G	CH-8-G(13)	N	13	13	05/15/89	INORG	Chromium (total)	7440-47-3	4.00E+02			3.0E+01	**1.3E+01**					2.6E+02	**1.5E+00**	2.5E+03	1.6E-01					2.4E+02	**1.7E+00**	9.2E+03	4.3E-02	3.3E+00	**1.2E+02**	Yes	Yes	5.7E+02	7.0E-01
10	CH-9-B	CH-9-B(13-15.5)	N	13	15.5	07/18/89	INORG	Chromium (total)	7440-47-3	2.50E+03			3.0E+01	8.3E+01					2.6E+02	**9.6E+00**	2.5E+03	1.0E+00					2.4E+02	**1.0E+01**	9.2E+03	2.7E-01	3.3E+00	**7.6E+02**	No	Yes	5.7E+02	**4.4E+00**
10	CH-9-B	CH-9-B(15.5-18)	N	15.5	18	07/18/89	INORG	Chromium (total)	7440-47-3	1.50E+03			3.0E+01	**5.0E+01**					2.6E+02	**5.8E+00**	2.5E+03	6.0E-01					2.4E+02	**6.3E+00**	9.2E+03	1.6E-01	3.3E+00	4.5E+02	Yes	No	5.7E+02	**2.6E+00**
10	CH-9-G	CH-9-G(13)	N	13	13	05/15/89	INORG	Chromium (total)	7440-47-3	3.30E+02			3.0E+01	**4.3E+00**					2.6E+02	5.0E-01	2.5E+03	5.2E-02					2.4E+02	5.4E-01	9.2E+03	1.4E-02	3.3E+00	**3.9E+01**	Yes	Yes	5.7E+02	2.3E-01
10	G1	G1(2)	N	2	2	03/23/89	INORG	Copper	7440-50-8	1.50E+03		3.20E+01	5.8E+03	2.5E-01					1.3E+05	1.1E-02	2.0E+04	7.3E-02					5.9E+04	2.5E-02	7.3E+04	2.0E-02	1.2E+02	**1.2E+01**	Yes	Yes	2.0E+04	7.3E-02
10	G1	G1(2)	N	2	2	03/23/89	INORG	Cyanide (total)	57-12-5	1.37E+03		3.90E-01	4.0E+00	**3.4E+02**					2.5E+02	**5.5E+00**	1.2E+01	**1.1E+02**					2.5E+02	**5.5E+00**	2.5E+02	**5.5E+00**	1.0E-01	**1.4E+04**	Yes	Yes	1.0E+04	1.4E-01
10	G1	G1(2)	N	2	2	03/23/89	INORG	Nickel	7440-02-0	3.50E+03		2.00E+01	1.0E+02	**3.5E+01**					1.3E+04	2.7E-01	4.0E+04	8.7E-02					1.6E+04	2.2E-01	1.5E+05	2.3E-02	1.2E+02	**2.8E+01**	Yes	Yes	1.0E+04	3.4E-01
10	G11	G11(18)	N	18	18	03/23/89	INORG	Cyanide (total)	57-12-5	5.10E+01		3.90E-01	4.0E+00	**1.3E+01**					2.5E+02	2.0E-01	1.2E+01	**4.2E+00**					2.5E+02	2.0E-01	2.5E+02	2.0E-01	1.0E-01	5.1E+02	Yes	No	1.0E+04	5.0E-03
10	G11	G11(18)	N	18	18	03/23/89	INORG	Nickel	7440-02-0	2.60E+03		2.00E+01	1.0E+02	**2.6E+01**					1.3E+04	2.0E-01	4.0E+04	6.5E-02					1.6E+04	1.6E-01	1.5E+05	1.7E-02	1.2E+02	2.1E+01	Yes	No	1.0E+04	2.5E-01
10	G12	G12(15)	N	15	15	03/23/89	INORG	Cyanide (total)	57-12-5	2.50E+02		3.90E-01	4.0E+00	**6.2E+01**					2.5E+02	1.0E+00	1.2E+01	**2.1E+01**					2.5E+02	1.0E+00	2.5E+02	1.0E+00	1.0E-01	2.5E+03	Yes	No	1.0E+04	2.5E-02
10	G12	G12(15)	N	15	15	03/23/89	INORG	Nickel	7440-02-0	1.20E+04		2.00E+01	1.0E+02	**1.2E+02**					1.3E+04	9.2E-01	4.0E+04	3.0E-01					1.6E+04	7.5E-01	1.5E+05	8.0E-02	1.2E+02	9.7E+01	Yes	No	1.0E+04	**1.2E+00**
10	G2	G2(7)	N	7	7	03/23/89	INORG	Copper	7440-50-8	3.90E+02		3.20E+01	5.8E+03	6.2E-02					1.3E+05	2.8E-03	2.0E+04	1.8E-02					5.9E+04	6.1E-03	7.3E+04	4.9E-03	1.2E+02	**3.0E+00**	Yes	Yes	2.0E+04	1.8E-02
10	G2	G2(7)	N	7	7	03/23/89	INORG	Cyanide (total)	57-12-5	3.90E+02		3.90E-01	4.0E+00	**9.7E+01**					2.5E+02	**1.6E+00**	1.2E+01	**3.2E+01**					2.5E+02	**1.6E+00**	2.5E+02	**1.6E+00**	1.0E-01	**3.9E+03**	Yes	Yes	1.0E+04	3.9E-02
10	G2	G2(7)	N	7	7	03/23/89	INORG	Nickel	7440-02-0	5.90E+03		2.00E+01	1.0E+02	**5.9E+01**					1.3E+04	4.5E-01	4.0E+04	1.5E-01					1.6E+04	3.7E-01	1.5E+05	3.9E-02	1.2E+02	**4.7E+01**	Yes	Yes	1.0E+04	5.8E-01
10	G3	G3(5)	N	5	5	03/23/89	INORG	Copper	7440-50-8	5.00E+02		3.20E+01	5.8E+03	8.1E-02					1.3E+05	3.6E-03	2.0E+04	2.3E-02					5.9E+04	7.9E-03	7.3E+04	6.4E-03	1.2E+02	**3.9E+00**	Yes	Yes	2.0E+04	2.3E-02
10	G3	G3(5)	N	5	5	03/23/89	INORG	Cyanide (total)	57-12-5	7.70E+02		3.90E-01	4.0E+00	**1.9E+02**					2.5E+02	**3.1E+00**	1.2E+01	**6.4E+01**					2.5E+02	**3.1E+00**	2.5E+02	**3.1E+00**	1.0E-01	**7.7E+03**	Yes	Yes	1.0E+04	7.6E-02
10	G3	G3(5)	N	5	5	03/23/89	INORG	Nickel	7440-02-0	8.70E+02		2.00E+01	1.0E+02	**8.5E+00**					1.3E+04	6.5E-02	4.0E+04	2.1E-02					1.6E+04	5.3E-02	1.5E+05	5.7E-03	1.2E+02	**6.8E+00**	Yes	Yes	1.0E+04	8.3E-02
10	G4	G4(6)	N	6	6	03/23/89	INORG	Cyanide (total)	57-12-5	3.00E+01		3.90E-01	4.0E+00	**7.4E+00**					2.5E+02	1.2E-01	1.2E+01	**2.5E+00**					2.5E+02	1.2E-01	2.5E+02	1.2E-01	1.0E-01	**3.0E+02**	Yes	Yes	1.0E+04	2.9E-03
10	G4	G4(6)	N	6	6	03/23/89	INORG	Nickel	7440-02-0	2.60E+03		2.00E+01	1.0E+02	**2.2E+00**					1.3E+04	1.7E-02	4.0E+04	5.5E-03					1.6E+04	1.4E-02	1.5E+05	1.5E-03	1.2E+02	**1.0E+00**	Yes	Yes	1.0E+04	2.2E-02
10	G5	G5(5)	N	5	5	03/23/89	INORG	Cyanide (total)	57-12-5	8.00E+01		3.90E-01	4.0E+00	**2.0E+01**					2.5E+02	3.2E-01	1.2E+01	**6.6E+00**					2.5E+02	3.2E-01	2.5E+02	3.2E-01	1.0E-01	**8.0E+02**	Yes	Yes	1.0E+04	7.9E-03
10	G5	G5(5)	N	5	5	03/23/89	INORG	Nickel	7440-02-0	3.40E+03		2.00E+01	1.0E+02	**3.4E+01**					1.3E+04	2.6E-01	4.0E+04	8.5E-02					1.6E+04	2.1E-01	1.5E+05	2.3E-02	1.2E+02	**2.7E+01**	Yes	Yes	1.0E+04	3.3E-01
10	G6	G6(20)	N	20	20	03/23/89	INORG	Cyanide (total)	57-12-5	2.10E+01		3.90E-01	4.0E+00	**5.2E+00**					2.5E+02	8.2E-02	1.2E+01	**1.7E+00**					2.5E+02	8.2E-02	2.5E+02	8.2E-02	1.0E-01	2.1E+02	Yes	No	1.0E+04	2.0E-03
10	G6	G6(20)	N	20	20	03/23/89	INORG	Nickel	7440-02-0	1.70E+02		2.00E+01	1.0E+02	**1.5E+00**					1.3E+04	1.2E-02	4.0E+04	3.8E-03					1.6E+04	9.4E-03	1.5E+05	1.0E-03	1.2E+02	1.2E+00	Yes	No	1.0E+04	1.5E-02
10	G7	G7(20)	N	20	20	03/23/89	INORG	Cyanide (total)	57-12-5	1.40E+02		3.90E-01	4.0E+00	**3.5E+01**					2.5E+02	5.6E-01	1.2E+01	**1.2E+01**					2.5E+02	5.6E-01	2.5E+02	5.6E-01	1.0E-01	1.4E+03	Yes	No	1.0E+04	1.4E-02
10	G7	G7(20)	N	20	20	03/23/89	INORG	Nickel	7440-02-0	2.80E+03		2.00E+01	1.0E+02	**2.8E+01**					1.3E+04	2.1E-01	4.0E+04	7.0E-02					1.6E+04	1.7E-01	1.5E+05	1.9E-02	1.2E+02	2.2E+01	Yes	No	1.0E+04	2.7E-01
10	G8	G8(10)	N	10	10	03/23/89	INORG	Cyanide (total)	57-12-5	1.00E+01		3.90E-01	4.0E+00	**2.4E+00**					2.5E+02	3.8E-02	1.2E+01	8.0E-01					2.5E+02	3.8E-02	2.5E+02	3.8E-02	1.0E-01	**9.6E+01**	Yes	Yes	1.0E+04	9.5E-04
10	G9	G9(16)	N	16	16	03/23/89	INORG	Cyanide (total)	57-12-5	1.20E+02		3.90E-01	4.0E+00	**3.0E+01**					2.5E+02	4.8E-01	1.2E+01	**1.0E+01**					2.5E+02	4.8E-01	2.5E+02	4.8E-01	1.0E-01	1.2E+03	Yes	No	1.0E+04	1.2E-02
10	G9	G9(16)	N	16	16	03/23/89	INORG	Nickel	7440-02-0	3.10E+03		2.00E+01	1.0E+02	**3.1E+01**					1.3E+04	2.4E-01	4.0E+04	7.7E-02					1.6E+04	1.9E-01	1.5E+05	2.1E-02	1.2E+02	2.5E+01	Yes	No	1.0E+04	3.0E-01
10	H2	H2(7)	N	7	7	04/24/89	INORG	Copper	7440-50-8	1.70E+02		3.20E+01	5.8E+03	2.4E-02					1.3E+05	1.1E-03	2.0E+04	6.9E-03					5.9E+04	2.3E-03	7.3E+04	1.9E-03	1.2E+02	**1.2E+00**	Yes	Yes	2.0E+04	6.9E-03
10	H2	H2(7)	N	7	7	04/24/89	INORG	Cyanide (total)	57-12-5	3.10E+01		3.90E-01	4.0E+00	**7.7E+00**					2.5E+02	1.2E-01	1.2E+01	**2.6E+00**					2.5E+02	1.2E-01	2.5E+02	1.2E-01	1.0E-01	**3.1E+02**	Yes	Yes	1.0E+04	3.0E-03
10	H3	H3(20)	N	20	20	04/24/89	INORG	Cyanide (total)	57-12-5	2.10E+01		3.90E-01	4.0E+00	**5.2E+00**					2.5E+02	8.2E-02	1.2E+01	**1.7E+00**					2.5E+02	8.2E-02	2.5E+02	8.2E-02	1.0E-01	2.1E+02	Yes	No	1.0E+04	2.0E-03
10	H3	H3(20)	N	20	20	04/24/89	INORG	Nickel	7440-02-0	2.90E+02		2.00E+01	1.0E+02	**2.7E+00**					1.3E+04	2.1E-02	4.0E+04	6.8E-03					1.6E+04	1.7E-02	1.5E+05	1.8E-03	1.2E+02	2.2E+00	Yes	No	1.0E+04	2.6E-02
10	H4	H4(16)	N	16	16	04/24/89	INORG	Cyanide (total)	57-12-5	1.90E+02		3.90E-01	4.0E+00	**4.7E+01**					2.5E+02	7.6E-01	1.2E+01	**1.6E+01**					2.5E+02	7.6E-01	2.5E+02	7.6E-01	1.0E-01	1.9E+03	Yes	No	1.0E+04	1.9E-02
10	H4	H4(16)	N	16	16	04/24/89	INORG	Nickel	7440-02-0	1.60E+02		2.00E+01	1.0E+02	**1.4E+00**					1.3E+04	1.1E-02	4.0E+04	3.5E-03					1.6E+04	8.8E-03	1.5E+05	9.3E-04	1.2E+02	1.1E+00	Yes	No	1.0E+04	1.4E-02
10	H5	H5(10)	N	10	10	04/24/89	INORG	Copper	7440-50-8	2.60E+02		3.20E+01	5.8E+03	3.9E-02					1.3E+05	1.8E-03	2.0E+04	1.1E-02					5.9E+04	3.9E-03	7.3E+04	3.1E-03	1.2E+02	**1.9E+00**	Yes	Yes	2.0E+04	1.1E-02
10	H5	H5(10)	N	10	10	04/24/89	INORG	Cyanide (total)	57-12-5	9.80E+01		3.90E-01	4.0E+00	**2.4E+01**					2.5E+02	3.9E-01	1.2E+01	**8.1E+00**					2.5E+02	3.9E-01	2.5E+02	3.9E-01	1.0E-01	**9.8E+02**	Yes	Yes	1.0E+04	9.7E-03
10	H5	H5(10)	N	10	10	04/24/89	INORG	Nickel	7440-02-0	2.10E+02		2.00E+01	1.0E+02	**1.9E+00**					1.3E+04	1.5E-02	4.0E+04	4.8E-03					1.6E+04	1.2E-02	1.5E+05	1.3E-03	1.2E+02	**1.5E+00**	Yes	Yes	1.0E+04	1.9E-02
10	H6	H6(17)	N	17	17	04/24/89	INORG	Cyanide (total)	57-12-5	1.10E+01		3.90E-01	4.0E+00	**2.7E+00**					2.5E+02	4.2E-02	1.2E+01	8.8E-01					2.5E+02	4.2E-02	2.5E+02	4.2E-02	1.0E-01	1.1E+02	Yes	No	1.0E+04	1.1E-03
10	H7	H7(20)	N	20	20	04/24/89	INORG	Cyanide (total)	57-12-5	2.01E+03		3.90E-01	4.0E+00	**5.0E+02**					2.5E+02	**8.0E+00**	1.2E+01	**1.7E+02**					2.5E+02	**8.0E+00**	2.5E+02	**8.0E+00**	1.0E-01	2.0E+04	Yes	No	1.0E+04	2.0E-01
10	H7	H7(20)	N	20	20	04/24/89	INORG	Nickel	7440-02-0	1.60E+02		2.00E+01	1.0E+02	**1.4E+00**					1.3E+04	1.1E-02	4.0E+04	3.5E-03					1.6E+04	8.8E-03	1.5E+05	9.3E-04	1.2E+02	1.1E+00	Yes	No	1.0E+04	1.4E-02
10	I10	I10(6)	N	6	6	04/14/89	INORG	Copper	7440-50-8	3.00E+02		3.20E+01	5.8E+03	4.6E-02					1.3E+05	2.1E-03	2.0E+04	1.3E-02					5.9E+04	4.5E-03	7.3E+04	3.7E-03	1.2E+02	**2.2E+00**	Yes	Yes	2.0E+04	1.3E-02
10	I10	I10(6)	N	6	6	04/14/89	INORG	Cyanide (total)	57-12-5	2.07E+03		3.90E-01	4.0E+00	**5.2E+02**					2.5E+02	**8.3E+00**	1.2E+01	**1.7E+02**					2.5E+02	**8.3E+00**	2.5E+02	**8.3E+00**	1.0E-01	**2.1E+04**	Yes	Yes	1.0E+04	2.1E-01
10	I11	I11(10)	N	10	10	04/14/89	INORG	Cyanide (total)	57-12-5	2.70E+01		3.90E-01	4.0E+00	**6.7E+00**					2.5E+02	1.1E-01	1.2E+01	**2.2E+00**					2.5E+02	1.1E-01	2.5E+02	1.1E-01	1.0E-01	**2.7E+02**	Yes	Yes	1.0E+04	2.6E-03
10	I5	I5(20)	N	20	20	04/14/89	INORG	Cyanide (total)	57-12-5	4.16E+02		3.90E-01	4.0E+00	**1.0E+02**					2.5E+02	**1.7E+00**	1.2E+01	**3.5E+01**					2.5E+02	**1.7E+00**	2.5E+02	**1.7E+00**	1.0E-01	4.2E+03	Yes	No	1.0E+04	4.1E-02
10	MW-88-1	MW-88(48.5-50)	N	48.5	50	01/01/88	INORG	Cyanide (total)	57-12-5	2.50E+01		3.90E-01	4.0E+00	**6.2E+00**					2.5E+02	9.8E-02	1.2E+01	**2.1E+00**					2.5E+02	9.8E-02	2.5E+02	9.8E-02	1.0E-01	2.5E+02	Yes	No	1.0E+04	2.4E-03
6	SB#1	SB#1(3.5-7.0)	N	3.5	7	07/28/89	INORG	Chromium (total)	7440-47-3	1.10E+01			3.0E+01	3.7E-01					2.6E+02	4.2E-02	2.5E+03	4.4E-03					2.4E+02	4.6E-02	9.2E+03	1.2E-03	3.3E+00	**3.3E+00**	Yes	Yes	5.7E+02	1.9E-02
6	SB#1	SB#1(3.5-7.0)	N	3.5	7	07/28/89	INORG	Nickel	7440-02-0	6.60E+02		2.00E+01	1.0E+02	**6.4E+00**					1.3E+04	4.9E-02	4.0E+04	1.6E-02					1.6E+04	4.0E-02	1.5E+05	4.3E-03	1.2E+02	**5.2E+00**	Yes	Yes	1.0E+04	6.3E-02
6	SB#2	SB#2(3.5-7.0)	N	3.5	7	07/28/89	INORG	Chromium (total)	7440-47-3	2.00E+01			3.0E+01	6.7E-01					2.6E+02	7.7E-02	2.5E+03	8.0E-03					2.4E+02	8.3E-02	9.2E+03	2.2E-03	3.3E+00	**6.1E+00**	Yes	Yes	5.7E+02	3.5E-02
6	SB#2	SB#2(3.5-7.0)	N	3.5	7	07/28/89	INORG	Nickel	7440-02-0	2.40E+03		2.00E+01	1.0E+02	**2.4E+01**					1.3E+04	1.8E-01	4.0E+04	6.0E-02					1.6E+04	1.5E-01	1.5E+05	1.6E-02	1.2E+02	**1.9E+01**	Yes	Yes	1.0E+04	2.3E-01
6	SB#3	SB#3(3.5-7.0)	N	3.5	7	07/28/89	INORG	Chromium (total)	7440-47-3	1.20E+01			3.0E+01	4.0E-01					2.6E+02	4.6E-02	2.5E+03	4.8E-03					2.4E+02	5.0E-02	9.2E+03	1.3E-03	3.3E+00	**3.6E+00**	Yes	Yes	5.7E+02	2.1E-02
9	SB1	SB-1(7-9.5)	N	7	9.5	05/16/89	VOC	Benzene	71-43-2	3.50E-01			1.0E-01	**3.5E+00**	1.6E+00	2.2E-01	1.3E+01	2.7E-02	3.8E+05	9.2E-07	1.8E+02	1.9E-03	8.4E+00	4.2E-02	4.5E+01	7.8E-03	4.7E+05	7.4E-07	4.0E+02	8.8E-04	4.0E+00	8.8E-02	Yes	Yes	3.4E+01	1.0E-02
9	SB1	SB-1(7-9.5)	N	7	9.5	05/16/89	VOC	Ethyl Benzene	100-41-4	2.30E+00			1.5E+00	**1.5E+00**	8.7E+01	2.6E-02	7.2E+02	3.2E-03	1.0E+07	2.3E-07	1.4E+02	1.6E-02	1.4E+02	1.6E-02	2.4E+03	9.6E-04	1.3E+07	1.8E-07	1.4E+02	1.6E-02	3.6E-01	**6.4E+00**	Yes	Yes	1.1E+03	2.1E-03
9	SB1	SB-1(7-9.5)	N	7	9.5	05/16/89	VOC	Toluene	108-88-3	1.00E+01			1.6E+01	6.3E-01	2.5E+02	4.0E-02	2.8E+03	3.6E-03	2.7E+07	3.7E-07	2.5E+02	4.0E-02	2.5E+02	4.0E-02	3.3E+03	3.0E-03	1.2E+07	8.3E-07	2.5E+02	4.0E-02	2.8E+00	**3.6E+00**	Yes	Yes	4.1E+03	2.5E-03
9	SB1	SB-1(7-9.5)	N	7	9.5	05/16/89	VOC	Xylenes (total)	1330-20-7	1.90E+01			5.6E+00	**3.4E+00**	1.5E+02	1.3E-01	4.6E+04	4.1E-04	2.9E+08	6.6E-08	1.5E+02	1.3E-01	1.5E+02	1.3E-01	5.4E+04	3.5E-04	1.3E+08	1.5E-07	1.5E+02	1.3E-01	7.0E-01	**2.7E+01**	Yes	Yes	3.6E+02	5.2E-02
9	SB12	SB-12(14-16)	N	14	16	11/07/89	VOC	Benzene	71-43-2	2.07E-01			1.0E-01	**2.1E+00**	1.6E+00	1.3E-01	1.3E+01	1.6E-02	3.8E+05	5.4E-07	1.8E+02	1.2E-03	8.4E+00	2.5E-02	4.5E+01	4.6E-03	4.7E+05	4.4E-07	4.0E

Table A-3a: Groundwater Screening Results
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Max Detected (mg/L)	Residential Drinking Water Criteria (mg/L)	Ratio of Max Detected to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Max Detected to Groundwater Surface water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
10	Bedrock	INORG	Arsenic	7440-38-2	D	A	16	13	1.00E-03	1.20E-02	1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			4.3E+00	2.8E-03
10	Bedrock	INORG	Arsenic	7440-38-2	T	A	24	20	1.00E-03	1.20E-02	1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			4.3E+00	2.8E-03
10	Bedrock	INORG	Barium	7440-39-3	D	NC	16	16	2.00E-02	2.90E-01	2.0E+00	1.5E-01	1.2E+00	2.3E-01			1.4E+04	2.1E-05
10	Bedrock	INORG	Barium	7440-39-3	T	NC	22	22	2.00E-02	3.00E-01	2.0E+00	1.5E-01	1.2E+00	2.4E-01			1.4E+04	2.1E-05
10	Bedrock	INORG	Cadmium	7440-43-9	T	B1	29	8	3.00E-04	7.00E-03	5.0E-03	**1.4E+00**	4.6E-03	**1.5E+00**			1.9E+02	3.7E-05
10	Bedrock	INORG	Chromium (total)	7440-47-3	D		16	7	3.00E-03	8.00E-03	1.0E-01	8.0E-02	1.1E-02	7.3E-01			4.6E+02	1.7E-05
10	Bedrock	INORG	Chromium (total)	7440-47-3	T		74	11	2.00E-03	6.70E-02	1.0E-01	6.7E-01	1.1E-02	**6.1E+00**			4.6E+02	1.5E-04
10	Bedrock	INORG	Cobalt	7440-48-4	D	B1	16	2	7.00E-03	2.00E-02	4.0E-02	5.0E-01	1.0E-01	2.0E-01			2.4E+03	8.3E-06
10	Bedrock	INORG	Copper	7440-50-8	T	D	72	26	8.00E-03	3.70E-01	1.4E+00	2.6E-01	2.1E-02	**1.8E+01**			7.4E+03	5.0E-05
10	Bedrock	INORG	Cyanide (total)	57-12-5	D	D	16	2	7.00E-03	9.00E-03	2.0E-01	4.5E-02	5.2E-03	**1.7E+00**			5.7E+01	1.6E-04
10	Bedrock	INORG	Cyanide (total)	57-12-5	T	D	70	5	9.00E-03	2.40E-02	2.0E-01	1.2E-01	5.2E-03	**4.6E+00**			5.7E+01	4.2E-04
10	Bedrock	INORG	Lead	7439-92-1	T	B2	29	7	3.00E-03	1.20E-02	4.0E-03	**3.0E+00**	2.9E-02	4.1E-01				
10	Bedrock	INORG	Manganese	7439-96-5	D	D	16	13	2.30E-02	3.36E-01	8.6E-01	3.9E-01	4.6E+00	7.3E-02			9.1E+03	3.7E-05
10	Bedrock	INORG	Manganese	7439-96-5	T	D	22	20	1.70E-02	3.38E-01	8.6E-01	3.9E-01	4.6E+00	7.4E-02			9.1E+03	3.7E-05
10	Bedrock	INORG	Nickel	7440-02-0	D	A	16	1	3.40E-02	3.40E-02	1.0E-01	3.4E-01	1.2E-01	2.8E-01			7.4E+04	4.6E-07
10	Bedrock	INORG	Nickel	7440-02-0	T	A	75	7	1.00E-02	4.90E-02	1.0E-01	4.9E-01	1.2E-01	4.1E-01			7.4E+04	6.6E-07
10	Bedrock	INORG	Vanadium	7440-62-2	D		16	5	5.00E-03	7.00E-03	4.5E-03	**1.6E+00**	1.2E-02	5.8E-01			9.7E+02	7.2E-06
10	Bedrock	INORG	Vanadium	7440-62-2	T		22	7	4.00E-03	9.00E-03	4.5E-03	**2.0E+00**	1.2E-02	7.5E-01			9.7E+02	9.3E-06
10	Bedrock	INORG	Zinc	7440-66-6	D	ID	16	5	1.00E-02	5.70E-02	2.4E+00	2.4E-02	2.7E-01	2.1E-01			1.1E+05	5.2E-07
10	Bedrock	INORG	Zinc	7440-66-6	T	ID	72	36	1.00E-02	4.10E+00	2.4E+00	**1.7E+00**	2.7E-01	**1.5E+01**			1.1E+05	3.7E-05
10	Overburden	INORG	Arsenic	7440-38-2	D	A	23	22	2.00E-03	2.20E-02	1.0E-02	**2.2E+00**	1.5E-01	1.5E-01			4.3E+00	5.1E-03
10	Overburden	INORG	Arsenic	7440-38-2	T	A	39	32	2.00E-03	2.20E-02	1.0E-02	**2.2E+00**	1.5E-01	1.5E-01			4.3E+00	5.1E-03
10	Overburden	INORG	Barium	7440-39-3	D	NC	23	23	3.80E-02	4.59E-01	2.0E+00	2.3E-01	1.2E+00	3.7E-01			1.4E+04	3.3E-05
10	Overburden	INORG	Barium	7440-39-3	T	NC	31	31	4.50E-02	4.47E-01	2.0E+00	2.2E-01	1.2E+00	3.6E-01			1.4E+04	3.2E-05
10	Overburden	INORG	Cadmium	7440-43-9	T	B1	60	17	3.00E-04	2.60E-03	5.0E-03	5.2E-01	4.6E-03	5.6E-01			1.9E+02	1.4E-05
10	Overburden	INORG	Chromium (total)	7440-47-3	D		23	9	2.00E-03	6.00E-03	1.0E-01	6.0E-02	1.1E-02	5.5E-01			4.6E+02	1.3E-05
10	Overburden	INORG	Chromium (total)	7440-47-3	T		81	34	2.00E-03	1.85E-01	1.0E-01	**1.9E+00**	1.1E-02	**1.7E+01**			4.6E+02	4.0E-04
10	Overburden	INORG	Cobalt	7440-48-4	D	B1	23	4	6.00E-03	8.00E-03	4.0E-02	2.0E-01	1.0E-01	8.0E-02			2.4E+03	3.3E-06
10	Overburden	INORG	Copper	7440-50-8	D	D	23	7	2.00E-03	1.30E-02	1.4E+00	9.3E-03	2.1E-02	6.3E-01			7.4E+03	1.8E-06
10	Overburden	INORG	Copper	7440-50-8	T	D	99	39	3.00E-03	7.90E+02	1.4E+00	**5.6E+02**	2.1E-02	**3.8E+04**			7.4E+03	1.1E-01
10	Overburden	INORG	Cyanide (total)	57-12-5	D	D	18	1	3.00E-02	3.00E-02	2.0E-01	1.5E-01	5.2E-03	**5.8E+00**			5.7E+01	5.3E-04
10	Overburden	INORG	Cyanide (total)	57-12-5	T	D	94	3	3.20E-02	6.38E+02	2.0E-01	**3.2E+03**	5.2E-03	**1.2E+05**			5.7E+01	1.1E+01
10	Overburden	INORG	Lead	7439-92-1	T	B2	60	16	1.00E-03	1.40E-02	4.0E-03	**3.5E+00**	2.9E-02	4.8E-01				
10	Overburden	INORG	Manganese	7439-96-5	D	D	23	22	4.10E-02	4.02E-01	8.6E-01	4.7E-01	4.6E+00	8.8E-02			9.1E+03	4.4E-05
10	Overburden	INORG	Manganese	7439-96-5	T	D	31	31	2.30E-02	8.46E-01	8.6E-01	9.8E-01	4.6E+00	1.9E-01			9.1E+03	9.3E-05
10	Overburden	INORG	Nickel	7440-02-0	D	A	23	5	1.00E-02	4.20E-02	1.0E-01	4.2E-01	1.2E-01	3.5E-01			7.4E+04	5.7E-07
10	Overburden	INORG	Nickel	7440-02-0	T	A	99	41	5.00E-03	8.60E+00	1.0E-01	**8.6E+01**	1.2E-01	**7.2E+01**			7.4E+04	1.2E-04
10	Overburden	INORG	Selenium	7782-49-2	T	D	31	1	6.00E-03	6.00E-03	5.0E-02	1.2E-01	5.0E-03	**1.2E+00**			9.7E+02	6.2E-06
10	Overburden	INORG	Silver	7440-22-4	T	D	52	1	1.00E-03	1.00E-03	3.4E-02	2.9E-02	2.0E-04	**5.0E+00**			1.5E+03	6.7E-07
10	Overburden	INORG	Vanadium	7440-62-2	D		23	6	5.00E-03	1.10E-02	4.5E-03	**2.4E+00**	1.2E-02	9.2E-01			9.7E+02	1.1E-05
10	Overburden	INORG	Vanadium	7440-62-2	T		31	8	4.00E-03	3.00E-02	4.5E-03	**6.7E+00**	1.2E-02	**2.5E+00**			9.7E+02	3.1E-05
10	Overburden	INORG	Zinc	7440-66-6	D	ID	23	10	1.00E-02	6.00E-02	2.4E+00	2.5E-02	2.7E-01	2.2E-01			1.1E+05	5.5E-07
10	Overburden	INORG	Zinc	7440-66-6	T	ID	99	50	6.00E-03	2.25E-01	2.4E+00	9.4E-02	2.7E-01	8.3E-01			1.1E+05	2.0E-06
10	Perched	INORG	Antimony	7440-36-0	D		3	1	1.00E-03	1.00E-03	6.0E-03	1.7E-01	1.3E-01	7.7E-03			6.8E+01	1.5E-05
10	Perched	INORG	Antimony	7440-36-0	T		5	1	1.00E-03	1.00E-03	6.0E-03	1.7E-01	1.3E-01	7.7E-03			6.8E+01	1.5E-05
10	Perched	INORG	Arsenic	7440-38-2	D	A	3	2	1.00E-03	2.00E-03	1.0E-02	2.0E-01	1.5E-01	1.3E-02			4.3E+00	4.7E-04
10	Perched	INORG	Arsenic	7440-38-2	T	A	6	2	1.00E-03	1.70E-02	1.0E-02	**1.7E+00**	1.5E-01	1.1E-01			4.3E+00	4.0E-03
10	Perched	INORG	Barium	7440-39-3	D	NC	3	3	6.00E-02	7.60E-02	2.0E+00	3.8E-02	1.2E+00	6.1E-02			1.4E+04	5.4E-06
10	Perched	INORG	Barium	7440-39-3	T	NC	5	5	5.00E-02	8.00E-02	2.0E+00	4.0E-02	1.2E+00	6.4E-02			1.4E+04	5.7E-06
10	Perched	INORG	Beryllium	7440-41-7	D	B1	4	3	3.00E-03	8.00E-03	4.0E-03	**2.0E+00**	2.9E-02	2.8E-01			2.9E+02	2.8E-05
10	Perched	INORG	Beryllium	7440-41-7	T	B1	104	6	3.00E-03	9.00E-03	4.0E-03	**2.3E+00**	2.9E-02	3.1E-01			2.9E+02	3.1E-05
10	Perched	INORG	Cadmium	7440-43-9	D	B1	4	1	4.00E-04	4.00E-04	5.0E-03	8.0E-02	4.6E-03	8.7E-02			1.9E+02	2.1E-06
10	Perched	INORG	Cadmium	7440-43-9	T	B1	105	44	4.00E-04	7.00E-01	5.0E-03	**1.4E+02**	4.6E-03	**1.5E+02**			1.9E+02	3.7E-03
10	Perched	INORG	Chromium (total)	7440-47-3	D		4	3	2.00E-03	3.00E-02	1.0E-01	3.0E-01	1.1E-02	**2.7E+00**			4.6E+02	6.5E-05
10	Perched	INORG	Chromium (total)	7440-47-3	T		112	74	3.00E-03	8.90E+01	1.0E-01	**8.9E+02**	1.1E-02	**8.1E+03**			4.6E+02	1.9E-01
10	Perched	INORG	Chromium III	16065-83-1	T	D	2	1			3.8E+01		1.7E-01				2.9E+05	
10	Perched	INORG	Cobalt	7440-48-4	D	B1	3	1	5.00E-03	5.00E-03	4.0E-02	1.3E-01	1.0E-01	5.0E-02			2.4E+03	2.1E-06
10	Perched	INORG	Cobalt	7440-48-4	T	B1	5	1	5.00E-03	5.00E-03	4.0E-02	1.3E-01	1.0E-01	5.0E-02			2.4E+03	2.1E-06
10	Perched	INORG	Copper	7440-50-8	D	D	4	4	6.20E-02	2.50E-01	1.4E+00	1.8E-01	2.1E-02	**1.2E+01**			7.4E+03	3.4E-05
10	Perched	INORG	Copper	7440-50-8	T	D	114	113	7.80E-02	3.90E+01	1.4E+00	**2.8E+01**	2.1E-02	**1.9E+03**			7.4E+03	5.3E-03
10	Perched	INORG	Cyanide (total)	57-12-5	T	D	16	7	7.00E-02	2.20E+01	2.0E-01	**1.1E+02**	5.2E-03	**4.2E+03**			5.7E+01	3.9E-01
10	Perched	INORG	Lead	7439-92-1	T	B2	105	42	1.00E-03	3.80E+00	4.0E-03	**9.5E+02**	2.9E-02	**1.3E+02**				
10	Perched	INORG	Manganese	7439-96-5	D	D	3	3	7.40E-02	1.38E+00	8.6E-01	**1.6E+00**	4.6E+00	3.0E-01			9.1E+03	1.5E-04
10	Perched	INORG	Manganese	7439-96-5	T	D	5	5	7.70E-02	1.38E+00	8.6E-01	**1.6E+00**	4.6E+00	3.0E-01			9.1E+03	1.5E-04
10	Perched	INORG	Nickel	7440-02-0	D	A	4	4	1.02E+01	2.16E+01	1.0E-01	**2.2E+02**	1.2E-01	**1.8E+02**			7.4E+04	2.9E-04
10	Perched	INORG	Nickel	7440-02-0	T	A	114	114	3.00E-02	3.60E+03	1.0E-01	**3.6E+04**	1.2E-01	**3.0E+04**			7.4E+04	4.9E-02
9	Perched	VOC	Benzene	71-43-2	T	A	1	1	2.20E-02	2.20E-02	5.0E-03	**4.4E+00**	2.0E-01	1.1E-01	5.6E+00	3.9E-03	1.1E+01	2.0E-03

Table A-3a: Groundwater Screening Results
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Max Detected (mg/L)	Residential Drinking Water Criteria (mg/L)	Ratio of Max Detected to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Max Detected to Groundwater Surface water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
9	Perched	VOC	Chloroethane	75-00-3	T	LC	1	1	4.00E-03	4.00E-03	4.3E-01	9.3E-03			5.7E+03	7.0E-07	4.4E+02	9.1E-06
10	Perched	INORG	Selenium	7782-49-2	D	D	3	1	4.00E-03	4.00E-03	5.0E-02	8.0E-02	5.0E-03	8.0E-01			9.7E+02	4.1E-06
10	Perched	INORG	Selenium	7782-49-2	T	D	5	1	3.00E-03	3.00E-03	5.0E-02	6.0E-02	5.0E-03	6.0E-01			9.7E+02	3.1E-06
10	Perched	INORG	Silver	7440-22-4	D	D	4	1	2.00E-04	2.00E-04	3.4E-02	5.9E-03	2.0E-04	1.0E+00			1.5E+03	1.3E-07
10	Perched	INORG	Vanadium	7440-62-2	D		3	2	1.00E-03	7.00E-03	4.5E-03	**1.6E+00**	1.2E-02	5.8E-01			9.7E+02	7.2E-06
10	Perched	INORG	Vanadium	7440-62-2	T		5	1	2.00E-03	2.00E-03	4.5E-03	4.4E-01	1.2E-02	1.7E-01			9.7E+02	2.1E-06
10	Perched	INORG	Zinc	7440-66-6	D	ID	4	4	1.00E-02	8.40E-02	2.4E+00	3.5E-02	2.7E-01	3.1E-01			1.1E+05	7.6E-07
10	Perched	INORG	Zinc	7440-66-6	T	ID	114	113	1.00E-02	1.20E+01	2.4E+00	**5.0E+00**	2.7E-01	**4.4E+01**			1.1E+05	1.1E-04
9	Overburden	VOC	1,1,1-Trichloroethane	71-55-6	T	ID	10	1	2.00E-02	2.00E-02	2.0E-01	1.0E-01	2.0E-01	1.0E-01	6.6E+02	3.0E-05	1.3E+03	1.5E-05

Notes:

Only constituents detected in each area are shown.

The criteria for Chromium (total) are the criteria provided by the agency for Chromium VI.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Meas Basis - measured basis; T = total, D = dissolved

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Bedrock	MW-04-01	MW-04-01~~6/15/2005~Ground Water~N	N	06/15/05	D	INORG	Vanadium	7440-62-2	6.00E-03		4.5E-03	**1.3E+00**	1.2E-02	5.0E-01			9.7E+02	6.2E-06
10	Bedrock	MW-04-01	MW-04-01~~6/15/2005~Ground Water~N	N	06/15/05	T	INORG	Vanadium	7440-62-2	7.00E-03		4.5E-03	**1.6E+00**	1.2E-02	5.8E-01			9.7E+02	7.2E-06
10	Bedrock	MW-88-1	MW-88-1(102704)	N	10/27/04	T	INORG	Lead	7439-92-1	1.00E-02		4.0E-03	**2.5E+00**	2.9E-02	3.4E-01				
10	Bedrock	MW-88-1	MW-88-1~~6/14/2005~Ground Water~N	N	06/14/05	D	INORG	Vanadium	7440-62-2	5.00E-03		4.5E-03	**1.1E+00**	1.2E-02	4.2E-01			9.7E+02	5.2E-06
10	Bedrock	MW-88-1	MW-88-1~~6/14/2005~Ground Water~N	N	06/14/05	T	INORG	Cadmium	7440-43-9	7.00E-03		5.0E-03	**1.4E+00**	4.6E-03	**1.5E+00**			1.9E+02	3.7E-05
10	Bedrock	MW-88-1	MW-88-1~~6/14/2005~Ground Water~N	N	06/14/05	T	INORG	Lead	7439-92-1	1.20E-02		4.0E-03	**3.0E+00**	2.9E-02	4.1E-01				
10	Bedrock	MW-88-1	MW-88-1~~6/14/2005~Ground Water~N	N	06/14/05	T	INORG	Vanadium	7440-62-2	7.00E-03		4.5E-03	**1.6E+00**	1.2E-02	5.8E-01			9.7E+02	7.2E-06
10	Bedrock	MW-91-3	MW-101(062205)	FD	06/22/05	T	INORG	Vanadium	7440-62-2	5.00E-03		4.5E-03	**1.1E+00**	1.2E-02	4.2E-01			9.7E+02	5.2E-06
10	Bedrock	MW-91-3	MW-91-3~~6/22/2005~Ground Water~N	N	06/22/05	D	INORG	Vanadium	7440-62-2	5.00E-03		4.5E-03	**1.1E+00**	1.2E-02	4.2E-01			9.7E+02	5.2E-06
10	Bedrock	MW-91-4	MW-102_032803	FD	03/28/03	T	INORG	Lead	7439-92-1	8.00E-03		4.0E-03	**2.0E+00**	2.9E-02	2.7E-01				
10	Bedrock	MW-91-4	MW104 (10/10/03)	FD	10/10/03	T	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			4.3E+00	2.8E-03
10	Bedrock	MW-91-4	MW-91-4~~10/10/2003~Ground Water~N	N	10/10/03	T	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			4.3E+00	2.8E-03
10	Bedrock	MW-91-4	MW-91-4~~3/28/2003~Ground Water~N	N	03/28/03	T	INORG	Lead	7439-92-1	6.00E-03		4.0E-03	**1.5E+00**	2.9E-02	2.0E-01				
10	Bedrock	MW-91-4	MW-91-4~~6/14/2005~Ground Water~N	N	06/14/05	D	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			4.3E+00	2.8E-03
10	Bedrock	MW-91-4	MW-91-4~~6/14/2005~Ground Water~N	N	06/14/05	D	INORG	Vanadium	7440-62-2	7.00E-03		4.5E-03	**1.6E+00**	1.2E-02	5.8E-01			9.7E+02	7.2E-06
10	Bedrock	MW-91-4	MW-91-4~~6/14/2005~Ground Water~N	N	06/14/05	T	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			4.3E+00	2.6E-03
10	Bedrock	MW-91-4	MW-91-4~~6/14/2005~Ground Water~N	N	06/14/05	T	INORG	Vanadium	7440-62-2	9.00E-03		4.5E-03	**2.0E+00**	1.2E-02	7.5E-01			9.7E+02	9.3E-06
10	Bedrock	MW-91-5	MW-102(062405)	FD	06/24/05	T	INORG	Vanadium	7440-62-2	5.00E-03		4.5E-03	**1.1E+00**	1.2E-02	4.2E-01			9.7E+02	5.2E-06
10	Bedrock	MW-91-6	MW91-6(102804)NS	N	10/28/04	T	INORG	Lead	7439-92-1	9.00E-03		4.0E-03	**2.3E+00**	2.9E-02	3.1E-01				
10	Bedrock	MW-91-6	MW-91-6~~10/25/1991~Ground Water~N	N	10/25/91	T	INORG	Zinc	7440-66-6	4.10E+00		2.4E+00	**1.7E+00**	2.7E-01	**1.5E+01**			1.1E+05	3.7E-05
10	Bedrock	MW-91-6	MW-91-6~~11/8/1991~Ground Water~N	N	11/08/91	T	INORG	Zinc	7440-66-6	3.50E+00		2.4E+00	**1.5E+00**	2.7E-01	**1.3E+01**			1.1E+05	3.2E-05
10	Bedrock	MW-91-6	MW-91-6~~6/23/2005~Ground Water~N	N	06/23/05	D	INORG	Vanadium	7440-62-2	5.00E-03		4.5E-03	**1.1E+00**	1.2E-02	4.2E-01			9.7E+02	5.2E-06
10	Bedrock	MW-91-6	MW-91-6~~6/23/2005~Ground Water~N	N	06/23/05	T	INORG	Vanadium	7440-62-2	9.00E-03		4.5E-03	**2.0E+00**	1.2E-02	7.5E-01			9.7E+02	9.3E-06
10	Overburden	MW-02-01	MW-02-01(102604)NS	N	10/26/04	T	INORG	Arsenic	7440-38-2	1.40E-02		1.0E-02	**1.4E+00**	1.5E-01	9.3E-02			4.3E+00	3.3E-03
10	Overburden	MW-02-01	MW-02-01(102604)NS	N	10/26/04	T	INORG	Chromium (total)	7440-47-3	1.85E-01		1.0E-01	**1.9E+00**	1.1E-02	**1.7E+01**			4.6E+02	4.0E-04
10	Overburden	MW-02-01	MW-02-01(102604)NS	N	10/26/04	T	INORG	Lead	7439-92-1	1.40E-02		4.0E-03	**3.5E+00**	2.9E-02	4.8E-01				
10	Overburden	MW-02-01	MW-02-01(102604)NS	N	10/26/04	T	INORG	Nickel	7440-02-0	1.73E-01		1.0E-01	**1.7E+00**	1.2E-01	**1.4E+00**			7.4E+04	2.3E-06
10	Overburden	MW-02-01	MW-02-01(102604)NS	N	10/26/04	T	INORG	Vanadium	7440-62-2	3.00E-02		4.5E-03	**6.7E+00**	1.2E-02	**2.5E+00**			9.7E+02	3.1E-05
10	Overburden	MW-02-01	MW-02-01~~3/27/2003~Ground Water~N	N	03/27/03	T	INORG	Lead	7439-92-1	8.00E-03		4.0E-03	**2.0E+00**	2.9E-02	2.7E-01				
10	Overburden	MW-02-01	MW-02-01~~6/15/2005~Ground Water~N	N	06/15/05	T	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			4.3E+00	2.6E-03
10	Overburden	MW-02-01	MW-02-01~~6/15/2005~Ground Water~N	N	06/15/05	T	INORG	Vanadium	7440-62-2	5.00E-03		4.5E-03	**1.1E+00**	1.2E-02	4.2E-01			9.7E+02	5.2E-06
10	Overburden	MW-02-01	MW-101_032703	FD	03/27/03	T	INORG	Lead	7439-92-1	1.20E-02		4.0E-03	**3.0E+00**	2.9E-02	4.1E-01				
10	Overburden	MW-02-02	MW-02-02(102804)NS	N	10/28/04	T	INORG	Chromium (total)	7440-47-3	1.15E-01		1.0E-01	**1.2E+00**	1.1E-02	**1.0E+01**			4.6E+02	2.5E-04
10	Overburden	MW-02-02	MW-02-02(102804)NS	N	10/28/04	T	INORG	Lead	7439-92-1	1.10E-02		4.0E-03	**2.8E+00**	2.9E-02	3.7E-01				
10	Overburden	MW-02-02	MW-02-02_112502	N	11/25/02	T	INORG	Lead	7439-92-1	1.00E-02		4.0E-03	**2.5E+00**	2.9E-02	3.4E-01				
10	Overburden	MW-02-02	MW-02-02~~3/27/2003~Ground Water~N	N	03/27/03	T	INORG	Lead	7439-92-1	7.00E-03		4.0E-03	**1.8E+00**	2.9E-02	2.4E-01				
10	Overburden	MW-02-02	MW-02-02~~6/22/2005~Ground Water~N	N	06/22/05	D	INORG	Vanadium	7440-62-2	1.10E-02		4.5E-03	**2.4E+00**	1.2E-02	9.2E-01			9.7E+02	1.1E-05
10	Overburden	MW-02-02	MW-02-02~~6/22/2005~Ground Water~N	N	06/22/05	T	INORG	Vanadium	7440-62-2	1.20E-02		4.5E-03	**2.7E+00**	1.2E-02	1.0E+00			9.7E+02	1.2E-05
10	Overburden	MW-02-03	MW-02-03~~6/21/2005~Ground Water~N	N	06/21/05	D	INORG	Vanadium	7440-62-2	9.00E-03		4.5E-03	**2.0E+00**	1.2E-02	7.5E-01			9.7E+02	9.3E-06
10	Overburden	MW-02-03	MW-02-03~~6/21/2005~Ground Water~N	N	06/21/05	T	INORG	Vanadium	7440-62-2	9.00E-03		4.5E-03	**2.0E+00**	1.2E-02	7.5E-01			9.7E+02	9.3E-06
10	Overburden	MW-02-04	MW-02-04(110104)NS	N	11/01/04	T	INORG	Arsenic	7440-38-2	1.30E-02		1.0E-02	**1.3E+00**	1.5E-01	8.7E-02			4.3E+00	3.0E-03
10	Overburden	MW-02-04	MW-02-04~~6/20/2005~Ground Water~N	N	06/20/05	D	INORG	Vanadium	7440-62-2	8.00E-03		4.5E-03	**1.8E+00**	1.2E-02	6.7E-01			9.7E+02	8.2E-06
10	Overburden	MW-02-04	MW-02-04~~6/20/2005~Ground Water~N	N	06/20/05	T	INORG	Arsenic	7440-38-2	1.50E-02		1.0E-02	**1.5E+00**	1.5E-01	1.0E-01			4.3E+00	3.5E-03
10	Overburden	MW-02-04	MW-02-04~~6/20/2005~Ground Water~N	N	06/20/05	T	INORG	Vanadium	7440-62-2	8.00E-03		4.5E-03	**1.8E+00**	1.2E-02	6.7E-01			9.7E+02	8.2E-06
10	Overburden	MW-02-04	MW-02-04~~7/28/2003~Ground Water~N	N	07/28/03	T	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			4.3E+00	2.6E-03
10	Overburden	MW-04-03	MW-04-03(102804)	N	10/28/04	D	INORG	Arsenic	7440-38-2	2.20E-02		1.0E-02	**2.2E+00**	1.5E-01	1.5E-01			4.3E+00	5.1E-03
10	Overburden	MW-04-03	MW-04-03(102804)	N	10/28/04	T	INORG	Arsenic	7440-38-2	2.20E-02		1.0E-02	**2.2E+00**	1.5E-01	1.5E-01			4.3E+00	5.1E-03
10	Overburden	MW-04-03	MW-04-03~~6/21/2005~Ground Water~N	N	06/21/05	D	INORG	Vanadium	7440-62-2	8.00E-03		4.5E-03	**1.8E+00**	1.2E-02	6.7E-01			9.7E+02	8.2E-06
10	Overburden	MW-04-03	MW-04-03~~6/21/2005~Ground Water~N	N	06/21/05	T	INORG	Vanadium	7440-62-2	8.00E-03		4.5E-03	**1.8E+00**	1.2E-02	6.7E-01			9.7E+02	8.2E-06
10	Overburden	MW-04-04	MW-04-04(102704)	N	10/27/04	D	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			4.3E+00	2.6E-03
10	Overburden	MW-04-04	MW-04-04(102704)	N	10/27/04	T	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			4.3E+00	2.8E-03
10	Overburden	MW-04-04	MW-04-04~~6/13/2005~Ground Water~N	N	06/13/05	D	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			4.3E+00	2.6E-03
10	Overburden	MW-04-04	MW-04-04~~6/13/2005~Ground Water~N	N	06/13/05	D	INORG	Vanadium	7440-62-2	7.00E-03		4.5E-03	**1.6E+00**	1.2E-02	5.8E-01			9.7E+02	7.2E-06
10	Overburden	MW-04-04	MW-04-04~~6/13/2005~Ground Water~N	N	06/13/05	T	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			4.3E+00	2.6E-03
10	Overburden	MW-04-04	MW-04-04~~6/13/2005~Ground Water~N	N	06/13/05	T	INORG	Vanadium	7440-62-2	1.00E-02		4.5E-03	**2.2E+00**	1.2E-02	8.3E-01			9.7E+02	1.0E-05
10	Overburden	MW-91-1	MW-91-1~~6/20/2005~Ground Water~N	N	06/20/05	D	INORG	Vanadium	7440-62-2	5.00E-03		4.5E-03	**1.1E+00**	1.2E-02	4.2E-01			9.7E+02	5.2E-06
10	Overburden	MW-91-2	MW-101(110104) NS	FD	11/01/04	T	INORG	Arsenic	7440-38-2	1.30E-02		1.0E-02	**1.3E+00**	1.5E-01	8.7E-02			4.3E+00	3.0E-03
10	Overburden	MW-91-2	MW91-2(110104)NS	N	11/01/04	T	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			4.3E+00	2.8E-03
10	Overburden	MW-91-2	MW-91-2~~6/24/2005~Ground Water~N	N	06/24/05	T	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			4.3E+00	2.8E-03

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Overburden	TW-23	TW-23	N	01/01/88	T	INORG	Nickel	7440-02-0	5.40E-01		1.0E-01	**5.4E+00**	1.2E-01	**4.5E+00**			7.4E+04	7.3E-06
10	Overburden	TW-30	TW-30	N	01/01/88	T	INORG	Arsenic	7440-38-2	1.90E-02		1.0E-02	**1.9E+00**	1.5E-01	1.3E-01			4.3E+00	4.4E-03
10	Overburden	TW-30	TW-30	N	01/01/88	T	INORG	Copper	7440-50-8	7.90E+02		1.4E+00	**5.6E+02**	2.1E-02	**3.8E+04**			7.4E+03	1.1E-01
10	Overburden	TW-30	TW-30	N	01/01/88	T	INORG	Cyanide (total)	57-12-5	6.38E+02	J	2.0E-01	**3.2E+03**	5.2E-03	**1.2E+05**			5.7E+01	1.1E+01
10	Overburden	TW-30	TW-30	N	01/01/88	T	INORG	Nickel	7440-02-0	8.60E+00		1.0E-01	**8.6E+01**	1.2E-01	**7.2E+01**			7.4E+04	1.2E-04
10	Perched	DRAIN #1	Drain #1	N	07/29/03	T	INORG	Copper	7440-50-8	1.79E-01		1.4E+00	1.3E-01	2.1E-02	**8.6E+00**			7.4E+03	2.4E-05
10	Perched	DRAIN #1	Drain #1	N	07/29/03	T	INORG	Manganese	7439-96-5	1.13E+00		8.6E-01	**1.3E+00**	4.6E+00	2.5E-01			9.1E+03	1.2E-04
10	Perched	DRAIN #1	Drain #1	N	07/29/03	T	INORG	Nickel	7440-02-0	1.33E+01		1.0E-01	**1.3E+02**	1.2E-01	**1.1E+02**			7.4E+04	1.8E-04
10	Perched	DRAIN #1	DRAIN #1_032903	N	03/29/03	T	INORG	Copper	7440-50-8	2.39E-01		1.4E+00	1.7E-01	2.1E-02	**1.2E+01**			7.4E+03	3.2E-05
10	Perched	DRAIN #1	DRAIN #1_032903	N	03/29/03	T	INORG	Nickel	7440-02-0	1.57E+01		1.0E-01	**1.6E+02**	1.2E-01	**1.3E+02**			7.4E+04	2.1E-04
10	Perched	DRAIN #1	DRAIN #1_042702	N	04/27/02	T	INORG	Copper	7440-50-8	2.80E-01		1.4E+00	2.0E-01	2.1E-02	**1.4E+01**			7.4E+03	3.8E-05
10	Perched	DRAIN #1	DRAIN #1_042702	N	04/27/02	T	INORG	Nickel	7440-02-0	1.49E+01		1.0E-01	**1.5E+02**	1.2E-01	**1.2E+02**			7.4E+04	2.0E-04
10	Perched	DRAIN #1	DRAIN #1~~1/10/1995~Ground Water~N	N	01/10/95	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~1/10/1995~Ground Water~N	N	01/10/95	T	INORG	Chromium (total)	7440-47-3	3.20E+00		1.0E-01	**3.2E+01**	1.1E-02	**2.9E+02**			4.6E+02	7.0E-03
10	Perched	DRAIN #1	DRAIN #1~~1/10/1995~Ground Water~N	N	01/10/95	T	INORG	Copper	7440-50-8	2.00E+00		1.4E+00	**1.4E+00**	2.1E-02	**9.6E+01**			7.4E+03	2.7E-04
10	Perched	DRAIN #1	DRAIN #1~~1/10/1995~Ground Water~N	N	01/10/95	T	INORG	Nickel	7440-02-0	8.50E+01		1.0E-01	**8.5E+02**	1.2E-01	**7.1E+02**			7.4E+04	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~1/10/1995~Ground Water~N	N	01/10/95	T	INORG	Zinc	7440-66-6	1.40E+00		2.4E+00	5.8E-01	2.7E-01	**5.2E+00**			1.1E+05	1.3E-05
10	Perched	DRAIN #1	DRAIN #1~~1/15/1991~Ground Water~N	N	01/15/91	T	INORG	Cadmium	7440-43-9	3.30E-01		5.0E-03	**6.6E+01**	4.6E-03	**7.1E+01**			1.9E+02	1.7E-03
10	Perched	DRAIN #1	DRAIN #1~~1/15/1991~Ground Water~N	N	01/15/91	T	INORG	Chromium (total)	7440-47-3	4.00E-02		1.0E-01	4.0E-01	1.1E-02	**3.6E+00**			4.6E+02	8.7E-05
10	Perched	DRAIN #1	DRAIN #1~~1/15/1991~Ground Water~N	N	01/15/91	T	INORG	Copper	7440-50-8	1.10E+01		1.4E+00	**7.9E+00**	2.1E-02	**5.3E+02**			7.4E+03	1.5E-03
10	Perched	DRAIN #1	DRAIN #1~~1/15/1991~Ground Water~N	N	01/15/91	T	INORG	Lead	7439-92-1	1.60E+00		4.0E-03	**4.0E+02**	2.9E-02	**5.4E+01**				
10	Perched	DRAIN #1	DRAIN #1~~1/15/1991~Ground Water~N	N	01/15/91	T	INORG	Nickel	7440-02-0	2.00E+03		1.0E-01	**2.0E+04**	1.2E-01	**1.7E+04**			7.4E+04	2.7E-02
10	Perched	DRAIN #1	DRAIN #1~~1/15/1991~Ground Water~N	N	01/15/91	T	INORG	Zinc	7440-66-6	7.50E+00		2.4E+00	**3.1E+00**	2.7E-01	**2.8E+01**			1.1E+05	6.8E-05
10	Perched	DRAIN #1	DRAIN #1~~1/20/2001~Ground Water~N	N	01/20/01	T	INORG	Copper	7440-50-8	2.20E-01		1.4E+00	1.6E-01	2.1E-02	**1.1E+01**			7.4E+03	3.0E-05
10	Perched	DRAIN #1	DRAIN #1~~1/20/2001~Ground Water~N	N	01/20/01	T	INORG	Nickel	7440-02-0	1.81E+01		1.0E-01	**1.8E+02**	1.2E-01	**1.5E+02**			7.4E+04	2.4E-04
10	Perched	DRAIN #1	DRAIN #1~~1/24/1994~Ground Water~N	N	01/24/94	T	INORG	Copper	7440-50-8	7.80E-01		1.4E+00	5.6E-01	2.1E-02	**3.8E+01**			7.4E+03	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~1/24/1994~Ground Water~N	N	01/24/94	T	INORG	Nickel	7440-02-0	8.40E+01		1.0E-01	**8.4E+02**	1.2E-01	**7.0E+02**			7.4E+04	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~1/24/1994~Ground Water~N	N	01/24/94	T	INORG	Zinc	7440-66-6	4.50E-01		2.4E+00	1.9E-01	2.7E-01	**1.7E+00**			1.1E+05	4.1E-06
10	Perched	DRAIN #1	DRAIN #1~~1/29/2000~Ground Water~N	N	01/29/00	T	INORG	Copper	7440-50-8	2.40E-01		1.4E+00	1.7E-01	2.1E-02	**1.2E+01**			7.4E+03	3.2E-05
10	Perched	DRAIN #1	DRAIN #1~~1/29/2000~Ground Water~N	N	01/29/00	T	INORG	Nickel	7440-02-0	2.20E+01		1.0E-01	**2.2E+02**	1.2E-01	**1.8E+02**			7.4E+04	3.0E-04
10	Perched	DRAIN #1	DRAIN #1~~1/6/1993~Ground Water~N	N	01/06/93	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~1/6/1993~Ground Water~N	N	01/06/93	T	INORG	Chromium (total)	7440-47-3	1.60E+00		1.0E-01	**1.6E+01**	1.1E-02	**1.5E+02**			4.6E+02	3.5E-03
10	Perched	DRAIN #1	DRAIN #1~~1/6/1993~Ground Water~N	N	01/06/93	T	INORG	Copper	7440-50-8	1.80E+00		1.4E+00	**1.3E+00**	2.1E-02	**8.7E+01**			7.4E+03	2.4E-04
10	Perched	DRAIN #1	DRAIN #1~~1/6/1993~Ground Water~N	N	01/06/93	T	INORG	Lead	7439-92-1	1.60E-01		4.0E-03	**4.0E+01**	2.9E-02	**5.4E+00**				
10	Perched	DRAIN #1	DRAIN #1~~1/6/1993~Ground Water~N	N	01/06/93	T	INORG	Nickel	7440-02-0	1.60E+02		1.0E-01	**1.6E+03**	1.2E-01	**1.3E+03**			7.4E+04	2.2E-03
10	Perched	DRAIN #1	DRAIN #1~~1/6/1993~Ground Water~N	N	01/06/93	T	INORG	Zinc	7440-66-6	8.60E-01		2.4E+00	3.6E-01	2.7E-01	**3.2E+00**			1.1E+05	7.8E-06
10	Perched	DRAIN #1	DRAIN #1~~1/9/1992~Ground Water~N	N	01/09/92	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~1/9/1992~Ground Water~N	N	01/09/92	T	INORG	Chromium (total)	7440-47-3	3.50E-01		1.0E-01	**3.5E+00**	1.1E-02	**3.2E+01**			4.6E+02	7.6E-04
10	Perched	DRAIN #1	DRAIN #1~~1/9/1992~Ground Water~N	N	01/09/92	T	INORG	Copper	7440-50-8	2.60E+00		1.4E+00	**1.9E+00**	2.1E-02	**1.3E+02**			7.4E+03	3.5E-04
10	Perched	DRAIN #1	DRAIN #1~~1/9/1992~Ground Water~N	N	01/09/92	T	INORG	Lead	7439-92-1	1.00E-01		4.0E-03	**2.5E+01**	2.9E-02	**3.4E+00**				
10	Perched	DRAIN #1	DRAIN #1~~1/9/1992~Ground Water~N	N	01/09/92	T	INORG	Nickel	7440-02-0	2.20E+02		1.0E-01	**2.2E+03**	1.2E-01	**1.8E+03**			7.4E+04	3.0E-03
10	Perched	DRAIN #1	DRAIN #1~~1/9/1992~Ground Water~N	N	01/09/92	T	INORG	Zinc	7440-66-6	1.10E+00		2.4E+00	4.6E-01	2.7E-01	**4.1E+00**			1.1E+05	1.0E-05
10	Perched	DRAIN #1	DRAIN #1~~10/10/1991~Ground Water~N	N	10/10/91	T	INORG	Cadmium	7440-43-9	8.00E-02		5.0E-03	**1.6E+01**	4.6E-03	**1.7E+01**			1.9E+02	4.2E-04
10	Perched	DRAIN #1	DRAIN #1~~10/10/1991~Ground Water~N	N	10/10/91	T	INORG	Chromium (total)	7440-47-3	4.90E+00		1.0E-01	**4.9E+01**	1.1E-02	**4.5E+02**			4.6E+02	1.1E-02
10	Perched	DRAIN #1	DRAIN #1~~10/10/1991~Ground Water~N	N	10/10/91	T	INORG	Copper	7440-50-8	8.80E+00		1.4E+00	**6.3E+00**	2.1E-02	**4.2E+02**			7.4E+03	1.2E-03
10	Perched	DRAIN #1	DRAIN #1~~10/10/1991~Ground Water~N	N	10/10/91	T	INORG	Lead	7439-92-1	4.30E-01		4.0E-03	**1.1E+02**	2.9E-02	**1.5E+01**				
10	Perched	DRAIN #1	DRAIN #1~~10/10/1991~Ground Water~N	N	10/10/91	T	INORG	Nickel	7440-02-0	6.00E+02		1.0E-01	**6.0E+03**	1.2E-01	**5.0E+03**			7.4E+04	8.1E-03
10	Perched	DRAIN #1	DRAIN #1~~10/10/1991~Ground Water~N	N	10/10/91	T	INORG	Zinc	7440-66-6	2.60E+00		2.4E+00	**1.1E+00**	2.7E-01	**9.6E+00**			1.1E+05	2.4E-05
10	Perched	DRAIN #1	DRAIN #1~~10/10/1996~Ground Water~N	N	10/10/96	T	INORG	Chromium (total)	7440-47-3	4.20E-01		1.0E-01	**4.2E+00**	1.1E-02	**3.8E+01**			4.6E+02	9.1E-04
10	Perched	DRAIN #1	DRAIN #1~~10/10/1996~Ground Water~N	N	10/10/96	T	INORG	Copper	7440-50-8	8.40E-01		1.4E+00	6.0E-01	2.1E-02	**4.1E+01**			7.4E+03	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~10/10/1996~Ground Water~N	N	10/10/96	T	INORG	Nickel	7440-02-0	4.20E+01		1.0E-01	**4.2E+02**	1.2E-01	**3.5E+02**			7.4E+04	5.7E-04
10	Perched	DRAIN #1	DRAIN #1~~10/11/1991~Ground Water~N	N	10/11/91	T	INORG	Chromium (total)	7440-47-3	5.00E+00		1.0E-01	**5.0E+01**	1.1E-02	**4.5E+02**			4.6E+02	1.1E-02
10	Perched	DRAIN #1	DRAIN #1~~10/11/1991~Ground Water~N	N	10/11/91	T	INORG	Copper	7440-50-8	1.60E+01		1.4E+00	**1.1E+01**	2.1E-02	**7.7E+02**			7.4E+03	2.2E-03
10	Perched	DRAIN #1	DRAIN #1~~10/11/1991~Ground Water~N	N	10/11/91	T	INORG	Cyanide (total)	57-12-5	9.00E+00		2.0E-01	**4.5E+01**	5.2E-03	**1.7E+03**			5.7E+01	1.6E-01
10	Perched	DRAIN #1	DRAIN #1~~10/11/1991~Ground Water~N	N	10/11/91	T	INORG	Nickel	7440-02-0	6.18E+02		1.0E-01	**6.2E+03**	1.2E-01	**5.2E+03**			7.4E+04	8.4E-03
10	Perched	DRAIN #1	DRAIN #1~~10/19/1993~Ground Water~N	N	10/19/93	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~10/19/1993~Ground Water~N	N	10/19/93	T	INORG	Chromium (total)	7440-47-3	2.20E-01		1.0E-01	**2.2E+00**	1.1E-02	**2.0E+01**			4.6E+02	4.8E-04
10	Perched	DRAIN #1	DRAIN #1~~10/19/1993~Ground Water~N	N	10/19/93	T	INORG	Copper	7440-50-8	9.70E-01		1.4E+00	6.9E-01	2.1E-02	**4.7E+01**			7.4E+03	1.3E-04
10	Perched	DRAIN #1	DRAIN #1~~10/19/1993~Ground Water~N	N	10/19/93	T	INORG	Lead	7439-92-1	1.20E-01		4.0E-03	**3.0E+01**	2.9E-02	**4.1E+00**				

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Perched	DRAIN #1	DRAIN #1~~10/19/1993~Ground Water~N	N	10/19/93	T	INORG	Nickel	7440-02-0	9.40E+01		1.0E-01	**9.4E+02**	1.2E-01	**7.9E+02**			7.4E+04	1.3E-03
10	Perched	DRAIN #1	DRAIN #1~~10/19/1993~Ground Water~N	N	10/19/93	T	INORG	Zinc	7440-66-6	5.70E-01		2.4E+00	2.4E-01	2.7E-01	**2.1E+00**			1.1E+05	5.2E-06
10	Perched	DRAIN #1	DRAIN #1~~10/19/1994~Ground Water~N	N	10/19/94	T	INORG	Chromium (total)	7440-47-3	5.00E-02		1.0E-01	5.0E-01	1.1E-02	**4.5E+00**			4.6E+02	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~10/19/1994~Ground Water~N	N	10/19/94	T	INORG	Copper	7440-50-8	7.20E-01		1.4E+00	5.1E-01	2.1E-02	**3.5E+01**			7.4E+03	9.7E-05
10	Perched	DRAIN #1	DRAIN #1~~10/19/1994~Ground Water~N	N	10/19/94	T	INORG	Nickel	7440-02-0	6.50E+01		1.0E-01	**6.5E+02**	1.2E-01	**5.4E+02**			7.4E+04	8.8E-04
10	Perched	DRAIN #1	DRAIN #1~~10/19/1994~Ground Water~N	N	10/19/94	T	INORG	Zinc	7440-66-6	3.10E-01		2.4E+00	1.3E-01	2.7E-01	**1.1E+00**			1.1E+05	2.8E-06
10	Perched	DRAIN #1	DRAIN #1~~10/2/1990~Ground Water~N	N	10/02/90	T	INORG	Cadmium	7440-43-9	2.70E-01		5.0E-03	**5.4E+01**	4.6E-03	**5.8E+01**			1.9E+02	1.4E-03
10	Perched	DRAIN #1	DRAIN #1~~10/2/1990~Ground Water~N	N	10/02/90	T	INORG	Chromium (total)	7440-47-3	2.60E+01		1.0E-01	**2.6E+02**	1.1E-02	**2.4E+03**			4.6E+02	5.7E-02
10	Perched	DRAIN #1	DRAIN #1~~10/2/1990~Ground Water~N	N	10/02/90	T	INORG	Copper	7440-50-8	9.40E+00		1.4E+00	**6.7E+00**	2.1E-02	**4.5E+02**			7.4E+03	1.3E-03
10	Perched	DRAIN #1	DRAIN #1~~10/2/1990~Ground Water~N	N	10/02/90	T	INORG	Nickel	7440-02-0	1.40E+03		1.0E-01	**1.4E+04**	1.2E-01	**1.2E+04**			7.4E+04	1.9E-02
10	Perched	DRAIN #1	DRAIN #1~~10/2/1990~Ground Water~N	N	10/02/90	T	INORG	Zinc	7440-66-6	4.90E+00		2.4E+00	**2.0E+00**	2.7E-01	**1.8E+01**			1.1E+05	4.5E-05
10	Perched	DRAIN #1	DRAIN #1~~10/24/1991~Ground Water~N	N	10/24/91	T	INORG	Cadmium	7440-43-9	6.00E-02		5.0E-03	**1.2E+01**	4.6E-03	**1.3E+01**			1.9E+02	3.2E-04
10	Perched	DRAIN #1	DRAIN #1~~10/24/1991~Ground Water~N	N	10/24/91	T	INORG	Chromium (total)	7440-47-3	3.80E-01		1.0E-01	**3.8E+00**	1.1E-02	**3.5E+01**			4.6E+02	8.3E-04
10	Perched	DRAIN #1	DRAIN #1~~10/24/1991~Ground Water~N	N	10/24/91	T	INORG	Copper	7440-50-8	5.90E+00		1.4E+00	**4.2E+00**	2.1E-02	**2.8E+02**			7.4E+03	8.0E-04
10	Perched	DRAIN #1	DRAIN #1~~10/24/1991~Ground Water~N	N	10/24/91	T	INORG	Lead	7439-92-1	2.00E-01		4.0E-03	**5.0E+01**	2.9E-02	**6.8E+00**				
10	Perched	DRAIN #1	DRAIN #1~~10/24/1991~Ground Water~N	N	10/24/91	T	INORG	Nickel	7440-02-0	4.30E+02		1.0E-01	**4.3E+03**	1.2E-01	**3.6E+03**			7.4E+04	5.8E-03
10	Perched	DRAIN #1	DRAIN #1~~10/24/1991~Ground Water~N	N	10/24/91	T	INORG	Zinc	7440-66-6	2.10E+00		2.4E+00	8.8E-01	2.7E-01	**7.7E+00**			1.1E+05	1.9E-05
10	Perched	DRAIN #1	DRAIN #1~~10/25/1991~Ground Water~N	N	10/25/91	T	INORG	Chromium (total)	7440-47-3	6.60E-01		1.0E-01	**6.6E+00**	1.1E-02	**6.0E+01**			4.6E+02	1.4E-03
10	Perched	DRAIN #1	DRAIN #1~~10/25/1991~Ground Water~N	N	10/25/91	T	INORG	Copper	7440-50-8	9.30E+00		1.4E+00	**6.6E+00**	2.1E-02	**4.5E+02**			7.4E+03	1.3E-03
10	Perched	DRAIN #1	DRAIN #1~~10/25/1991~Ground Water~N	N	10/25/91	T	INORG	Cyanide (total)	57-12-5	1.60E+01		2.0E-01	**8.0E+01**	5.2E-03	**3.1E+03**			5.7E+01	2.8E-01
10	Perched	DRAIN #1	DRAIN #1~~10/25/1991~Ground Water~N	N	10/25/91	T	INORG	Nickel	7440-02-0	5.48E+02		1.0E-01	**5.5E+03**	1.2E-01	**4.6E+03**			7.4E+04	7.4E-03
10	Perched	DRAIN #1	DRAIN #1~~10/25/1991~Ground Water~N	N	10/25/91	T	INORG	Zinc	7440-66-6	3.00E+00		2.4E+00	**1.3E+00**	2.7E-01	**1.1E+01**			1.1E+05	2.7E-05
10	Perched	DRAIN #1	DRAIN #1~~10/3/1995~Ground Water~N	N	10/03/95	T	INORG	Copper	7440-50-8	4.80E-01		1.4E+00	3.4E-01	2.1E-02	**2.3E+01**			7.4E+03	6.5E-05
10	Perched	DRAIN #1	DRAIN #1~~10/3/1995~Ground Water~N	N	10/03/95	T	INORG	Nickel	7440-02-0	3.60E+01		1.0E-01	**3.6E+02**	1.2E-01	**3.0E+02**			7.4E+04	4.9E-04
10	Perched	DRAIN #1	DRAIN #1~~10/3/1995~Ground Water~N	N	10/03/95	T	INORG	Zinc	7440-66-6	5.30E-01		2.4E+00	2.2E-01	2.7E-01	**2.0E+00**			1.1E+05	4.8E-06
10	Perched	DRAIN #1	DRAIN #1~~10/30/1999~Ground Water~N	N	10/30/99	T	INORG	Chromium (total)	7440-47-3	3.00E-02		1.0E-01	3.0E-01	1.1E-02	**2.7E+00**			4.6E+02	6.5E-05
10	Perched	DRAIN #1	DRAIN #1~~10/30/1999~Ground Water~N	N	10/30/99	T	INORG	Copper	7440-50-8	2.10E-01		1.4E+00	1.5E-01	2.1E-02	**1.0E+01**			7.4E+03	2.8E-05
10	Perched	DRAIN #1	DRAIN #1~~10/30/1999~Ground Water~N	N	10/30/99	T	INORG	Nickel	7440-02-0	2.00E+01		1.0E-01	**2.0E+02**	1.2E-01	**1.7E+02**			7.4E+04	2.7E-04
10	Perched	DRAIN #1	DRAIN #1~~10/7/2000~Ground Water~N	N	10/07/00	T	INORG	Copper	7440-50-8	3.70E-01		1.4E+00	2.6E-01	2.1E-02	**1.8E+01**			7.4E+03	5.0E-05
10	Perched	DRAIN #1	DRAIN #1~~10/7/2000~Ground Water~N	N	10/07/00	T	INORG	Nickel	7440-02-0	2.40E+01		1.0E-01	**2.4E+02**	1.2E-01	**2.0E+02**			7.4E+04	3.2E-04
10	Perched	DRAIN #1	DRAIN #1~~10/7/2000~Ground Water~N	N	10/07/00	T	INORG	Zinc	7440-66-6	6.00E-01		2.4E+00	2.5E-01	2.7E-01	**2.2E+00**			1.1E+05	5.5E-06
10	Perched	DRAIN #1	DRAIN #1~~10/8/1992~Ground Water~N	N	10/08/92	T	INORG	Cadmium	7440-43-9	5.00E-02		5.0E-03	**1.0E+01**	4.6E-03	**1.1E+01**			1.9E+02	2.6E-04
10	Perched	DRAIN #1	DRAIN #1~~10/8/1992~Ground Water~N	N	10/08/92	T	INORG	Chromium (total)	7440-47-3	3.10E+00		1.0E-01	**3.1E+01**	1.1E-02	**2.8E+02**			4.6E+02	6.7E-03
10	Perched	DRAIN #1	DRAIN #1~~10/8/1992~Ground Water~N	N	10/08/92	T	INORG	Copper	7440-50-8	2.80E+00		1.4E+00	**2.0E+00**	2.1E-02	**1.4E+02**			7.4E+03	3.8E-04
10	Perched	DRAIN #1	DRAIN #1~~10/8/1992~Ground Water~N	N	10/08/92	T	INORG	Lead	7439-92-1	3.70E-01		4.0E-03	**9.3E+01**	2.9E-02	**1.3E+01**				
10	Perched	DRAIN #1	DRAIN #1~~10/8/1992~Ground Water~N	N	10/08/92	T	INORG	Nickel	7440-02-0	1.90E+02		1.0E-01	**1.9E+03**	1.2E-01	**1.6E+03**			7.4E+04	2.6E-03
10	Perched	DRAIN #1	DRAIN #1~~10/8/1992~Ground Water~N	N	10/08/92	T	INORG	Zinc	7440-66-6	1.30E+00		2.4E+00	5.4E-01	2.7E-01	**4.8E+00**			1.1E+05	1.2E-05
10	Perched	DRAIN #1	DRAIN #1~~11/1/1993~Ground Water~N	N	11/01/93	T	INORG	Copper	7440-50-8	5.40E-01		1.4E+00	3.9E-01	2.1E-02	**2.6E+01**			7.4E+03	7.3E-05
10	Perched	DRAIN #1	DRAIN #1~~11/1/1993~Ground Water~N	N	11/01/93	T	INORG	Nickel	7440-02-0	8.10E+01		1.0E-01	**8.1E+02**	1.2E-01	**6.8E+02**			7.4E+04	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~11/10/1994~Ground Water~N	N	11/10/94	T	INORG	Chromium (total)	7440-47-3	2.70E-01		1.0E-01	**2.7E+00**	1.1E-02	**2.5E+01**			4.6E+02	5.9E-04
10	Perched	DRAIN #1	DRAIN #1~~11/10/1994~Ground Water~N	N	11/10/94	T	INORG	Copper	7440-50-8	1.10E+00		1.4E+00	7.9E-01	2.1E-02	**5.3E+01**			7.4E+03	1.5E-04
10	Perched	DRAIN #1	DRAIN #1~~11/10/1994~Ground Water~N	N	11/10/94	T	INORG	Nickel	7440-02-0	5.90E+01		1.0E-01	**5.9E+02**	1.2E-01	**4.9E+02**			7.4E+04	8.0E-04
10	Perched	DRAIN #1	DRAIN #1~~11/10/1994~Ground Water~N	N	11/10/94	T	INORG	Zinc	7440-66-6	4.10E-01		2.4E+00	1.7E-01	2.7E-01	**1.5E+00**			1.1E+05	3.7E-06
10	Perched	DRAIN #1	DRAIN #1~~11/13/2000~Ground Water~N	N	11/13/00	T	INORG	Copper	7440-50-8	1.90E-01		1.4E+00	1.4E-01	2.1E-02	**9.2E+00**			7.4E+03	2.6E-05
10	Perched	DRAIN #1	DRAIN #1~~11/13/2000~Ground Water~N	N	11/13/00	T	INORG	Nickel	7440-02-0	1.80E+01		1.0E-01	**1.8E+02**	1.2E-01	**1.5E+02**			7.4E+04	2.4E-04
10	Perched	DRAIN #1	DRAIN #1~~11/13/2000~Ground Water~N	N	11/13/00	T	INORG	Zinc	7440-66-6	3.20E-01		2.4E+00	1.3E-01	2.7E-01	**1.2E+00**			1.1E+05	2.9E-06
10	Perched	DRAIN #1	DRAIN #1~~11/16/1990~Ground Water~N	N	11/16/90	T	INORG	Cadmium	7440-43-9	4.90E-01		5.0E-03	**9.8E+01**	4.6E-03	**1.1E+02**			1.9E+02	2.6E-03
10	Perched	DRAIN #1	DRAIN #1~~11/16/1990~Ground Water~N	N	11/16/90	T	INORG	Chromium (total)	7440-47-3	2.00E+00		1.0E-01	**2.0E+01**	1.1E-02	**1.8E+02**			4.6E+02	4.3E-03
10	Perched	DRAIN #1	DRAIN #1~~11/16/1990~Ground Water~N	N	11/16/90	T	INORG	Copper	7440-50-8	2.50E+01		1.4E+00	**1.8E+01**	2.1E-02	**1.2E+03**			7.4E+03	3.4E-03
10	Perched	DRAIN #1	DRAIN #1~~11/16/1990~Ground Water~N	N	11/16/90	T	INORG	Lead	7439-92-1	2.70E+00		4.0E-03	**6.8E+02**	2.9E-02	**9.2E+01**				
10	Perched	DRAIN #1	DRAIN #1~~11/16/1990~Ground Water~N	N	11/16/90	T	INORG	Nickel	7440-02-0	2.50E+03		1.0E-01	**2.5E+04**	1.2E-01	**2.1E+04**			7.4E+04	3.4E-02
10	Perched	DRAIN #1	DRAIN #1~~11/16/1990~Ground Water~N	N	11/16/90	T	INORG	Zinc	7440-66-6	8.60E+00		2.4E+00	**3.6E+00**	2.7E-01	**3.2E+01**			1.1E+05	7.8E-05
10	Perched	DRAIN #1	DRAIN #1~~11/29/1993~Ground Water~N	N	11/29/93	T	INORG	Copper	7440-50-8	8.10E-01		1.4E+00	5.8E-01	2.1E-02	**3.9E+01**			7.4E+03	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~11/29/1993~Ground Water~N	N	11/29/93	T	INORG	Nickel	7440-02-0	9.20E+01		1.0E-01	**9.2E+02**	1.2E-01	**7.7E+02**			7.4E+04	1.2E-03
10	Perched	DRAIN #1	DRAIN #1~~11/29/1993~Ground Water~N	N	11/29/93	T	INORG	Zinc	7440-66-6	5.10E-01		2.4E+00	2.1E-01	2.7E-01	**1.9E+00**			1.1E+05	4.6E-06
10	Perched	DRAIN #1	DRAIN #1~~11/5/1992~Ground Water~N	N	11/05/92	T	INORG	Cadmium	7440-43-9	1.40E-01		5.0E-03	**2.8E+01**	4.6E-03	**3.0E+01**			1.9E+02	7.4E-04
10	Perched	DRAIN #1	DRAIN #1~~11/5/1992~Ground Water~N	N	11/05/92	T	INORG	Chromium (total)	7440-47-3	2.60E+01		1.0E-01	**2.6E+02**	1.1E-02	**2.4E+03**			4.6E+02	5.7E-02
10	Perched	DRAIN #1	DRAIN #1~~11/5/1992~Ground Water~N	N	11/05/92	T	INORG	Copper	7440-50-8	1.10E+01		1.4E+00	**7.9E+00**	2.1E-02	**5.3E+02**			7.4E+03	1.5E-03
10	Perched	DRAIN #1	DRAIN #1~~11/5/1992~Ground Water~N	N	11/05/92	T	INORG	Lead	7439-92-1	8.10E-01		4.0E-03	**2.0E+02**	2.9E-02	**2.8E+01**				

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Perched	DRAIN #1	DRAIN #1~~11/5/1992~Ground Water~N	N	11/05/92	T	INORG	Nickel	7440-02-0	5.90E+02		1.0E-01	**5.9E+03**	1.2E-01	**4.9E+03**			7.4E+04	8.0E-03
10	Perched	DRAIN #1	DRAIN #1~~11/5/1992~Ground Water~N	N	11/05/92	T	INORG	Zinc	7440-66-6	7.60E+00		2.4E+00	**3.2E+00**	2.7E-01	**2.8E+01**			1.1E+05	6.9E-05
10	Perched	DRAIN #1	DRAIN #1~~11/7/1991~Ground Water~N	N	11/07/91	T	INORG	Cadmium	7440-43-9	4.00E-02		5.0E-03	**8.0E+00**	4.6E-03	**8.7E+00**			1.9E+02	2.1E-04
10	Perched	DRAIN #1	DRAIN #1~~11/7/1991~Ground Water~N	N	11/07/91	T	INORG	Chromium (total)	7440-47-3	3.80E-01		1.0E-01	**3.8E+00**	1.1E-02	**3.5E+01**			4.6E+02	8.3E-04
10	Perched	DRAIN #1	DRAIN #1~~11/7/1991~Ground Water~N	N	11/07/91	T	INORG	Copper	7440-50-8	2.90E+00		1.4E+00	**2.1E+00**	2.1E-02	**1.4E+02**			7.4E+03	3.9E-04
10	Perched	DRAIN #1	DRAIN #1~~11/7/1991~Ground Water~N	N	11/07/91	T	INORG	Lead	7439-92-1	2.80E-01		4.0E-03	**7.0E+01**	2.9E-02	**9.5E+00**				
10	Perched	DRAIN #1	DRAIN #1~~11/7/1991~Ground Water~N	N	11/07/91	T	INORG	Nickel	7440-02-0	3.90E+02		1.0E-01	**3.9E+03**	1.2E-01	**3.3E+03**			7.4E+04	5.3E-03
10	Perched	DRAIN #1	DRAIN #1~~11/7/1991~Ground Water~N	N	11/07/91	T	INORG	Zinc	7440-66-6	1.50E+00		2.4E+00	6.3E-01	2.7E-01	**5.5E+00**			1.1E+05	1.4E-05
10	Perched	DRAIN #1	DRAIN #1~~11/8/1991~Ground Water~N	N	11/08/91	T	INORG	Chromium (total)	7440-47-3	7.50E+00		1.0E-01	**7.5E+01**	1.1E-02	**6.8E+02**			4.6E+02	1.6E-02
10	Perched	DRAIN #1	DRAIN #1~~11/8/1991~Ground Water~N	N	11/08/91	T	INORG	Copper	7440-50-8	1.70E+01		1.4E+00	**1.2E+01**	2.1E-02	**8.2E+02**			7.4E+03	2.3E-03
10	Perched	DRAIN #1	DRAIN #1~~11/8/1991~Ground Water~N	N	11/08/91	T	INORG	Cyanide (total)	57-12-5	5.60E+00		2.0E-01	**2.8E+01**	5.2E-03	**1.1E+03**			5.7E+01	9.8E-02
10	Perched	DRAIN #1	DRAIN #1~~11/8/1991~Ground Water~N	N	11/08/91	T	INORG	Nickel	7440-02-0	5.48E+02		1.0E-01	**5.5E+03**	1.2E-01	**4.6E+03**			7.4E+04	7.4E-03
10	Perched	DRAIN #1	DRAIN #1~~11/8/1991~Ground Water~N	N	11/08/91	T	INORG	Zinc	7440-66-6	3.80E+00		2.4E+00	**1.6E+00**	2.7E-01	**1.4E+01**			1.1E+05	3.5E-05
10	Perched	DRAIN #1	DRAIN #1~~11/9/1993~Ground Water~N	N	11/09/93	T	INORG	Chromium (total)	7440-47-3	3.50E-01		1.0E-01	**3.5E+00**	1.1E-02	**3.2E+01**			4.6E+02	7.6E-04
10	Perched	DRAIN #1	DRAIN #1~~11/9/1993~Ground Water~N	N	11/09/93	T	INORG	Copper	7440-50-8	1.20E+00		1.4E+00	8.6E-01	2.1E-02	**5.8E+01**			7.4E+03	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~11/9/1993~Ground Water~N	N	11/09/93	T	INORG	Nickel	7440-02-0	1.05E+02		1.0E-01	**1.1E+03**	1.2E-01	**8.8E+02**			7.4E+04	1.4E-03
10	Perched	DRAIN #1	DRAIN #1~~11/9/1993~Ground Water~N	N	11/09/93	T	INORG	Zinc	7440-66-6	5.80E-01		2.4E+00	2.4E-01	2.7E-01	**2.1E+00**			1.1E+05	5.3E-06
10	Perched	DRAIN #1	DRAIN #1~~11/9/1995~Ground Water~N	N	11/09/95	T	INORG	Copper	7440-50-8	4.40E-01		1.4E+00	3.1E-01	2.1E-02	**2.1E+01**			7.4E+03	5.9E-05
10	Perched	DRAIN #1	DRAIN #1~~11/9/1995~Ground Water~N	N	11/09/95	T	INORG	Nickel	7440-02-0	3.50E+01		1.0E-01	**3.5E+02**	1.2E-01	**2.9E+02**			7.4E+04	4.7E-04
10	Perched	DRAIN #1	DRAIN #1~~12/1/1992~Ground Water~N	N	12/01/92	T	INORG	Cadmium	7440-43-9	5.00E-02		5.0E-03	**1.0E+01**	4.6E-03	**1.1E+01**			1.9E+02	2.6E-04
10	Perched	DRAIN #1	DRAIN #1~~12/1/1992~Ground Water~N	N	12/01/92	T	INORG	Chromium (total)	7440-47-3	3.90E+00		1.0E-01	**3.9E+01**	1.1E-02	**3.5E+02**			4.6E+02	8.5E-03
10	Perched	DRAIN #1	DRAIN #1~~12/1/1992~Ground Water~N	N	12/01/92	T	INORG	Copper	7440-50-8	3.60E+00		1.4E+00	**2.6E+00**	2.1E-02	**1.7E+02**			7.4E+03	4.9E-04
10	Perched	DRAIN #1	DRAIN #1~~12/1/1992~Ground Water~N	N	12/01/92	T	INORG	Lead	7439-92-1	3.20E-01		4.0E-03	**8.0E+01**	2.9E-02	**1.1E+01**				
10	Perched	DRAIN #1	DRAIN #1~~12/1/1992~Ground Water~N	N	12/01/92	T	INORG	Nickel	7440-02-0	2.20E+02		1.0E-01	**2.2E+03**	1.2E-01	**1.8E+03**			7.4E+04	3.0E-03
10	Perched	DRAIN #1	DRAIN #1~~12/1/1992~Ground Water~N	N	12/01/92	T	INORG	Zinc	7440-66-6	1.90E+00		2.4E+00	7.9E-01	2.7E-01	**7.0E+00**			1.1E+05	1.7E-05
10	Perched	DRAIN #1	DRAIN #1~~12/18/1990~Ground Water~N	N	12/18/90	T	INORG	Cadmium	7440-43-9	2.90E-01		5.0E-03	**5.8E+01**	4.6E-03	**6.3E+01**			1.9E+02	1.5E-03
10	Perched	DRAIN #1	DRAIN #1~~12/18/1990~Ground Water~N	N	12/18/90	T	INORG	Chromium (total)	7440-47-3	8.30E-01		1.0E-01	**8.3E+00**	1.1E-02	**7.5E+01**			4.6E+02	1.8E-03
10	Perched	DRAIN #1	DRAIN #1~~12/18/1990~Ground Water~N	N	12/18/90	T	INORG	Copper	7440-50-8	1.30E+01		1.4E+00	**9.3E+00**	2.1E-02	**6.3E+02**			7.4E+03	1.8E-03
10	Perched	DRAIN #1	DRAIN #1~~12/18/1990~Ground Water~N	N	12/18/90	T	INORG	Lead	7439-92-1	1.50E+00		4.0E-03	**3.8E+02**	2.9E-02	**5.1E+01**				
10	Perched	DRAIN #1	DRAIN #1~~12/18/1990~Ground Water~N	N	12/18/90	T	INORG	Nickel	7440-02-0	1.50E+03		1.0E-01	**1.5E+04**	1.2E-01	**1.3E+04**			7.4E+04	2.0E-02
10	Perched	DRAIN #1	DRAIN #1~~12/18/1990~Ground Water~N	N	12/18/90	T	INORG	Zinc	7440-66-6	6.10E+00		2.4E+00	**2.5E+00**	2.7E-01	**2.2E+01**			1.1E+05	5.5E-05
10	Perched	DRAIN #1	DRAIN #1~~12/21/1993~Ground Water~N	N	12/21/93	T	INORG	Cadmium	7440-43-9	2.00E-02		5.0E-03	**4.0E+00**	4.6E-03	**4.3E+00**			1.9E+02	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~12/21/1993~Ground Water~N	N	12/21/93	T	INORG	Chromium (total)	7440-47-3	2.50E-01		1.0E-01	**2.5E+00**	1.1E-02	**2.3E+01**			4.6E+02	5.4E-04
10	Perched	DRAIN #1	DRAIN #1~~12/21/1993~Ground Water~N	N	12/21/93	T	INORG	Copper	7440-50-8	9.00E-01		1.4E+00	6.4E-01	2.1E-02	**4.3E+01**			7.4E+03	1.2E-04
10	Perched	DRAIN #1	DRAIN #1~~12/21/1993~Ground Water~N	N	12/21/93	T	INORG	Lead	7439-92-1	1.00E-01		4.0E-03	**2.5E+01**	2.9E-02	**3.4E+00**				
10	Perched	DRAIN #1	DRAIN #1~~12/21/1993~Ground Water~N	N	12/21/93	T	INORG	Nickel	7440-02-0	8.70E+01		1.0E-01	**8.7E+02**	1.2E-01	**7.3E+02**			7.4E+04	1.2E-03
10	Perched	DRAIN #1	DRAIN #1~~12/21/1993~Ground Water~N	N	12/21/93	T	INORG	Zinc	7440-66-6	5.00E-01		2.4E+00	2.1E-01	2.7E-01	**1.8E+00**			1.1E+05	4.5E-06
10	Perched	DRAIN #1	DRAIN #1~~12/4/1999~Ground Water~N	N	12/04/99	T	INORG	Copper	7440-50-8	3.20E-01		1.4E+00	2.3E-01	2.1E-02	**1.5E+01**			7.4E+03	4.3E-05
10	Perched	DRAIN #1	DRAIN #1~~12/4/1999~Ground Water~N	N	12/04/99	T	INORG	Nickel	7440-02-0	2.30E+01		1.0E-01	**2.3E+02**	1.2E-01	**1.9E+02**			7.4E+04	3.1E-04
10	Perched	DRAIN #1	DRAIN #1~~12/5/1991~Ground Water~N	N	12/05/91	T	INORG	Cadmium	7440-43-9	2.00E-02		5.0E-03	**4.0E+00**	4.6E-03	**4.3E+00**			1.9E+02	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~12/5/1991~Ground Water~N	N	12/05/91	T	INORG	Chromium (total)	7440-47-3	5.40E-01		1.0E-01	**5.4E+00**	1.1E-02	**4.9E+01**			4.6E+02	1.2E-03
10	Perched	DRAIN #1	DRAIN #1~~12/5/1991~Ground Water~N	N	12/05/91	T	INORG	Copper	7440-50-8	2.50E+00		1.4E+00	**1.8E+00**	2.1E-02	**1.2E+02**			7.4E+03	3.4E-04
10	Perched	DRAIN #1	DRAIN #1~~12/5/1991~Ground Water~N	N	12/05/91	T	INORG	Lead	7439-92-1	8.00E-02		4.0E-03	**2.0E+01**	2.9E-02	**2.7E+00**				
10	Perched	DRAIN #1	DRAIN #1~~12/5/1991~Ground Water~N	N	12/05/91	T	INORG	Nickel	7440-02-0	4.30E+02		1.0E-01	**4.3E+03**	1.2E-01	**3.6E+03**			7.4E+04	5.8E-03
10	Perched	DRAIN #1	DRAIN #1~~12/5/1991~Ground Water~N	N	12/05/91	T	INORG	Zinc	7440-66-6	1.30E+00		2.4E+00	5.4E-01	2.7E-01	**4.8E+00**			1.1E+05	1.2E-05
10	Perched	DRAIN #1	DRAIN #1~~12/6/1995~Ground Water~N	N	12/06/95	T	INORG	Copper	7440-50-8	4.40E-01		1.4E+00	3.1E-01	2.1E-02	**2.1E+01**			7.4E+03	5.9E-05
10	Perched	DRAIN #1	DRAIN #1~~12/6/1995~Ground Water~N	N	12/06/95	T	INORG	Nickel	7440-02-0	3.60E+01		1.0E-01	**3.6E+02**	1.2E-01	**3.0E+02**			7.4E+04	4.9E-04
10	Perched	DRAIN #1	DRAIN #1~~12/7/1994~Ground Water~N	N	12/07/94	T	INORG	Copper	7440-50-8	3.60E-01		1.4E+00	2.6E-01	2.1E-02	**1.7E+01**			7.4E+03	4.9E-05
10	Perched	DRAIN #1	DRAIN #1~~12/7/1994~Ground Water~N	N	12/07/94	T	INORG	Nickel	7440-02-0	3.10E+01		1.0E-01	**3.1E+02**	1.2E-01	**2.6E+02**			7.4E+04	4.2E-04
10	Perched	DRAIN #1	DRAIN #1~~12/7/1994~Ground Water~N	N	12/07/94	T	INORG	Zinc	7440-66-6	7.80E-01		2.4E+00	3.3E-01	2.7E-01	**2.9E+00**			1.1E+05	7.1E-06
10	Perched	DRAIN #1	DRAIN #1~~12/9/2000~Ground Water~N	N	12/09/00	T	INORG	Chromium (total)	7440-47-3	2.00E-02		1.0E-01	2.0E-01	1.1E-02	**1.8E+00**			4.6E+02	4.3E-05
10	Perched	DRAIN #1	DRAIN #1~~12/9/2000~Ground Water~N	N	12/09/00	T	INORG	Copper	7440-50-8	2.30E-01		1.4E+00	1.6E-01	2.1E-02	**1.1E+01**			7.4E+03	3.1E-05
10	Perched	DRAIN #1	DRAIN #1~~12/9/2000~Ground Water~N	N	12/09/00	T	INORG	Nickel	7440-02-0	1.90E+01		1.0E-01	**1.9E+02**	1.2E-01	**1.6E+02**			7.4E+04	2.6E-04
10	Perched	DRAIN #1	DRAIN #1~~2/1/1994~Ground Water~N	N	02/01/94	T	INORG	Chromium (total)	7440-47-3	7.20E-01		1.0E-01	**7.2E+00**	1.1E-02	**6.5E+01**			4.6E+02	1.6E-03
10	Perched	DRAIN #1	DRAIN #1~~2/1/1994~Ground Water~N	N	02/01/94	T	INORG	Copper	7440-50-8	1.40E+00		1.4E+00	1.0E+00	2.1E-02	**6.8E+01**			7.4E+03	1.9E-04
10	Perched	DRAIN #1	DRAIN #1~~2/1/1994~Ground Water~N	N	02/01/94	T	INORG	Nickel	7440-02-0	1.10E+02		1.0E-01	**1.1E+03**	1.2E-01	**9.2E+02**			7.4E+04	1.5E-03
10	Perched	DRAIN #1	DRAIN #1~~2/1/1994~Ground Water~N	N	02/01/94	T	INORG	Zinc	7440-66-6	6.90E-01		2.4E+00	2.9E-01	2.7E-01	**2.5E+00**			1.1E+05	6.3E-06
10	Perched	DRAIN #1	DRAIN #1~~2/10/1995~Ground Water~N	N	02/10/95	T	INORG	Chromium (total)	7440-47-3	5.50E-01		1.0E-01	**5.5E+00**	1.1E-02	**5.0E+01**			4.6E+02	1.2E-03
10	Perched	DRAIN #1	DRAIN #1~~2/10/1995~Ground Water~N	N	02/10/95	T	INORG	Copper	7440-50-8	1.00E+00		1.4E+00	7.1E-01	2.1E-02	**4.8E+01**			7.4E+03	1.4E-04

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Perched	DRAIN #1	DRAIN #1~~2/10/1995~Ground Water~N	N	02/10/95	T	INORG	Lead	7439-92-1	8.00E-02		4.0E-03	**2.0E+01**	2.9E-02	**2.7E+00**				
10	Perched	DRAIN #1	DRAIN #1~~2/10/1995~Ground Water~N	N	02/10/95	T	INORG	Nickel	7440-02-0	6.40E+01		1.0E-01	**6.4E+02**	1.2E-01	**5.4E+02**			7.4E+04	8.6E-04
10	Perched	DRAIN #1	DRAIN #1~~2/10/1995~Ground Water~N	N	02/10/95	T	INORG	Zinc	7440-66-6	4.20E-01		2.4E+00	1.8E-01	2.7E-01	**1.5E+00**			1.1E+05	3.8E-06
10	Perched	DRAIN #1	DRAIN #1~~2/11/2002~Ground Water~N	N	02/11/02	T	INORG	Copper	7440-50-8	1.90E-01		1.4E+00	1.4E-01	2.1E-02	**9.2E+00**			7.4E+03	2.6E-05
10	Perched	DRAIN #1	DRAIN #1~~2/11/2002~Ground Water~N	N	02/11/02	T	INORG	Nickel	7440-02-0	1.51E+01		1.0E-01	**1.5E+02**	1.2E-01	**1.3E+02**			7.4E+04	2.0E-04
10	Perched	DRAIN #1	DRAIN #1~~2/21/1992~Ground Water~N	N	02/21/92	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~2/21/1992~Ground Water~N	N	02/21/92	T	INORG	Copper	7440-50-8	1.90E+00		1.4E+00	**1.4E+00**	2.1E-02	**9.2E+01**			7.4E+03	2.6E-04
10	Perched	DRAIN #1	DRAIN #1~~2/21/1992~Ground Water~N	N	02/21/92	T	INORG	Lead	7439-92-1	1.70E-01		4.0E-03	**4.3E+01**	2.9E-02	**5.8E+00**				
10	Perched	DRAIN #1	DRAIN #1~~2/21/1992~Ground Water~N	N	02/21/92	T	INORG	Nickel	7440-02-0	2.00E+02		1.0E-01	**2.0E+03**	1.2E-01	**1.7E+03**			7.4E+04	2.7E-03
10	Perched	DRAIN #1	DRAIN #1~~2/21/1992~Ground Water~N	N	02/21/92	T	INORG	Zinc	7440-66-6	9.00E-01		2.4E+00	3.8E-01	2.7E-01	**3.3E+00**			1.1E+05	8.2E-06
10	Perched	DRAIN #1	DRAIN #1~~2/4/1993~Ground Water~N	N	02/04/93	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~2/4/1993~Ground Water~N	N	02/04/93	T	INORG	Chromium (total)	7440-47-3	2.00E+00		1.0E-01	**2.0E+01**	1.1E-02	**1.8E+02**			4.6E+02	4.3E-03
10	Perched	DRAIN #1	DRAIN #1~~2/4/1993~Ground Water~N	N	02/04/93	T	INORG	Copper	7440-50-8	2.10E+00		1.4E+00	**1.5E+00**	2.1E-02	**1.0E+02**			7.4E+03	2.8E-04
10	Perched	DRAIN #1	DRAIN #1~~2/4/1993~Ground Water~N	N	02/04/93	T	INORG	Lead	7439-92-1	1.70E-01		4.0E-03	**4.3E+01**	2.9E-02	**5.8E+00**				
10	Perched	DRAIN #1	DRAIN #1~~2/4/1993~Ground Water~N	N	02/04/93	T	INORG	Nickel	7440-02-0	1.60E+02		1.0E-01	**1.6E+03**	1.2E-01	**1.3E+03**			7.4E+04	2.2E-03
10	Perched	DRAIN #1	DRAIN #1~~2/4/1993~Ground Water~N	N	02/04/93	T	INORG	Zinc	7440-66-6	1.10E+00		2.4E+00	4.6E-01	2.7E-01	**4.1E+00**			1.1E+05	1.0E-05
10	Perched	DRAIN #1	DRAIN #1~~3/1/1994~Ground Water~N	N	03/01/94	T	INORG	Chromium (total)	7440-47-3	3.20E-02		1.0E-01	3.2E-01	1.1E-02	**2.9E+00**			4.6E+02	7.0E-05
10	Perched	DRAIN #1	DRAIN #1~~3/1/1994~Ground Water~N	N	03/01/94	T	INORG	Copper	7440-50-8	5.87E-01		1.4E+00	4.2E-01	2.1E-02	**2.8E+01**			7.4E+03	7.9E-05
10	Perched	DRAIN #1	DRAIN #1~~3/1/1994~Ground Water~N	N	03/01/94	T	INORG	Nickel	7440-02-0	7.76E+01		1.0E-01	**7.8E+02**	1.2E-01	**6.5E+02**			7.4E+04	1.0E-03
10	Perched	DRAIN #1	DRAIN #1~~3/14/1994~Ground Water~N	N	03/14/94	T	INORG	Chromium (total)	7440-47-3	8.30E-01		1.0E-01	**8.3E+00**	1.1E-02	**7.5E+01**			4.6E+02	1.8E-03
10	Perched	DRAIN #1	DRAIN #1~~3/14/1994~Ground Water~N	N	03/14/94	T	INORG	Copper	7440-50-8	1.50E+00		1.4E+00	**1.1E+00**	2.1E-02	**7.2E+01**			7.4E+03	2.0E-04
10	Perched	DRAIN #1	DRAIN #1~~3/14/1994~Ground Water~N	N	03/14/94	T	INORG	Lead	7439-92-1	6.00E-02		4.0E-03	**1.5E+01**	2.9E-02	**2.0E+00**				
10	Perched	DRAIN #1	DRAIN #1~~3/14/1994~Ground Water~N	N	03/14/94	T	INORG	Nickel	7440-02-0	8.50E+01		1.0E-01	**8.5E+02**	1.2E-01	**7.1E+02**			7.4E+04	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~3/14/1994~Ground Water~N	N	03/14/94	T	INORG	Zinc	7440-66-6	8.00E-01		2.4E+00	3.3E-01	2.7E-01	**2.9E+00**			1.1E+05	7.3E-06
10	Perched	DRAIN #1	DRAIN #1~~3/18/2000~Ground Water~N	N	03/18/00	D	INORG	Copper	7440-50-8	2.50E-01		1.4E+00	1.8E-01	2.1E-02	**1.2E+01**			7.4E+03	3.4E-05
10	Perched	DRAIN #1	DRAIN #1~~3/18/2000~Ground Water~N	N	03/18/00	D	INORG	Nickel	7440-02-0	2.16E+01		1.0E-01	**2.2E+02**	1.2E-01	**1.8E+02**			7.4E+04	2.9E-04
10	Perched	DRAIN #1	DRAIN #1~~3/18/2000~Ground Water~N	N	03/18/00	T	INORG	Copper	7440-50-8	1.50E-01		1.4E+00	1.1E-01	2.1E-02	**7.2E+00**			7.4E+03	2.0E-05
10	Perched	DRAIN #1	DRAIN #1~~3/18/2000~Ground Water~N	N	03/18/00	T	INORG	Nickel	7440-02-0	2.30E+01		1.0E-01	**2.3E+02**	1.2E-01	**1.9E+02**			7.4E+04	3.1E-04
10	Perched	DRAIN #1	DRAIN #1~~3/20/1999~Ground Water~N	N	03/20/99	T	INORG	Copper	7440-50-8	2.10E-01		1.4E+00	1.5E-01	2.1E-02	**1.0E+01**			7.4E+03	2.8E-05
10	Perched	DRAIN #1	DRAIN #1~~3/20/1999~Ground Water~N	N	03/20/99	T	INORG	Nickel	7440-02-0	2.40E+01		1.0E-01	**2.4E+02**	1.2E-01	**2.0E+02**			7.4E+04	3.2E-04
10	Perched	DRAIN #1	DRAIN #1~~3/22/1995~Ground Water~N	N	03/22/95	T	INORG	Copper	7440-50-8	4.40E-01		1.4E+00	3.1E-01	2.1E-02	**2.1E+01**			7.4E+03	5.9E-05
10	Perched	DRAIN #1	DRAIN #1~~3/22/1995~Ground Water~N	N	03/22/95	T	INORG	Nickel	7440-02-0	4.70E+01		1.0E-01	**4.7E+02**	1.2E-01	**3.9E+02**			7.4E+04	6.4E-04
10	Perched	DRAIN #1	DRAIN #1~~3/24/2001~Ground Water~N	N	03/24/01	T	INORG	Copper	7440-50-8	1.50E-01		1.4E+00	1.1E-01	2.1E-02	**7.2E+00**			7.4E+03	2.0E-05
10	Perched	DRAIN #1	DRAIN #1~~3/24/2001~Ground Water~N	N	03/24/01	T	INORG	Nickel	7440-02-0	1.66E+01		1.0E-01	**1.7E+02**	1.2E-01	**1.4E+02**			7.4E+04	2.2E-04
10	Perched	DRAIN #1	DRAIN #1~~3/30/1994~Ground Water~N	N	03/30/94	T	INORG	Chromium (total)	7440-47-3	2.00E-01		1.0E-01	**2.0E+00**	1.1E-02	**1.8E+01**			4.6E+02	4.3E-04
10	Perched	DRAIN #1	DRAIN #1~~3/30/1994~Ground Water~N	N	03/30/94	T	INORG	Copper	7440-50-8	9.30E-01		1.4E+00	6.6E-01	2.1E-02	**4.5E+01**			7.4E+03	1.3E-04
10	Perched	DRAIN #1	DRAIN #1~~3/30/1994~Ground Water~N	N	03/30/94	T	INORG	Nickel	7440-02-0	7.80E+01		1.0E-01	**7.8E+02**	1.2E-01	**6.5E+02**			7.4E+04	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~3/30/1994~Ground Water~N	N	03/30/94	T	INORG	Zinc	7440-66-6	3.90E-01		2.4E+00	1.6E-01	2.7E-01	**1.4E+00**			1.1E+05	3.5E-06
10	Perched	DRAIN #1	DRAIN #1~~3/4/1993~Ground Water~N	N	03/04/93	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~3/4/1993~Ground Water~N	N	03/04/93	T	INORG	Chromium (total)	7440-47-3	1.80E+00		1.0E-01	**1.8E+01**	1.1E-02	**1.6E+02**			4.6E+02	3.9E-03
10	Perched	DRAIN #1	DRAIN #1~~3/4/1993~Ground Water~N	N	03/04/93	T	INORG	Copper	7440-50-8	3.20E+00		1.4E+00	**2.3E+00**	2.1E-02	**1.5E+02**			7.4E+03	4.3E-04
10	Perched	DRAIN #1	DRAIN #1~~3/4/1993~Ground Water~N	N	03/04/93	T	INORG	Lead	7439-92-1	1.30E-01		4.0E-03	**3.3E+01**	2.9E-02	**4.4E+00**				
10	Perched	DRAIN #1	DRAIN #1~~3/4/1993~Ground Water~N	N	03/04/93	T	INORG	Nickel	7440-02-0	1.60E+02		1.0E-01	**1.6E+03**	1.2E-01	**1.3E+03**			7.4E+04	2.2E-03
10	Perched	DRAIN #1	DRAIN #1~~3/4/1993~Ground Water~N	N	03/04/93	T	INORG	Zinc	7440-66-6	2.20E+00		2.4E+00	9.2E-01	2.7E-01	**8.1E+00**			1.1E+05	2.0E-05
10	Perched	DRAIN #1	DRAIN #1~~3/4/1994~Ground Water~N	N	03/04/94	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~3/4/1994~Ground Water~N	N	03/04/94	T	INORG	Chromium (total)	7440-47-3	2.70E-01		1.0E-01	**2.7E+00**	1.1E-02	**2.5E+01**			4.6E+02	5.9E-04
10	Perched	DRAIN #1	DRAIN #1~~3/4/1994~Ground Water~N	N	03/04/94	T	INORG	Copper	7440-50-8	1.10E+00		1.4E+00	7.9E-01	2.1E-02	**5.3E+01**			7.4E+03	1.5E-04
10	Perched	DRAIN #1	DRAIN #1~~3/4/1994~Ground Water~N	N	03/04/94	T	INORG	Lead	7439-92-1	1.30E-01		4.0E-03	**3.3E+01**	2.9E-02	**4.4E+00**				
10	Perched	DRAIN #1	DRAIN #1~~3/4/1994~Ground Water~N	N	03/04/94	T	INORG	Nickel	7440-02-0	9.40E-01		1.0E-01	**9.4E+00**	1.2E-01	**7.9E+00**			7.4E+04	1.3E-05
10	Perched	DRAIN #1	DRAIN #1~~3/4/1994~Ground Water~N	N	03/04/94	T	INORG	Zinc	7440-66-6	4.80E-01		2.4E+00	2.0E-01	2.7E-01	**1.8E+00**			1.1E+05	4.4E-06
10	Perched	DRAIN #1	DRAIN #1~~4/1/1994~Ground Water~N	N	04/01/94	T	INORG	Copper	7440-50-8	7.38E-01		1.4E+00	5.3E-01	2.1E-02	**3.6E+01**			7.4E+03	1.0E-04
10	Perched	DRAIN #1	DRAIN #1~~4/1/1994~Ground Water~N	N	04/01/94	T	INORG	Nickel	7440-02-0	8.02E+01		1.0E-01	**8.0E+02**	1.2E-01	**6.7E+02**			7.4E+04	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~4/10/1990~Ground Water~N	N	04/10/90	T	INORG	Cadmium	7440-43-9	7.00E-01		5.0E-03	**1.4E+02**	4.6E-03	**1.5E+02**			1.9E+02	3.7E-03
10	Perched	DRAIN #1	DRAIN #1~~4/10/1990~Ground Water~N	N	04/10/90	T	INORG	Chromium (total)	7440-47-3	8.90E+01		1.0E-01	**8.9E+02**	1.1E-02	**8.1E+03**			4.6E+02	1.9E-01
10	Perched	DRAIN #1	DRAIN #1~~4/10/1990~Ground Water~N	N	04/10/90	T	INORG	Copper	7440-50-8	8.00E+00		1.4E+00	**5.7E+00**	2.1E-02	**3.9E+02**			7.4E+03	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~4/10/1990~Ground Water~N	N	04/10/90	T	INORG	Lead	7439-92-1	3.80E+00		4.0E-03	**9.5E+02**	2.9E-02	**1.3E+02**				
10	Perched	DRAIN #1	DRAIN #1~~4/10/1990~Ground Water~N	N	04/10/90	T	INORG	Nickel	7440-02-0	3.60E+03		1.0E-01	**3.6E+04**	1.2E-01	**3.0E+04**			7.4E+04	4.9E-02
10	Perched	DRAIN #1	DRAIN #1~~4/10/1990~Ground Water~N	N	04/10/90	T	INORG	Zinc	7440-66-6	1.20E+01		2.4E+00	**5.0E+00**	2.7E-01	**4.4E+01**			1.1E+05	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~4/13/1993~Ground Water~N	N	04/13/93	T	INORG	Chromium (total)	7440-47-3	1.20E-01		1.0E-01	**1.2E+00**	1.1E-02	**1.1E+01**			4.6E+02	2.6E-04

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Perched	DRAIN #1	DRAIN #1~~4/13/1993~Ground Water~N	N	04/13/93	T	INORG	Copper	7440-50-8	1.50E+00		1.4E+00	**1.1E+00**	2.1E-02	**7.2E+01**			7.4E+03	2.0E-04
10	Perched	DRAIN #1	DRAIN #1~~4/13/1993~Ground Water~N	N	04/13/93	T	INORG	Nickel	7440-02-0	1.00E+02		1.0E-01	**1.0E+03**	1.2E-01	**8.4E+02**			7.4E+04	1.4E-03
10	Perched	DRAIN #1	DRAIN #1~~4/13/1993~Ground Water~N	N	04/13/93	T	INORG	Zinc	7440-66-6	6.00E-01		2.4E+00	2.5E-01	2.7E-01	**2.2E+00**			1.1E+05	5.5E-06
10	Perched	DRAIN #1	DRAIN #1~~4/19/1991~Ground Water~N	N	04/19/91	T	INORG	Cadmium	7440-43-9	3.90E-01		5.0E-03	**7.8E+01**	4.6E-03	**8.4E+01**			1.9E+02	2.1E-03
10	Perched	DRAIN #1	DRAIN #1~~4/19/1991~Ground Water~N	N	04/19/91	T	INORG	Copper	7440-50-8	1.80E+01		1.4E+00	**1.3E+01**	2.1E-02	**8.7E+02**			7.4E+03	2.4E-03
10	Perched	DRAIN #1	DRAIN #1~~4/19/1991~Ground Water~N	N	04/19/91	T	INORG	Lead	7439-92-1	2.30E+00		4.0E-03	**5.8E+02**	2.9E-02	**7.8E+01**				
10	Perched	DRAIN #1	DRAIN #1~~4/19/1991~Ground Water~N	N	04/19/91	T	INORG	Nickel	7440-02-0	2.20E+03		1.0E-01	**2.2E+04**	1.2E-01	**1.8E+04**			7.4E+04	3.0E-02
10	Perched	DRAIN #1	DRAIN #1~~4/19/1991~Ground Water~N	N	04/19/91	T	INORG	Zinc	7440-66-6	9.10E+00		2.4E+00	**3.8E+00**	2.7E-01	**3.4E+01**			1.1E+05	8.3E-05
10	Perched	DRAIN #1	DRAIN #1~~4/20/1995~Ground Water~N	N	04/20/95	T	INORG	Copper	7440-50-8	4.90E-01		1.4E+00	3.5E-01	2.1E-02	**2.4E+01**			7.4E+03	6.6E-05
10	Perched	DRAIN #1	DRAIN #1~~4/20/1995~Ground Water~N	N	04/20/95	T	INORG	Nickel	7440-02-0	4.40E+01		1.0E-01	**4.4E+02**	1.2E-01	**3.7E+02**			7.4E+04	5.9E-04
10	Perched	DRAIN #1	DRAIN #1~~4/21/1994~Ground Water~N	N	04/21/94	T	INORG	Chromium (total)	7440-47-3	1.10E-01		1.0E-01	**1.1E+00**	1.1E-02	**1.0E+01**			4.6E+02	2.4E-04
10	Perched	DRAIN #1	DRAIN #1~~4/21/1994~Ground Water~N	N	04/21/94	T	INORG	Copper	7440-50-8	7.50E-01		1.4E+00	5.4E-01	2.1E-02	**3.6E+01**			7.4E+03	1.0E-04
10	Perched	DRAIN #1	DRAIN #1~~4/21/1994~Ground Water~N	N	04/21/94	T	INORG	Nickel	7440-02-0	6.50E+01		1.0E-01	**6.5E+02**	1.2E-01	**5.4E+02**			7.4E+04	8.8E-04
10	Perched	DRAIN #1	DRAIN #1~~4/21/1994~Ground Water~N	N	04/21/94	T	INORG	Zinc	7440-66-6	3.80E-01		2.4E+00	1.6E-01	2.7E-01	**1.4E+00**			1.1E+05	3.5E-06
10	Perched	DRAIN #1	DRAIN #1~~4/29/2000~Ground Water~N	N	04/29/00	T	INORG	Copper	7440-50-8	1.10E-01		1.4E+00	7.9E-02	2.1E-02	**5.3E+00**			7.4E+03	1.5E-05
10	Perched	DRAIN #1	DRAIN #1~~4/29/2000~Ground Water~N	N	04/29/00	T	INORG	Nickel	7440-02-0	2.20E+01		1.0E-01	**2.2E+02**	1.2E-01	**1.8E+02**			7.4E+04	3.0E-04
10	Perched	DRAIN #1	DRAIN #1~~5/1/1991~Ground Water~N	N	05/01/91	T	INORG	Cadmium	7440-43-9	1.90E-01		5.0E-03	**3.8E+01**	4.6E-03	**4.1E+01**			1.9E+02	1.0E-03
10	Perched	DRAIN #1	DRAIN #1~~5/1/1991~Ground Water~N	N	05/01/91	T	INORG	Chromium (total)	7440-47-3	2.60E-01		1.0E-01	**2.6E+00**	1.1E-02	**2.4E+01**			4.6E+02	5.7E-04
10	Perched	DRAIN #1	DRAIN #1~~5/1/1991~Ground Water~N	N	05/01/91	T	INORG	Copper	7440-50-8	9.10E+00		1.4E+00	**6.5E+00**	2.1E-02	**4.4E+02**			7.4E+03	1.2E-03
10	Perched	DRAIN #1	DRAIN #1~~5/1/1991~Ground Water~N	N	05/01/91	T	INORG	Lead	7439-92-1	1.00E+00		4.0E-03	**2.5E+02**	2.9E-02	**3.4E+01**				
10	Perched	DRAIN #1	DRAIN #1~~5/1/1991~Ground Water~N	N	05/01/91	T	INORG	Nickel	7440-02-0	1.10E+03		1.0E-01	**1.1E+04**	1.2E-01	**9.2E+03**			7.4E+04	1.5E-02
10	Perched	DRAIN #1	DRAIN #1~~5/1/1991~Ground Water~N	N	05/01/91	T	INORG	Zinc	7440-66-6	4.60E+00		2.4E+00	**1.9E+00**	2.7E-01	**1.7E+01**			1.1E+05	4.2E-05
10	Perched	DRAIN #1	DRAIN #1~~5/14/1992~Ground Water~N	N	05/14/92	T	INORG	Cadmium	7440-43-9	4.00E-02		5.0E-03	**8.0E+00**	4.6E-03	**8.7E+00**			1.9E+02	2.1E-04
10	Perched	DRAIN #1	DRAIN #1~~5/14/1992~Ground Water~N	N	05/14/92	T	INORG	Chromium (total)	7440-47-3	4.00E-02		1.0E-01	4.0E-01	1.1E-02	**3.6E+00**			4.6E+02	8.7E-05
10	Perched	DRAIN #1	DRAIN #1~~5/14/1992~Ground Water~N	N	05/14/92	T	INORG	Copper	7440-50-8	2.70E+00		1.4E+00	**1.9E+00**	2.1E-02	**1.3E+02**			7.4E+03	3.6E-04
10	Perched	DRAIN #1	DRAIN #1~~5/14/1992~Ground Water~N	N	05/14/92	T	INORG	Lead	7439-92-1	2.00E-01		4.0E-03	**5.0E+01**	2.9E-02	**6.8E+00**				
10	Perched	DRAIN #1	DRAIN #1~~5/14/1992~Ground Water~N	N	05/14/92	T	INORG	Nickel	7440-02-0	1.70E+02		1.0E-01	**1.7E+03**	1.2E-01	**1.4E+03**			7.4E+04	2.3E-03
10	Perched	DRAIN #1	DRAIN #1~~5/14/1992~Ground Water~N	N	05/14/92	T	INORG	Zinc	7440-66-6	9.00E-01		2.4E+00	3.8E-01	2.7E-01	**3.3E+00**			1.1E+05	8.2E-06
10	Perched	DRAIN #1	DRAIN #1~~5/18/1994~Ground Water~N	N	05/18/94	T	INORG	Chromium (total)	7440-47-3	1.20E-01		1.0E-01	**1.2E+00**	1.1E-02	**1.1E+01**			4.6E+02	2.6E-04
10	Perched	DRAIN #1	DRAIN #1~~5/18/1994~Ground Water~N	N	05/18/94	T	INORG	Copper	7440-50-8	8.40E-01		1.4E+00	6.0E-01	2.1E-02	**4.1E+01**			7.4E+03	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~5/18/1994~Ground Water~N	N	05/18/94	T	INORG	Nickel	7440-02-0	7.10E+01		1.0E-01	**7.1E+02**	1.2E-01	**5.9E+02**			7.4E+04	9.6E-04
10	Perched	DRAIN #1	DRAIN #1~~5/18/1994~Ground Water~N	N	05/18/94	T	INORG	Zinc	7440-66-6	4.00E-01		2.4E+00	1.7E-01	2.7E-01	**1.5E+00**			1.1E+05	3.6E-06
10	Perched	DRAIN #1	DRAIN #1~~5/20/2000~Ground Water~N	N	05/20/00	T	INORG	Chromium (total)	7440-47-3	3.00E-01		1.0E-01	**3.0E+00**	1.1E-02	**2.7E+01**			4.6E+02	6.5E-04
10	Perched	DRAIN #1	DRAIN #1~~5/20/2000~Ground Water~N	N	05/20/00	T	INORG	Copper	7440-50-8	4.80E-01		1.4E+00	3.4E-01	2.1E-02	**2.3E+01**			7.4E+03	6.5E-05
10	Perched	DRAIN #1	DRAIN #1~~5/20/2000~Ground Water~N	N	05/20/00	T	INORG	Nickel	7440-02-0	2.20E+01		1.0E-01	**2.2E+02**	1.2E-01	**1.8E+02**			7.4E+04	3.0E-04
10	Perched	DRAIN #1	DRAIN #1~~5/20/2000~Ground Water~N	N	05/20/00	T	INORG	Zinc	7440-66-6	3.30E-01		2.4E+00	1.4E-01	2.7E-01	**1.2E+00**			1.1E+05	3.0E-06
10	Perched	DRAIN #1	DRAIN #1~~5/25/2001~Ground Water~N	N	05/25/01	T	INORG	Copper	7440-50-8	1.80E-01		1.4E+00	1.3E-01	2.1E-02	**8.7E+00**			7.4E+03	2.4E-05
10	Perched	DRAIN #1	DRAIN #1~~5/25/2001~Ground Water~N	N	05/25/01	T	INORG	Nickel	7440-02-0	2.06E+01		1.0E-01	**2.1E+02**	1.2E-01	**1.7E+02**			7.4E+04	2.8E-04
10	Perched	DRAIN #1	DRAIN #1~~5/29/1991~Ground Water~N	N	05/29/91	T	INORG	Cadmium	7440-43-9	1.40E-01		5.0E-03	**2.8E+01**	4.6E-03	**3.0E+01**			1.9E+02	7.4E-04
10	Perched	DRAIN #1	DRAIN #1~~5/29/1991~Ground Water~N	N	05/29/91	T	INORG	Chromium (total)	7440-47-3	2.30E+00		1.0E-01	**2.3E+01**	1.1E-02	**2.1E+02**			4.6E+02	5.0E-03
10	Perched	DRAIN #1	DRAIN #1~~5/29/1991~Ground Water~N	N	05/29/91	T	INORG	Copper	7440-50-8	7.40E+00		1.4E+00	**5.3E+00**	2.1E-02	**3.6E+02**			7.4E+03	1.0E-03
10	Perched	DRAIN #1	DRAIN #1~~5/29/1991~Ground Water~N	N	05/29/91	T	INORG	Lead	7439-92-1	8.40E-01		4.0E-03	**2.1E+02**	2.9E-02	**2.9E+01**				
10	Perched	DRAIN #1	DRAIN #1~~5/29/1991~Ground Water~N	N	05/29/91	T	INORG	Nickel	7440-02-0	8.50E+02		1.0E-01	**8.5E+03**	1.2E-01	**7.1E+03**			7.4E+04	1.1E-02
10	Perched	DRAIN #1	DRAIN #1~~5/29/1991~Ground Water~N	N	05/29/91	T	INORG	Zinc	7440-66-6	3.40E+00		2.4E+00	**1.4E+00**	2.7E-01	**1.3E+01**			1.1E+05	3.1E-05
10	Perched	DRAIN #1	DRAIN #1~~5/4/1995~Ground Water~N	N	05/04/95	T	INORG	Chromium (total)	7440-47-3	3.00E-02		1.0E-01	3.0E-01	1.1E-02	**2.7E+00**			4.6E+02	6.5E-05
10	Perched	DRAIN #1	DRAIN #1~~5/4/1995~Ground Water~N	N	05/04/95	T	INORG	Copper	7440-50-8	5.50E-01		1.4E+00	3.9E-01	2.1E-02	**2.7E+01**			7.4E+03	7.4E-05
10	Perched	DRAIN #1	DRAIN #1~~5/4/1995~Ground Water~N	N	05/04/95	T	INORG	Nickel	7440-02-0	5.00E+01		1.0E-01	**5.0E+02**	1.2E-01	**4.2E+02**			7.4E+04	6.8E-04
10	Perched	DRAIN #1	DRAIN #1~~5/5/1996~Ground Water~N	N	05/05/96	T	INORG	Copper	7440-50-8	7.50E-01		1.4E+00	5.4E-01	2.1E-02	**3.6E+01**			7.4E+03	1.0E-04
10	Perched	DRAIN #1	DRAIN #1~~5/5/1996~Ground Water~N	N	05/05/96	T	INORG	Nickel	7440-02-0	4.00E+01		1.0E-01	**4.0E+02**	1.2E-01	**3.4E+02**			7.4E+04	5.4E-04
10	Perched	DRAIN #1	DRAIN #1~~5/6/1993~Ground Water~N	N	05/06/93	T	INORG	Cadmium	7440-43-9	5.00E-02		5.0E-03	**1.0E+01**	4.6E-03	**1.1E+01**			1.9E+02	2.6E-04
10	Perched	DRAIN #1	DRAIN #1~~5/6/1993~Ground Water~N	N	05/06/93	T	INORG	Chromium (total)	7440-47-3	3.60E+00		1.0E-01	**3.6E+01**	1.1E-02	**3.3E+02**			4.6E+02	7.8E-03
10	Perched	DRAIN #1	DRAIN #1~~5/6/1993~Ground Water~N	N	05/06/93	T	INORG	Copper	7440-50-8	3.50E+00		1.4E+00	**2.5E+00**	2.1E-02	**1.7E+02**			7.4E+03	4.7E-04
10	Perched	DRAIN #1	DRAIN #1~~5/6/1993~Ground Water~N	N	05/06/93	T	INORG	Nickel	7440-02-0	2.00E+02		1.0E-01	**2.0E+03**	1.2E-01	**1.7E+03**			7.4E+04	2.7E-03
10	Perched	DRAIN #1	DRAIN #1~~5/6/1993~Ground Water~N	N	05/06/93	T	INORG	Zinc	7440-66-6	1.40E+00		2.4E+00	5.8E-01	2.7E-01	**5.2E+00**			1.1E+05	1.3E-05
10	Perched	DRAIN #1	DRAIN #1~~6/18/2001~Ground Water~N	N	06/18/01	T	INORG	Beryllium	7440-41-7	5.00E-03		4.0E-03	**1.3E+00**	2.9E-02	1.7E-01			2.9E+02	1.7E-05
10	Perched	DRAIN #1	DRAIN #1~~6/18/2001~Ground Water~N	N	06/18/01	T	INORG	Chromium (total)	7440-47-3	4.00E-02		1.0E-01	4.0E-01	1.1E-02	**3.6E+00**			4.6E+02	8.7E-05
10	Perched	DRAIN #1	DRAIN #1~~6/18/2001~Ground Water~N	N	06/18/01	T	INORG	Copper	7440-50-8	1.90E-01		1.4E+00	1.4E-01	2.1E-02	**9.2E+00**			7.4E+03	2.6E-05
10	Perched	DRAIN #1	DRAIN #1~~6/18/2001~Ground Water~N	N	06/18/01	T	INORG	Nickel	7440-02-0	2.07E+01		1.0E-01	**2.1E+02**	1.2E-01	**1.7E+02**			7.4E+04	2.8E-04
10	Perched	DRAIN #1	DRAIN #1~~6/18/2001~Ground Water~N	N	06/18/01	T	INORG	Zinc	7440-66-6	3.00E-01		2.4E+00	1.3E-01	2.7E-01	**1.1E+00**			1.1E+05	2.7E-06

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Perched	DRAIN #1	DRAIN #1~~6/2/1993~Ground Water~N	N	06/02/93	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~6/2/1993~Ground Water~N	N	06/02/93	T	INORG	Chromium (total)	7440-47-3	8.50E-01		1.0E-01	**8.5E+00**	1.1E-02	**7.7E+01**			4.6E+02	1.8E-03
10	Perched	DRAIN #1	DRAIN #1~~6/2/1993~Ground Water~N	N	06/02/93	T	INORG	Copper	7440-50-8	1.70E+00		1.4E+00	**1.2E+00**	2.1E-02	**8.2E+01**			7.4E+03	2.3E-04
10	Perched	DRAIN #1	DRAIN #1~~6/2/1993~Ground Water~N	N	06/02/93	T	INORG	Lead	7439-92-1	8.00E-02		4.0E-03	**2.0E+01**	2.9E-02	**2.7E+00**				
10	Perched	DRAIN #1	DRAIN #1~~6/2/1993~Ground Water~N	N	06/02/93	T	INORG	Nickel	7440-02-0	1.20E+02		1.0E-01	**1.2E+03**	1.2E-01	**1.0E+03**			7.4E+04	1.6E-03
10	Perched	DRAIN #1	DRAIN #1~~6/2/1993~Ground Water~N	N	06/02/93	T	INORG	Zinc	7440-66-6	7.80E-01		2.4E+00	3.3E-01	2.7E-01	**2.9E+00**			1.1E+05	7.1E-06
10	Perched	DRAIN #1	DRAIN #1~~6/2/1995~Ground Water~N	N	06/02/95	T	INORG	Copper	7440-50-8	6.50E-01		1.4E+00	4.6E-01	2.1E-02	**3.1E+01**			7.4E+03	8.8E-05
10	Perched	DRAIN #1	DRAIN #1~~6/2/1995~Ground Water~N	N	06/02/95	T	INORG	Nickel	7440-02-0	4.60E+01		1.0E-01	**4.6E+02**	1.2E-01	**3.9E+02**			7.4E+04	6.2E-04
10	Perched	DRAIN #1	DRAIN #1~~6/20/1991~Ground Water~N	N	06/20/91	T	INORG	Cadmium	7440-43-9	1.30E-01		5.0E-03	**2.6E+01**	4.6E-03	**2.8E+01**			1.9E+02	6.8E-04
10	Perched	DRAIN #1	DRAIN #1~~6/20/1991~Ground Water~N	N	06/20/91	T	INORG	Chromium (total)	7440-47-3	7.70E-01		1.0E-01	**7.7E+00**	1.1E-02	**7.0E+01**			4.6E+02	1.7E-03
10	Perched	DRAIN #1	DRAIN #1~~6/20/1991~Ground Water~N	N	06/20/91	T	INORG	Copper	7440-50-8	7.10E+00		1.4E+00	**5.1E+00**	2.1E-02	**3.4E+02**			7.4E+03	9.6E-04
10	Perched	DRAIN #1	DRAIN #1~~6/20/1991~Ground Water~N	N	06/20/91	T	INORG	Lead	7439-92-1	6.80E-01		4.0E-03	**1.7E+02**	2.9E-02	**2.3E+01**				
10	Perched	DRAIN #1	DRAIN #1~~6/20/1991~Ground Water~N	N	06/20/91	T	INORG	Nickel	7440-02-0	8.00E+02		1.0E-01	**8.0E+03**	1.2E-01	**6.7E+03**			7.4E+04	1.1E-02
10	Perched	DRAIN #1	DRAIN #1~~6/20/1991~Ground Water~N	N	06/20/91	T	INORG	Zinc	7440-66-6	3.60E+00		2.4E+00	**1.5E+00**	2.7E-01	**1.3E+01**			1.1E+05	3.3E-05
10	Perched	DRAIN #1	DRAIN #1~~6/24/2000~Ground Water~N	N	06/24/00	T	INORG	Chromium (total)	7440-47-3	6.60E-01		1.0E-01	**6.6E+00**	1.1E-02	**6.0E+01**			4.6E+02	1.4E-03
10	Perched	DRAIN #1	DRAIN #1~~6/24/2000~Ground Water~N	N	06/24/00	T	INORG	Copper	7440-50-8	8.50E-01		1.4E+00	6.1E-01	2.1E-02	**4.1E+01**			7.4E+03	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~6/24/2000~Ground Water~N	N	06/24/00	T	INORG	Nickel	7440-02-0	3.00E+01		1.0E-01	**3.0E+02**	1.2E-01	**2.5E+02**			7.4E+04	4.1E-04
10	Perched	DRAIN #1	DRAIN #1~~6/24/2000~Ground Water~N	N	06/24/00	T	INORG	Zinc	7440-66-6	1.30E+00		2.4E+00	5.4E-01	2.7E-01	**4.8E+00**			1.1E+05	1.2E-05
10	Perched	DRAIN #1	DRAIN #1~~6/25/1992~Ground Water~N	N	06/25/92	T	INORG	Cadmium	7440-43-9	3.00E-02		5.0E-03	**6.0E+00**	4.6E-03	**6.5E+00**			1.9E+02	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~6/25/1992~Ground Water~N	N	06/25/92	T	INORG	Chromium (total)	7440-47-3	8.80E-01		1.0E-01	**8.8E+00**	1.1E-02	**8.0E+01**			4.6E+02	1.9E-03
10	Perched	DRAIN #1	DRAIN #1~~6/25/1992~Ground Water~N	N	06/25/92	T	INORG	Copper	7440-50-8	2.60E+00		1.4E+00	**1.9E+00**	2.1E-02	**1.3E+02**			7.4E+03	3.5E-04
10	Perched	DRAIN #1	DRAIN #1~~6/25/1992~Ground Water~N	N	06/25/92	T	INORG	Lead	7439-92-1	1.50E-01		4.0E-03	**3.8E+01**	2.9E-02	**5.1E+00**				
10	Perched	DRAIN #1	DRAIN #1~~6/25/1992~Ground Water~N	N	06/25/92	T	INORG	Nickel	7440-02-0	1.70E+02		1.0E-01	**1.7E+03**	1.2E-01	**1.4E+03**			7.4E+04	2.3E-03
10	Perched	DRAIN #1	DRAIN #1~~6/25/1992~Ground Water~N	N	06/25/92	T	INORG	Zinc	7440-66-6	1.00E+00		2.4E+00	4.2E-01	2.7E-01	**3.7E+00**			1.1E+05	9.1E-06
10	Perched	DRAIN #1	DRAIN #1~~6/25/1999~Ground Water~N	N	06/25/99	T	INORG	Copper	7440-50-8	2.00E-01		1.4E+00	1.4E-01	2.1E-02	**9.6E+00**			7.4E+03	2.7E-05
10	Perched	DRAIN #1	DRAIN #1~~6/25/1999~Ground Water~N	N	06/25/99	T	INORG	Nickel	7440-02-0	2.90E+01		1.0E-01	**2.9E+02**	1.2E-01	**2.4E+02**			7.4E+04	3.9E-04
10	Perched	DRAIN #1	DRAIN #1~~6/25/1999~Ground Water~N	N	06/25/99	T	INORG	Zinc	7440-66-6	5.20E-01		2.4E+00	2.2E-01	2.7E-01	**1.9E+00**			1.1E+05	4.7E-06
10	Perched	DRAIN #1	DRAIN #1~~6/27/1994~Ground Water~N	N	06/27/94	T	INORG	Chromium (total)	7440-47-3	9.00E-02		1.0E-01	9.0E-01	1.1E-02	**8.2E+00**			4.6E+02	2.0E-04
10	Perched	DRAIN #1	DRAIN #1~~6/27/1994~Ground Water~N	N	06/27/94	T	INORG	Copper	7440-50-8	8.10E-01		1.4E+00	5.8E-01	2.1E-02	**3.9E+01**			7.4E+03	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~6/27/1994~Ground Water~N	N	06/27/94	T	INORG	Nickel	7440-02-0	6.90E+01		1.0E-01	**6.9E+02**	1.2E-01	**5.8E+02**			7.4E+04	9.3E-04
10	Perched	DRAIN #1	DRAIN #1~~6/27/1994~Ground Water~N	N	06/27/94	T	INORG	Zinc	7440-66-6	3.40E-01		2.4E+00	1.4E-01	2.7E-01	**1.3E+00**			1.1E+05	3.1E-06
10	Perched	DRAIN #1	DRAIN #1~~6/4/1996~Ground Water~N	N	06/04/96	T	INORG	Copper	7440-50-8	3.30E-01		1.4E+00	2.4E-01	2.1E-02	**1.6E+01**			7.4E+03	4.5E-05
10	Perched	DRAIN #1	DRAIN #1~~6/4/1996~Ground Water~N	N	06/04/96	T	INORG	Nickel	7440-02-0	3.20E+01		1.0E-01	**3.2E+02**	1.2E-01	**2.7E+02**			7.4E+04	4.3E-04
10	Perched	DRAIN #1	DRAIN #1~~6/6/1991~Ground Water~N	N	06/06/91	T	INORG	Cadmium	7440-43-9	1.60E-01		5.0E-03	**3.2E+01**	4.6E-03	**3.5E+01**			1.9E+02	8.4E-04
10	Perched	DRAIN #1	DRAIN #1~~6/6/1991~Ground Water~N	N	06/06/91	T	INORG	Chromium (total)	7440-47-3	2.00E-01		1.0E-01	**2.0E+00**	1.1E-02	**1.8E+01**			4.6E+02	4.3E-04
10	Perched	DRAIN #1	DRAIN #1~~6/6/1991~Ground Water~N	N	06/06/91	T	INORG	Copper	7440-50-8	7.10E+00		1.4E+00	**5.1E+00**	2.1E-02	**3.4E+02**			7.4E+03	9.6E-04
10	Perched	DRAIN #1	DRAIN #1~~6/6/1991~Ground Water~N	N	06/06/91	T	INORG	Lead	7439-92-1	8.70E-01		4.0E-03	**2.2E+02**	2.9E-02	**3.0E+01**				
10	Perched	DRAIN #1	DRAIN #1~~6/6/1991~Ground Water~N	N	06/06/91	T	INORG	Nickel	7440-02-0	9.50E+02		1.0E-01	**9.5E+03**	1.2E-01	**8.0E+03**			7.4E+04	1.3E-02
10	Perched	DRAIN #1	DRAIN #1~~6/6/1991~Ground Water~N	N	06/06/91	T	INORG	Zinc	7440-66-6	3.90E+00		2.4E+00	**1.6E+00**	2.7E-01	**1.4E+01**			1.1E+05	3.5E-05
10	Perched	DRAIN #1	DRAIN #1~~7/10/1991~Ground Water~N	N	07/10/91	T	INORG	Cadmium	7440-43-9	1.50E-01		5.0E-03	**3.0E+01**	4.6E-03	**3.2E+01**			1.9E+02	7.9E-04
10	Perched	DRAIN #1	DRAIN #1~~7/10/1991~Ground Water~N	N	07/10/91	T	INORG	Chromium (total)	7440-47-3	1.10E-01		1.0E-01	**1.1E+00**	1.1E-02	**1.0E+01**			4.6E+02	2.4E-04
10	Perched	DRAIN #1	DRAIN #1~~7/10/1991~Ground Water~N	N	07/10/91	T	INORG	Copper	7440-50-8	7.30E+00		1.4E+00	**5.2E+00**	2.1E-02	**3.5E+02**			7.4E+03	9.9E-04
10	Perched	DRAIN #1	DRAIN #1~~7/10/1991~Ground Water~N	N	07/10/91	T	INORG	Lead	7439-92-1	8.40E-01		4.0E-03	**2.1E+02**	2.9E-02	**2.9E+01**				
10	Perched	DRAIN #1	DRAIN #1~~7/10/1991~Ground Water~N	N	07/10/91	T	INORG	Nickel	7440-02-0	8.10E+02		1.0E-01	**8.1E+03**	1.2E-01	**6.8E+03**			7.4E+04	1.1E-02
10	Perched	DRAIN #1	DRAIN #1~~7/10/1991~Ground Water~N	N	07/10/91	T	INORG	Zinc	7440-66-6	3.80E+00		2.4E+00	**1.6E+00**	2.7E-01	**1.4E+01**			1.1E+05	3.5E-05
10	Perched	DRAIN #1	DRAIN #1~~7/12/1995~Ground Water~N	N	07/12/95	T	INORG	Copper	7440-50-8	6.70E-01		1.4E+00	4.8E-01	2.1E-02	**3.2E+01**			7.4E+03	9.1E-05
10	Perched	DRAIN #1	DRAIN #1~~7/12/1995~Ground Water~N	N	07/12/95	T	INORG	Nickel	7440-02-0	4.20E+01		1.0E-01	**4.2E+02**	1.2E-01	**3.5E+02**			7.4E+04	5.7E-04
10	Perched	DRAIN #1	DRAIN #1~~7/14/1993~Ground Water~N	N	07/14/93	T	INORG	Cadmium	7440-43-9	4.00E-02		5.0E-03	**8.0E+00**	4.6E-03	**8.7E+00**			1.9E+02	2.1E-04
10	Perched	DRAIN #1	DRAIN #1~~7/14/1993~Ground Water~N	N	07/14/93	T	INORG	Chromium (total)	7440-47-3	3.30E+00		1.0E-01	**3.3E+01**	1.1E-02	**3.0E+02**			4.6E+02	7.2E-03
10	Perched	DRAIN #1	DRAIN #1~~7/14/1993~Ground Water~N	N	07/14/93	T	INORG	Copper	7440-50-8	2.80E+00		1.4E+00	**2.0E+00**	2.1E-02	**1.4E+02**			7.4E+03	3.8E-04
10	Perched	DRAIN #1	DRAIN #1~~7/14/1993~Ground Water~N	N	07/14/93	T	INORG	Lead	7439-92-1	2.40E-01		4.0E-03	**6.0E+01**	2.9E-02	**8.2E+00**				
10	Perched	DRAIN #1	DRAIN #1~~7/14/1993~Ground Water~N	N	07/14/93	T	INORG	Nickel	7440-02-0	1.90E+02		1.0E-01	**1.9E+03**	1.2E-01	**1.6E+03**			7.4E+04	2.6E-03
10	Perched	DRAIN #1	DRAIN #1~~7/14/1993~Ground Water~N	N	07/14/93	T	INORG	Zinc	7440-66-6	1.40E+00		2.4E+00	5.8E-01	2.7E-01	**5.2E+00**			1.1E+05	1.3E-05
10	Perched	DRAIN #1	DRAIN #1~~7/20/1994~Ground Water~N	N	07/20/94	T	INORG	Chromium (total)	7440-47-3	4.40E-01		1.0E-01	**4.4E+00**	1.1E-02	**4.0E+01**			4.6E+02	9.6E-04
10	Perched	DRAIN #1	DRAIN #1~~7/20/1994~Ground Water~N	N	07/20/94	T	INORG	Copper	7440-50-8	9.10E-01		1.4E+00	6.5E-01	2.1E-02	**4.4E+01**			7.4E+03	1.2E-04
10	Perched	DRAIN #1	DRAIN #1~~7/20/1994~Ground Water~N	N	07/20/94	T	INORG	Nickel	7440-02-0	7.30E+01		1.0E-01	7.3E+02	1.2E-01	6.1E+02			7.4E+04	9.9E-04
10	Perched	DRAIN #1	DRAIN #1~~7/20/1994~Ground Water~N	N	07/20/94	T	INORG	Zinc	7440-66-6	4.00E-01		2.4E+00	1.7E-01	2.7E-01	1.5E+00			1.1E+05	3.6E-06
10	Perched	DRAIN #1	DRAIN #1~~7/26/2001~Ground Water~N	N	07/26/01	T	INORG	Chromium (total)	7440-47-3	1.30E-01		1.0E-01	1.3E+00	1.1E-02	1.2E+01			4.6E+02	2.8E-04
10	Perched	DRAIN #1	DRAIN #1~~7/26/2001~Ground Water~N	N	07/26/01	T	INORG	Copper	7440-50-8	3.10E-01		1.4E+00	2.2E-01	2.1E-02	1.5E+01			7.4E+03	4.2E-05

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Perched	DRAIN #1	DRAIN #1~~7/26/2001~Ground Water~N	N	07/26/01	T	INORG	Lead	7439-92-1	9.00E-03		4.0E-03	2.3E+00	2.9E-02	3.1E-01				
10	Perched	DRAIN #1	DRAIN #1~~7/26/2001~Ground Water~N	N	07/26/01	T	INORG	Nickel	7440-02-0	1.86E+01		1.0E-01	1.9E+02	1.2E-01	1.6E+02			7.4E+04	2.5E-04
10	Perched	DRAIN #1	DRAIN #1~~7/26/2001~Ground Water~N	N	07/26/01	T	INORG	Zinc	7440-66-6	3.90E-01		2.4E+00	1.6E-01	2.7E-01	1.4E+00			1.1E+05	3.5E-06
10	Perched	DRAIN #1	DRAIN #1~~7/29/2000~Ground Water~N	N	07/29/00	T	INORG	Chromium (total)	7440-47-3	6.00E-02		1.0E-01	6.0E-01	1.1E-02	5.5E+00			4.6E+02	1.3E-04
10	Perched	DRAIN #1	DRAIN #1~~7/29/2000~Ground Water~N	N	07/29/00	T	INORG	Copper	7440-50-8	2.40E-01		1.4E+00	1.7E-01	2.1E-02	1.2E+01			7.4E+03	3.2E-05
10	Perched	DRAIN #1	DRAIN #1~~7/29/2000~Ground Water~N	N	07/29/00	T	INORG	Nickel	7440-02-0	2.20E+01		1.0E-01	2.2E+02	1.2E-01	1.8E+02			7.4E+04	3.0E-04
10	Perched	DRAIN #1	DRAIN #1~~7/29/2000~Ground Water~N	N	07/29/00	T	INORG	Zinc	7440-66-6	8.10E-01		2.4E+00	3.4E-01	2.7E-01	3.0E+00			1.1E+05	7.4E-06
10	Perched	DRAIN #1	DRAIN #1~~7/31/1990~Ground Water~N	N	07/31/90	T	INORG	Cadmium	7440-43-9	1.80E-01		5.0E-03	3.6E+01	4.6E-03	3.9E+01			1.9E+02	9.5E-04
10	Perched	DRAIN #1	DRAIN #1~~7/31/1990~Ground Water~N	N	07/31/90	T	INORG	Chromium (total)	7440-47-3	2.30E+01		1.0E-01	2.3E+02	1.1E-02	2.1E+03			4.6E+02	5.0E-02
10	Perched	DRAIN #1	DRAIN #1~~7/31/1990~Ground Water~N	N	07/31/90	T	INORG	Copper	7440-50-8	7.20E+00		1.4E+00	5.1E+00	2.1E-02	3.5E+02			7.4E+03	9.7E-04
10	Perched	DRAIN #1	DRAIN #1~~7/31/1990~Ground Water~N	N	07/31/90	T	INORG	Lead	7439-92-1	8.70E-01		4.0E-03	2.2E+02	2.9E-02	3.0E+01				
10	Perched	DRAIN #1	DRAIN #1~~7/31/1990~Ground Water~N	N	07/31/90	T	INORG	Nickel	7440-02-0	8.20E+02		1.0E-01	8.2E+03	1.2E-01	6.9E+03			7.4E+04	1.1E-02
10	Perched	DRAIN #1	DRAIN #1~~7/31/1990~Ground Water~N	N	07/31/90	T	INORG	Zinc	7440-66-6	3.10E+00		2.4E+00	1.3E+00	2.7E-01	1.1E+01			1.1E+05	2.8E-05
10	Perched	DRAIN #1	DRAIN #1~~8/10/1994~Ground Water~N	N	08/10/94	T	INORG	Chromium (total)	7440-47-3	8.00E-01		1.0E-01	8.0E+00	1.1E-02	7.3E+01			4.6E+02	1.7E-03
10	Perched	DRAIN #1	DRAIN #1~~8/10/1994~Ground Water~N	N	08/10/94	T	INORG	Copper	7440-50-8	1.20E+00		1.4E+00	8.6E-01	2.1E-02	5.8E+01			7.4E+03	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~8/10/1994~Ground Water~N	N	08/10/94	T	INORG	Nickel	7440-02-0	8.50E+01		1.0E-01	8.5E+02	1.2E-01	7.1E+02			7.4E+04	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~8/10/1994~Ground Water~N	N	08/10/94	T	INORG	Zinc	7440-66-6	5.20E-01		2.4E+00	2.2E-01	2.7E-01	1.9E+00			1.1E+05	4.7E-06
10	Perched	DRAIN #1	DRAIN #1~~8/13/1993~Ground Water~N	N	08/13/93	T	INORG	Chromium (total)	7440-47-3	3.00E-01		1.0E-01	3.0E+00	1.1E-02	2.7E+01			4.6E+02	6.5E-04
10	Perched	DRAIN #1	DRAIN #1~~8/13/1993~Ground Water~N	N	08/13/93	T	INORG	Copper	7440-50-8	1.20E+00		1.4E+00	8.6E-01	2.1E-02	5.8E+01			7.4E+03	1.6E-04
10	Perched	DRAIN #1	DRAIN #1~~8/13/1993~Ground Water~N	N	08/13/93	T	INORG	Nickel	7440-02-0	9.70E+01		1.0E-01	9.7E+02	1.2E-01	8.1E+02			7.4E+04	1.3E-03
10	Perched	DRAIN #1	DRAIN #1~~8/13/1993~Ground Water~N	N	08/13/93	T	INORG	Zinc	7440-66-6	6.10E-01		2.4E+00	2.5E-01	2.7E-01	2.2E+00			1.1E+05	5.5E-06
10	Perched	DRAIN #1	DRAIN #1~~8/14/1991~Ground Water~N	N	08/14/91	T	INORG	Cadmium	7440-43-9	1.40E-01		5.0E-03	2.8E+01	4.6E-03	3.0E+01			1.9E+02	7.4E-04
10	Perched	DRAIN #1	DRAIN #1~~8/14/1991~Ground Water~N	N	08/14/91	T	INORG	Chromium (total)	7440-47-3	1.40E+00		1.0E-01	1.4E+01	1.1E-02	1.3E+02			4.6E+02	3.0E-03
10	Perched	DRAIN #1	DRAIN #1~~8/14/1991~Ground Water~N	N	08/14/91	T	INORG	Copper	7440-50-8	8.30E+00		1.4E+00	5.9E+00	2.1E-02	4.0E+02			7.4E+03	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~8/14/1991~Ground Water~N	N	08/14/91	T	INORG	Lead	7439-92-1	7.40E-01		4.0E-03	1.9E+02	2.9E-02	2.5E+01				
10	Perched	DRAIN #1	DRAIN #1~~8/14/1991~Ground Water~N	N	08/14/91	T	INORG	Nickel	7440-02-0	8.00E+02		1.0E-01	8.0E+03	1.2E-01	6.7E+03			7.4E+04	1.1E-02
10	Perched	DRAIN #1	DRAIN #1~~8/14/1991~Ground Water~N	N	08/14/91	T	INORG	Zinc	7440-66-6	3.60E+00		2.4E+00	1.5E+00	2.7E-01	1.3E+01			1.1E+05	3.3E-05
10	Perched	DRAIN #1	DRAIN #1~~8/14/1999~Ground Water~N	N	08/14/99	T	INORG	Copper	7440-50-8	2.30E-01		1.4E+00	1.6E-01	2.1E-02	1.1E+01			7.4E+03	3.1E-05
10	Perched	DRAIN #1	DRAIN #1~~8/14/1999~Ground Water~N	N	08/14/99	T	INORG	Nickel	7440-02-0	2.20E+01		1.0E-01	2.2E+02	1.2E-01	1.8E+02			7.4E+04	3.0E-04
10	Perched	DRAIN #1	DRAIN #1~~8/14/1999~Ground Water~N	N	08/14/99	T	INORG	Zinc	7440-66-6	4.00E-01		2.4E+00	1.7E-01	2.7E-01	1.5E+00			1.1E+05	3.6E-06
10	Perched	DRAIN #1	DRAIN #1~~8/22/1990~Ground Water~N	N	08/22/90	T	INORG	Cadmium	7440-43-9	1.40E-01		5.0E-03	2.8E+01	4.6E-03	3.0E+01			1.9E+02	7.4E-04
10	Perched	DRAIN #1	DRAIN #1~~8/22/1990~Ground Water~N	N	08/22/90	T	INORG	Chromium (total)	7440-47-3	3.10E+01		1.0E-01	3.1E+02	1.1E-02	2.8E+03			4.6E+02	6.7E-02
10	Perched	DRAIN #1	DRAIN #1~~8/22/1990~Ground Water~N	N	08/22/90	T	INORG	Copper	7440-50-8	7.90E+00		1.4E+00	5.6E+00	2.1E-02	3.8E+02			7.4E+03	1.1E-03
10	Perched	DRAIN #1	DRAIN #1~~8/22/1990~Ground Water~N	N	08/22/90	T	INORG	Lead	7439-92-1	7.00E-01		4.0E-03	1.8E+02	2.9E-02	2.4E+01				
10	Perched	DRAIN #1	DRAIN #1~~8/22/1990~Ground Water~N	N	08/22/90	T	INORG	Nickel	7440-02-0	7.00E+02		1.0E-01	7.0E+03	1.2E-01	5.9E+03			7.4E+04	9.5E-03
10	Perched	DRAIN #1	DRAIN #1~~8/22/1990~Ground Water~N	N	08/22/90	T	INORG	Zinc	7440-66-6	2.50E+00		2.4E+00	1.0E+00	2.7E-01	9.2E+00			1.1E+05	2.3E-05
10	Perched	DRAIN #1	DRAIN #1~~8/27/2001~Ground Water~N	N	08/27/01	T	INORG	Copper	7440-50-8	1.70E-01		1.4E+00	1.2E-01	2.1E-02	8.2E+00			7.4E+03	2.3E-05
10	Perched	DRAIN #1	DRAIN #1~~8/27/2001~Ground Water~N	N	08/27/01	T	INORG	Nickel	7440-02-0	1.88E+01		1.0E-01	1.9E+02	1.2E-01	1.6E+02			7.4E+04	2.5E-04
10	Perched	DRAIN #1	DRAIN #1~~8/27/2001~Ground Water~N	N	08/27/01	T	INORG	Zinc	7440-66-6	3.00E-01		2.4E+00	1.3E-01	2.7E-01	1.1E+00			1.1E+05	2.7E-06
10	Perched	DRAIN #1	DRAIN #1~~8/29/1991~Ground Water~N	N	08/29/91	T	INORG	Cadmium	7440-43-9	1.20E-01		5.0E-03	2.4E+01	4.6E-03	2.6E+01			1.9E+02	6.3E-04
10	Perched	DRAIN #1	DRAIN #1~~8/29/1991~Ground Water~N	N	08/29/91	T	INORG	Chromium (total)	7440-47-3	1.80E-01		1.0E-01	1.8E+00	1.1E-02	1.6E+01			4.6E+02	3.9E-04
10	Perched	DRAIN #1	DRAIN #1~~8/29/1991~Ground Water~N	N	08/29/91	T	INORG	Copper	7440-50-8	5.70E+00		1.4E+00	4.1E+00	2.1E-02	2.7E+02			7.4E+03	7.7E-04
10	Perched	DRAIN #1	DRAIN #1~~8/29/1991~Ground Water~N	N	08/29/91	T	INORG	Lead	7439-92-1	7.10E-01		4.0E-03	1.8E+02	2.9E-02	2.4E+01				
10	Perched	DRAIN #1	DRAIN #1~~8/29/1991~Ground Water~N	N	08/29/91	T	INORG	Nickel	7440-02-0	7.00E+02		1.0E-01	7.0E+03	1.2E-01	5.9E+03			7.4E+04	9.5E-03
10	Perched	DRAIN #1	DRAIN #1~~8/29/1991~Ground Water~N	N	08/29/91	T	INORG	Zinc	7440-66-6	2.90E+00		2.4E+00	1.2E+00	2.7E-01	1.1E+01			1.1E+05	2.6E-05
10	Perched	DRAIN #1	DRAIN #1~~8/29/1998~Ground Water~N	N	08/29/98	T	INORG	Copper	7440-50-8	1.60E-01		1.4E+00	1.1E-01	2.1E-02	7.7E+00			7.4E+03	2.2E-05
10	Perched	DRAIN #1	DRAIN #1~~8/29/1998~Ground Water~N	N	08/29/98	T	INORG	Nickel	7440-02-0	2.40E+01		1.0E-01	2.4E+02	1.2E-01	2.0E+02			7.4E+04	3.2E-04
10	Perched	DRAIN #1	DRAIN #1~~8/30/1991~Ground Water~N	N	08/30/91	T	INORG	Chromium (total)	7440-47-3	3.40E+01		1.0E-01	3.4E+02	1.1E-02	3.1E+03			4.6E+02	7.4E-02
10	Perched	DRAIN #1	DRAIN #1~~8/30/1991~Ground Water~N	N	08/30/91	T	INORG	Copper	7440-50-8	3.60E+01		1.4E+00	2.6E+01	2.1E-02	1.7E+03			7.4E+03	4.9E-03
10	Perched	DRAIN #1	DRAIN #1~~8/30/1991~Ground Water~N	N	08/30/91	T	INORG	Cyanide (total)	57-12-5	4.20E+00		2.0E-01	2.1E+01	5.2E-03	8.1E+02			5.7E+01	7.4E-02
10	Perched	DRAIN #1	DRAIN #1~~8/30/1991~Ground Water~N	N	08/30/91	T	INORG	Nickel	7440-02-0	9.74E+02		1.0E-01	9.7E+03	1.2E-01	8.2E+03			7.4E+04	1.3E-02
10	Perched	DRAIN #1	DRAIN #1~~8/30/1991~Ground Water~N	N	08/30/91	T	INORG	Zinc	7440-66-6	2.20E+00		2.4E+00	9.2E-01	2.7E-01	8.1E+00			1.1E+05	2.0E-05
10	Perched	DRAIN #1	DRAIN #1~~8/4/1995~Ground Water~N	N	08/04/95	T	INORG	Copper	7440-50-8	6.20E-01		1.4E+00	4.4E-01	2.1E-02	3.0E+01			7.4E+03	8.4E-05
10	Perched	DRAIN #1	DRAIN #1~~8/4/1995~Ground Water~N	N	08/04/95	T	INORG	Nickel	7440-02-0	3.90E+01		1.0E-01	3.9E+02	1.2E-01	3.3E+02			7.4E+04	5.3E-04
10	Perched	DRAIN #1	DRAIN #1~~8/6/1992~Ground Water~N	N	08/06/92	T	INORG	Chromium (total)	7440-47-3	8.00E-02		1.0E-01	8.0E-01	1.1E-02	7.3E+00			4.6E+02	1.7E-04
10	Perched	DRAIN #1	DRAIN #1~~8/6/1992~Ground Water~N	N	08/06/92	T	INORG	Copper	7440-50-8	1.80E+00		1.4E+00	1.3E+00	2.1E-02	8.7E+01			7.4E+03	2.4E-04
10	Perched	DRAIN #1	DRAIN #1~~8/6/1992~Ground Water~N	N	08/06/92	T	INORG	Lead	7439-92-1	1.00E-01		4.0E-03	2.5E+01	2.9E-02	3.4E+00				
10	Perched	DRAIN #1	DRAIN #1~~8/6/1992~Ground Water~N	N	08/06/92	T	INORG	Nickel	7440-02-0	1.10E+02		1.0E-01	1.1E+03	1.2E-01	9.2E+02			7.4E+04	1.5E-03
10	Perched	DRAIN #1	DRAIN #1~~8/6/1992~Ground Water~N	N	08/06/92	T	INORG	Zinc	7440-66-6	6.30E-01		2.4E+00	2.6E-01	2.7E-01	2.3E+00			1.1E+05	5.7E-06

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Perched	DRAIN #1	DRAIN #1~~9/1/1995~Ground Water~N	N	09/01/95	T	INORG	Chromium (total)	7440-47-3	6.00E-02		1.0E-01	6.0E-01	1.1E-02	5.5E+00			4.6E+02	1.3E-04
10	Perched	DRAIN #1	DRAIN #1~~9/1/1995~Ground Water~N	N	09/01/95	T	INORG	Copper	7440-50-8	5.30E-01		1.4E+00	3.8E-01	2.1E-02	2.6E+01			7.4E+03	7.2E-05
10	Perched	DRAIN #1	DRAIN #1~~9/1/1995~Ground Water~N	N	09/01/95	T	INORG	Nickel	7440-02-0	3.90E+01		1.0E-01	3.9E+02	1.2E-01	3.3E+02			7.4E+04	5.3E-04
10	Perched	DRAIN #1	DRAIN #1~~9/11/1999~Ground Water~N	N	09/11/99	T	INORG	Copper	7440-50-8	2.50E-01		1.4E+00	1.8E-01	2.1E-02	1.2E+01			7.4E+03	3.4E-05
10	Perched	DRAIN #1	DRAIN #1~~9/11/1999~Ground Water~N	N	09/11/99	T	INORG	Nickel	7440-02-0	2.30E+01		1.0E-01	2.3E+02	1.2E-01	1.9E+02			7.4E+04	3.1E-04
10	Perched	DRAIN #1	DRAIN #1~~9/12/1991~Ground Water~N	N	09/12/91	T	INORG	Cadmium	7440-43-9	1.00E-01		5.0E-03	2.0E+01	4.6E-03	2.2E+01			1.9E+02	5.3E-04
10	Perched	DRAIN #1	DRAIN #1~~9/12/1991~Ground Water~N	N	09/12/91	T	INORG	Chromium (total)	7440-47-3	1.80E+00		1.0E-01	1.8E+01	1.1E-02	1.6E+02			4.6E+02	3.9E-03
10	Perched	DRAIN #1	DRAIN #1~~9/12/1991~Ground Water~N	N	09/12/91	T	INORG	Copper	7440-50-8	7.70E+00		1.4E+00	5.5E+00	2.1E-02	3.7E+02			7.4E+03	1.0E-03
10	Perched	DRAIN #1	DRAIN #1~~9/12/1991~Ground Water~N	N	09/12/91	T	INORG	Lead	7439-92-1	4.90E-01		4.0E-03	1.2E+02	2.9E-02	1.7E+01				
10	Perched	DRAIN #1	DRAIN #1~~9/12/1991~Ground Water~N	N	09/12/91	T	INORG	Nickel	7440-02-0	6.40E+02		1.0E-01	6.4E+03	1.2E-01	5.4E+03			7.4E+04	8.6E-03
10	Perched	DRAIN #1	DRAIN #1~~9/12/1991~Ground Water~N	N	09/12/91	T	INORG	Zinc	7440-66-6	2.90E+00		2.4E+00	1.2E+00	2.7E-01	1.1E+01			1.1E+05	2.6E-05
10	Perched	DRAIN #1	DRAIN #1~~9/13/1991~Ground Water~N	N	09/13/91	T	INORG	Chromium (total)	7440-47-3	1.80E+00		1.0E-01	1.8E+01	1.1E-02	1.6E+02			4.6E+02	3.9E-03
10	Perched	DRAIN #1	DRAIN #1~~9/13/1991~Ground Water~N	N	09/13/91	T	INORG	Copper	7440-50-8	7.10E+00		1.4E+00	5.1E+00	2.1E-02	3.4E+02			7.4E+03	9.6E-04
10	Perched	DRAIN #1	DRAIN #1~~9/13/1991~Ground Water~N	N	09/13/91	T	INORG	Cyanide (total)	57-12-5	9.80E-01		2.0E-01	4.9E+00	5.2E-03	1.9E+02			5.7E+01	1.7E-02
10	Perched	DRAIN #1	DRAIN #1~~9/13/1991~Ground Water~N	N	09/13/91	T	INORG	Nickel	7440-02-0	6.08E+02		1.0E-01	6.1E+03	1.2E-01	5.1E+03			7.4E+04	8.2E-03
10	Perched	DRAIN #1	DRAIN #1~~9/13/1991~Ground Water~N	N	09/13/91	T	INORG	Zinc	7440-66-6	4.60E-01		2.4E+00	1.9E-01	2.7E-01	1.7E+00			1.1E+05	4.2E-06
10	Perched	DRAIN #1	DRAIN #1~~9/16/1993~Ground Water~N	N	09/16/93	T	INORG	Copper	7440-50-8	8.40E-01		1.4E+00	6.0E-01	2.1E-02	4.1E+01			7.4E+03	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~9/16/1993~Ground Water~N	N	09/16/93	T	INORG	Nickel	7440-02-0	9.50E+01		1.0E-01	9.5E+02	1.2E-01	8.0E+02			7.4E+04	1.3E-03
10	Perched	DRAIN #1	DRAIN #1~~9/16/1993~Ground Water~N	N	09/16/93	T	INORG	Zinc	7440-66-6	5.80E-01		2.4E+00	2.4E-01	2.7E-01	2.1E+00			1.1E+05	5.3E-06
10	Perched	DRAIN #1	DRAIN #1~~9/25/1994~Ground Water~N	N	09/25/94	T	INORG	Copper	7440-50-8	7.40E-01		1.4E+00	5.3E-01	2.1E-02	3.6E+01			7.4E+03	1.0E-04
10	Perched	DRAIN #1	DRAIN #1~~9/25/1994~Ground Water~N	N	09/25/94	T	INORG	Nickel	7440-02-0	5.50E+01		1.0E-01	5.5E+02	1.2E-01	4.6E+02			7.4E+04	7.4E-04
10	Perched	DRAIN #1	DRAIN #1~~9/25/1994~Ground Water~N	N	09/25/94	T	INORG	Zinc	7440-66-6	3.00E-01		2.4E+00	1.3E-01	2.7E-01	1.1E+00			1.1E+05	2.7E-06
10	Perched	DRAIN #1	DRAIN #1~~9/26/1991~Ground Water~N	N	09/26/91	T	INORG	Cadmium	7440-43-9	1.20E-01		5.0E-03	2.4E+01	4.6E-03	2.6E+01			1.9E+02	6.3E-04
10	Perched	DRAIN #1	DRAIN #1~~9/26/1991~Ground Water~N	N	09/26/91	T	INORG	Chromium (total)	7440-47-3	8.10E-01		1.0E-01	8.1E+00	1.1E-02	7.4E+01			4.6E+02	1.8E-03
10	Perched	DRAIN #1	DRAIN #1~~9/26/1991~Ground Water~N	N	09/26/91	T	INORG	Copper	7440-50-8	7.60E+00		1.4E+00	5.4E+00	2.1E-02	3.7E+02			7.4E+03	1.0E-03
10	Perched	DRAIN #1	DRAIN #1~~9/26/1991~Ground Water~N	N	09/26/91	T	INORG	Lead	7439-92-1	6.90E-01		4.0E-03	1.7E+02	2.9E-02	2.3E+01				
10	Perched	DRAIN #1	DRAIN #1~~9/26/1991~Ground Water~N	N	09/26/91	T	INORG	Nickel	7440-02-0	6.90E+02		1.0E-01	6.9E+03	1.2E-01	5.8E+03			7.4E+04	9.3E-03
10	Perched	DRAIN #1	DRAIN #1~~9/26/1991~Ground Water~N	N	09/26/91	T	INORG	Zinc	7440-66-6	3.00E+00		2.4E+00	1.3E+00	2.7E-01	1.1E+01			1.1E+05	2.7E-05
10	Perched	DRAIN #1	DRAIN #1~~9/27/1991~Ground Water~N	N	09/27/91	T	INORG	Chromium (total)	7440-47-3	5.60E+01		1.0E-01	5.6E+02	1.1E-02	5.1E+03			4.6E+02	1.2E-01
10	Perched	DRAIN #1	DRAIN #1~~9/27/1991~Ground Water~N	N	09/27/91	T	INORG	Copper	7440-50-8	3.90E+01		1.4E+00	2.8E+01	2.1E-02	1.9E+03			7.4E+03	5.3E-03
10	Perched	DRAIN #1	DRAIN #1~~9/27/1991~Ground Water~N	N	09/27/91	T	INORG	Cyanide (total)	57-12-5	2.20E+01		2.0E-01	1.1E+02	5.2E-03	4.2E+03			5.7E+01	3.9E-01
10	Perched	DRAIN #1	DRAIN #1~~9/27/1991~Ground Water~N	N	09/27/91	T	INORG	Nickel	7440-02-0	1.79E+03		1.0E-01	1.8E+04	1.2E-01	1.5E+04			7.4E+04	2.4E-02
10	Perched	DRAIN #1	DRAIN #1~~9/27/1991~Ground Water~N	N	09/27/91	T	INORG	Zinc	7440-66-6	7.80E+00		2.4E+00	3.3E+00	2.7E-01	2.9E+01			1.1E+05	7.1E-05
10	Perched	DRAIN #1	DRAIN #1~~9/3/1992~Ground Water~N	N	09/03/92	T	INORG	Cadmium	7440-43-9	2.00E-02		5.0E-03	4.0E+00	4.6E-03	4.3E+00			1.9E+02	1.1E-04
10	Perched	DRAIN #1	DRAIN #1~~9/3/1992~Ground Water~N	N	09/03/92	T	INORG	Chromium (total)	7440-47-3	1.50E-01		1.0E-01	1.5E+00	1.1E-02	1.4E+01			4.6E+02	3.3E-04
10	Perched	DRAIN #1	DRAIN #1~~9/3/1992~Ground Water~N	N	09/03/92	T	INORG	Copper	7440-50-8	2.40E+00		1.4E+00	1.7E+00	2.1E-02	1.2E+02			7.4E+03	3.2E-04
10	Perched	DRAIN #1	DRAIN #1~~9/3/1992~Ground Water~N	N	09/03/92	T	INORG	Lead	7439-92-1	1.80E-01		4.0E-03	4.5E+01	2.9E-02	6.1E+00				
10	Perched	DRAIN #1	DRAIN #1~~9/3/1992~Ground Water~N	N	09/03/92	T	INORG	Nickel	7440-02-0	1.10E+02		1.0E-01	1.1E+03	1.2E-01	9.2E+02			7.4E+04	1.5E-03
10	Perched	DRAIN #1	DRAIN #1~~9/3/1992~Ground Water~N	N	09/03/92	T	INORG	Zinc	7440-66-6	6.40E-01		2.4E+00	2.7E-01	2.7E-01	2.4E+00			1.1E+05	5.8E-06
10	Perched	DRAIN #1	DRAIN #1~~9/9/2000~Ground Water~N	N	09/09/00	T	INORG	Copper	7440-50-8	2.50E-01		1.4E+00	1.8E-01	2.1E-02	1.2E+01			7.4E+03	3.4E-05
10	Perched	DRAIN #1	DRAIN #1~~9/9/2000~Ground Water~N	N	09/09/00	T	INORG	Nickel	7440-02-0	2.00E+01		1.0E-01	2.0E+02	1.2E-01	1.7E+02			7.4E+04	2.7E-04
10	Perched	DRAIN #1	DRAIN #1~~9/9/2000~Ground Water~N	N	09/09/00	T	INORG	Zinc	7440-66-6	2.90E-01		2.4E+00	1.2E-01	2.7E-01	1.1E+00			1.1E+05	2.6E-06
10	Perched	DRAIN #1	Drain (10/11/03)	N	10/11/03	T	INORG	Copper	7440-50-8	1.80E-01		1.4E+00	1.3E-01	2.1E-02	8.7E+00			7.4E+03	2.4E-05
10	Perched	DRAIN #1	Drain (10/11/03)	N	10/11/03	T	INORG	Nickel	7440-02-0	1.25E+01		1.0E-01	1.3E+02	1.2E-01	1.0E+02			7.4E+04	1.7E-04
10	Perched	DRAIN #1	French Drain (062905)	N	06/29/05	D	INORG	Beryllium	7440-41-7	8.00E-03		4.0E-03	2.0E+00	2.9E-02	2.8E-01			2.9E+02	2.8E-05
10	Perched	DRAIN #1	French Drain (062905)	N	06/29/05	D	INORG	Copper	7440-50-8	2.23E-01		1.4E+00	1.6E-01	2.1E-02	1.1E+01			7.4E+03	3.0E-05
10	Perched	DRAIN #1	French Drain (062905)	N	06/29/05	D	INORG	Manganese	7439-96-5	1.38E+00		8.6E-01	1.6E+00	4.6E+00	3.0E-01			9.1E+03	1.5E-04
10	Perched	DRAIN #1	French Drain (062905)	N	06/29/05	D	INORG	Nickel	7440-02-0	1.80E+01		1.0E-01	1.8E+02	1.2E-01	1.5E+02			7.4E+04	2.4E-04
10	Perched	DRAIN #1	French Drain (062905)	N	06/29/05	D	INORG	Vanadium	7440-62-2	7.00E-03		4.5E-03	1.6E+00	1.2E-02	5.8E-01			9.7E+02	7.2E-06
10	Perched	DRAIN #1	French Drain (062905)	N	06/29/05	T	INORG	Beryllium	7440-41-7	9.00E-03		4.0E-03	2.3E+00	2.9E-02	3.1E-01			2.9E+02	3.1E-05
10	Perched	DRAIN #1	French Drain (062905)	N	06/29/05	T	INORG	Copper	7440-50-8	2.27E-01		1.4E+00	1.6E-01	2.1E-02	1.1E+01			7.4E+03	3.1E-05
10	Perched	DRAIN #1	French Drain (062905)	N	06/29/05	T	INORG	Manganese	7439-96-5	1.38E+00		8.6E-01	1.6E+00	4.6E+00	3.0E-01			9.1E+03	1.5E-04
10	Perched	DRAIN #1	French Drain (062905)	N	06/29/05	T	INORG	Nickel	7440-02-0	1.82E+01		1.0E-01	1.8E+02	1.2E-01	1.5E+02			7.4E+04	2.5E-04
10	Perched	DRAIN #1	French Drain (102607)	N	10/26/07	D	INORG	Chromium (total)	7440-47-3	3.00E-02		1.0E-01	3.0E-01	1.1E-02	2.7E+00			4.6E+02	6.5E-05
10	Perched	DRAIN #1	French Drain (102607)	N	10/26/07	D	INORG	Copper	7440-50-8	6.20E-02		1.4E+00	4.4E-02	2.1E-02	3.0E+00			7.4E+03	8.4E-06
10	Perched	DRAIN #1	French Drain (102607)	N	10/26/07	D	INORG	Nickel	7440-02-0	1.02E+01		1.0E-01	1.0E+02	1.2E-01	8.5E+01			7.4E+04	1.4E-04
10	Perched	DRAIN #1	French Drain (102607)	N	10/26/07	T	INORG	Copper	7440-50-8	7.80E-02		1.4E+00	5.6E-02	2.1E-02	3.8E+00			7.4E+03	1.1E-05
10	Perched	DRAIN #1	French Drain (102607)	N	10/26/07	T	INORG	Nickel	7440-02-0	1.06E+01		1.0E-01	1.1E+02	1.2E-01	8.9E+01			7.4E+04	1.4E-04
10	Perched	DRAIN #1	French Drain (111904)	N	11/19/04	D	INORG	Beryllium	7440-41-7	5.00E-03		4.0E-03	1.3E+00	2.9E-02	1.7E-01			2.9E+02	1.7E-05

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
10	Perched	DRAIN #1	French Drain (111904)	N	11/19/04	D	INORG	Copper	7440-50-8	1.47E-01		1.4E+00	1.1E-01	2.1E-02	7.1E+00			7.4E+03	2.0E-05
10	Perched	DRAIN #1	French Drain (111904)	N	11/19/04	D	INORG	Nickel	7440-02-0	1.19E+01		1.0E-01	1.2E+02	1.2E-01	1.0E+02			7.4E+04	1.6E-04
10	Perched	DRAIN #1	French Drain (111904)	N	11/19/04	T	INORG	Beryllium	7440-41-7	5.00E-03		4.0E-03	1.3E+00	2.9E-02	1.7E-01			2.9E+02	1.7E-05
10	Perched	DRAIN #1	French Drain (111904)	N	11/19/04	T	INORG	Copper	7440-50-8	1.51E-01		1.4E+00	1.1E-01	2.1E-02	7.3E+00			7.4E+03	2.0E-05
10	Perched	DRAIN #1	French Drain (111904)	N	11/19/04	T	INORG	Nickel	7440-02-0	1.21E+01		1.0E-01	1.2E+02	1.2E-01	1.0E+02			7.4E+04	1.6E-04
10	Perched	DRAIN #1	FrenchDrain DUP	FD	03/18/00	T	INORG	Chromium (total)	7440-47-3	2.00E-02		1.0E-01	2.0E-01	1.1E-02	1.8E+00			4.6E+02	4.3E-05
10	Perched	DRAIN #1	FrenchDrain DUP	FD	03/18/00	T	INORG	Copper	7440-50-8	2.60E-01		1.4E+00	1.9E-01	2.1E-02	1.3E+01			7.4E+03	3.5E-05
10	Perched	DRAIN #1	FrenchDrain DUP	FD	03/18/00	T	INORG	Nickel	7440-02-0	2.12E+01		1.0E-01	2.1E+02	1.2E-01	1.8E+02			7.4E+04	2.9E-04
10	Perched	TW-32	TW-32	N	01/01/88	T	INORG	Arsenic	7440-38-2	1.70E-02		1.0E-02	1.7E+00	1.5E-01	1.1E-01			4.3E+00	4.0E-03
10	Perched	TW-32	TW-32	N	01/01/88	T	INORG	Cyanide (total)	57-12-5	7.00E-02	J	2.0E-01	3.5E-01	5.2E-03	1.3E+01			5.7E+01	1.2E-03
9	Perched	VEW1	VEW-1(10)	N	02/01/95	T	VOC	Benzene	71-43-2	2.20E-02		5.0E-03	4.4E+00	2.0E-01	1.1E-01	5.6E+00	3.9E-03	1.1E+01	2.0E-03

Notes:

Sample Types: "N" = normal or parent sample, "FD" = field duplicate sample

Meas Basis - measured basis; T = total, D = dissolved

Table A-3c: Borehole Water Screening Results
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Max Detected (mg/L)	Residential Drinking Water Criteria (mg/L)	Ratio of Max Detected to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Max Detected to Groundwater Surface water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
6	Unassigned	INORG	Nickel	7440-02-0	T	A	5	5	2.50E-01	3.20E+00	1.0E-01	**3.2E+01**	1.2E-01	**2.7E+01**			7.4E+04	4.3E-05

Notes:

Only constituents detected in each area are shown.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Meas Basis - measured basis; T = total, D = dissolved

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-3d: Borehole Water Samples Exceeding Screening Criteria
GM Lansing Plant 3, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
6	Unassigned	SB#4	SB#4(15-17)~WB	N	02/15/90	T	INORG	Nickel	7440-02-0	7.40E-01		1.0E-01	**7.4E+00**	1.2E-01	**6.2E+00**			7.4E+04	1.0E-05
6	Unassigned	SB#5	SB#5(18.5-20.5)~WG	N	02/14/90	T	INORG	Nickel	7440-02-0	3.20E+00		1.0E-01	**3.2E+01**	1.2E-01	**2.7E+01**			7.4E+04	4.3E-05
6	Unassigned	SB#6	SB#6(80-80.5)	N	02/13/90	T	INORG	Nickel	7440-02-0	2.50E-01		1.0E-01	**2.5E+00**	1.2E-01	**2.1E+00**			7.4E+04	3.4E-06
6	Unassigned	SB#7	SB#7(28.5-30)~WG	N	02/19/90	T	INORG	Nickel	7440-02-0	4.20E-01		1.0E-01	**4.2E+00**	1.2E-01	**3.5E+00**			7.4E+04	5.7E-06
6	Unassigned	SB#8	SB#8(68.5-70)~WG	N	02/20/90	T	INORG	Nickel	7440-02-0	6.30E-01		1.0E-01	**6.3E+00**	1.2E-01	**5.3E+00**			7.4E+04	8.5E-06
	Notes:																		
	Sample Types: "N" = normal or parent sample, "FD" = field duplicate sample																		
	Meas Basis - measured basis; T = total, D = dissolved																		

Table A-2a: Summary of Soil Screening against Residential and Water Protection Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
10	INORG	Arsenic	7440-38-2	A	7	7	6.10E-01	1.64E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
10	INORG	Barium	7440-39-3	NC	7	7	1.99E+01	7.13E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
10	INORG	Beryllium	7440-41-7	B1	7	7	1.20E-01	1.90E-01		5.1E+01	3.7E-03					1.3E+03	1.5E-04	4.1E+02	4.6E-04	3.6E+02	5.2E-04
10	INORG	Cadmium	7440-43-9	B1	7	7	8.00E-02	1.80E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
10	INORG	Chromium (total)	7440-47-3		7	7	3.60E+00	1.83E+01		3.0E+01	6.1E-01					2.6E+02	7.0E-02	2.5E+03	7.3E-03	3.3E+00	**5.5E+00**
10	INORG	Cobalt	7440-48-4	B1	7	7	2.54E+00	1.06E+01	6.80E+00	8.0E-01	**4.8E+00**					1.3E+04	2.9E-04	2.6E+03	1.5E-03	2.0E+00	**1.9E+00**
10	INORG	Copper	7440-50-8	D	7	7	6.70E+00	1.27E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
10	INORG	Lead	7439-92-1	B2	7	7	3.20E+00	7.00E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
10	INORG	Lead (Coarse Fraction)	7439-92-1C		7	7	3.20E+00	7.20E+00													
10	INORG	Lead (Fine Fraction)	7439-92-1F		7	7	1.22E+01	7.52E+01													
10	INORG	Lead (Summed Fractions)	7439-92-1S		7	7	4.99E+00	1.03E+01													
10	INORG	Manganese	7439-96-5	D	7	7	2.05E+02	6.55E+02	4.40E+02	1.0E+00	**2.2E+02**					3.3E+03	6.5E-02	2.5E+04	8.6E-03	9.1E+01	**2.4E+00**
10	INORG	Mercury	7439-97-6	D	7	6	1.00E-02	2.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
10	INORG	Nickel	7440-02-0	A	7	7	5.70E+00	2.42E+01	2.00E+01	1.0E+02	4.2E-02					1.3E+04	3.2E-04	4.0E+04	1.1E-04	1.2E+02	3.4E-02
10	INORG	Selenium	7782-49-2	D	7	7	2.40E-01	6.30E-01	4.10E-01	4.0E+00	5.5E-02					1.3E+05	1.7E-06	2.6E+03	8.5E-05	4.0E-01	5.5E-01
10	INORG	Silver	7440-22-4	D	7	3	2.00E-02	8.00E-02	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
10	INORG	Thallium	7440-28-0		7	7	3.00E-02	9.00E-02		2.3E+00	3.9E-02							3.5E+01	2.6E-03	4.2E+00	2.1E-02
10	INORG	Vanadium	7440-62-2		7	7	4.60E+00	1.47E+01		7.2E+01	2.0E-01							7.5E+02	2.0E-02	1.9E+02	7.7E-02
10	INORG	Zinc	7440-66-6	ID	7	7	1.04E+01	3.31E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
13	VOC	Acetone	67-64-1	ID	2	1	4.10E-02	4.10E-02		1.5E+01	2.7E-03	1.1E+05	3.7E-07	1.3E+05	3.2E-07	3.9E+08	1.1E-10	2.3E+04	1.8E-06	3.4E+01	1.2E-03
13	VOC	Benzene	71-43-2	A	31	3	1.20E-02	5.80E-01		1.0E-01	**5.8E+00**	1.6E+00	3.6E-01	1.3E+01	4.5E-02	3.8E+05	1.5E-06	1.8E+02	3.2E-03	4.0E+00	1.5E-01
13	VOC	Ethyl Benzene	100-41-4	D	31	2	9.70E-02	3.40E+00		1.5E+00	**2.3E+00**	8.7E+01	3.9E-02	7.2E+02	4.7E-03	1.0E+07	3.4E-07	1.4E+02	2.4E-02	3.6E-01	**9.4E+00**
13	VOC	Methylene Chloride	75-09-2	B2	2	1	1.00E-02	1.00E-02		1.0E-01	1.0E-01	4.5E+01	2.2E-04	2.1E+02	4.8E-05	6.6E+06	1.5E-09	1.3E+03	7.7E-06	1.9E+01	5.3E-04
13	VOC	Toluene	108-88-3	ID	31	14	5.00E-03	1.60E-01		1.6E+01	1.0E-02	2.5E+02	6.4E-04	2.8E+03	5.7E-05	2.7E+07	5.9E-09	2.5E+02	6.4E-04	2.8E+00	5.7E-02
13	VOC	Xylenes (total)	1330-20-7	ID	31	8	2.00E-03	9.90E+01		5.6E+00	**1.8E+01**	1.5E+02	6.6E-01	4.6E+04	2.2E-03	2.9E+08	3.4E-07	1.5E+02	6.6E-01	7.0E-01	**1.4E+02**
13	PDIST	Petroleum Hydrocarbons	68334-30-5		19	8	1.20E+01	1.15E+04													
16	VOC	Acetone	67-64-1	ID	2	1	4.10E-02	4.10E-02		1.5E+01	2.7E-03	1.1E+05	3.7E-07	1.3E+05	3.2E-07	3.9E+08	1.1E-10	2.3E+04	1.8E-06	3.4E+01	1.2E-03
16	VOC	Benzene	71-43-2	A	31	3	1.20E-02	5.80E-01		1.0E-01	**5.8E+00**	1.6E+00	3.6E-01	1.3E+01	4.5E-02	3.8E+05	1.5E-06	1.8E+02	3.2E-03	4.0E+00	1.5E-01
16	VOC	Ethyl Benzene	100-41-4	D	31	2	9.70E-02	3.40E+00		1.5E+00	**2.3E+00**	8.7E+01	3.9E-02	7.2E+02	4.7E-03	1.0E+07	3.4E-07	1.4E+02	2.4E-02	3.6E-01	**9.4E+00**
16	VOC	Methylene Chloride	75-09-2	B2	2	1	1.00E-02	1.00E-02		1.0E-01	1.0E-01	4.5E+01	2.2E-04	2.1E+02	4.8E-05	6.6E+06	1.5E-09	1.3E+03	7.7E-06	1.9E+01	5.3E-04
16	VOC	Toluene	108-88-3	ID	31	14	5.00E-03	1.60E-01		1.6E+01	1.0E-02	2.5E+02	6.4E-04	2.8E+03	5.7E-05	2.7E+07	5.9E-09	2.5E+02	6.4E-04	2.8E+00	5.7E-02
16	VOC	Xylenes (total)	1330-20-7	ID	31	8	2.00E-03	9.90E+01		5.6E+00	**1.8E+01**	1.5E+02	6.6E-01	4.6E+04	2.2E-03	2.9E+08	3.4E-07	1.5E+02	6.6E-01	7.0E-01	**1.4E+02**
16	PDIST	Petroleum Hydrocarbons	68334-30-5		19	8	1.20E+01	1.15E+04													
17	VOC	Acetone	67-64-1	ID	15	2	4.10E-02	2.60E-01		1.5E+01	1.7E-02	1.1E+05	2.4E-06	1.3E+05	2.0E-06	3.9E+08	6.7E-10	2.3E+04	1.1E-05	3.4E+01	7.6E-03
17	VOC	Benzene	71-43-2	A	90	18	6.00E-03	2.97E+01		1.0E-01	**3.0E+02**	1.6E+00	**1.9E+01**	1.3E+01	**2.3E+00**	3.8E+05	7.8E-05	1.8E+02	1.7E-01	4.0E+00	**7.4E+00**
17	VOC	2-Butanone	78-93-3	ID	15	2	6.30E-02	1.90E-01		2.6E+02	7.3E-04	2.7E+04	7.0E-06	2.9E+04	6.6E-06	6.7E+07	2.8E-09	2.7E+04	7.0E-06	4.4E+01	4.3E-03
17	VOC	1,1-Dichloroethane	75-34-3	SC	80	1	9.00E-03	9.00E-03		1.8E+01	5.0E-04	2.3E+02	3.9E-05	2.1E+03	4.3E-06	3.3E+07	2.7E-10	8.9E+02	1.0E-05	1.5E+01	6.0E-04
17	VOC	1,2-Dichloroethane	107-06-2	B2	44	1	1.00E-03	1.00E-03		1.0E-01	1.0E-02	2.1E+00	4.8E-04	6.2E+00	1.6E-04	1.2E+05	8.3E-09	9.1E+01	1.1E-05	7.2E+00	1.4E-04
17	VOC	1,1-Dichloroethene	75-35-4	C	80	3	2.00E-03	5.00E-01		1.4E-01	**3.6E+00**	6.2E-02	**8.1E+00**	1.1E+00	4.5E-01	6.2E+04	8.1E-06	2.0E+02	2.5E-03	1.3E+00	3.8E-01
17	VOC	cis-1,2-Dichloroethene	156-59-2	ID	80	4	2.00E-03	1.20E+01		1.4E+00	**8.6E+00**	2.2E+01	5.5E-01	1.8E+02	6.7E-02	2.3E+06	5.2E-06	6.4E+02	1.9E-02	1.2E+01	1.0E+00
17	VOC	Ethyl Benzene	100-41-4	D	90	22	1.00E-03	1.22E+02		1.5E+00	**8.1E+01**	8.7E+01	**1.4E+00**	7.2E+02	1.7E-01	1.0E+07	1.2E-05	1.4E+02	8.7E-01	3.6E-01	**3.4E+02**
17	VOC	Methyl tert-butyl ether	1634-04-4		36	2	3.90E+00	1.00E+01		8.0E-01	**1.3E+01**	5.9E+03	1.7E-03	2.5E+04	4.0E-04	2.0E+08	5.0E-08	1.5E+03	6.7E-03	1.5E+01	6.7E-01
17	VOC	Methylene Chloride	75-09-2	B2	37	9	7.00E-03	2.20E-02		1.0E-01	2.2E-01	4.5E+01	4.9E-04	2.1E+02	1.0E-04	6.6E+06	3.3E-09	1.3E+03	1.7E-05	1.9E+01	1.2E-03
17	VOC	Tetrachloroethene	127-18-4	C-B2	80	3	4.00E-03	9.00E-02		1.0E-01	9.0E-01	1.1E+01	8.2E-03	1.8E+02	5.0E-04	5.4E+06	1.7E-08	8.8E+01	1.0E-03	9.0E-01	1.0E-01
17	VOC	Toluene	108-88-3	ID	90	33	1.00E-03	1.80E+00		1.6E+01	1.1E-01	2.5E+02	7.2E-03	2.8E+03	6.4E-04	2.7E+07	6.7E-08	2.5E+02	7.2E-03	2.8E+00	6.4E-01
17	VOC	1,1,1-Trichloroethane	71-55-6	ID	73	9	1.00E-03	9.00E+00		4.0E+00	**2.3E+00**	2.5E+02	3.6E-02	3.8E+03	2.4E-03	6.7E+07	1.3E-07	4.6E+02	2.0E-02	4.0E+00	**2.3E+00**
17	VOC	1,1,2-Trichloroethane	79-00-5	C	80	5	1.00E-03	6.00E-01		1.0E-01	**6.0E+00**	4.6E+00	1.3E-01	1.7E+01	3.5E-02	1.9E+05	3.2E-06	1.8E+02	3.3E-03	6.6E+00	9.1E-02
17	VOC	Trichloroethene	79-01-6	C-B2	73	14	3.00E-03	1.20E+00		1.0E-01	**1.2E+01**	7.1E+00	1.7E-01	7.8E+01	1.5E-02	1.8E+06	6.7E-07	5.0E+02	2.4E-03	4.0E+00	3.0E-01
17	VOC	Xylenes (total)	1330-20-7	ID	90	27	2.00E-03	2.99E+02		5.6E+00	**5.3E+01**	1.5E+02	**2.0E+00**	4.6E+04	6.5E-03	2.9E+08	1.0E-06	1.5E+02	**2.0E+00**	7.0E-01	**4.3E+02**
17	SVOC	2-Methylnaphthalene	91-57-6	ID	7	1	9.50E+00	9.50E+00		5.7E+01	1.7E-01							8.1E+03	1.2E-03		
17	SVOC	Naphthalene	91-20-3	C	7	1	9.20E+00	9.20E+00		3.5E+01	2.6E-01	2.5E+02	3.7E-02	3.0E+02	3.1E-02	2.0E+05	4.6E-05	1.6E+04	5.8E-04	8.7E-01	**1.1E+01**
18	VOC	Benzene	71-43-2	A	6	2	1.00E-02	3.00E-02		1.0E-01	3.0E-01	1.6E+00	1.9E-02	1.3E+01	2.3E-03	3.8E+05	7.9E-08	1.8E+02	1.7E-04	4.0E+00	7.5E-03
18	VOC	Cumene	98-82-8	D	5	5	8.00E-03	1.42E+00		9.1E+01	1.6E-02	3.9E+02	3.6E-03	1.7E+03	8.4E-04	5.8E+06	2.4E-07	3.9E+02	3.6E-03		
18	VOC	Cyclohexane	110-82-7	ID	5	4	2.00E-02	4.00E-02													
18	VOC	Ethyl Benzene	100-41-4	D	6	3	1.00E-02	6.00E-02		1.5E+00	4.0E-02	8.7E+01	6.9E-04	7.2E+02	8.3E-05	1.0E+07	6.0E-09	1.4E+02	4.3E-04	3.6E-01	1.7E-01
18	VOC	Methylcyclohexane	108-87-2		5	5	5.00E-02	1.50E+00													
18	VOC	Toluene	108-88-3	ID	6	4	1.00E-02	1.20E-01		1.6E+01	7.5E-03	2.5E+02	4.8E-04	2.8E+03	4.3E-05	2.7E+07	4.4E-09	2.5E+02	4.8E-04	2.8E+00	4.3E-02
18	VOC	Xylenes (total)	1330-20-7	ID	6	2	8.00E-02	1.80E-01		5.6E+00	3.2E-02	1.5E+02	1.2E-03	4.6E+04	3.9E-06	2.9E+08	6.2E-10	1.5E+02	1.2E-03	7.0E-01	2.6E-01
18	SVOC	Benzo(a)pyrene	50-32-8	B2	1	1	5.00E-02	5.00E-02								1.5E+03	3.3E-05	2.0E+00	2.5E-02		
18	SVOC	Benzo(b)fluoranthene	205-99-2	B2	1	1	3.00E-02	3.00E-02										2.0E+01	1.5E-03		
18	SVOC	Benzo(g,h,i)perylene	191-24-2	D	1	1	9.00E-02	9.00E-02								8.0E+05	1.1E-07	2.5E+03	3.6E-05		
18	SVOC	Benzo(k)fluoranthene	207-08-9	B2	1	1	3.00E-02	3.00E-02										2.0E+02	1.5E-04		
18	SVOC	Dibenz(a,h)anthracene	53-70-3	B2	1	1	8.00E-02	8.00E-02										2.0E+00	4.0E-02		
18	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1	1	8.00E-02	8.00E-02										2.0E+01	4.0E-03		
18	SVOC	Naphthalene	91-20-3	C	1	1	9.00E-02	9.00E-02		3.5E+01	2.6E-03	2.5E+02	3.6E-04	3.0E+02	3.0E-04	2.0E+05	4.5E-07	1.6E+04	5.6E-06	8.7E-01	1.0E-01
18	PDIST	Petroleum Hydrocarbons	68334-30-5		1	1	3.00E+01	3.00E+01													
18	INORG	Antimony	7440-36-0		26	5	1.00E-01	5.70E-01		4.3E+00	1.3E-01					1.3E+04	4.4E-05	1.8E+02	3.2E-03	9.4E+01	6.1E-03

Table A-2a: Summary of Soil Screening against Residential and Water Protection Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
18	INORG	Arsenic	7440-38-2	A	26	26	6.20E-01	2.41E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
18	INORG	Barium	7440-39-3	NC	26	26	9.30E+00	1.40E+02	7.50E+01	1.3E+03	5.0E-02					3.3E+05	2.0E-04	3.7E+04	1.8E-03	8.2E+02	8.0E-02
18	INORG	Beryllium	7440-41-7	B1	26	13	1.20E-01	1.19E+00		5.1E+01	2.3E-02					1.3E+03	9.2E-04	4.1E+02	2.9E-03	3.6E+02	3.3E-03
18	INORG	Cadmium	7440-43-9	B1	26	25	6.00E-02	5.70E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
18	INORG	Chromium (total)	7440-47-3		26	26	2.80E+00	2.57E+01		3.0E+01	8.6E-01					2.6E+02	9.9E-02	2.5E+03	1.0E-02	3.3E+00	**7.8E+00**
18	INORG	Cobalt	7440-48-4	B1	26	26	9.80E-01	2.28E+01	6.80E+00	8.0E-01	**2.0E+01**					1.3E+04	1.2E-03	2.6E+03	6.2E-03	2.0E+00	**8.0E+00**
18	INORG	Copper	7440-50-8	D	26	26	4.50E+00	1.63E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
18	INORG	Cyanide (total)	57-12-5	D	26	4	2.00E-01	3.50E-01	3.90E-01	4.0E+00						2.5E+02		1.2E+01		1.0E-01	
18	INORG	Lead	7439-92-1	B2	199	198	1.30E+00	4.03E+03	2.10E+01	7.0E+02	**5.7E+00**					1.0E+05	4.0E-02	4.0E+02	**1.0E+01**	5.2E+03	7.7E-01
18	INORG	Lead (Coarse Fraction)	7439-92-1C		26	26	2.60E+00	1.82E+02													
18	INORG	Lead (Fine Fraction)	7439-92-1F		26	26	1.16E+01	2.40E+02													
18	INORG	Lead (Summed Fractions)	7439-92-1S		26	26	4.68E+00	1.80E+02													
18	INORG	Manganese	7439-96-5	D	26	26	4.98E+01	6.01E+02	4.40E+02	1.0E+00	**1.6E+02**					3.3E+03	4.9E-02	2.5E+04	6.4E-03	9.1E+01	**1.8E+00**
18	INORG	Mercury	7439-97-6	D	26	23	1.00E-02	7.60E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
18	INORG	Nickel	7440-02-0	A	26	26	3.10E+00	3.15E+01	2.00E+01	1.0E+02	1.2E-01					1.3E+04	8.8E-04	4.0E+04	2.9E-04	1.2E+02	9.3E-02
18	INORG	Selenium	7782-49-2	D	26	12	2.60E-01	1.01E+00	4.10E-01	4.0E+00	1.5E-01					1.3E+05	4.6E-06	2.6E+03	2.3E-04	4.0E-01	**1.5E+00**
18	INORG	Silver	7440-22-4	D	26	5	2.00E-02	4.00E-02	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
18	INORG	Thallium	7440-28-0		26	12	2.00E-02	7.00E-02		2.3E+00	3.0E-02							3.5E+01	2.0E-03	4.2E+00	1.7E-02
18	INORG	Vanadium	7440-62-2		26	26	2.90E+00	2.34E+01		7.2E+01	3.3E-01							7.5E+02	3.1E-02	1.9E+02	1.2E-01
18	INORG	Zinc	7440-66-6	ID	26	26	8.00E+00	1.88E+02	4.70E+01	2.4E+03	5.9E-02							1.7E+05	8.3E-04	2.7E+02	5.2E-01
19	INORG	Arsenic	7440-38-2	A	3	3	9.80E-01	1.05E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
19	INORG	Barium	7440-39-3	NC	3	3	3.30E+00	7.96E+01	7.50E+01	1.3E+03	3.5E-03					3.3E+05	1.4E-05	3.7E+04	1.2E-04	8.2E+02	5.6E-03
19	INORG	Beryllium	7440-41-7	B1	3	1	1.50E-01	1.50E-01		5.1E+01	2.9E-03					1.3E+03	1.2E-04	4.1E+02	3.7E-04	3.6E+02	4.1E-04
19	INORG	Cadmium	7440-43-9	B1	3	2	8.00E-02	9.00E-02	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
19	INORG	Chromium (total)	7440-47-3		3	3	1.60E+00	1.47E+01		3.0E+01	4.9E-01					2.6E+02	5.7E-02	2.5E+03	5.9E-03	3.3E+00	**4.5E+00**
19	INORG	Cobalt	7440-48-4	B1	3	3	1.01E+00	6.55E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
19	INORG	Copper	7440-50-8	D	3	3	5.00E+00	1.02E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
19	INORG	Lead	7439-92-1	B2	3	3	1.40E+00	4.90E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
19	INORG	Lead (Coarse Fraction)	7439-92-1C		3	3	2.90E+00	4.40E+00													
19	INORG	Lead (Fine Fraction)	7439-92-1F		3	3	7.30E+00	4.25E+01													
19	INORG	Lead (Summed Fractions)	7439-92-1S		3	3	5.31E+00	7.86E+00													
19	INORG	Manganese	7439-96-5	D	3	3	8.40E+01	3.35E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
19	INORG	Mercury	7439-97-6	D	3	2	1.00E-02	1.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
19	INORG	Nickel	7440-02-0	A	3	3	2.40E+00	1.60E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
19	INORG	Selenium	7782-49-2	D	3	2	6.30E-01	7.80E-01	4.10E-01	4.0E+00	9.3E-02					1.3E+05	2.8E-06	2.6E+03	1.4E-04	4.0E-01	9.3E-01
19	INORG	Thallium	7440-28-0		3	2	5.00E-02	5.00E-02		2.3E+00	2.2E-02							3.5E+01	1.4E-03	4.2E+00	1.2E-02
19	INORG	Vanadium	7440-62-2		3	3	2.30E+00	1.42E+01		7.2E+01	2.0E-01							7.5E+02	1.9E-02	1.9E+02	7.5E-02
19	INORG	Zinc	7440-66-6	ID	3	3	7.30E+00	2.78E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
2	VOC	Cumene	98-82-8	D	2	2	9.30E-01	1.42E+00		9.1E+01	1.6E-02	3.9E+02	3.6E-03	1.7E+03	8.4E-04	5.8E+06	2.4E-07	3.9E+02	3.6E-03		
2	VOC	Cyclohexane	110-82-7	ID	2	1	3.00E-02	3.00E-02													
2	VOC	Ethyl Benzene	100-41-4	D	2	1	6.00E-02	6.00E-02		1.5E+00	4.0E-02	8.7E+01	6.9E-04	7.2E+02	8.3E-05	1.0E+07	6.0E-09	1.4E+02	4.3E-04	3.6E-01	1.7E-01
2	VOC	Methylcyclohexane	108-87-2		2	2	8.60E-01	1.50E+00													
2	VOC	Toluene	108-88-3	ID	2	1	2.00E-02	2.00E-02		1.6E+01	1.3E-03	2.5E+02	8.0E-05	2.8E+03	7.1E-06	2.7E+07	7.4E-10	2.5E+02	8.0E-05	2.8E+00	7.1E-03
2	INORG	Antimony	7440-36-0		14	4	1.90E-01	5.70E-01		4.3E+00	1.3E-01					1.3E+04	4.4E-05	1.8E+02	3.2E-03	9.4E+01	6.1E-03
2	INORG	Arsenic	7440-38-2	A	14	14	1.06E+00	2.22E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
2	INORG	Barium	7440-39-3	NC	14	14	9.30E+00	7.54E+01	7.50E+01	1.3E+03	3.1E-04					3.3E+05	1.2E-06	3.7E+04	1.1E-05	8.2E+02	4.9E-04
2	INORG	Beryllium	7440-41-7	B1	14	6	1.50E-01	6.80E-01		5.1E+01	1.3E-02					1.3E+03	5.2E-04	4.1E+02	1.7E-03	3.6E+02	1.9E-03
2	INORG	Cadmium	7440-43-9	B1	14	13	6.00E-02	5.70E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
2	INORG	Chromium (total)	7440-47-3		14	14	2.80E+00	1.61E+01		3.0E+01	5.4E-01					2.6E+02	6.2E-02	2.5E+03	6.4E-03	3.3E+00	**4.9E+00**
2	INORG	Cobalt	7440-48-4	B1	14	14	9.80E-01	8.35E+00	6.80E+00	8.0E-01	**1.9E+00**					1.3E+04	1.2E-04	2.6E+03	6.0E-04	2.0E+00	7.8E-01
2	INORG	Copper	7440-50-8	D	14	14	4.50E+00	1.32E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
2	INORG	Cyanide (total)	57-12-5	D	14	3	2.00E-01	2.00E-01	3.90E-01	4.0E+00						2.5E+02		1.2E+01		1.0E-01	
2	INORG	Lead	7439-92-1	B2	14	14	2.50E+00	1.21E+02	2.10E+01	7.0E+02	1.4E-01					1.0E+05	1.0E-03	4.0E+02	2.5E-01	5.2E+03	1.9E-02
2	INORG	Lead (Coarse Fraction)	7439-92-1C		14	14	2.60E+00	1.82E+02													
2	INORG	Lead (Fine Fraction)	7439-92-1F		14	14	1.16E+01	2.40E+02													
2	INORG	Lead (Summed Fractions)	7439-92-1S		14	14	4.68E+00	1.80E+02													
2	INORG	Manganese	7439-96-5	D	14	14	4.98E+01	6.01E+02	4.40E+02	1.0E+00	**1.6E+02**					3.3E+03	4.9E-02	2.5E+04	6.4E-03	9.1E+01	**1.8E+00**
2	INORG	Mercury	7439-97-6	D	14	12	1.00E-02	6.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
2	INORG	Nickel	7440-02-0	A	14	14	3.50E+00	1.85E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
2	INORG	Selenium	7782-49-2	D	14	2	3.70E-01	5.60E-01	4.10E-01	4.0E+00	3.8E-02					1.3E+05	1.2E-06	2.6E+03	5.8E-05	4.0E-01	3.8E-01
2	INORG	Thallium	7440-28-0		14	1	4.00E-02	4.00E-02		2.3E+00	1.7E-02							3.5E+01	1.1E-03	4.2E+00	9.5E-03
2	INORG	Vanadium	7440-62-2		14	14	2.90E+00	1.47E+01		7.2E+01	2.0E-01							7.5E+02	2.0E-02	1.9E+02	7.7E-02
2	INORG	Zinc	7440-66-6	ID	14	14	8.00E+00	1.88E+02	4.70E+01	2.4E+03	5.9E-02							1.7E+05	8.3E-04	2.7E+02	5.2E-01
21	INORG	Arsenic	7440-38-2	A	1	1	8.90E-01	8.90E-01	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
21	INORG	Barium	7440-39-3	NC	1	1	7.00E+00	7.00E+00	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
21	INORG	Beryllium	7440-41-7	B1	1	1	5.00E-02	5.00E-02		5.1E+01	9.8E-04					1.3E+03	3.8E-05	4.1E+02	1.2E-04	3.6E+02	1.4E-04
21	INORG	Cadmium	7440-43-9	B1	1	1	5.00E-02	5.00E-02	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	

Table A-2a: Summary of Soil Screening against Residential and Water Protection Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
21	INORG	Chromium (total)	7440-47-3		1	1	1.80E+00	1.80E+00		3.0E+01	6.0E-02					2.6E+02	6.9E-03	2.5E+03	7.2E-04	3.3E+00	5.5E-01
21	INORG	Cobalt	7440-48-4	B1	1	1	1.39E+00	1.39E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
21	INORG	Copper	7440-50-8	D	1	1	2.50E+00	2.50E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
21	INORG	Lead	7439-92-1	B2	1	1	2.20E+00	2.20E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
21	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	3.00E+00	3.00E+00													
21	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	3.60E+00	3.60E+00													
21	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	3.40E+00	3.40E+00													
21	INORG	Manganese	7439-96-5	D	1	1	1.21E+02	1.21E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
21	INORG	Nickel	7440-02-0	A	1	1	2.80E+00	2.80E+00	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
21	INORG	Vanadium	7440-62-2		1	1	2.60E+00	2.60E+00		7.2E+01	3.6E-02							7.5E+02	3.5E-03	1.9E+02	1.4E-02
21	INORG	Zinc	7440-66-6	ID	1	1	5.50E+00	5.50E+00	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
3	INORG	Arsenic	7440-38-2	A	6	6	6.10E-01	1.64E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
3	INORG	Barium	7440-39-3	NC	6	6	1.99E+01	3.90E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
3	INORG	Beryllium	7440-41-7	B1	6	6	1.20E-01	1.80E-01		5.1E+01	3.5E-03					1.3E+03	1.4E-04	4.1E+02	4.4E-04	3.6E+02	5.0E-04
3	INORG	Cadmium	7440-43-9	B1	6	6	8.00E-02	1.80E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
3	INORG	Chromium (total)	7440-47-3		6	6	3.60E+00	1.24E+01		3.0E+01	4.1E-01					2.6E+02	4.8E-02	2.5E+03	5.0E-03	3.3E+00	**3.8E+00**
3	INORG	Cobalt	7440-48-4	B1	6	6	2.54E+00	5.74E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
3	INORG	Copper	7440-50-8	D	6	6	6.70E+00	1.04E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
3	INORG	Lead	7439-92-1	B2	6	6	3.20E+00	4.60E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
3	INORG	Lead (Coarse Fraction)	7439-92-1C		6	6	3.20E+00	7.20E+00													
3	INORG	Lead (Fine Fraction)	7439-92-1F		6	6	1.22E+01	4.40E+01													
3	INORG	Lead (Summed Fractions)	7439-92-1S		6	6	4.99E+00	1.03E+01													
3	INORG	Manganese	7439-96-5	D	6	6	2.05E+02	4.17E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
3	INORG	Mercury	7439-97-6	D	6	5	1.00E-02	2.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
3	INORG	Nickel	7440-02-0	A	6	6	5.70E+00	1.41E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
3	INORG	Selenium	7782-49-2	D	6	6	2.40E-01	6.30E-01	4.10E-01	4.0E+00	5.5E-02					1.3E+05	1.7E-06	2.6E+03	8.5E-05	4.0E-01	5.5E-01
3	INORG	Silver	7440-22-4	D	6	3	2.00E-02	8.00E-02	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
3	INORG	Thallium	7440-28-0		6	6	3.00E-02	6.00E-02		2.3E+00	2.6E-02							3.5E+01	1.7E-03	4.2E+00	1.4E-02
3	INORG	Vanadium	7440-62-2		6	6	4.60E+00	1.13E+01		7.2E+01	1.6E-01							7.5E+02	1.5E-02	1.9E+02	5.9E-02
3	INORG	Zinc	7440-66-6	ID	6	6	1.04E+01	3.08E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
30	INORG	Arsenic	7440-38-2	A	1	1	1.05E+00	1.05E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
30	INORG	Barium	7440-39-3	NC	1	1	2.61E+01	2.61E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
30	INORG	Beryllium	7440-41-7	B1	1	1	1.50E-01	1.50E-01		5.1E+01	2.9E-03					1.3E+03	1.2E-04	4.1E+02	3.7E-04	3.6E+02	4.1E-04
30	INORG	Cadmium	7440-43-9	B1	1	1	9.00E-02	9.00E-02	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
30	INORG	Chromium (total)	7440-47-3		1	1	5.60E+00	5.60E+00		3.0E+01	1.9E-01					2.6E+02	2.2E-02	2.5E+03	2.2E-03	3.3E+00	**1.7E+00**
30	INORG	Cobalt	7440-48-4	B1	1	1	3.29E+00	3.29E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
30	INORG	Copper	7440-50-8	D	1	1	5.60E+00	5.60E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
30	INORG	Lead	7439-92-1	B2	1	1	3.60E+00	3.60E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
30	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	3.70E+00	3.70E+00													
30	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	2.43E+01	2.43E+01													
30	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	6.56E+00	6.56E+00													
30	INORG	Manganese	7439-96-5	D	1	1	1.90E+02	1.90E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
30	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
30	INORG	Nickel	7440-02-0	A	1	1	6.80E+00	6.80E+00	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
30	INORG	Selenium	7782-49-2	D	1	1	2.90E-01	2.90E-01	4.10E-01	4.0E+00						1.3E+05		2.6E+03		4.0E-01	
30	INORG	Thallium	7440-28-0		1	1	2.00E-02	2.00E-02		2.3E+00	8.7E-03							3.5E+01	5.7E-04	4.2E+00	4.8E-03
30	INORG	Vanadium	7440-62-2		1	1	6.20E+00	6.20E+00		7.2E+01	8.6E-02							7.5E+02	8.3E-03	1.9E+02	3.3E-02
30	INORG	Zinc	7440-66-6	ID	1	1	1.24E+01	1.24E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
40	INORG	Arsenic	7440-38-2	A	1	1	5.90E-01	5.90E-01	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
40	INORG	Barium	7440-39-3	NC	1	1	1.12E+01	1.12E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
40	INORG	Beryllium	7440-41-7	B1	1	1	7.00E-02	7.00E-02		5.1E+01	1.4E-03					1.3E+03	5.4E-05	4.1E+02	1.7E-04	3.6E+02	1.9E-04
40	INORG	Chromium (total)	7440-47-3		1	1	1.40E+00	1.40E+00		3.0E+01	4.7E-02					2.6E+02	5.4E-03	2.5E+03	5.6E-04	3.3E+00	4.2E-01
40	INORG	Cobalt	7440-48-4	B1	1	1	1.48E+00	1.48E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
40	INORG	Copper	7440-50-8	D	1	1	2.10E+00	2.10E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
40	INORG	Lead	7439-92-1	B2	1	1	2.50E+00	2.50E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
40	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	4.60E+00	4.60E+00													
40	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	5.10E+00	5.10E+00													
40	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	4.89E+00	4.89E+00													
40	INORG	Manganese	7439-96-5	D	1	1	1.25E+02	1.25E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
40	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
40	INORG	Nickel	7440-02-0	A	1	1	2.30E+00	2.30E+00	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
40	INORG	Selenium	7782-49-2	D	1	1	1.60E-01	1.60E-01	4.10E-01	4.0E+00						1.3E+05		2.6E+03		4.0E-01	
40	INORG	Vanadium	7440-62-2		1	1	2.30E+00	2.30E+00		7.2E+01	3.2E-02							7.5E+02	3.1E-03	1.9E+02	1.2E-02
40	INORG	Zinc	7440-66-6	ID	1	1	3.90E+00	3.90E+00	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
42	INORG	Antimony	7440-36-0		1	1	8.00E-02	8.00E-02		4.3E+00	1.9E-02					1.3E+04	6.2E-06	1.8E+02	4.4E-04	9.4E+01	8.5E-04
42	INORG	Arsenic	7440-38-2	A	1	1	6.00E-01	6.00E-01	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
42	INORG	Barium	7440-39-3	NC	1	1	9.40E+00	9.40E+00	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	

Table A-2a: Summary of Soil Screening against Residential and Water Protection Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
42	INORG	Beryllium	7440-41-7	B1	1	1	5.00E-02	5.00E-02		5.1E+01	9.8E-04					1.3E+03	3.8E-05	4.1E+02	1.2E-04	3.6E+02	1.4E-04
42	INORG	Chromium (total)	7440-47-3		1	1	1.60E+00	1.60E+00		3.0E+01	5.3E-02					2.6E+02	6.2E-03	2.5E+03	6.4E-04	3.3E+00	4.8E-01
42	INORG	Cobalt	7440-48-4	B1	1	1	1.33E+00	1.33E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
42	INORG	Copper	7440-50-8	D	1	1	1.90E+00	1.90E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
42	INORG	Lead	7439-92-1	B2	1	1	7.70E+00	7.70E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
42	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	6.50E+00	6.50E+00													
42	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	4.10E+00	4.10E+00													
42	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	5.57E+00	5.57E+00													
42	INORG	Manganese	7439-96-5	D	1	1	1.18E+02	1.18E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
42	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
42	INORG	Nickel	7440-02-0	A	1	1	3.10E+00	3.10E+00	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
42	INORG	Selenium	7782-49-2	D	1	1	1.70E-01	1.70E-01	4.10E-01	4.0E+00						1.3E+05		2.6E+03		4.0E-01	
42	INORG	Vanadium	7440-62-2		1	1	2.20E+00	2.20E+00		7.2E+01	3.1E-02							7.5E+02	2.9E-03	1.9E+02	1.2E-02
42	INORG	Zinc	7440-66-6	ID	1	1	4.50E+00	4.50E+00	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
43	INORG	Arsenic	7440-38-2	A	2	2	6.70E-01	1.26E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
43	INORG	Barium	7440-39-3	NC	2	2	5.50E+00	8.40E+00	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
43	INORG	Beryllium	7440-41-7	B1	2	2	5.00E-02	6.00E-02		5.1E+01	1.2E-03					1.3E+03	4.6E-05	4.1E+02	1.5E-04	3.6E+02	1.7E-04
43	INORG	Cadmium	7440-43-9	B1	2	2	5.00E-02	6.00E-02	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
43	INORG	Chromium (total)	7440-47-3		2	2	1.90E+00	5.50E+00		3.0E+01	1.8E-01					2.6E+02	2.1E-02	2.5E+03	2.2E-03	3.3E+00	**1.7E+00**
43	INORG	Cobalt	7440-48-4	B1	2	2	1.31E+00	2.77E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
43	INORG	Copper	7440-50-8	D	2	2	3.50E+00	4.10E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
43	INORG	Lead	7439-92-1	B2	2	2	1.90E+00	3.10E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
43	INORG	Lead (Coarse Fraction)	7439-92-1C		2	2	1.90E+00	2.50E+00													
43	INORG	Lead (Fine Fraction)	7439-92-1F		2	2	8.30E+00	1.13E+01													
43	INORG	Lead (Summed Fractions)	7439-92-1S		2	2	3.67E+00	5.09E+00													
43	INORG	Manganese	7439-96-5	D	2	2	1.23E+02	1.44E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
43	INORG	Nickel	7440-02-0	A	2	2	3.00E+00	3.50E+00	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
43	INORG	Selenium	7782-49-2	D	2	2	2.90E-01	3.00E-01	4.10E-01	4.0E+00						1.3E+05		2.6E+03		4.0E-01	
43	INORG	Silver	7440-22-4	D	2	1	3.40E-01	3.40E-01	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
43	INORG	Thallium	7440-28-0		2	2	2.00E-02	3.00E-02		2.3E+00	1.3E-02							3.5E+01	8.6E-04	4.2E+00	7.1E-03
43	INORG	Vanadium	7440-62-2		2	2	3.00E+00	3.70E+00		7.2E+01	5.1E-02							7.5E+02	4.9E-03	1.9E+02	1.9E-02
43	INORG	Zinc	7440-66-6	ID	2	2	7.70E+00	7.90E+00	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
46	VOC	Benzene	71-43-2	A	2	1	2.00E-01	2.00E-01		1.0E-01	**2.0E+00**	1.6E+00	1.3E-01	1.3E+01	1.5E-02	3.8E+05	5.3E-07	1.8E+02	1.1E-03	4.0E+00	5.0E-02
46	VOC	Cumene	98-82-8	D	2	2	1.18E+00	3.89E+01		9.1E+01	4.3E-01	3.9E+02	1.0E-01	1.7E+03	2.3E-02	5.8E+06	6.7E-06	3.9E+02	1.0E-01		
46	VOC	Cyclohexane	110-82-7	ID	2	1	1.40E+00	1.40E+00													
46	VOC	Ethyl Benzene	100-41-4	D	2	2	5.50E-01	2.35E+01		1.5E+00	**1.6E+01**	8.7E+01	2.7E-01	7.2E+02	3.3E-02	1.0E+07	2.4E-06	1.4E+02	1.7E-01	3.6E-01	**6.5E+01**
46	VOC	Methylcyclohexane	108-87-2		2	2	1.16E+00	5.93E+01													
46	VOC	Tetrachloroethene	127-18-4	C-B2	2	1	4.00E-02	4.00E-02		1.0E-01	4.0E-01	1.1E+01	3.6E-03	1.8E+02	2.2E-04	5.4E+06	7.4E-09	8.8E+01	4.5E-04	9.0E-01	4.4E-02
46	VOC	Toluene	108-88-3	ID	2	1	5.00E-01	5.00E-01		1.6E+01	3.1E-02	2.5E+02	2.0E-03	2.8E+03	1.8E-04	2.7E+07	1.9E-08	2.5E+02	2.0E-03	2.8E+00	1.8E-01
46	VOC	Xylenes (total)	1330-20-7	ID	2	2	2.90E-01	1.37E+02		5.6E+00	**2.5E+01**	1.5E+02	9.1E-01	4.6E+04	3.0E-03	2.9E+08	4.7E-07	1.5E+02	9.1E-01	7.0E-01	**2.0E+02**
46	INORG	Antimony	7440-36-0		4	1	9.00E-02	9.00E-02		4.3E+00	2.1E-02					1.3E+04	6.9E-06	1.8E+02	5.0E-04	9.4E+01	9.6E-04
46	INORG	Arsenic	7440-38-2	A	4	4	1.07E+00	2.17E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
46	INORG	Barium	7440-39-3	NC	4	4	4.50E+00	4.62E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
46	INORG	Beryllium	7440-41-7	B1	4	4	7.00E-02	3.30E-01		5.1E+01	6.5E-03					1.3E+03	2.5E-04	4.1E+02	8.0E-04	3.6E+02	9.1E-04
46	INORG	Cadmium	7440-43-9	B1	4	4	5.00E-02	3.80E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
46	INORG	Chromium (total)	7440-47-3		4	4	1.80E+00	8.90E+00		3.0E+01	3.0E-01					2.6E+02	3.4E-02	2.5E+03	3.6E-03	3.3E+00	**2.7E+00**
46	INORG	Cobalt	7440-48-4	B1	4	4	1.37E+00	5.00E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
46	INORG	Copper	7440-50-8	D	4	4	4.70E+00	2.16E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
46	INORG	Lead	7439-92-1	B2	4	4	3.00E+00	7.70E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
46	INORG	Lead (Coarse Fraction)	7439-92-1C		4	4	5.20E+00	4.45E+01													
46	INORG	Lead (Fine Fraction)	7439-92-1F		4	4	1.77E+01	2.86E+01													
46	INORG	Lead (Summed Fractions)	7439-92-1S		4	4	7.08E+00	4.28E+01													
46	INORG	Manganese	7439-96-5	D	4	4	4.31E+01	1.95E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
46	INORG	Mercury	7439-97-6	D	4	4	1.00E-02	3.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
46	INORG	Nickel	7440-02-0	A	4	4	2.90E+00	1.71E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
46	INORG	Selenium	7782-49-2	D	4	4	2.80E-01	1.26E+00	4.10E-01	4.0E+00	2.1E-01					1.3E+05	6.5E-06	2.6E+03	3.3E-04	4.0E-01	**2.1E+00**
46	INORG	Silver	7440-22-4	D	4	3	3.00E-02	4.10E-01	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
46	INORG	Thallium	7440-28-0		4	4	3.00E-02	1.10E-01		2.3E+00	4.8E-02							3.5E+01	3.1E-03	4.2E+00	2.6E-02
46	INORG	Vanadium	7440-62-2		4	4	2.50E+00	1.56E+01		7.2E+01	2.2E-01							7.5E+02	2.1E-02	1.9E+02	8.2E-02
46	INORG	Zinc	7440-66-6	ID	4	4	1.00E+01	3.61E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
47	INORG	Antimony	7440-36-0		2	1	9.00E-02	9.00E-02		4.3E+00	2.1E-02					1.3E+04	6.9E-06	1.8E+02	5.0E-04	9.4E+01	9.6E-04
47	INORG	Arsenic	7440-38-2	A	2	2	1.07E+00	2.17E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
47	INORG	Barium	7440-39-3	NC	2	2	3.16E+01	4.62E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
47	INORG	Beryllium	7440-41-7	B1	2	2	2.70E-01	3.30E-01		5.1E+01	6.5E-03					1.3E+03	2.5E-04	4.1E+02	8.0E-04	3.6E+02	9.1E-04
47	INORG	Cadmium	7440-43-9	B1	2	2	3.40E-01	3.80E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
47	INORG	Chromium (total)	7440-47-3		2	2	7.20E+00	8.90E+00		3.0E+01	3.0E-01					2.6E+02	3.4E-02	2.5E+03	3.6E-03	3.3E+00	**2.7E+00**
47	INORG	Cobalt	7440-48-4	B1	2	2	3.06E+00	5.00E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	

Table A-2a: Summary of Soil Screening against Residential and Water Protection Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
47	INORG	Copper	7440-50-8	D	2	2	1.34E+01	2.16E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
47	INORG	Lead	7439-92-1	B2	2	2	7.30E+00	7.70E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
47	INORG	Lead (Coarse Fraction)	7439-92-1C		2	2	7.20E+00	7.90E+00													
47	INORG	Lead (Fine Fraction)	7439-92-1F		2	2	2.00E+01	2.30E+01													
47	INORG	Lead (Summed Fractions)	7439-92-1S		2	2	8.22E+00	9.06E+00													
47	INORG	Manganese	7439-96-5	D	2	2	4.31E+01	1.69E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
47	INORG	Mercury	7439-97-6	D	2	2	2.00E-02	3.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
47	INORG	Nickel	7440-02-0	A	2	2	1.36E+01	1.71E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
47	INORG	Selenium	7782-49-2	D	2	2	1.03E+00	1.26E+00	4.10E-01	4.0E+00	2.1E-01					1.3E+05	6.5E-06	2.6E+03	3.3E-04	4.0E-01	**2.1E+00**
47	INORG	Silver	7440-22-4	D	2	2	7.00E-02	4.10E-01	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
47	INORG	Thallium	7440-28-0		2	2	1.00E-01	1.10E-01		2.3E+00	4.8E-02							3.5E+01	3.1E-03	4.2E+00	2.6E-02
47	INORG	Vanadium	7440-62-2		2	2	1.14E+01	1.56E+01		7.2E+01	2.2E-01							7.5E+02	2.1E-02	1.9E+02	8.2E-02
47	INORG	Zinc	7440-66-6	ID	2	2	3.57E+01	3.61E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
48	VOC	Cumene	98-82-8	D	2	2	9.30E-01	1.42E+00		9.1E+01	1.6E-02	3.9E+02	3.6E-03	1.7E+03	8.4E-04	5.8E+06	2.4E-07	3.9E+02	3.6E-03		
48	VOC	Cyclohexane	110-82-7	ID	2	1	3.00E-02	3.00E-02													
48	VOC	Ethyl Benzene	100-41-4	D	2	1	6.00E-02	6.00E-02		1.5E+00	4.0E-02	8.7E+01	6.9E-04	7.2E+02	8.3E-05	1.0E+07	6.0E-09	1.4E+02	4.3E-04	3.6E-01	1.7E-01
48	VOC	Methylcyclohexane	108-87-2		2	2	8.60E-01	1.50E+00													
48	VOC	Toluene	108-88-3	ID	2	1	2.00E-02	2.00E-02		1.6E+01	1.3E-03	2.5E+02	8.0E-05	2.8E+03	7.1E-06	2.7E+07	7.4E-10	2.5E+02	8.0E-05	2.8E+00	7.1E-03
48	INORG	Antimony	7440-36-0		14	4	1.90E-01	5.70E-01		4.3E+00	1.3E-01					1.3E+04	4.4E-05	1.8E+02	3.2E-03	9.4E+01	6.1E-03
48	INORG	Arsenic	7440-38-2	A	14	14	1.06E+00	2.22E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
48	INORG	Barium	7440-39-3	NC	14	14	9.30E+00	7.54E+01	7.50E+01	1.3E+03	3.1E-04					3.3E+05	1.2E-06	3.7E+04	1.1E-05	8.2E+02	4.9E-04
48	INORG	Beryllium	7440-41-7	B1	14	6	1.50E-01	6.80E-01		5.1E+01	1.3E-02					1.3E+03	5.2E-04	4.1E+02	1.7E-03	3.6E+02	1.9E-03
48	INORG	Cadmium	7440-43-9	B1	14	13	6.00E-02	5.70E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
48	INORG	Chromium (total)	7440-47-3		14	14	2.80E+00	1.61E+01		3.0E+01	5.4E-01					2.6E+02	6.2E-02	2.5E+03	6.4E-03	3.3E+00	**4.9E+00**
48	INORG	Cobalt	7440-48-4	B1	14	14	9.80E-01	8.35E+00	6.80E+00	8.0E-01	**1.9E+00**					1.3E+04	1.2E-04	2.6E+03	6.0E-04	2.0E+00	7.8E-01
48	INORG	Copper	7440-50-8	D	14	14	4.50E+00	1.32E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
48	INORG	Cyanide (total)	57-12-5	D	14	3	2.00E-01	2.00E-01	3.90E-01	4.0E+00						2.5E+02		1.2E+01		1.0E-01	
48	INORG	Lead	7439-92-1	B2	14	14	2.50E+00	1.21E+02	2.10E+01	7.0E+02	1.4E-01					1.0E+05	1.0E-03	4.0E+02	2.5E-01	5.2E+03	1.9E-02
48	INORG	Lead (Coarse Fraction)	7439-92-1C		14	14	2.60E+00	1.82E+02													
48	INORG	Lead (Fine Fraction)	7439-92-1F		14	14	1.16E+01	2.40E+02													
48	INORG	Lead (Summed Fractions)	7439-92-1S		14	14	4.68E+00	1.80E+02													
48	INORG	Manganese	7439-96-5	D	14	14	4.98E+01	6.01E+02	4.40E+02	1.0E+00	**1.6E+02**					3.3E+03	4.9E-02	2.5E+04	6.4E-03	9.1E+01	**1.8E+00**
48	INORG	Mercury	7439-97-6	D	14	12	1.00E-02	6.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
48	INORG	Nickel	7440-02-0	A	14	14	3.50E+00	1.85E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
48	INORG	Selenium	7782-49-2	D	14	2	3.70E-01	5.60E-01	4.10E-01	4.0E+00	3.8E-02					1.3E+05	1.2E-06	2.6E+03	5.8E-05	4.0E-01	3.8E-01
48	INORG	Thallium	7440-28-0		14	1	4.00E-02	4.00E-02		2.3E+00	1.7E-02							3.5E+01	1.1E-03	4.2E+00	9.5E-03
48	INORG	Vanadium	7440-62-2		14	14	2.90E+00	1.47E+01		7.2E+01	2.0E-01							7.5E+02	2.0E-02	1.9E+02	7.7E-02
48	INORG	Zinc	7440-66-6	ID	14	14	8.00E+00	1.88E+02	4.70E+01	2.4E+03	5.9E-02							1.7E+05	8.3E-04	2.7E+02	5.2E-01
49	INORG	Antimony	7440-36-0		2	1	9.00E-02	9.00E-02		4.3E+00	2.1E-02					1.3E+04	6.9E-06	1.8E+02	5.0E-04	9.4E+01	9.6E-04
49	INORG	Arsenic	7440-38-2	A	2	2	1.12E+00	1.79E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
49	INORG	Barium	7440-39-3	NC	2	2	1.00E+02	1.42E+02	7.50E+01	1.3E+03	5.2E-02					3.3E+05	2.0E-04	3.7E+04	1.8E-03	8.2E+02	8.2E-02
49	INORG	Beryllium	7440-41-7	B1	2	2	3.90E-01	4.20E-01		5.1E+01	8.2E-03					1.3E+03	3.2E-04	4.1E+02	1.0E-03	3.6E+02	1.2E-03
49	INORG	Cadmium	7440-43-9	B1	2	2	1.60E-01	3.20E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
49	INORG	Chromium (total)	7440-47-3		2	2	5.80E+00	1.06E+01		3.0E+01	3.5E-01					2.6E+02	4.1E-02	2.5E+03	4.2E-03	3.3E+00	**3.2E+00**
49	INORG	Cobalt	7440-48-4	B1	2	2	4.32E+00	5.50E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
49	INORG	Copper	7440-50-8	D	2	2	7.00E+00	8.40E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
49	INORG	Lead	7439-92-1	B2	2	2	5.90E+00	7.90E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
49	INORG	Lead (Coarse Fraction)	7439-92-1C		2	2	5.50E+00	7.50E+00													
49	INORG	Lead (Fine Fraction)	7439-92-1F		2	2	1.49E+01	2.07E+01													
49	INORG	Lead (Summed Fractions)	7439-92-1S		2	2	6.62E+00	9.25E+00													
49	INORG	Manganese	7439-96-5	D	2	2	9.82E+01	3.68E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
49	INORG	Mercury	7439-97-6	D	2	2	2.00E-02	4.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
49	INORG	Nickel	7440-02-0	A	2	2	5.10E+00	1.00E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
49	INORG	Selenium	7782-49-2	D	2	2	1.70E-01	1.01E+00	4.10E-01	4.0E+00	1.5E-01					1.3E+05	4.6E-06	2.6E+03	2.3E-04	4.0E-01	**1.5E+00**
49	INORG	Silver	7440-22-4	D	2	2	2.00E-02	1.40E-01	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
49	INORG	Thallium	7440-28-0		2	1	1.50E-01	1.50E-01		2.3E+00	6.5E-02							3.5E+01	4.3E-03	4.2E+00	3.6E-02
49	INORG	Vanadium	7440-62-2		2	2	9.50E+00	1.45E+01		7.2E+01	2.0E-01							7.5E+02	1.9E-02	1.9E+02	7.6E-02
49	INORG	Zinc	7440-66-6	ID	2	2	1.85E+01	2.54E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
59	INORG	Arsenic	7440-38-2	A	2	2	5.20E-01	2.25E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
59	INORG	Barium	7440-39-3	NC	2	2	2.33E+01	2.53E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
59	INORG	Beryllium	7440-41-7	B1	2	2	1.20E-01	1.40E-01		5.1E+01	2.7E-03					1.3E+03	1.1E-04	4.1E+02	3.4E-04	3.6E+02	3.9E-04
59	INORG	Cadmium	7440-43-9	B1	2	2	9.00E-02	1.10E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
59	INORG	Chromium (total)	7440-47-3		2	2	3.50E+00	3.80E+00		3.0E+01	1.3E-01					2.6E+02	1.5E-02	2.5E+03	1.5E-03	3.3E+00	**1.2E+00**
59	INORG	Cobalt	7440-48-4	B1	2	2	2.51E+00	3.07E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
59	INORG	Copper	7440-50-8	D	2	2	5.50E+00	9.50E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
59	INORG	Lead	7439-92-1	B2	2	2	3.00E+00	4.40E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
59	INORG	Lead (Coarse Fraction)	7439-92-1C		2	2	3.90E+00	4.60E+00													
59	INORG	Lead (Fine Fraction)	7439-92-1F		2	2	1.85E+01	3.35E+01													
59	INORG	Lead (Summed Fractions)	7439-92-1S		2	2	6.33E+00	9.33E+00													
59	INORG	Manganese	7439-96-5	D	2	2	1.88E+02	2.31E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
59	INORG	Mercury	7439-97-6	D	2	2	1.00E-02	1.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	

Table A-2a: Summary of Soil Screening against Residential and Water Protection Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
59	INORG	Nickel	7440-02-0	A	2	2	6.10E+00	7.80E+00	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
59	INORG	Selenium	7782-49-2	D	2	2	6.10E-01	6.80E-01	4.10E-01	4.0E+00	6.8E-02					1.3E+05	2.1E-06	2.6E+03	1.0E-04	4.0E-01	6.8E-01
59	INORG	Silver	7440-22-4	D	2	1	2.00E-02	2.00E-02	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
59	INORG	Thallium	7440-28-0		2	2	2.00E-02	6.00E-02		2.3E+00	2.6E-02							3.5E+01	1.7E-03	4.2E+00	1.4E-02
59	INORG	Vanadium	7440-62-2		2	2	4.80E+00	5.00E+00		7.2E+01	6.9E-02							7.5E+02	6.7E-03	1.9E+02	2.6E-02
59	INORG	Zinc	7440-66-6	ID	2	2	1.09E+01	1.84E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
60	VOC	Acetone	67-64-1	ID	1	1	3.50E+01	3.50E+01		1.5E+01	**2.3E+00**	1.1E+05	3.2E-04	1.3E+05	2.7E-04	3.9E+08	9.0E-08	2.3E+04	1.5E-03	3.4E+01	1.0E+00
60	VOC	Cumene	98-82-8	D	1	1	1.00E-01	1.00E-01		9.1E+01	1.1E-03	3.9E+02	2.6E-04	1.7E+03	5.9E-05	5.8E+06	1.7E-08	3.9E+02	2.6E-04		
60	VOC	Ethyl Benzene	100-41-4	D	1	1	6.10E+00	6.10E+00		1.5E+00	**4.1E+00**	8.7E+01	7.0E-02	7.2E+02	8.5E-03	1.0E+07	6.1E-07	1.4E+02	4.4E-02	3.6E-01	**1.7E+01**
60	VOC	4-Methyl-2-pentanone	108-10-1	ID	1	1	3.00E+00	3.00E+00		3.6E+01	8.3E-02	2.7E+03	1.1E-03	4.5E+04	6.7E-05	1.4E+08	2.1E-08	2.7E+03	1.1E-03		
60	VOC	Toluene	108-88-3	ID	1	1	5.00E-01	5.00E-01		1.6E+01	3.1E-02	2.5E+02	2.0E-03	2.8E+03	1.8E-04	2.7E+07	1.9E-08	2.5E+02	2.0E-03	2.8E+00	1.8E-01
60	VOC	Xylenes (total)	1330-20-7	ID	1	1	3.45E+01	3.45E+01		5.6E+00	**6.2E+00**	1.5E+02	2.3E-01	4.6E+04	7.5E-04	2.9E+08	1.2E-07	1.5E+02	2.3E-01	7.0E-01	**4.9E+01**
60	INORG	Arsenic	7440-38-2	A	3	3	8.00E-01	1.22E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
60	INORG	Barium	7440-39-3	NC	3	3	6.00E+00	3.64E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
60	INORG	Beryllium	7440-41-7	B1	3	3	4.00E-02	1.70E-01		5.1E+01	3.3E-03					1.3E+03	1.3E-04	4.1E+02	4.1E-04	3.6E+02	4.7E-04
60	INORG	Cadmium	7440-43-9	B1	3	3	6.00E-02	8.00E-02	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
60	INORG	Chromium (total)	7440-47-3		3	3	1.80E+00	5.90E+00		3.0E+01	2.0E-01					2.6E+02	2.3E-02	2.5E+03	2.4E-03	3.3E+00	**1.8E+00**
60	INORG	Cobalt	7440-48-4	B1	3	3	1.01E+00	3.89E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
60	INORG	Copper	7440-50-8	D	3	3	3.90E+00	6.20E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
60	INORG	Lead	7439-92-1	B2	3	3	2.30E+00	4.00E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
60	INORG	Lead (Coarse Fraction)	7439-92-1C		3	3	1.50E+00	3.90E+00													
60	INORG	Lead (Fine Fraction)	7439-92-1F		3	3	4.90E+00	2.60E+01													
60	INORG	Lead (Summed Fractions)	7439-92-1S		3	3	2.49E+00	5.00E+00													
60	INORG	Manganese	7439-96-5	D	3	3	1.32E+02	2.76E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
60	INORG	Mercury	7439-97-6	D	3	2	1.00E-02	1.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
60	INORG	Nickel	7440-02-0	A	3	3	2.30E+00	9.40E+00	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
60	INORG	Selenium	7782-49-2	D	3	3	1.70E-01	3.60E-01	4.10E-01	4.0E+00						1.3E+05		2.6E+03		4.0E-01	
60	INORG	Thallium	7440-28-0		3	2	3.00E-02	4.00E-02		2.3E+00	1.7E-02							3.5E+01	1.1E-03	4.2E+00	9.5E-03
60	INORG	Vanadium	7440-62-2		3	3	2.00E+00	6.90E+00		7.2E+01	9.6E-02							7.5E+02	9.2E-03	1.9E+02	3.6E-02
60	INORG	Zinc	7440-66-6	ID	3	3	6.90E+00	1.39E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
63	INORG	Arsenic	7440-38-2	A	1	1	1.34E+00	1.34E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
63	INORG	Barium	7440-39-3	NC	1	1	5.81E+01	5.81E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
63	INORG	Beryllium	7440-41-7	B1	1	1	2.60E-01	2.60E-01		5.1E+01	5.1E-03					1.3E+03	2.0E-04	4.1E+02	6.3E-04	3.6E+02	7.2E-04
63	INORG	Cadmium	7440-43-9	B1	1	1	9.00E-02	9.00E-02	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
63	INORG	Chromium (total)	7440-47-3		1	1	9.00E+00	9.00E+00		3.0E+01	3.0E-01					2.6E+02	3.5E-02	2.5E+03	3.6E-03	3.3E+00	**2.7E+00**
63	INORG	Cobalt	7440-48-4	B1	1	1	6.25E+00	6.25E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
63	INORG	Copper	7440-50-8	D	1	1	9.20E+00	9.20E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
63	INORG	Lead	7439-92-1	B2	1	1	5.50E+00	5.50E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
63	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	5.20E+00	5.20E+00													
63	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	3.16E+01	3.16E+01													
63	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	6.59E+00	6.59E+00													
63	INORG	Manganese	7439-96-5	D	1	1	3.50E+02	3.50E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
63	INORG	Mercury	7439-97-6	D	1	1	2.00E-02	2.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
63	INORG	Nickel	7440-02-0	A	1	1	1.31E+01	1.31E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
63	INORG	Selenium	7782-49-2	D	1	1	4.90E-01	4.90E-01	4.10E-01	4.0E+00	2.0E-02					1.3E+05	6.2E-07	2.6E+03	3.1E-05	4.0E-01	2.0E-01
63	INORG	Thallium	7440-28-0		1	1	5.00E-02	5.00E-02		2.3E+00	2.2E-02							3.5E+01	1.4E-03	4.2E+00	1.2E-02
63	INORG	Vanadium	7440-62-2		1	1	1.01E+01	1.01E+01		7.2E+01	1.4E-01							7.5E+02	1.3E-02	1.9E+02	5.3E-02
63	INORG	Zinc	7440-66-6	ID	1	1	1.84E+01	1.84E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
78	INORG	Arsenic	7440-38-2	A	1	1	9.10E-01	9.10E-01	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
78	INORG	Barium	7440-39-3	NC	1	1	4.38E+01	4.38E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
78	INORG	Beryllium	7440-41-7	B1	1	1	1.80E-01	1.80E-01		5.1E+01	3.5E-03					1.3E+03	1.4E-04	4.1E+02	4.4E-04	3.6E+02	5.0E-04
78	INORG	Cadmium	7440-43-9	B1	1	1	9.00E-02	9.00E-02	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
78	INORG	Chromium (total)	7440-47-3		1	1	1.71E+01	1.71E+01		3.0E+01	5.7E-01					2.6E+02	6.6E-02	2.5E+03	6.8E-03	3.3E+00	**5.2E+00**
78	INORG	Cobalt	7440-48-4	B1	1	1	7.03E+00	7.03E+00	6.80E+00	8.0E-01	2.9E-01					1.3E+04	1.8E-05	2.6E+03	8.8E-05	2.0E+00	1.2E-01
78	INORG	Copper	7440-50-8	D	1	1	1.06E+01	1.06E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
78	INORG	Lead	7439-92-1	B2	1	1	5.70E+00	5.70E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
78	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	4.20E+00	4.20E+00													
78	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	1.92E+01	1.92E+01													
78	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	6.07E+00	6.07E+00													
78	INORG	Manganese	7439-96-5	D	1	1	2.80E+02	2.80E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
78	INORG	Mercury	7439-97-6	D	1	1	2.00E-02	2.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
78	INORG	Nickel	7440-02-0	A	1	1	2.02E+01	2.02E+01	2.00E+01	1.0E+02	2.0E-03					1.3E+04	1.5E-05	4.0E+04	5.0E-06	1.2E+02	1.6E-03
78	INORG	Selenium	7782-49-2	D	1	1	5.80E-01	5.80E-01	4.10E-01	4.0E+00	4.3E-02					1.3E+05	1.3E-06	2.6E+03	6.5E-05	4.0E-01	4.3E-01
78	INORG	Thallium	7440-28-0		1	1	6.00E-02	6.00E-02		2.3E+00	2.6E-02							3.5E+01	1.7E-03	4.2E+00	1.4E-02
78	INORG	Vanadium	7440-62-2		1	1	1.42E+01	1.42E+01		7.2E+01	2.0E-01							7.5E+02	1.9E-02	1.9E+02	7.5E-02
78	INORG	Zinc	7440-66-6	ID	1	1	2.98E+01	2.98E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
81	INORG	Antimony	7440-36-0		18	1	1.50E-01	1.50E-01		4.3E+00	3.5E-02					1.3E+04	1.2E-05	1.8E+02	8.3E-04	9.4E+01	1.6E-03
81	INORG	Arsenic	7440-38-2	A	18	18	5.90E-01	7.34E+00	5.80E+00	4.6E+00	3.3E-01					7.2E+02	2.1E-03	7.6E+00	2.0E-01	7.0E+01	2.2E-02
81	INORG	Barium	7440-39-3	NC	18	18	1.93E+01	4.20E+02	7.50E+01	1.3E+03	2.7E-01					3.3E+05	1.0E-03	3.7E+04	9.3E-03	8.2E+02	4.2E-01
81	INORG	Beryllium	7440-41-7	B1	18	18	8.00E-02	1.04E+00		5.1E+01	2.0E-02					1.3E+03	8.0E-04	4.1E+02	2.5E-03	3.6E+02	2.9E-03
81	INORG	Cadmium	7440-43-9	B1	18	18	5.00E-02	3.50E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
81	INORG	Chromium (total)	7440-47-3		18	18	3.40E+00	2.50E+01		3.0E+01	8.3E-01					2.6E+02	9.6E-02	2.5E+03	1.0E-02	3.3E+00	**7.6E+00**

Table A-2a: Summary of Soil Screening against Residential and Water Protection Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
81	INORG	Cobalt	7440-48-4	B1	18	18	1.82E+00	1.26E+01	6.80E+00	8.0E-01	**7.3E+00**					1.3E+04	4.5E-04	2.6E+03	2.2E-03	2.0E+00	**2.9E+00**
81	INORG	Copper	7440-50-8	D	18	18	4.70E+00	1.81E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
81	INORG	Lead	7439-92-1	B2	18	18	3.40E+00	9.30E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
81	INORG	Lead (Coarse Fraction)	7439-92-1C		18	18	3.20E+00	8.90E+00													
81	INORG	Lead (Fine Fraction)	7439-92-1F		18	18	5.80E+00	3.01E+01													
81	INORG	Lead (Summed Fractions)	7439-92-1S		18	18	3.72E+00	1.01E+01													
81	INORG	Manganese	7439-96-5	D	18	18	8.16E+01	1.18E+03	4.40E+02	1.0E+00	**7.4E+02**					3.3E+03	2.2E-01	2.5E+04	3.0E-02	9.1E+01	**8.1E+00**
81	INORG	Mercury	7439-97-6	D	18	18	1.00E-02	6.10E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
81	INORG	Nickel	7440-02-0	A	18	18	4.40E+00	2.91E+01	2.00E+01	1.0E+02	9.1E-02					1.3E+04	7.0E-04	4.0E+04	2.3E-04	1.2E+02	7.3E-02
81	INORG	Selenium	7782-49-2	D	18	17	2.70E-01	8.00E-01	4.10E-01	4.0E+00	9.8E-02					1.3E+05	3.0E-06	2.6E+03	1.5E-04	4.0E-01	9.8E-01
81	INORG	Silver	7440-22-4	D	18	13	2.00E-02	1.90E-01	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
81	INORG	Thallium	7440-28-0		18	16	3.00E-02	1.80E-01		2.3E+00	7.8E-02							3.5E+01	5.1E-03	4.2E+00	4.3E-02
81	INORG	Vanadium	7440-62-2		18	18	4.00E+00	2.99E+01		7.2E+01	4.2E-01							7.5E+02	4.0E-02	1.9E+02	1.6E-01
81	INORG	Zinc	7440-66-6	ID	18	18	1.32E+01	5.50E+01	4.70E+01	2.4E+03	3.3E-03							1.7E+05	4.7E-05	2.7E+02	3.0E-02
82	VOC	Benzene	71-43-2	A	2	2	1.00E-02	3.00E-02		1.0E-01	3.0E-01	1.6E+00	1.9E-02	1.3E+01	2.3E-03	3.8E+05	7.9E-08	1.8E+02	1.7E-04	4.0E+00	7.5E-03
82	VOC	Cumene	98-82-8	D	2	2	8.00E-03	1.00E-02		9.1E+01	1.1E-04	3.9E+02	2.6E-05	1.7E+03	5.9E-06	5.8E+06	1.7E-09	3.9E+02	2.6E-05		
82	VOC	Cyclohexane	110-82-7	ID	2	2	2.00E-02	3.00E-02													
82	VOC	Ethyl Benzene	100-41-4	D	2	2	1.00E-02	3.00E-02		1.5E+00	2.0E-02	8.7E+01	3.4E-04	7.2E+02	4.2E-05	1.0E+07	3.0E-09	1.4E+02	2.1E-04	3.6E-01	8.3E-02
82	VOC	Methylcyclohexane	108-87-2		2	2	5.00E-02	1.10E-01													
82	VOC	Toluene	108-88-3	ID	2	2	5.00E-02	1.20E-01		1.6E+01	7.5E-03	2.5E+02	4.8E-04	2.8E+03	4.3E-05	2.7E+07	4.4E-09	2.5E+02	4.8E-04	2.8E+00	4.3E-02
82	VOC	Xylenes (total)	1330-20-7	ID	2	2	8.00E-02	1.80E-01		5.6E+00	3.2E-02	1.5E+02	1.2E-03	4.6E+04	3.9E-06	2.9E+08	6.2E-10	1.5E+02	1.2E-03	7.0E-01	2.6E-01
82	INORG	Arsenic	7440-38-2	A	5	5	6.20E-01	2.41E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
82	INORG	Barium	7440-39-3	NC	5	5	2.40E+01	9.68E+01	7.50E+01	1.3E+03	1.7E-02					3.3E+05	6.6E-05	3.7E+04	5.9E-04	8.2E+02	2.7E-02
82	INORG	Beryllium	7440-41-7	B1	5	1	1.90E-01	1.90E-01		5.1E+01	3.7E-03					1.3E+03	1.5E-04	4.1E+02	4.6E-04	3.6E+02	5.2E-04
82	INORG	Cadmium	7440-43-9	B1	5	5	7.00E-02	2.60E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
82	INORG	Chromium (total)	7440-47-3		5	5	4.10E+00	1.61E+01		3.0E+01	5.4E-01					2.6E+02	6.2E-02	2.5E+03	6.4E-03	3.3E+00	**4.9E+00**
82	INORG	Cobalt	7440-48-4	B1	5	5	2.59E+00	7.90E+00	6.80E+00	8.0E-01	**1.4E+00**					1.3E+04	8.5E-05	2.6E+03	4.2E-04	2.0E+00	5.5E-01
82	INORG	Copper	7440-50-8	D	5	5	6.20E+00	1.15E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
82	INORG	Lead	7439-92-1	B2	5	5	3.70E+00	1.09E+01	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
82	INORG	Lead (Coarse Fraction)	7439-92-1C		5	5	3.40E+00	1.22E+01													
82	INORG	Lead (Fine Fraction)	7439-92-1F		5	5	2.08E+01	6.62E+01													
82	INORG	Lead (Summed Fractions)	7439-92-1S		5	5	5.19E+00	1.50E+01													
82	INORG	Manganese	7439-96-5	D	5	5	2.50E+02	3.26E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
82	INORG	Mercury	7439-97-6	D	5	4	1.00E-02	1.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
82	INORG	Nickel	7440-02-0	A	5	5	5.60E+00	1.89E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
82	INORG	Selenium	7782-49-2	D	5	5	5.20E-01	1.01E+00	4.10E-01	4.0E+00	1.5E-01					1.3E+05	4.6E-06	2.6E+03	2.3E-04	4.0E-01	**1.5E+00**
82	INORG	Silver	7440-22-4	D	5	2	2.00E-02	2.00E-02	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
82	INORG	Thallium	7440-28-0		5	5	3.00E-02	7.00E-02		2.3E+00	3.0E-02							3.5E+01	2.0E-03	4.2E+00	1.7E-02
82	INORG	Vanadium	7440-62-2		5	5	7.10E+00	1.41E+01		7.2E+01	2.0E-01							7.5E+02	1.9E-02	1.9E+02	7.4E-02
82	INORG	Zinc	7440-66-6	ID	5	5	1.49E+01	3.21E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
83	INORG	Arsenic	7440-38-2	A	10	10	9.10E-01	1.65E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
83	INORG	Barium	7440-39-3	NC	10	10	3.50E+01	7.13E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
83	INORG	Beryllium	7440-41-7	B1	10	10	1.80E-01	2.30E-01		5.1E+01	4.5E-03					1.3E+03	1.8E-04	4.1E+02	5.6E-04	3.6E+02	6.4E-04
83	INORG	Cadmium	7440-43-9	B1	10	10	8.00E-02	1.30E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
83	INORG	Chromium (total)	7440-47-3		10	10	7.50E+00	2.08E+01		3.0E+01	6.9E-01					2.6E+02	8.0E-02	2.5E+03	8.3E-03	3.3E+00	**6.3E+00**
83	INORG	Cobalt	7440-48-4	B1	10	10	3.58E+00	1.06E+01	6.80E+00	8.0E-01	**4.8E+00**					1.3E+04	2.9E-04	2.6E+03	1.5E-03	2.0E+00	**1.9E+00**
83	INORG	Copper	7440-50-8	D	10	10	7.20E+00	1.32E+01	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
83	INORG	Lead	7439-92-1	B2	10	10	4.10E+00	7.00E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
83	INORG	Lead (Coarse Fraction)	7439-92-1C		10	10	3.10E+00	4.80E+00													
83	INORG	Lead (Fine Fraction)	7439-92-1F		10	10	1.68E+01	7.52E+01													
83	INORG	Lead (Summed Fractions)	7439-92-1S		10	10	4.86E+00	9.87E+00													
83	INORG	Manganese	7439-96-5	D	10	10	2.23E+02	6.55E+02	4.40E+02	1.0E+00	**2.2E+02**					3.3E+03	6.5E-02	2.5E+04	8.6E-03	9.1E+01	**2.4E+00**
83	INORG	Mercury	7439-97-6	D	10	10	1.00E-02	2.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
83	INORG	Nickel	7440-02-0	A	10	10	9.50E+00	2.42E+01	2.00E+01	1.0E+02	4.2E-02					1.3E+04	3.2E-04	4.0E+04	1.1E-04	1.2E+02	3.4E-02
83	INORG	Selenium	7782-49-2	D	10	10	4.00E-01	1.31E+00	4.10E-01	4.0E+00	2.3E-01					1.3E+05	6.9E-06	2.6E+03	3.5E-04	4.0E-01	**2.3E+00**
83	INORG	Silver	7440-22-4	D	10	3	2.00E-02	4.00E-02	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
83	INORG	Thallium	7440-28-0		10	10	3.00E-02	9.00E-02		2.3E+00	3.9E-02							3.5E+01	2.6E-03	4.2E+00	2.1E-02
83	INORG	Vanadium	7440-62-2		10	10	8.90E+00	1.69E+01		7.2E+01	2.3E-01							7.5E+02	2.3E-02	1.9E+02	8.9E-02
83	INORG	Zinc	7440-66-6	ID	10	10	1.56E+01	3.54E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
87	INORG	Arsenic	7440-38-2	A	1	1	1.40E+00	1.40E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
87	INORG	Barium	7440-39-3	NC	1	1	5.04E+01	5.04E+01	7.50E+01	1.3E+03						3.3E+05		3.7E+04		8.2E+02	
87	INORG	Beryllium	7440-41-7	B1	1	1	1.90E-01	1.90E-01		5.1E+01	3.7E-03					1.3E+03	1.5E-04	4.1E+02	4.6E-04	3.6E+02	5.2E-04
87	INORG	Cadmium	7440-43-9	B1	1	1	1.00E-01	1.00E-01	1.20E+00	6.0E+00						1.7E+03		5.5E+02		5.5E+00	
87	INORG	Chromium (total)	7440-47-3		1	1	7.70E+00	7.70E+00		3.0E+01	2.6E-01					2.6E+02	3.0E-02	2.5E+03	3.1E-03	3.3E+00	**2.3E+00**
87	INORG	Cobalt	7440-48-4	B1	1	1	4.34E+00	4.34E+00	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
87	INORG	Copper	7440-50-8	D	1	1	7.20E+00	7.20E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
87	INORG	Lead	7439-92-1	B2	1	1	3.70E+00	3.70E+00	2.10E+01	7.0E+02						1.0E+05		4.0E+02		5.2E+03	
87	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	3.70E+00	3.70E+00													
87	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	4.56E+01	4.56E+01													
87	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	6.59E+00	6.59E+00													
87	INORG	Manganese	7439-96-5	D	1	1	2.50E+02	2.50E+02	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
87	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	

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GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Max Detect to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Residential Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Max Detect to GSI Protection Criteria
87	INORG	Nickel	7440-02-0	A	1	1	1.03E+01	1.03E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
87	INORG	Selenium	7782-49-2	D	1	1	5.10E-01	5.10E-01	4.10E-01	4.0E+00	2.5E-02					1.3E+05	7.7E-07	2.6E+03	3.8E-05	4.0E-01	2.5E-01
87	INORG	Silver	7440-22-4	D	1	1	2.00E-02	2.00E-02	1.00E+00	4.5E+00						6.7E+03		2.5E+03		1.0E-01	
87	INORG	Thallium	7440-28-0		1	1	6.00E-02	6.00E-02		2.3E+00	2.6E-02							3.5E+01	1.7E-03	4.2E+00	1.4E-02
87	INORG	Vanadium	7440-62-2		1	1	8.80E+00	8.80E+00		7.2E+01	1.2E-01							7.5E+02	1.2E-02	1.9E+02	4.6E-02
87	INORG	Zinc	7440-66-6	ID	1	1	1.66E+01	1.66E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	
88	VOC	Benzene	71-43-2	A	1	1	1.60E-01	1.60E-01		1.0E-01	**1.6E+00**	1.6E+00	1.0E-01	1.3E+01	1.2E-02	3.8E+05	4.2E-07	1.8E+02	8.9E-04	4.0E+00	4.0E-02
88	VOC	Cumene	98-82-8	D	1	1	3.50E-01	3.50E-01		9.1E+01	3.8E-03	3.9E+02	9.0E-04	1.7E+03	2.1E-04	5.8E+06	6.0E-08	3.9E+02	9.0E-04		
88	VOC	Cyclohexane	110-82-7	ID	1	1	1.10E-01	1.10E-01													
88	VOC	Ethyl Benzene	100-41-4	D	1	1	1.23E+00	1.23E+00		1.5E+00	8.2E-01	8.7E+01	1.4E-02	7.2E+02	1.7E-03	1.0E+07	1.2E-07	1.4E+02	8.8E-03	3.6E-01	**3.4E+00**
88	VOC	Methylcyclohexane	108-87-2		1	1	7.40E-01	7.40E-01													
88	VOC	Toluene	108-88-3	ID	1	1	2.63E+00	2.63E+00		1.6E+01	1.6E-01	2.5E+02	1.1E-02	2.8E+03	9.4E-04	2.7E+07	9.7E-08	2.5E+02	1.1E-02	2.8E+00	9.4E-01
88	VOC	Xylenes (total)	1330-20-7	ID	1	1	8.11E+00	8.11E+00		5.6E+00	**1.4E+00**	1.5E+02	5.4E-02	4.6E+04	1.8E-04	2.9E+08	2.8E-08	1.5E+02	5.4E-02	7.0E-01	**1.2E+01**
88	INORG	Antimony	7440-36-0		1	1	3.00E+01	3.00E+01		4.3E+00	**7.0E+00**					1.3E+04	2.3E-03	1.8E+02	1.7E-01	9.4E+01	3.2E-01
88	INORG	Arsenic	7440-38-2	A	1	1	1.24E+00	1.24E+00	5.80E+00	4.6E+00						7.2E+02		7.6E+00		7.0E+01	
88	INORG	Barium	7440-39-3	NC	1	1	1.19E+02	1.19E+02	7.50E+01	1.3E+03	3.4E-02					3.3E+05	1.3E-04	3.7E+04	1.2E-03	8.2E+02	5.4E-02
88	INORG	Beryllium	7440-41-7	B1	1	1	5.70E-01	5.70E-01		5.1E+01	1.1E-02					1.3E+03	4.4E-04	4.1E+02	1.4E-03	3.6E+02	1.6E-03
88	INORG	Cadmium	7440-43-9	B1	1	1	2.60E+00	2.60E+00	1.20E+00	6.0E+00	2.3E-01					1.7E+03	8.2E-04	5.5E+02	2.5E-03	5.5E+00	2.5E-01
88	INORG	Chromium (total)	7440-47-3		1	1	9.90E+00	9.90E+00		3.0E+01	3.3E-01					2.6E+02	3.8E-02	2.5E+03	4.0E-03	3.3E+00	**3.0E+00**
88	INORG	Cobalt	7440-48-4	B1	1	1	9.80E-01	9.80E-01	6.80E+00	8.0E-01						1.3E+04		2.6E+03		2.0E+00	
88	INORG	Copper	7440-50-8	D	1	1	6.30E+00	6.30E+00	3.20E+01	5.8E+03						1.3E+05		2.0E+04		1.2E+02	
88	INORG	Lead	7439-92-1	B2	1	1	2.22E+01	2.22E+01	2.10E+01	7.0E+02	1.7E-03					1.0E+05	1.2E-05	4.0E+02	3.0E-03	5.2E+03	2.3E-04
88	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	1.47E+02	1.47E+02													
88	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	1.58E+02	1.58E+02													
88	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	1.47E+02	1.47E+02													
88	INORG	Manganese	7439-96-5	D	1	1	1.27E+01	1.27E+01	4.40E+02	1.0E+00						3.3E+03		2.5E+04		9.1E+01	
88	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	1.7E+00		4.8E+01		5.2E+01		2.0E+04		1.6E+02		5.0E-02	
88	INORG	Nickel	7440-02-0	A	1	1	1.19E+01	1.19E+01	2.00E+01	1.0E+02						1.3E+04		4.0E+04		1.2E+02	
88	INORG	Selenium	7782-49-2	D	1	1	1.09E+00	1.09E+00	4.10E-01	4.0E+00	1.7E-01					1.3E+05	5.2E-06	2.6E+03	2.6E-04	4.0E-01	**1.7E+00**
88	INORG	Vanadium	7440-62-2		1	1	9.60E+00	9.60E+00		7.2E+01	1.3E-01							7.5E+02	1.3E-02	1.9E+02	5.1E-02
88	INORG	Zinc	7440-66-6	ID	1	1	1.89E+01	1.89E+01	4.70E+01	2.4E+03								1.7E+05		2.7E+02	

Notes:

Only constituents detected in each area are shown.

The criteria for 2-Methylnaphthalene are the criteria provided by the agency for Naphthalene.

Ratios are calculated using the maximum detected concentrations, except for inorganics. Ratios for inorganics use the facility-related concentrations, which are those in excess of background.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
10	INORG	Arsenic	7440-38-2	A	7	7	6.10E-01	1.64E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
10	INORG	Barium	7440-39-3	NC	7	7	1.99E+01	7.13E+01	7.50E+01					1.5E+05		1.3E+05			
10	INORG	Beryllium	7440-41-7	B1	7	7	1.20E-01	1.90E-01						5.9E+02	3.2E-04	1.6E+03	1.2E-04	3.7E+02	5.1E-04
10	INORG	Cadmium	7440-43-9	B1	7	7	8.00E-02	1.80E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
10	INORG	Chromium (total)	7440-47-3		7	7	3.60E+00	1.83E+01						2.4E+02	7.6E-02	9.2E+03	2.0E-03	1.7E+03	1.1E-02
10	INORG	Cobalt	7440-48-4	B1	7	7	2.54E+00	1.06E+01	6.80E+00					5.9E+03	6.4E-04	9.0E+03	4.2E-04	5.5E+02	6.9E-03
10	INORG	Copper	7440-50-8	D	7	7	6.70E+00	1.27E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
10	INORG	Lead	7439-92-1	B2	7	7	3.20E+00	7.00E+00	2.10E+01					4.4E+04		9.0E+02			
10	INORG	Lead (Coarse Fraction)	7439-92-1C		7	7	3.20E+00	7.20E+00											
10	INORG	Lead (Fine Fraction)	7439-92-1F		7	7	1.22E+01	7.52E+01											
10	INORG	Lead (Summed Fractions)	7439-92-1S		7	7	4.99E+00	1.03E+01											
10	INORG	Manganese	7439-96-5	D	7	7	2.05E+02	6.55E+02	4.40E+02					1.5E+03	1.4E-01	9.0E+04	2.4E-03	1.4E+03	1.5E-01
10	INORG	Mercury	7439-97-6	D	7	6	1.00E-02	2.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
10	INORG	Nickel	7440-02-0	A	7	7	5.70E+00	2.42E+01	2.00E+01					1.6E+04	2.6E-04	1.5E+05	2.8E-05	8.5E+04	4.9E-05
10	INORG	Selenium	7782-49-2	D	7	7	2.40E-01	6.30E-01	4.10E-01					5.9E+04	3.7E-06	9.6E+03	2.3E-05	2.5E+03	8.7E-05
10	INORG	Silver	7440-22-4	D	7	3	2.00E-02	8.00E-02	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
10	INORG	Thallium	7440-28-0		7	7	3.00E-02	9.00E-02								1.3E+02	6.9E-04	3.6E+01	2.5E-03
10	INORG	Vanadium	7440-62-2		7	7	4.60E+00	1.47E+01								5.5E+03	2.7E-03	3.6E+03	4.1E-03
10	INORG	Zinc	7440-66-6	ID	7	7	1.04E+01	3.31E+01	4.70E+01							6.3E+05		1.5E+05	
13	VOC	Acetone	67-64-1	ID	2	1	4.10E-02	4.10E-02		1.1E+05	3.7E-07	1.6E+05	2.6E-07	1.7E+08	2.4E-10	7.3E+04	5.6E-07	4.4E+03	9.4E-06
13	VOC	Benzene	71-43-2	A	31	3	1.20E-02	5.80E-01		8.4E+00	6.9E-02	4.5E+01	1.3E-02	4.7E+05	1.2E-06	4.0E+02	1.5E-03	1.5E+01	4.0E-02
13	VOC	Ethyl Benzene	100-41-4	D	31	2	9.70E-02	3.40E+00		1.4E+02	2.4E-02	2.4E+03	1.4E-03	1.3E+07	2.6E-07	1.4E+02	2.4E-02	4.6E+02	7.3E-03
13	VOC	Methylene Chloride	75-09-2	B2	2	1	1.00E-02	1.00E-02		2.4E+02	4.2E-05	7.0E+02	1.4E-05	8.3E+06	1.2E-09	2.3E+03	4.3E-06	3.5E+02	2.8E-05
13	VOC	Toluene	108-88-3	ID	31	14	5.00E-03	1.60E-01		2.5E+02	6.4E-04	3.3E+03	4.8E-05	1.2E+07	1.3E-08	2.5E+02	6.4E-04	1.7E+03	9.3E-05
13	VOC	Xylenes (total)	1330-20-7	ID	31	8	2.00E-03	9.90E+01		1.5E+02	6.6E-01	5.4E+04	1.8E-03	1.3E+08	7.6E-07	1.5E+02	6.6E-01	5.1E+01	**2.0E+00**
13	PDIST	Petroleum Hydrocarbons	68334-30-5		19	8	1.20E+01	1.15E+04											
16	VOC	Acetone	67-64-1	ID	2	1	4.10E-02	4.10E-02		1.1E+05	3.7E-07	1.6E+05	2.6E-07	1.7E+08	2.4E-10	7.3E+04	5.6E-07	4.4E+03	9.4E-06
16	VOC	Benzene	71-43-2	A	31	3	1.20E-02	5.80E-01		8.4E+00	6.9E-02	4.5E+01	1.3E-02	4.7E+05	1.2E-06	4.0E+02	1.5E-03	1.5E+01	4.0E-02
16	VOC	Ethyl Benzene	100-41-4	D	31	2	9.70E-02	3.40E+00		1.4E+02	2.4E-02	2.4E+03	1.4E-03	1.3E+07	2.6E-07	1.4E+02	2.4E-02	4.6E+02	7.3E-03
16	VOC	Methylene Chloride	75-09-2	B2	2	1	1.00E-02	1.00E-02		2.4E+02	4.2E-05	7.0E+02	1.4E-05	8.3E+06	1.2E-09	2.3E+03	4.3E-06	3.5E+02	2.8E-05
16	VOC	Toluene	108-88-3	ID	31	14	5.00E-03	1.60E-01		2.5E+02	6.4E-04	3.3E+03	4.8E-05	1.2E+07	1.3E-08	2.5E+02	6.4E-04	1.7E+03	9.3E-05
16	VOC	Xylenes (total)	1330-20-7	ID	31	8	2.00E-03	9.90E+01		1.5E+02	6.6E-01	5.4E+04	1.8E-03	1.3E+08	7.6E-07	1.5E+02	6.6E-01	5.1E+01	**2.0E+00**
16	PDIST	Petroleum Hydrocarbons	68334-30-5		19	8	1.20E+01	1.15E+04											
17	VOC	Acetone	67-64-1	ID	15	2	4.10E-02	2.60E-01		1.1E+05	2.4E-06	1.6E+05	1.6E-06	1.7E+08	1.5E-09	7.3E+04	3.6E-06	4.4E+03	5.9E-05
17	VOC	Benzene	71-43-2	A	90	18	6.00E-03	2.97E+01		8.4E+00	**3.5E+00**	4.5E+01	6.6E-01	4.7E+05	6.3E-05	4.0E+02	7.4E-02	1.5E+01	**2.0E+00**
17	VOC	2-Butanone	78-93-3	ID	15	2	6.30E-02	1.90E-01		2.7E+04	7.0E-06	3.5E+04	5.4E-06	2.9E+07	6.6E-09	2.7E+04	7.0E-06	6.7E+03	2.9E-05
17	VOC	1,1-Dichloroethane	75-34-3	SC	80	1	9.00E-03	9.00E-03		4.3E+02	2.1E-05	2.5E+03	3.6E-06	1.5E+07	6.0E-10	8.9E+02	1.0E-05	1.1E+03	8.0E-06
17	VOC	1,2-Dichloroethane	107-06-2	B2	44	1	1.00E-03	1.00E-03		1.1E+01	9.1E-05	2.1E+01	4.8E-05	1.5E+05	6.7E-09	4.2E+02	2.4E-06	1.8E+00	5.5E-04
17	VOC	1,1-Dichloroethene	75-35-4	C	80	3	2.00E-03	5.00E-01		3.3E-01	**1.5E+00**	3.7E+00	1.4E-01	7.8E+04	6.4E-06	5.7E+02	8.8E-04	2.7E+01	1.9E-02
17	VOC	cis-1,2-Dichloroethene	156-59-2	ID	80	4	2.00E-03	1.20E+01		4.1E+01	2.9E-01	2.1E+02	5.7E-02	1.0E+06	1.2E-05	6.4E+02	1.9E-02	9.3E+01	1.3E-01
17	VOC	Ethyl Benzene	100-41-4	D	90	22	1.00E-03	1.22E+02		1.4E+02	8.7E-01	2.4E+03	5.1E-02	1.3E+07	9.4E-06	1.4E+02	8.7E-01	4.6E+02	2.6E-01
17	VOC	Methyl tert-butyl ether	1634-04-4		36	2	3.90E+00	1.00E+01		5.9E+03	1.7E-03	3.0E+04	3.3E-04	8.8E+07	1.1E-07	5.9E+03	1.7E-03	1.4E+03	7.0E-03
17	VOC	Methylene Chloride	75-09-2	B2	37	9	7.00E-03	2.20E-02		2.4E+02	9.2E-05	7.0E+02	3.1E-05	8.3E+06	2.7E-09	2.3E+03	9.6E-06	3.5E+02	6.3E-05
17	VOC	Tetrachloroethene	127-18-4	C-B2	80	3	4.00E-03	9.00E-02		6.0E+01	1.5E-03	6.0E+02	1.5E-04	6.8E+06	1.3E-08	8.8E+01	1.0E-03	5.2E+01	1.7E-03
17	VOC	Toluene	108-88-3	ID	90	33	1.00E-03	1.80E+00		2.5E+02	7.2E-03	3.3E+03	5.5E-04	1.2E+07	1.5E-07	2.5E+02	7.2E-03	1.7E+03	1.0E-03
17	VOC	1,1,1-Trichloroethane	71-55-6	ID	73	9	1.00E-03	9.00E+00		4.6E+02	2.0E-02	4.5E+03	2.0E-03	2.9E+07	3.1E-07	4.6E+02	2.0E-02	4.3E+03	2.1E-03
17	VOC	1,1,2-Trichloroethane	79-00-5	C	80	5	1.00E-03	6.00E-01		2.4E+01	2.5E-02	5.7E+01	1.1E-02	2.5E+05	2.4E-06	8.4E+02	7.1E-04	2.5E+01	2.4E-02
17	VOC	Trichloroethene	79-01-6	C-B2	73	14	3.00E-03	1.20E+00		3.7E+01	3.2E-02	2.6E+02	4.6E-03	2.3E+06	5.2E-07	5.0E+02	2.4E-03	1.2E+02	1.0E-02
17	VOC	Xylenes (total)	1330-20-7	ID	90	27	2.00E-03	2.99E+02		1.5E+02	**2.0E+00**	5.4E+04	5.5E-03	1.3E+08	2.3E-06	1.5E+02	**2.0E+00**	5.1E+01	**5.9E+00**
17	SVOC	2-Methylnaphthalene	91-57-6	ID	7	1	9.50E+00	9.50E+00								2.6E+04	3.7E-04	2.6E+01	3.6E-01
17	SVOC	Naphthalene	91-20-3	C	7	1	9.20E+00	9.20E+00		4.7E+02	2.0E-02	3.5E+02	2.6E-02	8.8E+04	1.0E-04	5.2E+04	1.8E-04	1.4E+01	6.4E-01
18	VOC	Benzene	71-43-2	A	6	2	1.00E-02	3.00E-02		8.4E+00	3.6E-03	4.5E+01	6.7E-04	4.7E+05	6.4E-08	4.0E+02	7.5E-05	1.5E+01	2.1E-03
18	VOC	Cumene	98-82-8	D	5	5	8.00E-03	1.42E+00		3.9E+02	3.6E-03	2.0E+03	7.1E-04	2.6E+06	5.5E-07	3.9E+02	3.6E-03	2.1E+02	6.7E-03
18	VOC	Cyclohexane	110-82-7	ID	5	4	2.00E-02	4.00E-02										8.5E+02	4.7E-05
18	VOC	Ethyl Benzene	100-41-4	D	6	3	1.00E-02	6.00E-02		1.4E+02	4.3E-04	2.4E+03	2.5E-05	1.3E+07	4.6E-09	1.4E+02	4.3E-04	4.6E+02	1.3E-04
18	VOC	Methylcyclohexane	108-87-2		5	5	5.00E-02	1.50E+00										3.2E+02	4.7E-03
18	VOC	Toluene	108-88-3	ID	6	4	1.00E-02	1.20E-01		2.5E+02	4.8E-04	3.3E+03	3.6E-05	1.2E+07	1.0E-08	2.5E+02	4.8E-04	1.7E+03	7.0E-05
18	VOC	Xylenes (total)	1330-20-7	ID	6	2	8.00E-02	1.80E-01		1.5E+02	1.2E-03	5.4E+04	3.3E-06	1.3E+08	1.4E-09	1.5E+02	1.2E-03	5.1E+01	3.6E-03
18	SVOC	Benzo(a)pyrene	50-32-8	B2	1	1	5.00E-02	5.00E-02						1.9E+03	2.6E-05	8.0E+00	6.3E-03	3.4E+01	1.5E-03
18	SVOC	Benzo(b)fluoranthene	205-99-2	B2	1	1	3.00E-02	3.00E-02								8.0E+01	3.8E-04	3.1E+02	9.7E-05
18	SVOC	Benzo(g,h,i)perylene	191-24-2	D	1	1	9.00E-02	9.00E-02						3.5E+05	2.6E-07	7.0E+03	1.3E-05	1.1E+05	8.4E-07
18	SVOC	Benzo(k)fluoranthene	207-08-9	B2	1	1	3.00E-02	3.00E-02								8.0E+02	3.8E-05	3.4E+03	8.8E-06
18	SVOC	Dibenz(a,h)anthracene	53-70-3	B2	1	1	8.00E-02	8.00E-02								8.0E+00	1.0E-02	3.4E+01	2.3E-03
18	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1	1	8.00E-02	8.00E-02								8.0E+01	1.0E-03	3.4E+02	2.4E-04
18	SVOC	Naphthalene	91-20-3	C	1	1	9.00E-02	9.00E-02		4.7E+02	1.9E-04	3.5E+02	2.6E-04	8.8E+04	1.0E-06	5.2E+04	1.7E-06	1.4E+01	6.3E-03
18	PDIST	Petroleum Hydrocarbons	68334-30-5		1	1	3.00E+01	3.00E+01											

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
18	INORG	Antimony	7440-36-0		26	5	1.00E-01	5.70E-01						5.9E+03	9.7E-05	6.7E+02	8.5E-04	2.0E+02	2.8E-03
18	INORG	Arsenic	7440-38-2	A	26	26	6.20E-01	2.41E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
18	INORG	Barium	7440-39-3	NC	26	26	9.30E+00	1.40E+02	7.50E+01					1.5E+05	4.3E-04	1.3E+05	5.0E-04		
18	INORG	Beryllium	7440-41-7	B1	26	13	1.20E-01	1.19E+00						5.9E+02	2.0E-03	1.6E+03	7.4E-04	3.7E+02	3.2E-03
18	INORG	Cadmium	7440-43-9	B1	26	25	6.00E-02	5.70E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
18	INORG	Chromium (total)	7440-47-3		26	26	2.80E+00	2.57E+01						2.4E+02	1.1E-01	9.2E+03	2.8E-03	1.7E+03	1.5E-02
18	INORG	Cobalt	7440-48-4	B1	26	26	9.80E-01	2.28E+01	6.80E+00					5.9E+03	2.7E-03	9.0E+03	1.8E-03	5.5E+02	2.9E-02
18	INORG	Copper	7440-50-8	D	26	26	4.50E+00	1.63E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
18	INORG	Cyanide (total)	57-12-5	D	26	4	2.00E-01	3.50E-01	3.90E-01					2.5E+02		2.5E+02		1.0E+04	
18	INORG	Lead	7439-92-1	B2	199	198	1.30E+00	4.03E+03	2.10E+01					4.4E+04	9.1E-02	9.0E+02	**4.5E+00**		
18	INORG	Lead (Coarse Fraction)	7439-92-1C		26	26	2.60E+00	1.82E+02											
18	INORG	Lead (Fine Fraction)	7439-92-1F		26	26	1.16E+01	2.40E+02											
18	INORG	Lead (Summed Fractions)	7439-92-1S		26	26	4.68E+00	1.80E+02											
18	INORG	Manganese	7439-96-5	D	26	26	4.98E+01	6.01E+02	4.40E+02					1.5E+03	1.1E-01	9.0E+04	1.8E-03	1.4E+03	1.1E-01
18	INORG	Mercury	7439-97-6	D	26	23	1.00E-02	7.60E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
18	INORG	Nickel	7440-02-0	A	26	26	3.10E+00	3.15E+01	2.00E+01					1.6E+04	7.2E-04	1.5E+05	7.7E-05	8.5E+04	1.4E-04
18	INORG	Selenium	7782-49-2	D	26	12	2.60E-01	1.01E+00	4.10E-01					5.9E+04	1.0E-05	9.6E+03	6.3E-05	2.5E+03	2.4E-04
18	INORG	Silver	7440-22-4	D	26	5	2.00E-02	4.00E-02	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
18	INORG	Thallium	7440-28-0		26	12	2.00E-02	7.00E-02								1.3E+02	5.4E-04	3.6E+01	2.0E-03
18	INORG	Vanadium	7440-62-2		26	26	2.90E+00	2.34E+01								5.5E+03	4.3E-03	3.6E+03	6.6E-03
18	INORG	Zinc	7440-66-6	ID	26	26	8.00E+00	1.88E+02	4.70E+01							6.3E+05	2.2E-04	1.5E+05	9.2E-04
19	INORG	Arsenic	7440-38-2	A	3	3	9.80E-01	1.05E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
19	INORG	Barium	7440-39-3	NC	3	3	3.30E+00	7.96E+01	7.50E+01					1.5E+05	3.1E-05	1.3E+05	3.5E-05		
19	INORG	Beryllium	7440-41-7	B1	3	1	1.50E-01	1.50E-01						5.9E+02	2.5E-04	1.6E+03	9.4E-05	3.7E+02	4.0E-04
19	INORG	Cadmium	7440-43-9	B1	3	2	8.00E-02	9.00E-02	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
19	INORG	Chromium (total)	7440-47-3		3	3	1.60E+00	1.47E+01						2.4E+02	6.1E-02	9.2E+03	1.6E-03	1.7E+03	8.6E-03
19	INORG	Cobalt	7440-48-4	B1	3	3	1.01E+00	6.55E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
19	INORG	Copper	7440-50-8	D	3	3	5.00E+00	1.02E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
19	INORG	Lead	7439-92-1	B2	3	3	1.40E+00	4.90E+00	2.10E+01					4.4E+04		9.0E+02			
19	INORG	Lead (Coarse Fraction)	7439-92-1C		3	3	2.90E+00	4.40E+00											
19	INORG	Lead (Fine Fraction)	7439-92-1F		3	3	7.30E+00	4.25E+01											
19	INORG	Lead (Summed Fractions)	7439-92-1S		3	3	5.31E+00	7.86E+00											
19	INORG	Manganese	7439-96-5	D	3	3	8.40E+01	3.35E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
19	INORG	Mercury	7439-97-6	D	3	2	1.00E-02	1.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
19	INORG	Nickel	7440-02-0	A	3	3	2.40E+00	1.60E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
19	INORG	Selenium	7782-49-2	D	3	2	6.30E-01	7.80E-01	4.10E-01					5.9E+04	6.3E-06	9.6E+03	3.9E-05	2.5E+03	1.5E-04
19	INORG	Thallium	7440-28-0		3	2	5.00E-02	5.00E-02								1.3E+02	3.8E-04	3.6E+01	1.4E-03
19	INORG	Vanadium	7440-62-2		3	3	2.30E+00	1.42E+01								5.5E+03	2.6E-03	3.6E+03	4.0E-03
19	INORG	Zinc	7440-66-6	ID	3	3	7.30E+00	2.78E+01	4.70E+01							6.3E+05		1.5E+05	
2	VOC	Cumene	98-82-8	D	2	2	9.30E-01	1.42E+00		3.9E+02	3.6E-03	2.0E+03	7.1E-04	2.6E+06	5.5E-07	3.9E+02	3.6E-03	2.1E+02	6.7E-03
2	VOC	Cyclohexane	110-82-7	ID	2	1	3.00E-02	3.00E-02										8.5E+02	3.5E-05
2	VOC	Ethyl Benzene	100-41-4	D	2	1	6.00E-02	6.00E-02		1.4E+02	4.3E-04	2.4E+03	2.5E-05	1.3E+07	4.6E-09	1.4E+02	4.3E-04	4.6E+02	1.3E-04
2	VOC	Methylcyclohexane	108-87-2		2	2	8.60E-01	1.50E+00										3.2E+02	4.7E-03
2	VOC	Toluene	108-88-3	ID	2	1	2.00E-02	2.00E-02		2.5E+02	8.0E-05	3.3E+03	6.1E-06	1.2E+07	1.7E-09	2.5E+02	8.0E-05	1.7E+03	1.2E-05
2	INORG	Antimony	7440-36-0		14	4	1.90E-01	5.70E-01						5.9E+03	9.7E-05	6.7E+02	8.5E-04	2.0E+02	2.8E-03
2	INORG	Arsenic	7440-38-2	A	14	14	1.06E+00	2.22E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
2	INORG	Barium	7440-39-3	NC	14	14	9.30E+00	7.54E+01	7.50E+01					1.5E+05	2.7E-06	1.3E+05	3.1E-06		
2	INORG	Beryllium	7440-41-7	B1	14	6	1.50E-01	6.80E-01						5.9E+02	1.2E-03	1.6E+03	4.3E-04	3.7E+02	1.8E-03
2	INORG	Cadmium	7440-43-9	B1	14	13	6.00E-02	5.70E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
2	INORG	Chromium (total)	7440-47-3		14	14	2.80E+00	1.61E+01						2.4E+02	6.7E-02	9.2E+03	1.8E-03	1.7E+03	9.5E-03
2	INORG	Cobalt	7440-48-4	B1	14	14	9.80E-01	8.35E+00	6.80E+00					5.9E+03	2.6E-04	9.0E+03	1.7E-04	5.5E+02	2.8E-03
2	INORG	Copper	7440-50-8	D	14	14	4.50E+00	1.32E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
2	INORG	Cyanide (total)	57-12-5	D	14	3	2.00E-01	2.00E-01	3.90E-01					2.5E+02		2.5E+02		1.0E+04	
2	INORG	Lead	7439-92-1	B2	14	14	2.50E+00	1.21E+02	2.10E+01					4.4E+04	2.3E-03	9.0E+02	1.1E-01		
2	INORG	Lead (Coarse Fraction)	7439-92-1C		14	14	2.60E+00	1.82E+02											
2	INORG	Lead (Fine Fraction)	7439-92-1F		14	14	1.16E+01	2.40E+02											
2	INORG	Lead (Summed Fractions)	7439-92-1S		14	14	4.68E+00	1.80E+02											
2	INORG	Manganese	7439-96-5	D	14	14	4.98E+01	6.01E+02	4.40E+02					1.5E+03	1.1E-01	9.0E+04	1.8E-03	1.4E+03	1.1E-01
2	INORG	Mercury	7439-97-6	D	14	12	1.00E-02	6.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
2	INORG	Nickel	7440-02-0	A	14	14	3.50E+00	1.85E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
2	INORG	Selenium	7782-49-2	D	14	2	3.70E-01	5.60E-01	4.10E-01					5.9E+04	2.5E-06	9.6E+03	1.6E-05	2.5E+03	5.9E-05
2	INORG	Thallium	7440-28-0		14	1	4.00E-02	4.00E-02								1.3E+02	3.1E-04	3.6E+01	1.1E-03
2	INORG	Vanadium	7440-62-2		14	14	2.90E+00	1.47E+01								5.5E+03	2.7E-03	3.6E+03	4.1E-03
2	INORG	Zinc	7440-66-6	ID	14	14	8.00E+00	1.88E+02	4.70E+01							6.3E+05	2.2E-04	1.5E+05	9.2E-04
21	INORG	Arsenic	7440-38-2	A	1	1	8.90E-01	8.90E-01	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
21	INORG	Barium	7440-39-3	NC	1	1	7.00E+00	7.00E+00	7.50E+01					1.5E+05		1.3E+05			

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
21	INORG	Beryllium	7440-41-7	B1	1	1	5.00E-02	5.00E-02						5.9E+02	8.5E-05	1.6E+03	3.1E-05	3.7E+02	1.3E-04
21	INORG	Cadmium	7440-43-9	B1	1	1	5.00E-02	5.00E-02	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
21	INORG	Chromium (total)	7440-47-3		1	1	1.80E+00	1.80E+00						2.4E+02	7.5E-03	9.2E+03	2.0E-04	1.7E+03	1.1E-03
21	INORG	Cobalt	7440-48-4	B1	1	1	1.39E+00	1.39E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
21	INORG	Copper	7440-50-8	D	1	1	2.50E+00	2.50E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
21	INORG	Lead	7439-92-1	B2	1	1	2.20E+00	2.20E+00	2.10E+01					4.4E+04		9.0E+02			
21	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	3.00E+00	3.00E+00											
21	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	3.60E+00	3.60E+00											
21	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	3.40E+00	3.40E+00											
21	INORG	Manganese	7439-96-5	D	1	1	1.21E+02	1.21E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
21	INORG	Nickel	7440-02-0	A	1	1	2.80E+00	2.80E+00	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
21	INORG	Vanadium	7440-62-2		1	1	2.60E+00	2.60E+00								5.5E+03	4.7E-04	3.6E+03	7.3E-04
21	INORG	Zinc	7440-66-6	ID	1	1	5.50E+00	5.50E+00	4.70E+01							6.3E+05		1.5E+05	
3	INORG	Arsenic	7440-38-2	A	6	6	6.10E-01	1.64E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
3	INORG	Barium	7440-39-3	NC	6	6	1.99E+01	3.90E+01	7.50E+01					1.5E+05		1.3E+05			
3	INORG	Beryllium	7440-41-7	B1	6	6	1.20E-01	1.80E-01						5.9E+02	3.1E-04	1.6E+03	1.1E-04	3.7E+02	4.8E-04
3	INORG	Cadmium	7440-43-9	B1	6	6	8.00E-02	1.80E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
3	INORG	Chromium (total)	7440-47-3		6	6	3.60E+00	1.24E+01						2.4E+02	5.2E-02	9.2E+03	1.3E-03	1.7E+03	7.3E-03
3	INORG	Cobalt	7440-48-4	B1	6	6	2.54E+00	5.74E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
3	INORG	Copper	7440-50-8	D	6	6	6.70E+00	1.04E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
3	INORG	Lead	7439-92-1	B2	6	6	3.20E+00	4.60E+00	2.10E+01					4.4E+04		9.0E+02			
3	INORG	Lead (Coarse Fraction)	7439-92-1C		6	6	3.20E+00	7.20E+00											
3	INORG	Lead (Fine Fraction)	7439-92-1F		6	6	1.22E+01	4.40E+01											
3	INORG	Lead (Summed Fractions)	7439-92-1S		6	6	4.99E+00	1.03E+01											
3	INORG	Manganese	7439-96-5	D	6	6	2.05E+02	4.17E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
3	INORG	Mercury	7439-97-6	D	6	5	1.00E-02	2.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
3	INORG	Nickel	7440-02-0	A	6	6	5.70E+00	1.41E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
3	INORG	Selenium	7782-49-2	D	6	6	2.40E-01	6.30E-01	4.10E-01					5.9E+04	3.7E-06	9.6E+03	2.3E-05	2.5E+03	8.7E-05
3	INORG	Silver	7440-22-4	D	6	3	2.00E-02	8.00E-02	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
3	INORG	Thallium	7440-28-0		6	6	3.00E-02	6.00E-02								1.3E+02	4.6E-04	3.6E+01	1.7E-03
3	INORG	Vanadium	7440-62-2		6	6	4.60E+00	1.13E+01								5.5E+03	2.1E-03	3.6E+03	3.2E-03
3	INORG	Zinc	7440-66-6	ID	6	6	1.04E+01	3.08E+01	4.70E+01							6.3E+05		1.5E+05	
30	INORG	Arsenic	7440-38-2	A	1	1	1.05E+00	1.05E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
30	INORG	Barium	7440-39-3	NC	1	1	2.61E+01	2.61E+01	7.50E+01					1.5E+05		1.3E+05			
30	INORG	Beryllium	7440-41-7	B1	1	1	1.50E-01	1.50E-01						5.9E+02	2.5E-04	1.6E+03	9.4E-05	3.7E+02	4.0E-04
30	INORG	Cadmium	7440-43-9	B1	1	1	9.00E-02	9.00E-02	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
30	INORG	Chromium (total)	7440-47-3		1	1	5.60E+00	5.60E+00						2.4E+02	2.3E-02	9.2E+03	6.1E-04	1.7E+03	3.3E-03
30	INORG	Cobalt	7440-48-4	B1	1	1	3.29E+00	3.29E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
30	INORG	Copper	7440-50-8	D	1	1	5.60E+00	5.60E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
30	INORG	Lead	7439-92-1	B2	1	1	3.60E+00	3.60E+00	2.10E+01					4.4E+04		9.0E+02			
30	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	3.70E+00	3.70E+00											
30	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	2.43E+01	2.43E+01											
30	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	6.56E+00	6.56E+00											
30	INORG	Manganese	7439-96-5	D	1	1	1.90E+02	1.90E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
30	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
30	INORG	Nickel	7440-02-0	A	1	1	6.80E+00	6.80E+00	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
30	INORG	Selenium	7782-49-2	D	1	1	2.90E-01	2.90E-01	4.10E-01					5.9E+04		9.6E+03		2.5E+03	
30	INORG	Thallium	7440-28-0		1	1	2.00E-02	2.00E-02								1.3E+02	1.5E-04	3.6E+01	5.6E-04
30	INORG	Vanadium	7440-62-2		1	1	6.20E+00	6.20E+00								5.5E+03	1.1E-03	3.6E+03	1.7E-03
30	INORG	Zinc	7440-66-6	ID	1	1	1.24E+01	1.24E+01	4.70E+01							6.3E+05		1.5E+05	
40	INORG	Arsenic	7440-38-2	A	1	1	5.90E-01	5.90E-01	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
40	INORG	Barium	7440-39-3	NC	1	1	1.12E+01	1.12E+01	7.50E+01					1.5E+05		1.3E+05			
40	INORG	Beryllium	7440-41-7	B1	1	1	7.00E-02	7.00E-02						5.9E+02	1.2E-04	1.6E+03	4.4E-05	3.7E+02	1.9E-04
40	INORG	Chromium (total)	7440-47-3		1	1	1.40E+00	1.40E+00						2.4E+02	5.8E-03	9.2E+03	1.5E-04	1.7E+03	8.2E-04
40	INORG	Cobalt	7440-48-4	B1	1	1	1.48E+00	1.48E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
40	INORG	Copper	7440-50-8	D	1	1	2.10E+00	2.10E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
40	INORG	Lead	7439-92-1	B2	1	1	2.50E+00	2.50E+00	2.10E+01					4.4E+04		9.0E+02			
40	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	4.60E+00	4.60E+00											
40	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	5.10E+00	5.10E+00											
40	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	4.89E+00	4.89E+00											
40	INORG	Manganese	7439-96-5	D	1	1	1.25E+02	1.25E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
40	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
40	INORG	Nickel	7440-02-0	A	1	1	2.30E+00	2.30E+00	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
40	INORG	Selenium	7782-49-2	D	1	1	1.60E-01	1.60E-01	4.10E-01					5.9E+04		9.6E+03		2.5E+03	
40	INORG	Vanadium	7440-62-2		1	1	2.30E+00	2.30E+00								5.5E+03	4.2E-04	3.6E+03	6.5E-04
40	INORG	Zinc	7440-66-6	ID	1	1	3.90E+00	3.90E+00	4.70E+01							6.3E+05		1.5E+05	

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
42	INORG	Antimony	7440-36-0		1	1	8.00E-02	8.00E-02						5.9E+03	1.4E-05	6.7E+02	1.2E-04	2.0E+02	3.9E-04
42	INORG	Arsenic	7440-38-2	A	1	1	6.00E-01	6.00E-01	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
42	INORG	Barium	7440-39-3	NC	1	1	9.40E+00	9.40E+00	7.50E+01					1.5E+05		1.3E+05			
42	INORG	Beryllium	7440-41-7	B1	1	1	5.00E-02	5.00E-02						5.9E+02	8.5E-05	1.6E+03	3.1E-05	3.7E+02	1.3E-04
42	INORG	Chromium (total)	7440-47-3		1	1	1.60E+00	1.60E+00						2.4E+02	6.7E-03	9.2E+03	1.7E-04	1.7E+03	9.4E-04
42	INORG	Cobalt	7440-48-4	B1	1	1	1.33E+00	1.33E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
42	INORG	Copper	7440-50-8	D	1	1	1.90E+00	1.90E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
42	INORG	Lead	7439-92-1	B2	1	1	7.70E+00	7.70E+00	2.10E+01					4.4E+04		9.0E+02			
42	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	6.50E+00	6.50E+00											
42	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	4.10E+00	4.10E+00											
42	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	5.57E+00	5.57E+00											
42	INORG	Manganese	7439-96-5	D	1	1	1.18E+02	1.18E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
42	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
42	INORG	Nickel	7440-02-0	A	1	1	3.10E+00	3.10E+00	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
42	INORG	Selenium	7782-49-2	D	1	1	1.70E-01	1.70E-01	4.10E-01					5.9E+04		9.6E+03		2.5E+03	
42	INORG	Vanadium	7440-62-2		1	1	2.20E+00	2.20E+00								5.5E+03	4.0E-04	3.6E+03	6.2E-04
42	INORG	Zinc	7440-66-6	ID	1	1	4.50E+00	4.50E+00	4.70E+01							6.3E+05		1.5E+05	
43	INORG	Arsenic	7440-38-2	A	2	2	6.70E-01	1.26E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
43	INORG	Barium	7440-39-3	NC	2	2	5.50E+00	8.40E+00	7.50E+01					1.5E+05		1.3E+05			
43	INORG	Beryllium	7440-41-7	B1	2	2	5.00E-02	6.00E-02						5.9E+02	1.0E-04	1.6E+03	3.8E-05	3.7E+02	1.6E-04
43	INORG	Cadmium	7440-43-9	B1	2	2	5.00E-02	6.00E-02	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
43	INORG	Chromium (total)	7440-47-3		2	2	1.90E+00	5.50E+00						2.4E+02	2.3E-02	9.2E+03	6.0E-04	1.7E+03	3.2E-03
43	INORG	Cobalt	7440-48-4	B1	2	2	1.31E+00	2.77E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
43	INORG	Copper	7440-50-8	D	2	2	3.50E+00	4.10E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
43	INORG	Lead	7439-92-1	B2	2	2	1.90E+00	3.10E+00	2.10E+01					4.4E+04		9.0E+02			
43	INORG	Lead (Coarse Fraction)	7439-92-1C		2	2	1.90E+00	2.50E+00											
43	INORG	Lead (Fine Fraction)	7439-92-1F		2	2	8.30E+00	1.13E+01											
43	INORG	Lead (Summed Fractions)	7439-92-1S		2	2	3.67E+00	5.09E+00											
43	INORG	Manganese	7439-96-5	D	2	2	1.23E+02	1.44E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
43	INORG	Nickel	7440-02-0	A	2	2	3.00E+00	3.50E+00	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
43	INORG	Selenium	7782-49-2	D	2	2	2.90E-01	3.00E-01	4.10E-01					5.9E+04		9.6E+03		2.5E+03	
43	INORG	Silver	7440-22-4	D	2	1	3.40E-01	3.40E-01	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
43	INORG	Thallium	7440-28-0		2	2	2.00E-02	3.00E-02								1.3E+02	2.3E-04	3.6E+01	8.4E-04
43	INORG	Vanadium	7440-62-2		2	2	3.00E+00	3.70E+00								5.5E+03	6.7E-04	3.6E+03	1.0E-03
43	INORG	Zinc	7440-66-6	ID	2	2	7.70E+00	7.90E+00	4.70E+01							6.3E+05		1.5E+05	
46	VOC	Benzene	71-43-2	A	2	1	2.00E-01	2.00E-01		8.4E+00	2.4E-02	4.5E+01	4.4E-03	4.7E+05	4.3E-07	4.0E+02	5.0E-04	1.5E+01	1.4E-02
46	VOC	Cumene	98-82-8	D	2	2	1.18E+00	3.89E+01		3.9E+02	1.0E-01	2.0E+03	1.9E-02	2.6E+06	1.5E-05	3.9E+02	1.0E-01	2.1E+02	1.8E-01
46	VOC	Cyclohexane	110-82-7	ID	2	1	1.40E+00	1.40E+00										8.5E+02	1.6E-03
46	VOC	Ethyl Benzene	100-41-4	D	2	2	5.50E-01	2.35E+01		1.4E+02	1.7E-01	2.4E+03	9.8E-03	1.3E+07	1.8E-06	1.4E+02	1.7E-01	4.6E+02	5.1E-02
46	VOC	Methylcyclohexane	108-87-2		2	2	1.16E+00	5.93E+01										3.2E+02	1.8E-01
46	VOC	Tetrachloroethene	127-18-4	C-B2	2	1	4.00E-02	4.00E-02		6.0E+01	6.7E-04	6.0E+02	6.7E-05	6.8E+06	5.9E-09	8.8E+01	4.5E-04	5.2E+01	7.7E-04
46	VOC	Toluene	108-88-3	ID	2	1	5.00E-01	5.00E-01		2.5E+02	2.0E-03	3.3E+03	1.5E-04	1.2E+07	4.2E-08	2.5E+02	2.0E-03	1.7E+03	2.9E-04
46	VOC	Xylenes (total)	1330-20-7	ID	2	2	2.90E-01	1.37E+02		1.5E+02	9.1E-01	5.4E+04	2.5E-03	1.3E+08	1.1E-06	1.5E+02	9.1E-01	5.1E+01	**2.7E+00**
46	INORG	Antimony	7440-36-0		4	1	9.00E-02	9.00E-02						5.9E+03	1.5E-05	6.7E+02	1.3E-04	2.0E+02	4.4E-04
46	INORG	Arsenic	7440-38-2	A	4	4	1.07E+00	2.17E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
46	INORG	Barium	7440-39-3	NC	4	4	4.50E+00	4.62E+01	7.50E+01					1.5E+05		1.3E+05			
46	INORG	Beryllium	7440-41-7	B1	4	4	7.00E-02	3.30E-01						5.9E+02	5.6E-04	1.6E+03	2.1E-04	3.7E+02	8.9E-04
46	INORG	Cadmium	7440-43-9	B1	4	4	5.00E-02	3.80E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
46	INORG	Chromium (total)	7440-47-3		4	4	1.80E+00	8.90E+00						2.4E+02	3.7E-02	9.2E+03	9.7E-04	1.7E+03	5.2E-03
46	INORG	Cobalt	7440-48-4	B1	4	4	1.37E+00	5.00E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
46	INORG	Copper	7440-50-8	D	4	4	4.70E+00	2.16E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
46	INORG	Lead	7439-92-1	B2	4	4	3.00E+00	7.70E+00	2.10E+01					4.4E+04		9.0E+02			
46	INORG	Lead (Coarse Fraction)	7439-92-1C		4	4	5.20E+00	4.45E+01											
46	INORG	Lead (Fine Fraction)	7439-92-1F		4	4	1.77E+01	2.86E+01											
46	INORG	Lead (Summed Fractions)	7439-92-1S		4	4	7.08E+00	4.28E+01											
46	INORG	Manganese	7439-96-5	D	4	4	4.31E+01	1.95E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
46	INORG	Mercury	7439-97-6	D	4	4	1.00E-02	3.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
46	INORG	Nickel	7440-02-0	A	4	4	2.90E+00	1.71E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
46	INORG	Selenium	7782-49-2	D	4	4	2.80E-01	1.26E+00	4.10E-01					5.9E+04	1.4E-05	9.6E+03	8.9E-05	2.5E+03	3.3E-04
46	INORG	Silver	7440-22-4	D	4	3	3.00E-02	4.10E-01	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
46	INORG	Thallium	7440-28-0		4	4	3.00E-02	1.10E-01								1.3E+02	8.5E-04	3.6E+01	3.1E-03
46	INORG	Vanadium	7440-62-2		4	4	2.50E+00	1.56E+01								5.5E+03	2.8E-03	3.6E+03	4.4E-03
46	INORG	Zinc	7440-66-6	ID	4	4	1.00E+01	3.61E+01	4.70E+01							6.3E+05		1.5E+05	
47	INORG	Antimony	7440-36-0		2	1	9.00E-02	9.00E-02						5.9E+03	1.5E-05	6.7E+02	1.3E-04	2.0E+02	4.4E-04
47	INORG	Arsenic	7440-38-2	A	2	2	1.07E+00	2.17E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
47	INORG	Barium	7440-39-3	NC	2	2	3.16E+01	4.62E+01	7.50E+01					1.5E+05		1.3E+05			

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
47	INORG	Beryllium	7440-41-7	B1	2	2	2.70E-01	3.30E-01						5.9E+02	5.6E-04	1.6E+03	2.1E-04	3.7E+02	8.9E-04
47	INORG	Cadmium	7440-43-9	B1	2	2	3.40E-01	3.80E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
47	INORG	Chromium (total)	7440-47-3		2	2	7.20E+00	8.90E+00						2.4E+02	3.7E-02	9.2E+03	9.7E-04	1.7E+03	5.2E-03
47	INORG	Cobalt	7440-48-4	B1	2	2	3.06E+00	5.00E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
47	INORG	Copper	7440-50-8	D	2	2	1.34E+01	2.16E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
47	INORG	Lead	7439-92-1	B2	2	2	7.30E+00	7.70E+00	2.10E+01					4.4E+04		9.0E+02			
47	INORG	Lead (Coarse Fraction)	7439-92-1C		2	2	7.20E+00	7.90E+00											
47	INORG	Lead (Fine Fraction)	7439-92-1F		2	2	2.00E+01	2.30E+01											
47	INORG	Lead (Summed Fractions)	7439-92-1S		2	2	8.22E+00	9.06E+00											
47	INORG	Manganese	7439-96-5	D	2	2	4.31E+01	1.69E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
47	INORG	Mercury	7439-97-6	D	2	2	2.00E-02	3.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
47	INORG	Nickel	7440-02-0	A	2	2	1.36E+01	1.71E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
47	INORG	Selenium	7782-49-2	D	2	2	1.03E+00	1.26E+00	4.10E-01					5.9E+04	1.4E-05	9.6E+03	8.9E-05	2.5E+03	3.3E-04
47	INORG	Silver	7440-22-4	D	2	2	7.00E-02	4.10E-01	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
47	INORG	Thallium	7440-28-0		2	2	1.00E-01	1.10E-01								1.3E+02	8.5E-04	3.6E+01	3.1E-03
47	INORG	Vanadium	7440-62-2		2	2	1.14E+01	1.56E+01								5.5E+03	2.8E-03	3.6E+03	4.4E-03
47	INORG	Zinc	7440-66-6	ID	2	2	3.57E+01	3.61E+01	4.70E+01							6.3E+05		1.5E+05	
48	VOC	Cumene	98-82-8	D	2	2	9.30E-01	1.42E+00		3.9E+02	3.6E-03	2.0E+03	7.1E-04	2.6E+06	5.5E-07	3.9E+02	3.6E-03	2.1E+02	6.7E-03
48	VOC	Cyclohexane	110-82-7	ID	2	1	3.00E-02	3.00E-02										8.5E+02	3.5E-05
48	VOC	Ethyl Benzene	100-41-4	D	2	1	6.00E-02	6.00E-02		1.4E+02	4.3E-04	2.4E+03	2.5E-05	1.3E+07	4.6E-09	1.4E+02	4.3E-04	4.6E+02	1.3E-04
48	VOC	Methylcyclohexane	108-87-2		2	2	8.60E-01	1.50E+00										3.2E+02	4.7E-03
48	VOC	Toluene	108-88-3	ID	2	1	2.00E-02	2.00E-02		2.5E+02	8.0E-05	3.3E+03	6.1E-06	1.2E+07	1.7E-09	2.5E+02	8.0E-05	1.7E+03	1.2E-05
48	INORG	Antimony	7440-36-0		14	4	1.90E-01	5.70E-01						5.9E+03	9.7E-05	6.7E+02	8.5E-04	2.0E+02	2.8E-03
48	INORG	Arsenic	7440-38-2	A	14	14	1.06E+00	2.22E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
48	INORG	Barium	7440-39-3	NC	14	14	9.30E+00	7.54E+01	7.50E+01					1.5E+05	2.7E-06	1.3E+05	3.1E-06		
48	INORG	Beryllium	7440-41-7	B1	14	6	1.50E-01	6.80E-01						5.9E+02	1.2E-03	1.6E+03	4.3E-04	3.7E+02	1.8E-03
48	INORG	Cadmium	7440-43-9	B1	14	13	6.00E-02	5.70E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
48	INORG	Chromium (total)	7440-47-3		14	14	2.80E+00	1.61E+01						2.4E+02	6.7E-02	9.2E+03	1.8E-03	1.7E+03	9.5E-03
48	INORG	Cobalt	7440-48-4	B1	14	14	9.80E-01	8.35E+00	6.80E+00					5.9E+03	2.6E-04	9.0E+03	1.7E-04	5.5E+02	2.8E-03
48	INORG	Copper	7440-50-8	D	14	14	4.50E+00	1.32E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
48	INORG	Cyanide (total)	57-12-5	D	14	3	2.00E-01	2.00E-01	3.90E-01					2.5E+02		2.5E+02		1.0E+04	
48	INORG	Lead	7439-92-1	B2	14	14	2.50E+00	1.21E+02	2.10E+01					4.4E+04	2.3E-03	9.0E+02	1.1E-01		
48	INORG	Lead (Coarse Fraction)	7439-92-1C		14	14	2.60E+00	1.82E+02											
48	INORG	Lead (Fine Fraction)	7439-92-1F		14	14	1.16E+01	2.40E+02											
48	INORG	Lead (Summed Fractions)	7439-92-1S		14	14	4.68E+00	1.80E+02											
48	INORG	Manganese	7439-96-5	D	14	14	4.98E+01	6.01E+02	4.40E+02					1.5E+03	1.1E-01	9.0E+04	1.8E-03	1.4E+03	1.1E-01
48	INORG	Mercury	7439-97-6	D	14	12	1.00E-02	6.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
48	INORG	Nickel	7440-02-0	A	14	14	3.50E+00	1.85E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
48	INORG	Selenium	7782-49-2	D	14	2	3.70E-01	5.60E-01	4.10E-01					5.9E+04	2.5E-06	9.6E+03	1.6E-05	2.5E+03	5.9E-05
48	INORG	Thallium	7440-28-0		14	1	4.00E-02	4.00E-02								1.3E+02	3.1E-04	3.6E+01	1.1E-03
48	INORG	Vanadium	7440-62-2		14	14	2.90E+00	1.47E+01								5.5E+03	2.7E-03	3.6E+03	4.1E-03
48	INORG	Zinc	7440-66-6	ID	14	14	8.00E+00	1.88E+02	4.70E+01							6.3E+05	2.2E-04	1.5E+05	9.2E-04
49	INORG	Antimony	7440-36-0		2	1	9.00E-02	9.00E-02						5.9E+03	1.5E-05	6.7E+02	1.3E-04	2.0E+02	4.4E-04
49	INORG	Arsenic	7440-38-2	A	2	2	1.12E+00	1.79E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
49	INORG	Barium	7440-39-3	NC	2	2	1.00E+02	1.42E+02	7.50E+01					1.5E+05	4.5E-04	1.3E+05	5.2E-04		
49	INORG	Beryllium	7440-41-7	B1	2	2	3.90E-01	4.20E-01						5.9E+02	7.1E-04	1.6E+03	2.6E-04	3.7E+02	1.1E-03
49	INORG	Cadmium	7440-43-9	B1	2	2	1.60E-01	3.20E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
49	INORG	Chromium (total)	7440-47-3		2	2	5.80E+00	1.06E+01						2.4E+02	4.4E-02	9.2E+03	1.2E-03	1.7E+03	6.2E-03
49	INORG	Cobalt	7440-48-4	B1	2	2	4.32E+00	5.50E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
49	INORG	Copper	7440-50-8	D	2	2	7.00E+00	8.40E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
49	INORG	Lead	7439-92-1	B2	2	2	5.90E+00	7.90E+00	2.10E+01					4.4E+04		9.0E+02			
49	INORG	Lead (Coarse Fraction)	7439-92-1C		2	2	5.50E+00	7.50E+00											
49	INORG	Lead (Fine Fraction)	7439-92-1F		2	2	1.49E+01	2.07E+01											
49	INORG	Lead (Summed Fractions)	7439-92-1S		2	2	6.62E+00	9.25E+00											
49	INORG	Manganese	7439-96-5	D	2	2	9.82E+01	3.68E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
49	INORG	Mercury	7439-97-6	D	2	2	2.00E-02	4.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
49	INORG	Nickel	7440-02-0	A	2	2	5.10E+00	1.00E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
49	INORG	Selenium	7782-49-2	D	2	2	1.70E-01	1.01E+00	4.10E-01					5.9E+04	1.0E-05	9.6E+03	6.3E-05	2.5E+03	2.4E-04
49	INORG	Silver	7440-22-4	D	2	2	2.00E-02	1.40E-01	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
49	INORG	Thallium	7440-28-0		2	1	1.50E-01	1.50E-01								1.3E+02	1.2E-03	3.6E+01	4.2E-03
49	INORG	Vanadium	7440-62-2		2	2	9.50E+00	1.45E+01								5.5E+03	2.6E-03	3.6E+03	4.1E-03
49	INORG	Zinc	7440-66-6	ID	2	2	1.85E+01	2.54E+01	4.70E+01							6.3E+05		1.5E+05	
59	INORG	Arsenic	7440-38-2	A	2	2	5.20E-01	2.25E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
59	INORG	Barium	7440-39-3	NC	2	2	2.33E+01	2.53E+01	7.50E+01					1.5E+05		1.3E+05			
59	INORG	Beryllium	7440-41-7	B1	2	2	1.20E-01	1.40E-01						5.9E+02	2.4E-04	1.6E+03	8.8E-05	3.7E+02	3.8E-04
59	INORG	Cadmium	7440-43-9	B1	2	2	9.00E-02	1.10E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
59	INORG	Chromium (total)	7440-47-3		2	2	3.50E+00	3.80E+00						2.4E+02	1.6E-02	9.2E+03	4.1E-04	1.7E+03	2.2E-03
59	INORG	Cobalt	7440-48-4	B1	2	2	2.51E+00	3.07E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
59	INORG	Copper	7440-50-8	D	2	2	5.50E+00	9.50E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
59	INORG	Lead	7439-92-1	B2	2	2	3.00E+00	4.40E+00	2.10E+01					4.4E+04		9.0E+02			
59	INORG	Lead (Coarse Fraction)	7439-92-1C		2	2	3.90E+00	4.60E+00											
59	INORG	Lead (Fine Fraction)	7439-92-1F		2	2	1.85E+01	3.35E+01											
59	INORG	Lead (Summed Fractions)	7439-92-1S		2	2	6.33E+00	9.33E+00											
59	INORG	Manganese	7439-96-5	D	2	2	1.88E+02	2.31E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
59	INORG	Mercury	7439-97-6	D	2	2	1.00E-02	1.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
59	INORG	Nickel	7440-02-0	A	2	2	6.10E+00	7.80E+00	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
59	INORG	Selenium	7782-49-2	D	2	2	6.10E-01	6.80E-01	4.10E-01					5.9E+04	4.6E-06	9.6E+03	2.8E-05	2.5E+03	1.1E-04
59	INORG	Silver	7440-22-4	D	2	1	2.00E-02	2.00E-02	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
59	INORG	Thallium	7440-28-0		2	2	2.00E-02	6.00E-02								1.3E+02	4.6E-04	3.6E+01	1.7E-03
59	INORG	Vanadium	7440-62-2		2	2	4.80E+00	5.00E+00								5.5E+03	9.1E-04	3.6E+03	1.4E-03
59	INORG	Zinc	7440-66-6	ID	2	2	1.09E+01	1.84E+01	4.70E+01							6.3E+05		1.5E+05	
60	VOC	Acetone	67-64-1	ID	1	1	3.50E+01	3.50E+01		1.1E+05	3.2E-04	1.6E+05	2.2E-04	1.7E+08	2.1E-07	7.3E+04	4.8E-04	4.4E+03	8.0E-03
60	VOC	Cumene	98-82-8	D	1	1	1.00E-01	1.00E-01		3.9E+02	2.6E-04	2.0E+03	5.0E-05	2.6E+06	3.8E-08	3.9E+02	2.6E-04	2.1E+02	4.7E-04
60	VOC	Ethyl Benzene	100-41-4	D	1	1	6.10E+00	6.10E+00		1.4E+02	4.4E-02	2.4E+03	2.5E-03	1.3E+07	4.7E-07	1.4E+02	4.4E-02	4.6E+02	1.3E-02
60	VOC	4-Methyl-2-pentanone	108-10-1	ID	1	1	3.00E+00	3.00E+00		2.7E+03	1.1E-03	5.3E+04	5.7E-05	6.0E+07	5.0E-08	2.7E+03	1.1E-03	3.1E+03	9.7E-04
60	VOC	Toluene	108-88-3	ID	1	1	5.00E-01	5.00E-01		2.5E+02	2.0E-03	3.3E+03	1.5E-04	1.2E+07	4.2E-08	2.5E+02	2.0E-03	1.7E+03	2.9E-04
60	VOC	Xylenes (total)	1330-20-7	ID	1	1	3.45E+01	3.45E+01		1.5E+02	2.3E-01	5.4E+04	6.4E-04	1.3E+08	2.7E-07	1.5E+02	2.3E-01	5.1E+01	6.8E-01
60	INORG	Arsenic	7440-38-2	A	3	3	8.00E-01	1.22E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
60	INORG	Barium	7440-39-3	NC	3	3	6.00E+00	3.64E+01	7.50E+01					1.5E+05		1.3E+05			
60	INORG	Beryllium	7440-41-7	B1	3	3	4.00E-02	1.70E-01						5.9E+02	2.9E-04	1.6E+03	1.1E-04	3.7E+02	4.6E-04
60	INORG	Cadmium	7440-43-9	B1	3	3	6.00E-02	8.00E-02	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
60	INORG	Chromium (total)	7440-47-3		3	3	1.80E+00	5.90E+00						2.4E+02	2.5E-02	9.2E+03	6.4E-04	1.7E+03	3.5E-03
60	INORG	Cobalt	7440-48-4	B1	3	3	1.01E+00	3.89E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
60	INORG	Copper	7440-50-8	D	3	3	3.90E+00	6.20E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
60	INORG	Lead	7439-92-1	B2	3	3	2.30E+00	4.00E+00	2.10E+01					4.4E+04		9.0E+02			
60	INORG	Lead (Coarse Fraction)	7439-92-1C		3	3	1.50E+00	3.90E+00											
60	INORG	Lead (Fine Fraction)	7439-92-1F		3	3	4.90E+00	2.60E+01											
60	INORG	Lead (Summed Fractions)	7439-92-1S		3	3	2.49E+00	5.00E+00											
60	INORG	Manganese	7439-96-5	D	3	3	1.32E+02	2.76E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
60	INORG	Mercury	7439-97-6	D	3	2	1.00E-02	1.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
60	INORG	Nickel	7440-02-0	A	3	3	2.30E+00	9.40E+00	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
60	INORG	Selenium	7782-49-2	D	3	3	1.70E-01	3.60E-01	4.10E-01					5.9E+04		9.6E+03		2.5E+03	
60	INORG	Thallium	7440-28-0		3	2	3.00E-02	4.00E-02								1.3E+02	3.1E-04	3.6E+01	1.1E-03
60	INORG	Vanadium	7440-62-2		3	3	2.00E+00	6.90E+00								5.5E+03	1.3E-03	3.6E+03	1.9E-03
60	INORG	Zinc	7440-66-6	ID	3	3	6.90E+00	1.39E+01	4.70E+01							6.3E+05		1.5E+05	
63	INORG	Arsenic	7440-38-2	A	1	1	1.34E+00	1.34E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
63	INORG	Barium	7440-39-3	NC	1	1	5.81E+01	5.81E+01	7.50E+01					1.5E+05		1.3E+05			
63	INORG	Beryllium	7440-41-7	B1	1	1	2.60E-01	2.60E-01						5.9E+02	4.4E-04	1.6E+03	1.6E-04	3.7E+02	7.0E-04
63	INORG	Cadmium	7440-43-9	B1	1	1	9.00E-02	9.00E-02	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
63	INORG	Chromium (total)	7440-47-3		1	1	9.00E+00	9.00E+00						2.4E+02	3.8E-02	9.2E+03	9.8E-04	1.7E+03	5.3E-03
63	INORG	Cobalt	7440-48-4	B1	1	1	6.25E+00	6.25E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
63	INORG	Copper	7440-50-8	D	1	1	9.20E+00	9.20E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
63	INORG	Lead	7439-92-1	B2	1	1	5.50E+00	5.50E+00	2.10E+01					4.4E+04		9.0E+02			
63	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	5.20E+00	5.20E+00											
63	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	3.16E+01	3.16E+01											
63	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	6.59E+00	6.59E+00											
63	INORG	Manganese	7439-96-5	D	1	1	3.50E+02	3.50E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
63	INORG	Mercury	7439-97-6	D	1	1	2.00E-02	2.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
63	INORG	Nickel	7440-02-0	A	1	1	1.31E+01	1.31E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
63	INORG	Selenium	7782-49-2	D	1	1	4.90E-01	4.90E-01	4.10E-01					5.9E+04	1.4E-06	9.6E+03	8.3E-06	2.5E+03	3.1E-05
63	INORG	Thallium	7440-28-0		1	1	5.00E-02	5.00E-02								1.3E+02	3.8E-04	3.6E+01	1.4E-03
63	INORG	Vanadium	7440-62-2		1	1	1.01E+01	1.01E+01								5.5E+03	1.8E-03	3.6E+03	2.8E-03
63	INORG	Zinc	7440-66-6	ID	1	1	1.84E+01	1.84E+01	4.70E+01							6.3E+05		1.5E+05	
78	INORG	Arsenic	7440-38-2	A	1	1	9.10E-01	9.10E-01	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
78	INORG	Barium	7440-39-3	NC	1	1	4.38E+01	4.38E+01	7.50E+01					1.5E+05		1.3E+05			
78	INORG	Beryllium	7440-41-7	B1	1	1	1.80E-01	1.80E-01						5.9E+02	3.1E-04	1.6E+03	1.1E-04	3.7E+02	4.8E-04
78	INORG	Cadmium	7440-43-9	B1	1	1	9.00E-02	9.00E-02	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
78	INORG	Chromium (total)	7440-47-3		1	1	1.71E+01	1.71E+01						2.4E+02	7.1E-02	9.2E+03	1.9E-03	1.7E+03	1.0E-02
78	INORG	Cobalt	7440-48-4	B1	1	1	7.03E+00	7.03E+00	6.80E+00					5.9E+03	3.9E-05	9.0E+03	2.6E-05	5.5E+02	4.2E-04
78	INORG	Copper	7440-50-8	D	1	1	1.06E+01	1.06E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
78	INORG	Lead	7439-92-1	B2	1	1	5.70E+00	5.70E+00	2.10E+01					4.4E+04		9.0E+02			
78	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	4.20E+00	4.20E+00											

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
78	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	1.92E+01	1.92E+01											
78	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	6.07E+00	6.07E+00											
78	INORG	Manganese	7439-96-5	D	1	1	2.80E+02	2.80E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
78	INORG	Mercury	7439-97-6	D	1	1	2.00E-02	2.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
78	INORG	Nickel	7440-02-0	A	1	1	2.02E+01	2.02E+01	2.00E+01					1.6E+04	1.3E-05	1.5E+05	1.3E-06	8.5E+04	2.3E-06
78	INORG	Selenium	7782-49-2	D	1	1	5.80E-01	5.80E-01	4.10E-01					5.9E+04	2.9E-06	9.6E+03	1.8E-05	2.5E+03	6.7E-05
78	INORG	Thallium	7440-28-0		1	1	6.00E-02	6.00E-02								1.3E+02	4.6E-04	3.6E+01	1.7E-03
78	INORG	Vanadium	7440-62-2		1	1	1.42E+01	1.42E+01								5.5E+03	2.6E-03	3.6E+03	4.0E-03
78	INORG	Zinc	7440-66-6	ID	1	1	2.98E+01	2.98E+01	4.70E+01							6.3E+05		1.5E+05	
81	INORG	Antimony	7440-36-0		18	1	1.50E-01	1.50E-01						5.9E+03	2.5E-05	6.7E+02	2.2E-04	2.0E+02	7.4E-04
81	INORG	Arsenic	7440-38-2	A	18	18	5.90E-01	7.34E+00	5.80E+00					9.1E+02	1.7E-03	3.7E+01	4.2E-02	2.1E+02	7.4E-03
81	INORG	Barium	7440-39-3	NC	18	18	1.93E+01	4.20E+02	7.50E+01					1.5E+05	2.3E-03	1.3E+05	2.7E-03		
81	INORG	Beryllium	7440-41-7	B1	18	18	8.00E-02	1.04E+00						5.9E+02	1.8E-03	1.6E+03	6.5E-04	3.7E+02	2.8E-03
81	INORG	Cadmium	7440-43-9	B1	18	18	5.00E-02	3.50E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
81	INORG	Chromium (total)	7440-47-3		18	18	3.40E+00	2.50E+01						2.4E+02	1.0E-01	9.2E+03	2.7E-03	1.7E+03	1.5E-02
81	INORG	Cobalt	7440-48-4	B1	18	18	1.82E+00	1.26E+01	6.80E+00					5.9E+03	9.8E-04	9.0E+03	6.4E-04	5.5E+02	1.0E-02
81	INORG	Copper	7440-50-8	D	18	18	4.70E+00	1.81E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
81	INORG	Lead	7439-92-1	B2	18	18	3.40E+00	9.30E+00	2.10E+01					4.4E+04		9.0E+02			
81	INORG	Lead (Coarse Fraction)	7439-92-1C		18	18	3.20E+00	8.90E+00											
81	INORG	Lead (Fine Fraction)	7439-92-1F		18	18	5.80E+00	3.01E+01											
81	INORG	Lead (Summed Fractions)	7439-92-1S		18	18	3.72E+00	1.01E+01											
81	INORG	Manganese	7439-96-5	D	18	18	8.16E+01	1.18E+03	4.40E+02					1.5E+03	4.9E-01	9.0E+04	8.2E-03	1.4E+03	5.2E-01
81	INORG	Mercury	7439-97-6	D	18	18	1.00E-02	6.10E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
81	INORG	Nickel	7440-02-0	A	18	18	4.40E+00	2.91E+01	2.00E+01					1.6E+04	5.7E-04	1.5E+05	6.1E-05	8.5E+04	1.1E-04
81	INORG	Selenium	7782-49-2	D	18	17	2.70E-01	8.00E-01	4.10E-01					5.9E+04	6.6E-06	9.6E+03	4.1E-05	2.5E+03	1.5E-04
81	INORG	Silver	7440-22-4	D	18	13	2.00E-02	1.90E-01	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
81	INORG	Thallium	7440-28-0		18	16	3.00E-02	1.80E-01								1.3E+02	1.4E-03	3.6E+01	5.1E-03
81	INORG	Vanadium	7440-62-2		18	18	4.00E+00	2.99E+01								5.5E+03	5.4E-03	3.6E+03	8.4E-03
81	INORG	Zinc	7440-66-6	ID	18	18	1.32E+01	5.50E+01	4.70E+01							6.3E+05	1.3E-05	1.5E+05	5.2E-05
82	VOC	Benzene	71-43-2	A	2	2	1.00E-02	3.00E-02		8.4E+00	3.6E-03	4.5E+01	6.7E-04	4.7E+05	6.4E-08	4.0E+02	7.5E-05	1.5E+01	2.1E-03
82	VOC	Cumene	98-82-8	D	2	2	8.00E-03	1.00E-02		3.9E+02	2.6E-05	2.0E+03	5.0E-06	2.6E+06	3.8E-09	3.9E+02	2.6E-05	2.1E+02	4.7E-05
82	VOC	Cyclohexane	110-82-7	ID	2	2	2.00E-02	3.00E-02										8.5E+02	3.5E-05
82	VOC	Ethyl Benzene	100-41-4	D	2	2	1.00E-02	3.00E-02		1.4E+02	2.1E-04	2.4E+03	1.3E-05	1.3E+07	2.3E-09	1.4E+02	2.1E-04	4.6E+02	6.5E-05
82	VOC	Methylcyclohexane	108-87-2		2	2	5.00E-02	1.10E-01										3.2E+02	3.4E-04
82	VOC	Toluene	108-88-3	ID	2	2	5.00E-02	1.20E-01		2.5E+02	4.8E-04	3.3E+03	3.6E-05	1.2E+07	1.0E-08	2.5E+02	4.8E-04	1.7E+03	7.0E-05
82	VOC	Xylenes (total)	1330-20-7	ID	2	2	8.00E-02	1.80E-01		1.5E+02	1.2E-03	5.4E+04	3.3E-06	1.3E+08	1.4E-09	1.5E+02	1.2E-03	5.1E+01	3.6E-03
82	INORG	Arsenic	7440-38-2	A	5	5	6.20E-01	2.41E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
82	INORG	Barium	7440-39-3	NC	5	5	2.40E+01	9.68E+01	7.50E+01					1.5E+05	1.5E-04	1.3E+05	1.7E-04		
82	INORG	Beryllium	7440-41-7	B1	5	1	1.90E-01	1.90E-01						5.9E+02	3.2E-04	1.6E+03	1.2E-04	3.7E+02	5.1E-04
82	INORG	Cadmium	7440-43-9	B1	5	5	7.00E-02	2.60E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
82	INORG	Chromium (total)	7440-47-3		5	5	4.10E+00	1.61E+01						2.4E+02	6.7E-02	9.2E+03	1.8E-03	1.7E+03	9.5E-03
82	INORG	Cobalt	7440-48-4	B1	5	5	2.59E+00	7.90E+00	6.80E+00					5.9E+03	1.9E-04	9.0E+03	1.2E-04	5.5E+02	2.0E-03
82	INORG	Copper	7440-50-8	D	5	5	6.20E+00	1.15E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
82	INORG	Lead	7439-92-1	B2	5	5	3.70E+00	1.09E+01	2.10E+01					4.4E+04		9.0E+02			
82	INORG	Lead (Coarse Fraction)	7439-92-1C		5	5	3.40E+00	1.22E+01											
82	INORG	Lead (Fine Fraction)	7439-92-1F		5	5	2.08E+01	6.62E+01											
82	INORG	Lead (Summed Fractions)	7439-92-1S		5	5	5.19E+00	1.50E+01											
82	INORG	Manganese	7439-96-5	D	5	5	2.50E+02	3.26E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
82	INORG	Mercury	7439-97-6	D	5	4	1.00E-02	1.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
82	INORG	Nickel	7440-02-0	A	5	5	5.60E+00	1.89E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
82	INORG	Selenium	7782-49-2	D	5	5	5.20E-01	1.01E+00	4.10E-01					5.9E+04	1.0E-05	9.6E+03	6.3E-05	2.5E+03	2.4E-04
82	INORG	Silver	7440-22-4	D	5	2	2.00E-02	2.00E-02	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
82	INORG	Thallium	7440-28-0		5	5	3.00E-02	7.00E-02								1.3E+02	5.4E-04	3.6E+01	2.0E-03
82	INORG	Vanadium	7440-62-2		5	5	7.10E+00	1.41E+01								5.5E+03	2.6E-03	3.6E+03	4.0E-03
82	INORG	Zinc	7440-66-6	ID	5	5	1.49E+01	3.21E+01	4.70E+01							6.3E+05		1.5E+05	
83	INORG	Arsenic	7440-38-2	A	10	10	9.10E-01	1.65E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
83	INORG	Barium	7440-39-3	NC	10	10	3.50E+01	7.13E+01	7.50E+01					1.5E+05		1.3E+05			
83	INORG	Beryllium	7440-41-7	B1	10	10	1.80E-01	2.30E-01						5.9E+02	3.9E-04	1.6E+03	1.4E-04	3.7E+02	6.2E-04
83	INORG	Cadmium	7440-43-9	B1	10	10	8.00E-02	1.30E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
83	INORG	Chromium (total)	7440-47-3		10	10	7.50E+00	2.08E+01						2.4E+02	8.7E-02	9.2E+03	2.3E-03	1.7E+03	1.2E-02
83	INORG	Cobalt	7440-48-4	B1	10	10	3.58E+00	1.06E+01	6.80E+00					5.9E+03	6.4E-04	9.0E+03	4.2E-04	5.5E+02	6.9E-03
83	INORG	Copper	7440-50-8	D	10	10	7.20E+00	1.32E+01	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
83	INORG	Lead	7439-92-1	B2	10	10	4.10E+00	7.00E+00	2.10E+01					4.4E+04		9.0E+02			
83	INORG	Lead (Coarse Fraction)	7439-92-1C		10	10	3.10E+00	4.80E+00											
83	INORG	Lead (Fine Fraction)	7439-92-1F		10	10	1.68E+01	7.52E+01											
83	INORG	Lead (Summed Fractions)	7439-92-1S		10	10	4.86E+00	9.87E+00											

Table A-2b: Summary of Soil Screening against Non-Residential Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	MDEQ Statewide Default Background (mg/kg)	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Max Detect to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Max Detect to Industrial Particulate Inhalation Criteria	Industrial Direct Contact Criteria (mg/kg)	Ratio of Max Detect to Industrial Direct Contact Criteria	Construction Worker Soil Contact Criteria (mg/kg)	Ratio of Max Detect to Construction Worker Soil Criteria
83	INORG	Manganese	7439-96-5	D	10	10	2.23E+02	6.55E+02	4.40E+02					1.5E+03	1.4E-01	9.0E+04	2.4E-03	1.4E+03	1.5E-01
83	INORG	Mercury	7439-97-6	D	10	10	1.00E-02	2.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
83	INORG	Nickel	7440-02-0	A	10	10	9.50E+00	2.42E+01	2.00E+01					1.6E+04	2.6E-04	1.5E+05	2.8E-05	8.5E+04	4.9E-05
83	INORG	Selenium	7782-49-2	D	10	10	4.00E-01	1.31E+00	4.10E-01					5.9E+04	1.5E-05	9.6E+03	9.4E-05	2.5E+03	3.5E-04
83	INORG	Silver	7440-22-4	D	10	3	2.00E-02	4.00E-02	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
83	INORG	Thallium	7440-28-0		10	10	3.00E-02	9.00E-02								1.3E+02	6.9E-04	3.6E+01	2.5E-03
83	INORG	Vanadium	7440-62-2		10	10	8.90E+00	1.69E+01								5.5E+03	3.1E-03	3.6E+03	4.7E-03
83	INORG	Zinc	7440-66-6	ID	10	10	1.56E+01	3.54E+01	4.70E+01							6.3E+05		1.5E+05	
87	INORG	Arsenic	7440-38-2	A	1	1	1.40E+00	1.40E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
87	INORG	Barium	7440-39-3	NC	1	1	5.04E+01	5.04E+01	7.50E+01					1.5E+05		1.3E+05			
87	INORG	Beryllium	7440-41-7	B1	1	1	1.90E-01	1.90E-01						5.9E+02	3.2E-04	1.6E+03	1.2E-04	3.7E+02	5.1E-04
87	INORG	Cadmium	7440-43-9	B1	1	1	1.00E-01	1.00E-01	1.20E+00					2.2E+03		2.1E+03		4.4E+02	
87	INORG	Chromium (total)	7440-47-3		1	1	7.70E+00	7.70E+00						2.4E+02	3.2E-02	9.2E+03	8.4E-04	1.7E+03	4.5E-03
87	INORG	Cobalt	7440-48-4	B1	1	1	4.34E+00	4.34E+00	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
87	INORG	Copper	7440-50-8	D	1	1	7.20E+00	7.20E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
87	INORG	Lead	7439-92-1	B2	1	1	3.70E+00	3.70E+00	2.10E+01					4.4E+04		9.0E+02			
87	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	3.70E+00	3.70E+00											
87	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	4.56E+01	4.56E+01											
87	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	6.59E+00	6.59E+00											
87	INORG	Manganese	7439-96-5	D	1	1	2.50E+02	2.50E+02	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
87	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
87	INORG	Nickel	7440-02-0	A	1	1	1.03E+01	1.03E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
87	INORG	Selenium	7782-49-2	D	1	1	5.10E-01	5.10E-01	4.10E-01					5.9E+04	1.7E-06	9.6E+03	1.0E-05	2.5E+03	3.9E-05
87	INORG	Silver	7440-22-4	D	1	1	2.00E-02	2.00E-02	1.00E+00					2.9E+03		9.0E+03		2.6E+02	
87	INORG	Thallium	7440-28-0		1	1	6.00E-02	6.00E-02								1.3E+02	4.6E-04	3.6E+01	1.7E-03
87	INORG	Vanadium	7440-62-2		1	1	8.80E+00	8.80E+00								5.5E+03	1.6E-03	3.6E+03	2.5E-03
87	INORG	Zinc	7440-66-6	ID	1	1	1.66E+01	1.66E+01	4.70E+01							6.3E+05		1.5E+05	
88	VOC	Benzene	71-43-2	A	1	1	1.60E-01	1.60E-01		8.4E+00	1.9E-02	4.5E+01	3.6E-03	4.7E+05	3.4E-07	4.0E+02	4.0E-04	1.5E+01	1.1E-02
88	VOC	Cumene	98-82-8	D	1	1	3.50E-01	3.50E-01		3.9E+02	9.0E-04	2.0E+03	1.8E-04	2.6E+06	1.3E-07	3.9E+02	9.0E-04	2.1E+02	1.6E-03
88	VOC	Cyclohexane	110-82-7	ID	1	1	1.10E-01	1.10E-01										8.5E+02	1.3E-04
88	VOC	Ethyl Benzene	100-41-4	D	1	1	1.23E+00	1.23E+00		1.4E+02	8.8E-03	2.4E+03	5.1E-04	1.3E+07	9.5E-08	1.4E+02	8.8E-03	4.6E+02	2.7E-03
88	VOC	Methylcyclohexane	108-87-2		1	1	7.40E-01	7.40E-01										3.2E+02	2.3E-03
88	VOC	Toluene	108-88-3	ID	1	1	2.63E+00	2.63E+00		2.5E+02	1.1E-02	3.3E+03	8.0E-04	1.2E+07	2.2E-07	2.5E+02	1.1E-02	1.7E+03	1.5E-03
88	VOC	Xylenes (total)	1330-20-7	ID	1	1	8.11E+00	8.11E+00		1.5E+02	5.4E-02	5.4E+04	1.5E-04	1.3E+08	6.2E-08	1.5E+02	5.4E-02	5.1E+01	1.6E-01
88	INORG	Antimony	7440-36-0		1	1	3.00E+01	3.00E+01						5.9E+03	5.1E-03	6.7E+02	4.5E-02	2.0E+02	1.5E-01
88	INORG	Arsenic	7440-38-2	A	1	1	1.24E+00	1.24E+00	5.80E+00					9.1E+02		3.7E+01		2.1E+02	
88	INORG	Barium	7440-39-3	NC	1	1	1.19E+02	1.19E+02	7.50E+01					1.5E+05	2.9E-04	1.3E+05	3.4E-04		
88	INORG	Beryllium	7440-41-7	B1	1	1	5.70E-01	5.70E-01						5.9E+02	9.7E-04	1.6E+03	3.6E-04	3.7E+02	1.5E-03
88	INORG	Cadmium	7440-43-9	B1	1	1	2.60E+00	2.60E+00	1.20E+00					2.2E+03	6.4E-04	2.1E+03	6.7E-04	4.4E+02	3.2E-03
88	INORG	Chromium (total)	7440-47-3		1	1	9.90E+00	9.90E+00						2.4E+02	4.1E-02	9.2E+03	1.1E-03	1.7E+03	5.8E-03
88	INORG	Cobalt	7440-48-4	B1	1	1	9.80E-01	9.80E-01	6.80E+00					5.9E+03		9.0E+03		5.5E+02	
88	INORG	Copper	7440-50-8	D	1	1	6.30E+00	6.30E+00	3.20E+01					5.9E+04		7.3E+04		2.0E+04	
88	INORG	Lead	7439-92-1	B2	1	1	2.22E+01	2.22E+01	2.10E+01					4.4E+04	2.7E-05	9.0E+02	1.3E-03		
88	INORG	Lead (Coarse Fraction)	7439-92-1C		1	1	1.47E+02	1.47E+02											
88	INORG	Lead (Fine Fraction)	7439-92-1F		1	1	1.58E+02	1.58E+02											
88	INORG	Lead (Summed Fractions)	7439-92-1S		1	1	1.47E+02	1.47E+02											
88	INORG	Manganese	7439-96-5	D	1	1	1.27E+01	1.27E+01	4.40E+02					1.5E+03		9.0E+04		1.4E+03	
88	INORG	Mercury	7439-97-6	D	1	1	1.00E-02	1.00E-02	1.30E-01	8.9E+01		6.2E+01		8.8E+03		5.8E+02		7.7E+00	
88	INORG	Nickel	7440-02-0	A	1	1	1.19E+01	1.19E+01	2.00E+01					1.6E+04		1.5E+05		8.5E+04	
88	INORG	Selenium	7782-49-2	D	1	1	1.09E+00	1.09E+00	4.10E-01					5.9E+04	1.2E-05	9.6E+03	7.1E-05	2.5E+03	2.7E-04
88	INORG	Vanadium	7440-62-2		1	1	9.60E+00	9.60E+00								5.5E+03	1.7E-03	3.6E+03	2.7E-03
88	INORG	Zinc	7440-66-6	ID	1	1	1.89E+01	1.89E+01	4.70E+01							6.3E+05		1.5E+05	

Notes:

Only constituents detected in each area are shown.

The criteria for 2-Methylnaphthalene are the criteria provided by the agency for Naphthalene.

Ratios are calculated using the maximum detected concentrations, except for inorganics. Ratios for inorganics use the facility-related concentrations, which are those in excess of background.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-2c: Soil Samples Exceeding Screening Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Location	Sample ID	Sample Type	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	Conc	Qual	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Conc to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Conc to Residential Direct Contact Criteria	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Industrial Particulate Inhalation Criteria	Industrial/ Commercial II Direct Contact Criteria (mg/kg)	Ratio of Conc to Industrial/ Commercial II Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Conc to GSI Protection Criteria	Risk-Based Maintenance Worker Soil Contact Criteria (mg/kg)	Ratio of Conc to Risk-Based Maintenance Worker Soil Contact Criteria	Deepest Soil Analysis
10, 83	SA 7-7	SA7-7 (9-11)	N	9	11	11/07/05	INORG	Chromium (total)	1.83E+01			3.0E+01	6.1E-01					2.6E+02	7.0E-02	2.5E+03	7.3E-03					2.4E+02	7.6E-02	9.2E+03	2.0E-03	3.3E+00	**5.5E+00**	1.7E+03	1.1E-02	Yes
10, 83	SA 7-7	SA7-7 (9-11)	N	9	11	11/07/05	INORG	Cobalt	1.06E+01		6.80E+00	8.0E-01	**4.8E+00**					1.3E+04	2.9E-04	2.6E+03	1.5E-03					5.9E+03	6.4E-04	9.0E+03	4.2E-04	2.0E+00	**1.9E+00**	5.5E+02	6.9E-03	Yes
10, 83	SA 7-7	SA7-7 (9-11)	N	9	11	11/07/05	INORG	Manganese	6.55E+02		4.40E+02	1.0E+00	**2.2E+02**					3.3E+03	6.5E-02	2.5E+04	8.6E-03					1.5E+03	1.4E-01	9.0E+04	2.4E-03	9.1E+01	**2.4E+00**	1.4E+03	1.5E-01	Yes
13, 16	SW-4-UST5-6	SW-4(ExcWall)	N			06/07/91	VOC	Xylenes (total)	9.90E+01			5.6E+00	**1.8E+01**	1.5E+02	6.6E-01	4.6E+04	2.2E-03	2.9E+08	3.4E-07	1.5E+02	6.6E-01	1.5E+02	6.6E-01	5.4E+04	1.8E-03	1.3E+08	7.6E-07	1.5E+02	6.6E-01	7.0E-01	**1.4E+02**	5.1E+01	**2.0E+00**	Yes
17	B-96-B	B-96-B(9-11)	N	9	11	08/03/96	VOC	Benzene	3.40E+00			1.0E-01	3.4E+01	1.6E+00	**2.1E+00**	1.3E+01	2.6E-01	3.8E+05	8.9E-06	1.8E+02	1.9E-02	8.4E+00	4.0E-01	4.5E+01	7.6E-02	4.7E+05	7.2E-06	4.0E+02	8.5E-03	4.0E+00	8.5E-01	1.5E+01	2.3E-01	No
17	B-96-B	B-96-B(9-11)	N	9	11	08/03/96	VOC	Xylenes (total)	2.99E+02			5.6E+00	5.3E+01	1.5E+02	**2.0E+00**	4.6E+04	6.5E-03	2.9E+08	1.0E-06	1.5E+02	**2.0E+00**	1.5E+02	**2.0E+00**	5.4E+04	5.5E-03	1.3E+08	2.3E-06	1.5E+02	**2.0E+00**	7.0E-01	4.3E+02	5.1E+01	**5.9E+00**	No
17	SB-2	SB-2(11-13)	N	11	13	11/02/95	VOC	Benzene	2.90E+00			1.0E-01	2.9E+01	1.6E+00	**1.8E+00**	1.3E+01	2.2E-01	3.8E+05	7.6E-06	1.8E+02	1.6E-02	8.4E+00	3.5E-01	4.5E+01	6.4E-02	4.7E+05	6.2E-06	4.0E+02	7.3E-03	4.0E+00	7.3E-01	1.5E+01	2.0E-01	No
17	SB-2	SB-2(13-15)	N	13	15	11/02/95	VOC	Benzene	6.90E-01			1.0E-01	**6.9E+00**	1.6E+00	4.3E-01	1.3E+01	5.3E-02	3.8E+05	1.8E-06	1.8E+02	3.8E-03	8.4E+00	8.2E-02	4.5E+01	1.5E-02	4.7E+05	1.5E-06	4.0E+02	1.7E-03	4.0E+00	1.7E-01	1.5E+01	4.7E-02	Yes
17	SB-2	SB-2(9-11)	N	9	11	11/02/95	VOC	Benzene	2.97E+01			1.0E-01	3.0E+02	1.6E+00	**1.9E+01**	1.3E+01	**2.3E+00**	3.8E+05	7.8E-05	1.8E+02	1.7E-01	8.4E+00	**3.5E+00**	4.5E+01	6.6E-01	4.7E+05	6.3E-05	4.0E+02	7.4E-02	4.0E+00	7.4E+00	1.5E+01	**2.0E+00**	No
17	SB-2	SB-2(9-11)	N	9	11	11/02/95	VOC	Ethyl Benzene	1.22E+02			1.5E+00	8.1E+01	8.7E+01	**1.4E+00**	7.2E+02	1.7E-01	1.0E+07	1.2E-05	1.4E+02	8.7E-01	1.4E+02	8.7E-01	2.4E+03	5.1E-02	1.3E+07	9.4E-06	1.4E+02	8.7E-01	3.6E-01	3.4E+02	4.6E+02	2.6E-01	No
17	SB-2	SB-2(9-11)	N	9	11	11/02/95	VOC	Xylenes (total)	1.25E+02			5.6E+00	2.2E+01	1.5E+02	8.3E-01	4.6E+04	2.7E-03	2.9E+08	4.3E-07	1.5E+02	8.3E-01	1.5E+02	8.3E-01	5.4E+04	2.3E-03	1.3E+08	9.6E-07	1.5E+02	8.3E-01	7.0E-01	1.8E+02	5.1E+01	**2.5E+00**	No
17	SB-3	SB-3(14)	N	14		01/06/96	VOC	Benzene	1.72E+00			1.0E-01	1.7E+01	1.6E+00	**1.1E+00**	1.3E+01	1.3E-01	3.8E+05	4.5E-06	1.8E+02	9.6E-03	8.4E+00	2.0E-01	4.5E+01	3.8E-02	4.7E+05	3.7E-06	4.0E+02	4.3E-03	4.0E+00	4.3E-01	1.5E+01	1.2E-01	No
17	VEW-5	VEW-5(6-8)	N	6	8	03/19/95	VOC	Benzene	2.00E+00			1.0E-01	2.0E+01	1.6E+00	**1.3E+00**	1.3E+01	1.5E-01	3.8E+05	5.3E-06	1.8E+02	1.1E-02	8.4E+00	2.4E-01	4.5E+01	4.4E-02	4.7E+05	4.3E-06	4.0E+02	5.0E-03	4.0E+00	5.0E-01	1.5E+01	1.4E-01	No
17	VEW-5	VEW-5(6-8)	N	6	8	03/19/95	VOC	1,1-Dichloroethene	1.30E-01			1.4E-01	9.3E-01	6.2E-02	**2.1E+00**	1.2E+01	1.1E-02	6.2E+04	2.1E-06	2.0E+02	6.5E-04	3.3E-01	3.9E-01	3.7E+00	3.5E-02	7.8E+04	1.7E-06	5.7E+02	2.3E-04	1.3E+00	1.0E-01	2.7E+01	4.8E-03	No
17	VEW-5	VEW-5(8-10)	N	8	10	03/19/95	VOC	Benzene	7.00E+00			1.0E-01	**7.0E+01**	1.6E+00	**4.4E+00**	1.3E+01	5.4E-01	3.8E+05	1.8E-05	1.8E+02	3.9E-02	8.4E+00	8.3E-01	4.5E+01	1.6E-01	4.7E+05	1.5E-05	4.0E+02	1.8E-02	4.0E+00	**1.8E+00**	1.5E+01	4.8E-01	Yes
17	VEW-5	VEW-5(8-10)	N	8	10	03/19/95	VOC	1,1-Dichloroethene	5.00E-01			1.4E-01	**3.6E+00**	6.2E-02	**8.1E+00**	1.1E+00	4.5E-01	6.2E+04	8.1E-06	2.0E+02	2.5E-03	3.3E-01	**1.5E+00**	3.7E+00	1.4E-01	7.8E+04	6.4E-06	5.7E+02	8.8E-04	1.3E+00	3.8E-01	2.7E+01	1.9E-02	Yes
17	VEW-5	VEW-5(8-10)	N	8	10	03/19/95	VOC	cis-1,2-Dichloroethene	1.20E+01			1.4E+00	**8.6E+00**	2.2E+01	5.5E-01	1.8E+02	6.7E-02	2.3E+06	5.2E-06	6.4E+02	1.9E-02	4.1E+01	2.9E-01	2.1E+02	5.7E-02	1.0E+06	1.2E-05	6.4E+02	1.9E-02	1.2E+01	1.0E+00	9.3E+01	1.3E-01	Yes
17	VEW-5	VEW-5(8-10)	N	8	10	03/19/95	VOC	Ethyl Benzene	6.00E-01			1.5E+00	4.0E-01	8.7E+01	6.9E-03	7.2E+02	8.3E-04	1.0E+07	6.0E-08	1.4E+02	4.3E-03	1.4E+02	4.3E-03	2.4E+03	2.5E-04	1.3E+07	4.6E-08	1.4E+02	4.3E-03	3.6E-01	**1.7E+00**	4.6E+02	1.3E-03	Yes
17	VEW-5	VEW-5(8-10)	N	8	10	03/19/95	VOC	Methyl tert-butyl ether	1.00E+01			8.0E-01	**1.3E+01**	5.9E+03	1.7E-03	2.5E+04	4.0E-04	2.0E+08	5.0E-08	1.5E+03	6.7E-03	5.9E+03	1.7E-03	3.0E+04	3.3E-04	8.8E+07	1.1E-07	5.9E+03	1.7E-03	1.5E+01	6.7E-01	1.4E+03	7.0E-03	Yes
17	VEW-5	VEW-5(8-10)	N	8	10	03/19/95	VOC	1,1,1-Trichloroethane	9.00E+00			4.0E+00	**2.3E+00**	2.5E+02	3.6E-02	3.8E+03	2.4E-03	6.7E+07	1.3E-07	4.6E+02	2.0E-02	4.6E+02	2.0E-02	4.5E+03	2.0E-03	2.9E+07	3.1E-07	4.6E+02	2.0E-02	4.0E+00	**2.3E+00**	4.3E+03	2.1E-03	Yes
17	VEW-5	VEW-5(8-10)	N	8	10	03/19/95	VOC	Trichloroethene	1.20E+00			1.0E-01	**1.2E+01**	7.1E+00	1.7E-01	7.8E+01	1.5E-02	1.8E+06	6.7E-07	5.0E+02	2.4E-03	3.7E+01	3.2E-02	2.6E+02	4.6E-03	2.3E+06	5.2E-07	5.0E+02	2.4E-03	4.0E+00	3.0E-01	1.2E+02	1.0E-02	Yes
17	VEW-8	VEW-8(10-12)	N	10	12	03/26/95	VOC	Trichloroethene	1.60E-01			1.0E-01	**1.6E+00**	7.1E+00	2.3E-02	7.8E+01	2.1E-03	1.8E+06	8.9E-08	5.0E+02	3.2E-04	3.7E+01	4.3E-03	2.6E+02	6.2E-04	2.3E+06	7.0E-08	5.0E+02	3.2E-04	4.0E+00	4.0E-02	1.2E+02	1.4E-03	Yes
17	VEW-9	VEW-9(10-12)	N	10	12	03/26/95	VOC	Xylenes (total)	9.50E-01			5.6E+00	1.7E-01	1.5E+02	6.3E-03	4.6E+04	2.1E-05	2.9E+08	3.3E-09	1.5E+02	6.3E-03	1.5E+02	6.3E-03	5.4E+04	1.8E-05	1.3E+08	7.3E-09	1.5E+02	6.3E-03	7.0E-01	**1.4E+00**	5.1E+01	1.9E-02	Yes
18	E-16	E-16(4-6)	N	4	6	12/31/93	INORG	Lead	1.29E+03		2.10E+01	7.0E+02	1.8E+00					1.0E+05	1.3E-02	4.0E+02	**3.2E+00**					4.4E+04	2.9E-02	9.0E+02	**1.4E+00**	5.2E+03	2.4E-01			No
18	E-17	E-17(4-6)	N	4	6	12/31/93	INORG	Lead	1.48E+03		2.10E+01	7.0E+02	2.1E+00					1.0E+05	1.5E-02	4.0E+02	**3.6E+00**					4.4E+04	3.3E-02	9.0E+02	**1.6E+00**	5.2E+03	2.8E-01			No
18	E-23	E-23(0-2)	N		2	12/31/93	INORG	Lead	8.29E+02		2.10E+01	7.0E+02	1.2E+00					1.0E+05	8.1E-03	4.0E+02	**2.0E+00**					4.4E+04	1.8E-02	9.0E+02	9.0E-01	5.2E+03	1.6E-01			No
18	E-25	E-25(0-2)	N		2	12/31/93	INORG	Lead	4.03E+03		2.10E+01	7.0E+02	5.7E+00					1.0E+05	4.0E-02	4.0E+02	**1.0E+01**					4.4E+04	9.1E-02	9.0E+02	**4.5E+00**	5.2E+03	7.7E-01			No
18	E-27	E-27(0-2)	N		2	12/31/93	INORG	Lead	3.24E+03		2.10E+01	7.0E+02	4.6E+00					1.0E+05	3.2E-02	4.0E+02	**8.0E+00**					4.4E+04	7.3E-02	9.0E+02	**3.6E+00**	5.2E+03	6.2E-01			No
18	E-34A	E-34A(Comp)(0-15)	N		15	12/31/93	INORG	Lead	1.20E+03		2.10E+01	7.0E+02	1.7E+00					1.0E+05	1.2E-02	4.0E+02	**2.9E+00**					4.4E+04	2.7E-02	9.0E+02	**1.3E+00**	5.2E+03	2.3E-01			No
18	SA 12-1	SA12-1 (9-11)	N	9	11	11/02/05	INORG	Chromium (total)	2.28E+01			3.0E+01	7.6E-01					2.6E+02	8.8E-02	2.5E+03	9.1E-03					2.4E+02	9.5E-02	9.2E+03	2.5E-03	3.3E+00	**6.9E+00**	1.7E+03	1.3E-02	Yes
18	SA 12-1	SA12-1 (9-11)	N	9	11	11/02/05	INORG	Cobalt	1.74E+01		6.80E+00	8.0E-01	**1.3E+01**					1.3E+04	8.2E-04	2.6E+03	4.1E-03					5.9E+03	1.8E-03	9.0E+03	1.2E-03	2.0E+00	**5.3E+00**	5.5E+02	1.9E-02	Yes
18	SA 12-1	SA12-1 (9-11)	N	9	11	11/02/05	INORG	Manganese	5.48E+02		4.40E+02	1.0E+00	**1.1E+02**					3.3E+03	3.3E-02	2.5E+04	4.3E-03					1.5E+03	7.2E-02	9.0E+04	1.2E-03	9.1E+01	**1.2E+00**	1.4E+03	7.5E-02	Yes
18	SA 12-2	SA12-2 (10-12)	N	10	12	11/02/05	INORG	Chromium (total)	2.57E+01			3.0E+01	8.6E-01					2.6E+02	9.9E-02	2.5E+03	1.0E-02					2.4E+02	1.1E-01	9.2E+03	2.8E-03	3.3E+00	**7.8E+00**	1.7E+03	1.5E-02	Yes
18	SA 12-2	SA12-2 (10-12)	N	10	12	11/02/05	INORG	Cobalt	2.28E+01		6.80E+00	8.0E-01	**2.0E+01**					1.3E+04	1.2E-03	2.6E+03	6.2E-03					5.9E+03	2.7E-03	9.0E+03	1.8E-03	2.0E+00	**8.0E+00**	5.5E+02	2.9E-02	Yes
18	SA 12-3	SA12-3 (10-12)	N	10	12	11/02/05	INORG	Chromium (total)	6.40E+00			3.0E+01	2.1E-01					2.6E+02	2.5E-02	2.5E+03	2.6E-03					2.4E+02	2.7E-02	9.2E+03	7.0E-04	3.3E+00	**1.9E+00**	1.7E+03	3.8E-03	Yes
18	SA 12-4	SA12-4 (11-13)	N	11	13	11/03/05	INORG	Chromium (total)	5.80E+00			3.0E+01	1.9E-01					2.6E+02	2.2E-02	2.5E+03	2.3E-03					2.4E+02	2.4E-02	9.2E+03	6.3E-04	3.3E+00	**1.8E+00**	1.7E+03	3.4E-03	Yes
18	SME-MW-4	MW-4(5)	N	5		03/15/96	INORG	Lead	4.54E+02		2.10E+01	7.0E+02	6.2E-01					1.0E+05	4.3E-03	4.0E+02	**1.1E+00**					4.4E+04	9.8E-03	9.0E+02	4.8E-01	5.2E+03	8.4E-02			No
18, 19	SA 10-3	SA10-3 (14-16)	N	14	16	11/07/05	INORG	Chromium (total)	1.47E+01			3.0E+01	4.9E-01					2.6E+02	5.7E-02	2.5E+03	5.9E-03					2.4E+02	6.1E-02	9.2E+03	1.6E-03	3.3E+00	**4.5E+00**	1.7E+03	8.6E-03	Yes
18, 19	SA 10-4	SA10-4 (8-10)	N	8	10	11/04/05	INORG	Chromium (total)	1.39E+01			3.0E+01	4.6E-01					2.6E+02	5.3E-02	2.5E+03	5.6E-03					2.4E+02	5.8E-02	9.2E+03	1.5E-03	3.3E+00	**4.2E+00**	1.7E+03	8.2E-03	Yes
18, 82	SA 20-1	SA20-1 (4-6)	N	4	6	11/04/05	INORG	Chromium (total)	1.37E+01			3.0E+01	4.6E-01					2.6E+02	5.3E-02	2.5E+03	5.5E-03					2.4E+02	5.7E-02	9.2E+03	1.5E-03	3.3E+00	**4.2E+00**	1.7E+03	8.0E-03	Yes
18, 82	SA 20-1	SA20-1 (4-6)	N	4	6	11/04/05	INORG	Cobalt	7.90E+00		6.80E+00	8.0E-01	**1.4E+00**					1.3E+04	8.5E-05	2.6E+03	4.2E-04					5.9E+03	1.9E-04	9.0E+03	1.2E-04	2.0E+00	5.5E-01	5.5E+02	2.0E-03	Yes
18, 82	SA 20-1	SA20-1 (4-6)	N	4	6	11/04/05	INORG	Selenium	8.40E-01		4.10E-01	4.0E+00	1.1E-01					1.3E+05	3.3E-06	2.6E+03	1.7E-04					5.9E+04	7.3E-06	9.6E+03	4.5E-05	4.0E-01	**1.1E+00**	2.5E+03	1.7E-04	Yes
18, 82	SA 20-2	SA20-2 (14-16)	N	14	16	11/04/05	INORG	Chromium (total)	1.19E+01			3.0E+01	4.0E-01					2.6E+02	4.6E-02	2.5E+03	4.8E-03					2.4E+02	5.0E-02	9.2E+03	1.3E-03	3.3E+00	**3.6E+00**	1.7E+03	7.0E-03	Yes
18, 82	SA 20-2	SA20-2 (14-16)	N	14	16	11/04/05	INORG	Selenium	1.01E+00		4.10E-01	4.0E+00	1.5E-01					1.3E+05	4.6E-06	2.6E+03	2.3E-04					5.9E+04	1.0E-05	9.6E+03	6.3E-05	4.0E-01	**1.5E+00**	2.5E+03	2.4E-04	Yes
18, 82	SA 20-3	SA20-3 (7-9)	N	7	9	11/04/05	INORG	Chromium (total)	1.61E+01			3.0E+01	5.4E-01					2.6E+02	6.2E-02	2.5E+03	6.4E-03					2.4E+02	6.7E-02	9.2E+03	1.8E-03	3.3E+00	**4.9E+00**	1.7E+03	9.5E-03	Yes
18, 82	SA 20-4	Dup-4	FD	10	12	11/04/05	INORG	Chromium (total)	9.00E+00			3.0E+01	3.0E-01					2.6E+02	3.5E-02	2.5E+03	3.6E-03					2.4E+02	3.8E-02	9.2E+03	9.8E-04	3.3E+00	**2.7E+00**	1.7E+03	5.3E-03	Yes
18, 82	SA 20-4	Dup-4	FD	10	12	11/04/05	INORG	Selenium	8.70E-01		4.10E-01	4.0E+00	1.2E-01					1.3E+05	3.5E-06	2.6E+03	1.8E-04					5.9E+04	7.8E-06	9.6E+03	4.8E-05	4.0E-01	**1.2E+00**	2.5E+03	1.8E-04	Yes
18, 82	SA 20-4	SA20-4 (10-12)	N	10	12	11/04/05	INORG	Chromium (total)	4.10E+00			3.0E+01	1.4E-01					2.6E+02	1.6E-02	2.5E+03	1.6E-03					2.4E+02	1.7E-02	9.2E+03	4.5E-04	3.3E+00	**1.2E+00**	1.7E+03	2.4E-03	Yes
2, 18, 48	SA 6-1	SA6-1 (2.5-4.5)	N	2.5	4.5	11/03/05	INORG	Chromium (total)	5.80E+00			3.0E+01	1.9E-01					2.6E+02	2.2E-02	2.5E+03	2.3E-03					2.4E+02	2.4E-02	9.2E+03	6.3E-04	3.3E+00	**1.8E+00**	1.7E+03	3.4E-03	Yes
2, 18, 48	SA 6-10	SA6-10 (14-16)	N	14	16	11/03/05	INORG	Chromium (total)	7.70E+00			3.0E+01	2.6E-01					2.6E+02	3.0E-02	2.5E+03	3.1E-03					2.4E+02	3.2E-02	9.2E+03	8.4E-04	3.3E+00	**2.3E+00**	1.7E+03	4.5E-03	Yes
2, 18, 48	SA 6-11	SA6-11 (8-10)	N	8	10	11/04/05	INORG	Chromium (total)	4.50E+00			3.0E+01	1.5E-01					2.6E+02	1.7E-02	2.5E+03	1.8E-03					2.4E+02	1.9E-02	9.2E+03	4.9E-04	3.3E+00	**1.4E+00**	1.7E+03	2.6E-03	Yes
2, 18, 48	SA 6-12	SA6-12 (8-10)	N	8	10	11/04/05	INORG	Chromium (total)	1.61E+01			3.0E+01	5.4E-01					2.6E+02	6.2E-02	2.5E+03	6.4E-03					2.4E+02	6.7E-02	9.2E+03	1.8E-03	3.3E+00	**4.9E+00**	1.7E+03	9.5E-03	Yes
2, 18, 48	SA 6-12	SA6-12 (8-10)	N	8	10	11/04/05	INORG	Cobalt	8.35E+00		6.80E+00	8.0E-01	**1.9E+00**					1.3E+04	1.2E-04	2.6E+03	6.0E-04					5.9E+03	2.6E-04	9.0E+03	1.7E-04	2.0E+00	7.8E-01	5.5E+02	2.8E-03	Yes
2, 18, 48	SA 6-2	Dup-2	FD	4	6	11/03/05	INORG	Chromium (total)	4.10E+00			3.0E+01	1.4E-01					2.6E+02	1.6E-02	2.5E+03	1.6E-03					2.4E+02	1.7E-02	9.2E+03	4.5E-04	3.3E+00	**1.2E+00**	1.7E+03	2.4E-03	Yes
2, 18, 48	SA 6-3	SA6-3 (3-5)	N	3	5	11/03/05	INORG	Chromium (total)	3.50E+00			3.0E+01	1.2E-01					2.6E+02	1.3E-02	2.5E+03	1.4E-03					2.4E+02	1.5E-02	9.2E+03	3.8E-04	3.3E+00	**1.1E+00**	1.7E+03	2.1E-03	Yes
2, 18, 48	SA 6-4	Dup-3	FD	8	10	11/03/05	INORG	Chromium (total)	7.80E+00			3.0E+01	2.6E-01					2.6E+02	3.0E-02	2.5E+03	3.1E-03					2.4E+02	3.3E-02	9.2E+03	8.5E-04	3.3E+00	**2.4E+00**	1.7E+03	4.6E-03	Yes
2, 18, 48	SA 6-4	SA6-4 (8-10)	N	8	10	11/03/05	INORG	Chromium (total)	6.90E+00			3.0E+01	2.3E-01					2.6E+02	2.7E-02	2.5E+03	2.8E-03					2.4E+02	2.9E-02	9.2E+03	7.5E-04	3.3E+00	**2.1E+00**	1.7E+03	4.1E-03	Yes
2, 18, 48	SA 6-5	SA6-5 (3-5)	N	3	5	11/03/05	INORG	Chromium (total)	3.50E+00			3.0E+01	1.2E-01					2.6E+02	1.3E-02	2.5E+03	1.4E-03					2.4E+02	1.5E-02	9.2E+03	3.8E-04	3.3E+00	**1.1E+00**	1.7E+03	2.1E-03	Yes
2, 18, 48	SA 6-7	SA6-7 (4-6)	N	4	6	11/03/05	INORG	Chromium (total)	6.60E+00			3.0E+01	2.2E-01					2.6E+02	2.5E-02	2.5E+03	2.6E-03					2.4E+02	2.8E-02	9.2E+03	7.2E-04	3.3E+00	**2.0E+00**	1.7E+03	3.9E-03	Yes
2, 18, 48	SA 6-7	SA6-7 (4-6)	N	4	6	11/03/05	INORG	Manganese	6.01E+02		4.40E+02	1.0E+00	**1.6E+02**					3.3E+03	4.9E-02	2.5E+04	6.4E-03					1.5E+03	1.1E-01	9.0E+04	1.8E-03	9.1E+01	**1.8E+00**	1.4E+03	1.1E-01	Yes
2, 18, 48	SA 6-8	SA6-8 (3-5)	N	3	5	11/03/05	INORG	Chromium (total)	9.40E+00			3.0E+01	3.1E-01					2.6E+02	3.6E-02	2.5E+03	3.8E-03					2.4E+02	3.9E-02	9.2E+03	1.0E-03	3.3E+00	**2.8E+00**	1.7E+03	5.5E-03	Yes
2, 18, 48	SA 6-9	SA6-9 (6-8)	N	6	8	11/03/05	INORG	Chromium (total)	6.60E+00			3.0E+01	2.2E-01					2.6E+02	2.5E-02	2.5E+03	2.6E-03					2.4E+02	2.8E-02	9.2E+03	7.2E-04	3.3E+00	**2.0E+00**	1.7E+03	3.9E-03	Yes
3, 10	SA 8-1	SA8-1 (9-11)	N	9	11	11/09/05	INORG	Chromium (total)	6.10E+00			3.0E+01	2.0E-01					2.6E+02	2.3E-02	2.5E+03	2.4E-03					2.4E+02	2.5E-02	9.2E+03	6.6E-04	3.3E+00	**1.8E+00**	1.7E+03	3.6E-03	Yes
3, 10	SA 8-2	SA8-2 (14-16)	N	14	16	11/09/05	INORG	Chromium (total)	3.60E+00			3.0E+01	1.2E-01					2.6E+02	1.4E-02	2.5E+03	1.4E-03					2.4E+02	1.5E-02	9.2E+03	3.9E-04	3.3E+00	**1.1E+00**	1.7E+03	2.1E-03	Yes
3, 10	SA 8-3	SA8-3 (14-16)	N	14	16	11/08/05	INORG	Chromium (total)	4.40E+00			3.0E+01	1.5E-01					2.6E+02	1.7E-02	2.5E+03	1.8E-03					2.4E+02	1.8E-02	9.2E+03	4.8E-04	3.3E+00	**1.3E+00**	1.7E+03	2.6E-03	Yes
3, 10	SA 8-5	SA8-5 (7-9)	N	7	9	11/08/05	INORG	Chromium (total)	6.20E+00			3.0E+01	2.1E-01					2.6E+02	2.4E-02	2.5E+03	2.5E-03					2.4E+02	2.6E-02	9.2E+03	6.7E-04	3.3E+00	**1.9E+00**	1.7E+03	3.6E-03	Yes
3, 10	SA 8-6	Dup-5	FD	12	14	11/07/05	INORG	Chromium (total)	8.00E+00			3.0E+01	2.7E-01					2.6E+02	3.1E-02	2.5E+03	3.2E-03					2.4E+02	3.3E-02	9.2E+03	8.7E-04	3.3E+00	**2.4E+00**	1.7E+03	4.7E-03	Yes
3, 10	SA 8-6	SA8-6 (12-14)	N	12	14	11/07/05	INORG	Chromium (total)	1.24E+01			3.0E+01	4.1E-01					2.6E+02	4.8E-02	2.5E+03	5.0E-03					2.4E+02	5.2E-02	9.2E+03	1.

Table A-2c: Soil Samples Exceeding Screening Criteria
GM: Lansing Plant 6, Lansing, Michigan

Area	Location	Sample ID	Sample Type	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	Conc	Qual	MDEQ Statewide Default Background (mg/kg)	Residential Drinking Water Protection Criteria (mg/kg)	Ratio of Conc to Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Indoor Air Criteria	Residential Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Residential Soil Volatilization to Ambient Air Criteria	Residential Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Residential Particulate Inhalation Criteria	Residential Direct Contact Criteria (mg/kg)	Ratio of Conc to Residential Direct Contact Criteria	Industrial Soil Volatilization to Indoor Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Indoor Air Criteria	Industrial Soil Volatilization to Ambient Air Criteria (mg/kg)	Ratio of Conc to Industrial Soil Volatilization to Ambient Air Criteria	Industrial Particulate Inhalation Criteria (mg/kg)	Ratio of Conc to Industrial Particulate Inhalation Criteria	Industrial/ Commercial II Direct Contact Criteria (mg/kg)	Ratio of Conc to Industrial/ Commercial II Direct Contact Criteria	GSI Protection Criteria (mg/kg)	Ratio of Conc to GSI Protection Criteria	Risk-Based Maintenance Worker Soil Contact Criteria (mg/kg)	Ratio of Conc to Risk-Based Maintenance Worker Soil Contact Criteria	Deepest Soil Analysis
81	SA 11-6	SA11-6 (2-4)	N	2	4	10/31/05	INORG	Chromium (total)	7.10E+00			3.0E+01	2.4E-01					2.6E+02	2.7E-02	2.5E+03	2.8E-03					2.4E+02	3.0E-02	9.2E+03	7.7E-04	3.3E+00	**2.2E+00**	1.7E+03	4.2E-03	Yes
81	SA 11-7	SA11-7 (4-6)	N	4	6	10/31/05	INORG	Chromium (total)	1.15E+01			3.0E+01	3.8E-01					2.6E+02	4.4E-02	2.5E+03	4.6E-03					2.4E+02	4.8E-02	9.2E+03	1.3E-03	3.3E+00	**3.5E+00**	1.7E+03	6.8E-03	Yes
81	SA 11-8	SA11-8 (8-10)	N	8	10	10/31/05	INORG	Chromium (total)	8.00E+00			3.0E+01	2.7E-01					2.6E+02	3.1E-02	2.5E+03	3.2E-03					2.4E+02	3.3E-02	9.2E+03	8.7E-04	3.3E+00	**2.4E+00**	1.7E+03	4.7E-03	Yes
81	SA 11-9	SA11-9 (8-10)	N	8	10	11/02/05	INORG	Chromium (total)	1.93E+01			3.0E+01	6.4E-01					2.6E+02	7.4E-02	2.5E+03	7.7E-03					2.4E+02	8.0E-02	9.2E+03	2.1E-03	3.3E+00	**5.8E+00**	1.7E+03	1.1E-02	Yes
83	SA 7-1	SA7-1 (9-11)	N	9	11	11/08/05	INORG	Chromium (total)	1.03E+01			3.0E+01	3.4E-01					2.6E+02	4.0E-02	2.5E+03	4.1E-03					2.4E+02	4.3E-02	9.2E+03	1.1E-03	3.3E+00	**3.1E+00**	1.7E+03	6.0E-03	Yes
83	SA 7-10	SA7-10 (4-6)	N	4	6	11/07/05	INORG	Chromium (total)	1.38E+01			3.0E+01	4.6E-01					2.6E+02	5.3E-02	2.5E+03	5.5E-03					2.4E+02	5.8E-02	9.2E+03	1.5E-03	3.3E+00	**4.2E+00**	1.7E+03	8.1E-03	Yes
83	SA 7-2	SA7-2 (4-6)	N	4	6	11/08/05	INORG	Chromium (total)	7.50E+00			3.0E+01	2.5E-01					2.6E+02	2.9E-02	2.5E+03	3.0E-03					2.4E+02	3.1E-02	9.2E+03	8.2E-04	3.3E+00	**2.3E+00**	1.7E+03	4.4E-03	Yes
83	SA 7-3	SA7-3 (7-9)	N	7	9	11/08/05	INORG	Chromium (total)	7.90E+00			3.0E+01	2.6E-01					2.6E+02	3.0E-02	2.5E+03	3.2E-03					2.4E+02	3.3E-02	9.2E+03	8.6E-04	3.3E+00	**2.4E+00**	1.7E+03	4.6E-03	Yes
83	SA 7-4	SA7-4 (8-10)	N	8	10	11/08/05	INORG	Chromium (total)	7.90E+00			3.0E+01	2.6E-01					2.6E+02	3.0E-02	2.5E+03	3.2E-03					2.4E+02	3.3E-02	9.2E+03	8.6E-04	3.3E+00	**2.4E+00**	1.7E+03	4.6E-03	Yes
83	SA 7-4	SA7-4 (8-10)	N	8	10	11/08/05	INORG	Selenium	1.31E+00		4.10E-01	4.0E+00	2.3E-01					1.3E+05	6.9E-06	2.6E+03	3.5E-04					5.9E+04	1.5E-05	9.6E+03	9.4E-05	4.0E-01	**2.3E+00**	2.5E+03	3.5E-04	Yes
83	SA 7-5	SA7-5 (12-14)	N	12	14	11/07/05	INORG	Chromium (total)	1.85E+01			3.0E+01	6.2E-01					2.6E+02	7.1E-02	2.5E+03	7.4E-03					2.4E+02	7.7E-02	9.2E+03	2.0E-03	3.3E+00	**5.6E+00**	1.7E+03	1.1E-02	Yes
83	SA 7-5	SA7-5 (12-14)	N	12	14	11/07/05	INORG	Selenium	8.90E-01		4.10E-01	4.0E+00	1.2E-01					1.3E+05	3.7E-06	2.6E+03	1.8E-04					5.9E+04	8.1E-06	9.6E+03	5.0E-05	4.0E-01	**1.2E+00**	2.5E+03	1.9E-04	Yes
83	SA 7-6	SA7-6 (14-16)	N	14	16	11/07/05	INORG	Chromium (total)	2.08E+01			3.0E+01	6.9E-01					2.6E+02	8.0E-02	2.5E+03	8.3E-03					2.4E+02	8.7E-02	9.2E+03	2.3E-03	3.3E+00	**6.3E+00**	1.7E+03	1.2E-02	Yes
83	SA 7-6	SA7-6 (14-16)	N	14	16	11/07/05	INORG	Selenium	9.20E-01		4.10E-01	4.0E+00	1.3E-01					1.3E+05	3.9E-06	2.6E+03	2.0E-04					5.9E+04	8.6E-06	9.6E+03	5.3E-05	4.0E-01	**1.3E+00**	2.5E+03	2.0E-04	Yes
83	SA 7-8	SA7-8 (10-12)	N	10	12	11/07/05	INORG	Chromium (total)	1.81E+01			3.0E+01	6.0E-01					2.6E+02	7.0E-02	2.5E+03	7.2E-03					2.4E+02	7.5E-02	9.2E+03	2.0E-03	3.3E+00	**5.5E+00**	1.7E+03	1.1E-02	Yes
83	SA 7-8	SA7-8 (10-12)	N	10	12	11/07/05	INORG	Selenium	9.40E-01		4.10E-01	4.0E+00	1.3E-01					1.3E+05	4.1E-06	2.6E+03	2.0E-04					5.9E+04	9.0E-06	9.6E+03	5.5E-05	4.0E-01	**1.3E+00**	2.5E+03	2.1E-04	Yes
87	SA 9-2	SA9-2 (8-10)	N	8	10	11/08/05	INORG	Chromium (total)	7.70E+00			3.0E+01	2.6E-01					2.6E+02	3.0E-02	2.5E+03	3.1E-03					2.4E+02	3.2E-02	9.2E+03	8.4E-04	3.3E+00	**2.3E+00**	1.7E+03	4.5E-03	Yes
88	SA 34-6	SA34-6 (6-8)	N	6	8	11/11/05	VOC	Benzene	1.60E-01			1.0E-01	**1.6E+00**	1.6E+00	1.0E-01	1.3E+01	1.2E-02	3.8E+05	4.2E-07	1.8E+02	8.9E-04	8.4E+00	1.9E-02	4.5E+01	3.6E-03	4.7E+05	3.4E-07	4.0E+02	4.0E-04	4.0E+00	4.0E-02	1.5E+01	1.1E-02	Yes
88	SA 34-6	SA34-6 (6-8)	N	6	8	11/11/05	VOC	Ethyl Benzene	1.23E+00			1.5E+00	8.2E-01	8.7E+01	1.4E-02	7.2E+02	1.7E-03	1.0E+07	1.2E-07	1.4E+02	8.8E-03	1.4E+02	8.8E-03	2.4E+03	5.1E-04	1.3E+07	9.5E-08	1.4E+02	8.8E-03	3.6E-01	**3.4E+00**	4.6E+02	2.7E-03	Yes
88	SA 34-6	SA34-6 (6-8)	N	6	8	11/11/05	VOC	Xylenes (total)	8.11E+00			5.6E+00	**1.4E+00**	1.5E+02	5.4E-02	4.6E+04	1.8E-04	2.9E+08	2.8E-08	1.5E+02	5.4E-02	1.5E+02	5.4E-02	5.4E+04	1.5E-04	1.3E+08	6.2E-08	1.5E+02	5.4E-02	7.0E-01	**1.2E+01**	5.1E+01	1.6E-01	Yes
88	SA 34-6	SA34-6 (6-8)	N	6	8	11/11/05	INORG	Antimony	3.00E+01			4.3E+00	**7.0E+00**					1.3E+04	2.3E-03	1.8E+02	1.7E-01					5.9E+03	5.1E-03	6.7E+02	4.5E-02	9.4E+01	3.2E-01	2.0E+02	1.5E-01	Yes
88	SA 34-6	SA34-6 (6-8)	N	6	8	11/11/05	INORG	Chromium (total)	9.90E+00			3.0E+01	3.3E-01					2.6E+02	3.8E-02	2.5E+03	4.0E-03					2.4E+02	4.1E-02	9.2E+03	1.1E-03	3.3E+00	**3.0E+00**	1.7E+03	5.8E-03	Yes
88	SA 34-6	SA34-6 (6-8)	N	6	8	11/11/05	INORG	Selenium	1.09E+00		4.10E-01	4.0E+00	1.7E-01					1.3E+05	5.2E-06	2.6E+03	2.6E-04					5.9E+04	1.2E-05	9.6E+03	7.1E-05	4.0E-01	**1.7E+00**	2.5E+03	2.7E-04	Yes

Notes:

Sample Types: "N" = normal or parent sample, "FD" = field duplicate sample

Ratios for inorganics use the facility-related concentrations, which are those in excess of background.

Ratios of concentrations to groundwater protection criteria are only highlighted for the deepest sample in the boring in which that chemical was analyzed.

Table A-3a: Groundwater Screening Results
GM Lansing Plant 6, Lansing, Michigan

Area	Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Max Detected (mg/L)	Residential Drinking Water Criteria (mg/L)	Ratio of Max Detected to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Max Detected to Groundwater Surface water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
17	Overburden	VOC	Benzene	71-43-2	T	A	10	1	3.00E-03	3.00E-03	5.0E-03	6.0E-01	2.0E-01	1.5E-02	3.5E+01	8.6E-05	1.1E+01	2.7E-04
17	Overburden	VOC	cis-1,2-Dichloroethene	156-59-2	T	ID	9	1	2.20E-02	2.20E-02	7.0E-02	3.1E-01	6.2E-01	3.5E-02	2.1E+02	1.0E-04	2.0E+02	1.1E-04
17	Overburden	VOC	Ethyl Benzene	100-41-4	T	D	10	1	1.00E-03	1.00E-03	7.0E-01	1.4E-03	1.8E-02	5.6E-02	1.7E+02	5.9E-06	1.7E+02	5.9E-06
18	Overburden	INORG	Arsenic	7440-38-2	D	A	48	35	1.00E-03	3.60E-02	1.0E-02	**3.6E+00**	1.5E-01	2.4E-01			4.3E+00	8.4E-03
18	Overburden	INORG	Arsenic	7440-38-2	T	A	32	30	2.00E-03	6.80E-02	1.0E-02	**6.8E+00**	1.5E-01	4.5E-01			4.3E+00	1.6E-02
18	Overburden	INORG	Barium	7440-39-3	D	NC	48	48	1.40E-01	2.23E+00	2.0E+00	**1.1E+00**	1.2E+00	**1.8E+00**			1.4E+04	1.6E-04
18	Overburden	INORG	Barium	7440-39-3	T	NC	32	32	1.70E-01	2.27E+00	2.0E+00	**1.1E+00**	1.2E+00	**1.8E+00**			1.4E+04	1.6E-04
18	Overburden	INORG	Beryllium	7440-41-7	T	B1	32	4	1.00E-03	2.00E-03	4.0E-03	5.0E-01	2.9E-02	7.0E-02			2.9E+02	6.9E-06
18	Overburden	INORG	Cadmium	7440-43-9	D	B1	48	4	2.00E-04	1.40E-03	5.0E-03	2.8E-01	4.6E-03	3.0E-01			1.9E+02	7.4E-06
18	Overburden	INORG	Cadmium	7440-43-9	T	B1	32	19	2.00E-04	8.30E-03	5.0E-03	**1.7E+00**	4.6E-03	**1.8E+00**			1.9E+02	4.4E-05
18	Overburden	INORG	Chromium (total)	7440-47-3	D		48	9	2.00E-03	1.10E-02	1.0E-01	1.1E-01	1.1E-02	1.0E+00			4.6E+02	2.4E-05
18	Overburden	INORG	Chromium (total)	7440-47-3	T		32	22	3.00E-03	8.60E-02	1.0E-01	8.6E-01	1.1E-02	**7.8E+00**			4.6E+02	1.9E-04
18	Overburden	INORG	Cobalt	7440-48-4	D	B1	48	3	7.00E-03	7.00E-03	4.0E-02	1.8E-01	1.0E-01	7.0E-02			2.4E+03	2.9E-06
18	Overburden	INORG	Cobalt	7440-48-4	T	B1	32	6	5.00E-03	2.70E-02	4.0E-02	6.8E-01	1.0E-01	2.7E-01			2.4E+03	1.1E-05
18	Overburden	INORG	Copper	7440-50-8	D	D	48	22	2.00E-03	1.10E-02	1.4E+00	7.9E-03	2.1E-02	5.3E-01			7.4E+03	1.5E-06
18	Overburden	INORG	Copper	7440-50-8	T	D	32	27	3.00E-03	1.38E-01	1.4E+00	9.9E-02	2.1E-02	**6.7E+00**			7.4E+03	1.9E-05
18	Overburden	INORG	Lead	7439-92-1	D	B2	55	7	7.00E-03	1.80E-02	4.0E-03	**4.5E+00**	2.9E-02	6.1E-01				
18	Overburden	INORG	Lead	7439-92-1	T	B2	46	30	2.00E-03	2.76E+00	4.0E-03	**6.9E+02**	2.9E-02	**9.4E+01**				
18	Overburden	INORG	Manganese	7439-96-5	D	D	48	48	7.00E-03	6.01E-01	8.6E-01	7.0E-01	4.6E+00	1.3E-01			9.1E+03	6.6E-05
18	Overburden	INORG	Manganese	7439-96-5	T	D	32	32	3.50E-02	3.05E+00	8.6E-01	**3.5E+00**	4.6E+00	6.7E-01			9.1E+03	3.4E-04
18	Overburden	INORG	Nickel	7440-02-0	D	A	48	17	5.00E-03	1.50E-02	1.0E-01	1.5E-01	1.2E-01	1.3E-01			7.4E+04	2.0E-07
18	Overburden	INORG	Nickel	7440-02-0	T	A	32	15	6.00E-03	6.30E-02	1.0E-01	6.3E-01	1.2E-01	5.3E-01			7.4E+04	8.5E-07
18	Overburden	INORG	Silver	7440-22-4	D	D	48	1	1.00E-03	1.00E-03	3.4E-02	2.9E-02	2.0E-04	**5.0E+00**			1.5E+03	6.7E-07
18	Overburden	INORG	Silver	7440-22-4	T	D	32	2	1.00E-03	1.50E-03	3.4E-02	4.4E-02	2.0E-04	**7.5E+00**			1.5E+03	1.0E-06
18	Overburden	INORG	Vanadium	7440-62-2	D		48	1	6.00E-03	6.00E-03	4.5E-03	**1.3E+00**	1.2E-02	5.0E-01			9.7E+02	6.2E-06
18	Overburden	INORG	Vanadium	7440-62-2	T		32	7	5.00E-03	5.00E-02	4.5E-03	**1.1E+01**	1.2E-02	**4.2E+00**			9.7E+02	5.2E-05
18	Overburden	INORG	Zinc	7440-66-6	D	ID	48	42	5.00E-03	2.37E-01	2.4E+00	9.9E-02	2.7E-01	8.7E-01			1.1E+05	2.2E-06
18	Overburden	INORG	Zinc	7440-66-6	T	ID	32	31	1.20E-02	1.17E+00	2.4E+00	4.9E-01	2.7E-01	**4.3E+00**			1.1E+05	1.1E-05
18	Bedrock	INORG	Arsenic	7440-38-2	D	A	3	3	1.00E-03	1.90E-02	1.0E-02	**1.9E+00**	1.5E-01	1.3E-01			4.3E+00	4.4E-03
18	Bedrock	INORG	Arsenic	7440-38-2	T	A	3	3	2.00E-03	1.30E-02	1.0E-02	**1.3E+00**	1.5E-01	8.7E-02			4.3E+00	3.0E-03
18	Bedrock	INORG	Barium	7440-39-3	D	NC	3	3	1.80E-01	2.80E-01	2.0E+00	1.4E-01	1.2E+00	2.3E-01			1.4E+04	2.0E-05
18	Bedrock	INORG	Barium	7440-39-3	T	NC	3	3	3.60E-01	1.81E+00	2.0E+00	9.1E-01	1.2E+00	**1.5E+00**			1.4E+04	1.3E-04
18	Bedrock	INORG	Beryllium	7440-41-7	T	B1	3	1	8.00E-03	8.00E-03	4.0E-03	**2.0E+00**	2.9E-02	2.8E-01			2.9E+02	2.8E-05
18	Bedrock	INORG	Cadmium	7440-43-9	T	B1	3	1	1.30E-03	1.30E-03	5.0E-03	2.6E-01	4.6E-03	2.8E-01			1.9E+02	6.8E-06
18	Bedrock	INORG	Chromium (total)	7440-47-3	D		3	2	3.00E-03	4.00E-03	1.0E-01	4.0E-02	1.1E-02	3.6E-01			4.6E+02	8.7E-06
18	Bedrock	INORG	Chromium (total)	7440-47-3	T		3	3	3.00E-03	1.53E-01	1.0E-01	**1.5E+00**	1.1E-02	**1.4E+01**			4.6E+02	3.3E-04
18	Bedrock	INORG	Cobalt	7440-48-4	T	B1	3	2	4.30E-02	5.00E-02	4.0E-02	**1.3E+00**	1.0E-01	5.0E-01			2.4E+03	2.1E-05
18	Bedrock	INORG	Copper	7440-50-8	D	D	3	2	3.00E-03	5.00E-03	1.4E+00	3.6E-03	2.1E-02	2.4E-01			7.4E+03	6.8E-07
18	Bedrock	INORG	Copper	7440-50-8	T	D	3	3	8.00E-03	4.30E-02	1.4E+00	3.1E-02	2.1E-02	**2.1E+00**			7.4E+03	5.8E-06
18	Bedrock	INORG	Lead	7439-92-1	D	B2	3	1	1.00E-03	1.00E-03	4.0E-03	2.5E-01	2.9E-02	3.4E-02				
18	Bedrock	INORG	Lead	7439-92-1	T	B2	3	2	3.00E-03	1.80E-02	4.0E-03	**4.5E+00**	2.9E-02	6.1E-01				
18	Bedrock	INORG	Manganese	7439-96-5	D	D	3	2	4.80E-02	1.67E-01	8.6E-01	1.9E-01	4.6E+00	3.7E-02			9.1E+03	1.8E-05
18	Bedrock	INORG	Manganese	7439-96-5	T	D	3	3	2.50E-01	7.34E+00	8.6E-01	**8.5E+00**	4.6E+00	**1.6E+00**			9.1E+03	8.1E-04
18	Bedrock	INORG	Nickel	7440-02-0	D	A	3	2	3.20E-02	6.90E-02	1.0E-01	6.9E-01	1.2E-01	5.8E-01			7.4E+04	9.3E-07
18	Bedrock	INORG	Nickel	7440-02-0	T	A	3	3	3.80E-02	1.50E-01	1.0E-01	**1.5E+00**	1.2E-01	**1.3E+00**			7.4E+04	2.0E-06
18	Bedrock	INORG	Vanadium	7440-62-2	D		3	1	2.00E-02	2.00E-02	4.5E-03	**4.4E+00**	1.2E-02	**1.7E+00**			9.7E+02	2.1E-05
18	Bedrock	INORG	Vanadium	7440-62-2	T		3	2	2.00E-02	3.50E-02	4.5E-03	**7.8E+00**	1.2E-02	**2.9E+00**			9.7E+02	3.6E-05
18	Bedrock	INORG	Zinc	7440-66-6	D	ID	3	1	1.40E-02	1.40E-02	2.4E+00	5.8E-03	2.7E-01	5.2E-02			1.1E+05	1.3E-07
18	Bedrock	INORG	Zinc	7440-66-6	T	ID	3	3	2.20E-02	1.48E-01	2.4E+00	6.2E-02	2.7E-01	5.5E-01			1.1E+05	1.3E-06
NA	Overburden	INORG	Lead	7439-92-1	D	B2	1	1	6.00E-03	6.00E-03	4.0E-03	**1.5E+00**	2.9E-02	2.0E-01				
NA	Overburden	INORG	Lead	7439-92-1	T	B2	2	2	1.60E-02	4.72E-01	4.0E-03	**1.2E+02**	2.9E-02	**1.6E+01**				

Notes:

Only constituents detected in each area are shown.

The criteria for Chromium (total) are the criteria provided by the agency for Chromium VI.

Ratios of concentrations to criteria greater than 1 are shaded in bold.

Chem Group - chemical group

Meas Basis - measured basis; T = total, D = dissolved

Carc Class - USEPA Weight-of-Evidence Cancer Classification

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 6, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
18	Overburden	MW-02-01	MW02-01(11/26/2002)	N	11/26/02	T	INORG	Lead	7439-92-1	5.89E-01		4.0E-03	**1.5E+02**	2.9E-02	**2.0E+01**				
18	Overburden	MW-02-01	MW-02-01(111104)NS	N	11/11/04	T	INORG	Chromium (total)	7440-47-3	1.30E-02		1.0E-01	1.3E-01	1.1E-02	**1.2E+00**			**4.6E+02**	2.8E-05
18	Overburden	MW-02-01	MW-02-01(111104)NS	N	11/11/04	T	INORG	Copper	7440-50-8	2.40E-02		1.4E+00	1.7E-02	2.1E-02	**1.2E+00**			**7.4E+03**	3.2E-06
18	Overburden	MW-02-01	MW-02-01(111104)NS	N	11/11/04	T	INORG	Lead	7439-92-1	1.40E-02		4.0E-03	**3.5E+00**	2.9E-02	4.8E-01				
18	Overburden	MW-02-01	MW-02-01(3/3/2003)	N	03/03/03	D	INORG	Lead	7439-92-1	9.00E-03		4.0E-03	**2.3E+00**	2.9E-02	3.1E-01				
18	Overburden	MW-02-01	MW-02-01(3/3/2003)	N	03/03/03	T	INORG	Lead	7439-92-1	1.00E-02		4.0E-03	**2.5E+00**	2.9E-02	3.4E-01				
18	Overburden	MW-02-01	MW-101(111104)NS	FD	11/11/04	T	INORG	Lead	7439-92-1	1.10E-02		4.0E-03	**2.8E+00**	2.9E-02	3.7E-01				
18	Overburden	MW-02-02	MW-02-02 NS(9/16/2003)	N	09/16/03	D	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			**4.3E+00**	2.6E-03
18	Overburden	MW-02-02	MW-02-02 NS(9/16/2003)	N	09/16/03	T	INORG	Arsenic	7440-38-2	3.70E-02		1.0E-02	**3.7E+00**	1.5E-01	2.5E-01			**4.3E+00**	8.6E-03
18	Overburden	MW-02-02	MW02-02(11/26/2002)	N	11/26/02	T	INORG	Lead	7439-92-1	4.91E-01		4.0E-03	**1.2E+02**	2.9E-02	**1.7E+01**				
18	Overburden	MW-02-02	MW-02-02(111104)	N	11/11/04	T	INORG	Arsenic	7440-38-2	1.80E-02		1.0E-02	**1.8E+00**	1.5E-01	1.2E-01			**4.3E+00**	4.2E-03
18	Overburden	MW-02-02	MW-02-02(111104)	N	11/11/04	T	INORG	Chromium (total)	7440-47-3	2.30E-02		1.0E-01	2.3E-01	1.1E-02	**2.1E+00**			**4.6E+02**	5.0E-05
18	Overburden	MW-02-02	MW-02-02(111104)	N	11/11/04	T	INORG	Copper	7440-50-8	8.00E-02		1.4E+00	5.7E-02	2.1E-02	**3.9E+00**			**7.4E+03**	1.1E-05
18	Overburden	MW-02-02	MW-02-02(111104)	N	11/11/04	T	INORG	Lead	7439-92-1	2.70E-02		4.0E-03	**6.8E+00**	2.9E-02	9.2E-01				
18	Overburden	MW-02-02	MW-02-02(111104)	N	11/11/04	T	INORG	Manganese	7439-96-5	3.05E+00		8.6E-01	**3.5E+00**	4.6E+00	6.7E-01			**9.1E+03**	3.4E-04
18	Overburden	MW-02-02	MW-02-02(3/4/2003)	N	03/04/03	D	INORG	Lead	7439-92-1	9.00E-03		4.0E-03	**2.3E+00**	2.9E-02	3.1E-01				
18	Overburden	MW-02-02	MW-02-02(3/4/2003)	N	03/04/03	T	INORG	Lead	7439-92-1	1.10E-02		4.0E-03	**2.8E+00**	2.9E-02	3.7E-01				
18	Overburden	MW-02-02	MW-02-02(8/19/2003)	N	08/19/03	D	INORG	Arsenic	7440-38-2	1.60E-02	J	1.0E-02	**1.6E+00**	1.5E-01	1.1E-01			**4.3E+00**	3.7E-03
18	Overburden	MW-02-03	MW02-03(11/26/2002)	N	11/26/02	T	INORG	Lead	7439-92-1	7.20E-02		4.0E-03	**1.8E+01**	2.9E-02	**2.4E+00**				
18	Overburden	MW-02-03	MW-02-03(111204)NS	N	11/11/04	D	INORG	Arsenic	7440-38-2	2.80E-02		1.0E-02	**2.8E+00**	1.5E-01	1.9E-01			**4.3E+00**	6.5E-03
18	Overburden	MW-02-03	MW-02-03(111204)NS	N	11/11/04	T	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			**4.3E+00**	2.8E-03
18	Overburden	MW-02-03	MW-02-03(111204)NS	N	11/11/04	T	INORG	Manganese	7439-96-5	1.15E+00		8.6E-01	**1.3E+00**	4.6E+00	2.5E-01			**9.1E+03**	1.3E-04
18	Overburden	MW-02-03	MW-02-03(111204)NS	N	11/11/04	T	INORG	Zinc	7440-66-6	1.17E+00		2.4E+00	4.9E-01	2.7E-01	**4.3E+00**			**1.1E+05**	1.1E-05
18	Overburden	MW-02-03	MW-02-03(3/4/2003)	N	03/04/03	D	INORG	Lead	7439-92-1	7.00E-03		4.0E-03	**1.8E+00**	2.9E-02	2.4E-01				
18	Overburden	MW-02-03	MW-02-03(3/4/2003)	N	03/04/03	T	INORG	Lead	7439-92-1	1.80E-02		4.0E-03	**4.5E+00**	2.9E-02	6.1E-01				
18	Overburden	MW-02-03	MW-02-03(8/19/2003)	N	08/19/03	D	INORG	Arsenic	7440-38-2	2.80E-02	J	1.0E-02	**2.8E+00**	1.5E-01	1.9E-01			**4.3E+00**	6.5E-03
18	Overburden	MW-02-03	MW-02-03(9/17/2003)	N	09/17/03	T	INORG	Arsenic	7440-38-2	4.20E-02		1.0E-02	**4.2E+00**	1.5E-01	2.8E-01			**4.3E+00**	9.8E-03
18	Overburden	MW-02-03	MW-02-03(9/17/2003)	N	09/17/03	T	INORG	Copper	7440-50-8	2.40E-02		1.4E+00	1.7E-02	2.1E-02	**1.2E+00**			**7.4E+03**	3.2E-06
18	Overburden	MW-02-03	MW-02-03(9/17/2003)	N	09/17/03	T	INORG	Lead	7439-92-1	5.00E-03		4.0E-03	**1.3E+00**	2.9E-02	1.7E-01				
18	Overburden	MW-02-03	MW-02-03(9/17/2003)	N	09/17/03	T	INORG	Zinc	7440-66-6	4.42E-01		2.4E+00	1.8E-01	2.7E-01	**1.6E+00**			**1.1E+05**	4.0E-06
18	Overburden	MW-02-03	MW-201(9/17/2003)	FD	09/17/03	T	INORG	Arsenic	7440-38-2	3.90E-02		1.0E-02	**3.9E+00**	1.5E-01	2.6E-01			**4.3E+00**	9.1E-03
18	Overburden	MW-02-03	MW-201(9/17/2003)	FD	09/17/03	T	INORG	Copper	7440-50-8	2.30E-02		1.4E+00	1.6E-02	2.1E-02	**1.1E+00**			**7.4E+03**	3.1E-06
18	Overburden	MW-02-03	MW-201(9/17/2003)	FD	09/17/03	T	INORG	Lead	7439-92-1	5.00E-03		4.0E-03	**1.3E+00**	2.9E-02	1.7E-01				
18	Overburden	MW-02-03	MW-201(9/17/2003)	FD	09/17/03	T	INORG	Zinc	7440-66-6	4.44E-01		2.4E+00	1.9E-01	2.7E-01	**1.6E+00**			**1.1E+05**	4.0E-06
18	Overburden	MW-03-01	MW-03-01(110904)NS	N	11/09/04	T	INORG	Chromium (total)	7440-47-3	2.90E-02		1.0E-01	2.9E-01	1.1E-02	**2.6E+00**			**4.6E+02**	6.3E-05
18	Overburden	MW-03-01	MW-03-01(110904)NS	N	11/09/04	T	INORG	Lead	7439-92-1	8.00E-03		4.0E-03	**2.0E+00**	2.9E-02	2.7E-01				
18	Overburden	MW-03-01	MW-03-01(9/16/2003)	N	09/16/03	T	INORG	Silver	7440-22-4	1.00E-03		3.4E-02	2.9E-02	2.0E-04	**5.0E+00**			**1.5E+03**	6.7E-07
18	Overburden	MW-03-01	MW-03-01(9/16/2003)	N	09/16/03	T	INORG	Vanadium	7440-62-2	1.00E-02		4.5E-03	**2.2E+00**	1.2E-02	8.3E-01			**9.7E+02**	1.0E-05
18	Overburden	MW-03-02	MW-03-02(9/17/2003)	N	09/17/03	T	INORG	Lead	7439-92-1	1.00E-02		4.0E-03	**2.5E+00**	2.9E-02	3.4E-01				
18	Overburden	MW-03-02	MW-03-02(9/17/2003)	N	09/17/03	T	INORG	Vanadium	7440-62-2	5.00E-03		4.5E-03	**1.1E+00**	1.2E-02	4.2E-01			**9.7E+02**	5.2E-06
18	Overburden	MW-03-03	MW-03-03(111004)NS	N	11/10/04	D	INORG	Arsenic	7440-38-2	3.60E-02		1.0E-02	**3.6E+00**	1.5E-01	2.4E-01			**4.3E+00**	8.4E-03
18	Overburden	MW-03-03	MW-03-03(111004)NS	N	11/10/04	T	INORG	Arsenic	7440-38-2	2.90E-02		1.0E-02	**2.9E+00**	1.5E-01	1.9E-01			**4.3E+00**	6.7E-03
18	Overburden	MW-03-03	MW-03-03(111004)NS	N	11/10/04	T	INORG	Chromium (total)	7440-47-3	1.30E-02		1.0E-01	1.3E-01	1.1E-02	**1.2E+00**			**4.6E+02**	2.8E-05
18	Overburden	MW-03-03	MW-03-03(111004)NS	N	11/10/04	T	INORG	Lead	7439-92-1	9.00E-03		4.0E-03	**2.3E+00**	2.9E-02	3.1E-01				
18	Overburden	MW-03-03	MW-03-03(8/20/2003)	N	08/20/03	D	INORG	Arsenic	7440-38-2	1.20E-02	J	1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			**4.3E+00**	2.8E-03
18	Overburden	MW-03-03	MW-03-03(8/20/2003)	N	08/20/03	D	INORG	Barium	7440-39-3	1.34E+00		2.0E+00	6.7E-01	1.2E+00	**1.1E+00**			**1.4E+04**	9.6E-05
18	Overburden	MW-03-03	MW-03-03(9/16/2003)	N	09/16/03	T	INORG	Arsenic	7440-38-2	1.80E-02		1.0E-02	**1.8E+00**	1.5E-01	1.2E-01			**4.3E+00**	4.2E-03
18	Overburden	MW-03-04	MW-03-04(111004)NS	N	11/10/04	D	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			**4.3E+00**	2.8E-03
18	Overburden	MW-03-04	MW-03-04(111004)NS	N	11/10/04	T	INORG	Arsenic	7440-38-2	1.40E-02		1.0E-02	**1.4E+00**	1.5E-01	9.3E-02			**4.3E+00**	3.3E-03
18	Overburden	MW-03-04	MW-03-04(111004)NS	N	11/10/04	T	INORG	Lead	7439-92-1	5.00E-03		4.0E-03	**1.3E+00**	2.9E-02	1.7E-01				
18	Overburden	MW-03-04	MW-03-04(9/17/2003)	N	09/17/03	T	INORG	Arsenic	7440-38-2	1.40E-02		1.0E-02	**1.4E+00**	1.5E-01	9.3E-02			**4.3E+00**	3.3E-03
18	Overburden	MW-03-04	MW-100(111004)NS	FD	11/10/04	D	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			**4.3E+00**	2.8E-03
18	Overburden	MW-03-04	MW-100(111004)NS	FD	11/10/04	T	INORG	Arsenic	7440-38-2	1.40E-02		1.0E-02	**1.4E+00**	1.5E-01	9.3E-02			**4.3E+00**	3.3E-03
18	Overburden	MW-03-04	MW-100(111004)NS	FD	11/10/04	T	INORG	Chromium (total)	7440-47-3	1.20E-02		1.0E-01	1.2E-01	1.1E-02	**1.1E+00**			**4.6E+02**	2.6E-05
18	Overburden	MW-03-04	MW-100(111004)NS	FD	11/10/04	T	INORG	Lead	7439-92-1	5.00E-03		4.0E-03	**1.3E+00**	2.9E-02	1.7E-01				
18	Overburden	MW-03-05	MW-03-05(111004)NS	N	11/10/04	T	INORG	Arsenic	7440-38-2	1.20E-02		1.0E-02	**1.2E+00**	1.5E-01	8.0E-02			**4.3E+00**	2.8E-03
18	Overburden	MW-03-05	MW-03-05(111004)NS	N	11/10/04	T	INORG	Chromium (total)	7440-47-3	2.30E-02		1.0E-01	2.3E-01	1.1E-02	**2.1E+00**			**4.6E+02**	5.0E-05

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 6, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
18	Overburden	MW-03-05	MW-03-05(111004)NS	N	11/10/04	T	INORG	Lead	7439-92-1	1.40E-02		4.0E-03	**3.5E+00**	2.9E-02	4.8E-01				
18	Overburden	MW-03-05	MW-03-05(9/16/2003)	N	09/16/03	D	INORG	Silver	7440-22-4	1.00E-03		3.4E-02	2.9E-02	2.0E-04	**5.0E+00**			**1.5E+03**	6.7E-07
18	Overburden	MW-03-05	MW-03-05(9/16/2003)	N	09/16/03	T	INORG	Silver	7440-22-4	1.50E-03		3.4E-02	4.4E-02	2.0E-04	**7.5E+00**			**1.5E+03**	1.0E-06
18	Overburden	MW-03-06	MW-03-06(111104)NS	N	11/11/04	T	INORG	Chromium (total)	7440-47-3	1.50E-02		1.0E-01	1.5E-01	1.1E-02	**1.4E+00**			**4.6E+02**	3.3E-05
18	Overburden	MW-03-06	MW-03-06(111104)NS	N	11/11/04	T	INORG	Lead	7439-92-1	5.00E-03		4.0E-03	**1.3E+00**	2.9E-02	1.7E-01				
18	Overburden	MW-03-07	MW-03-07(110904)NS	N	11/09/04	T	INORG	Arsenic	7440-38-2	6.80E-02		1.0E-02	**6.8E+00**	1.5E-01	4.5E-01			**4.3E+00**	1.6E-02
18	Overburden	MW-03-07	MW-03-07(110904)NS	N	11/09/04	T	INORG	Chromium (total)	7440-47-3	1.30E-02		1.0E-01	1.3E-01	1.1E-02	**1.2E+00**			**4.6E+02**	2.8E-05
18	Overburden	MW-03-07	MW-03-07(110904)NS	N	11/09/04	T	INORG	Lead	7439-92-1	8.00E-03		4.0E-03	**2.0E+00**	2.9E-02	2.7E-01				
18	Overburden	MW-03-07	MW-03-07(9/15/2003)	N	09/15/03	T	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			**4.3E+00**	2.6E-03
18	Overburden	MW-03-07	MW-200(9/15/2003)	FD	09/15/03	T	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			**4.3E+00**	2.6E-03
18	Overburden	MW-03-08	MW-03-08(111104)NS	N	11/11/04	D	INORG	Arsenic	7440-38-2	2.00E-02		1.0E-02	**2.0E+00**	1.5E-01	1.3E-01			**4.3E+00**	4.7E-03
18	Overburden	MW-03-08	MW-03-08(111104)NS	N	11/11/04	T	INORG	Arsenic	7440-38-2	2.50E-02		1.0E-02	**2.5E+00**	1.5E-01	1.7E-01			**4.3E+00**	5.8E-03
18	Overburden	MW-03-08	MW-03-08(9/15/2003)	N	09/15/03	T	INORG	Arsenic	7440-38-2	2.90E-02		1.0E-02	**2.9E+00**	1.5E-01	1.9E-01			**4.3E+00**	6.7E-03
18	Overburden	MW-04-05	MW-04-05(110904)NS	N	11/09/04	D	INORG	Barium	7440-39-3	2.23E+00		2.0E+00	**1.1E+00**	1.2E+00	**1.8E+00**			**1.4E+04**	1.6E-04
18	Overburden	MW-04-05	MW-04-05(110904)NS	N	11/09/04	T	INORG	Barium	7440-39-3	2.27E+00		2.0E+00	**1.1E+00**	1.2E+00	**1.8E+00**			**1.4E+04**	1.6E-04
18	Overburden	MW-04-05	MW-04-05(110904)NS	N	11/09/04	T	INORG	Chromium (total)	7440-47-3	6.40E-02		1.0E-01	6.4E-01	1.1E-02	**5.8E+00**			**4.6E+02**	1.4E-04
18	Overburden	MW-04-05	MW-04-05(110904)NS	N	11/09/04	T	INORG	Copper	7440-50-8	5.30E-02		1.4E+00	3.8E-02	2.1E-02	**2.6E+00**			**7.4E+03**	7.2E-06
18	Overburden	MW-04-05	MW-04-05(110904)NS	N	11/09/04	T	INORG	Lead	7439-92-1	3.30E-02		4.0E-03	**8.3E+00**	2.9E-02	**1.1E+00**				
18	Overburden	MW-04-05	MW-04-05(110904)NS	N	11/09/04	T	INORG	Manganese	7439-96-5	2.15E+00		8.6E-01	**2.5E+00**	4.6E+00	4.7E-01			**9.1E+03**	2.4E-04
18	Overburden	MW-04-05	MW-04-05(110904)NS	N	11/09/04	T	INORG	Vanadium	7440-62-2	3.70E-02		4.5E-03	**8.2E+00**	1.2E-02	**3.1E+00**			**9.7E+02**	3.8E-05
18	Overburden	SME-MW-1	SME MW-1(9/17/2003)	N	09/17/03	D	INORG	Vanadium	7440-62-2	6.00E-03		4.5E-03	**1.3E+00**	1.2E-02	5.0E-01			**9.7E+02**	6.2E-06
18	Overburden	SME-MW-1	SME MW-1(9/17/2003)	N	09/17/03	T	INORG	Manganese	7439-96-5	9.97E-01		8.6E-01	**1.2E+00**	4.6E+00	2.2E-01			**9.1E+03**	1.1E-04
18	Overburden	SME-MW-1	SME MW-1(9/17/2003)	N	09/17/03	T	INORG	Vanadium	7440-62-2	1.40E-02		4.5E-03	**3.1E+00**	1.2E-02	**1.2E+00**			**9.7E+02**	1.4E-05
18	Overburden	SME-MW-1	SME-MW-1 (3/4/2003)	N	03/04/03	D	INORG	Lead	7439-92-1	1.00E-02		4.0E-03	**2.5E+00**	2.9E-02	3.4E-01				
18	Overburden	SME-MW-1	SME-MW-1 (3/4/2003)	N	03/04/03	T	INORG	Lead	7439-92-1	2.10E-02		4.0E-03	**5.3E+00**	2.9E-02	7.1E-01				
18	Overburden	SME-MW-2	SME MW-2(111104)NS	N	11/11/04	T	INORG	Arsenic	7440-38-2	1.80E-02		1.0E-02	**1.8E+00**	1.5E-01	1.2E-01			**4.3E+00**	4.2E-03
18	Overburden	SME-MW-2	SME MW-2(111104)NS	N	11/11/04	T	INORG	Chromium (total)	7440-47-3	5.10E-02		1.0E-01	5.1E-01	1.1E-02	**4.6E+00**			**4.6E+02**	1.1E-04
18	Overburden	SME-MW-2	SME MW-2(111104)NS	N	11/11/04	T	INORG	Copper	7440-50-8	1.04E-01		1.4E+00	7.4E-02	2.1E-02	**5.0E+00**			**7.4E+03**	1.4E-05
18	Overburden	SME-MW-2	SME MW-2(111104)NS	N	11/11/04	T	INORG	Lead	7439-92-1	5.80E-02		4.0E-03	**1.5E+01**	2.9E-02	**2.0E+00**				
18	Overburden	SME-MW-2	SME MW-2(111104)NS	N	11/11/04	T	INORG	Manganese	7439-96-5	2.32E+00		8.6E-01	**2.7E+00**	4.6E+00	5.1E-01			**9.1E+03**	2.5E-04
18	Overburden	SME-MW-2	SME MW-2(111104)NS	N	11/11/04	T	INORG	Vanadium	7440-62-2	3.60E-02		4.5E-03	**8.0E+00**	1.2E-02	**3.0E+00**			**9.7E+02**	3.7E-05
18	Overburden	SME-MW-2	SME-MW-02 (3/4/2003)	N	03/04/03	D	INORG	Lead	7439-92-1	9.00E-03		4.0E-03	**2.3E+00**	2.9E-02	3.1E-01				
18	Overburden	SME-MW-2	SME-MW-02 (3/4/2003)	N	03/04/03	T	INORG	Lead	7439-92-1	1.10E-02		4.0E-03	**2.8E+00**	2.9E-02	3.7E-01				
18	Overburden	SME-MW-2	SME-MW-2NS(9/16/2003)	N	09/16/03	T	INORG	Chromium (total)	7440-47-3	1.20E-02		1.0E-01	1.2E-01	1.1E-02	**1.1E+00**			**4.6E+02**	2.6E-05
18	Overburden	SME-MW-2	SME-MW-2NS(9/16/2003)	N	09/16/03	T	INORG	Copper	7440-50-8	2.50E-02		1.4E+00	1.8E-02	2.1E-02	**1.2E+00**			**7.4E+03**	3.4E-06
18	Overburden	SME-MW-2	SME-MW-2NS(9/16/2003)	N	09/16/03	T	INORG	Lead	7439-92-1	7.00E-03		4.0E-03	**1.8E+00**	2.9E-02	2.4E-01				
18	Overburden	SME-MW-2	SME-MW-2NS(9/16/2003)	N	09/16/03	T	INORG	Vanadium	7440-62-2	1.30E-02		4.5E-03	**2.9E+00**	1.2E-02	**1.1E+00**			**9.7E+02**	1.3E-05
18	Overburden	SME-MW-3	SME-MW-3 (3/5/2003)NS	N	03/05/03	T	INORG	Lead	7439-92-1	2.76E+00		4.0E-03	**6.9E+02**	2.9E-02	**9.4E+01**				
18	Overburden	SME-MW-3	SME-MW-3 (3/6/2003)NS	N	03/05/03	D	INORG	Lead	7439-92-1	1.80E-02		4.0E-03	**4.5E+00**	2.9E-02	6.1E-01				
18	Overburden	SME-MW-4	SME MW-4(111004)NS	N	11/10/04	D	INORG	Arsenic	7440-38-2	2.60E-02		1.0E-02	**2.6E+00**	1.5E-01	1.7E-01			**4.3E+00**	6.0E-03
18	Overburden	SME-MW-4	SME MW-4(111004)NS	N	11/10/04	T	INORG	Arsenic	7440-38-2	3.80E-02		1.0E-02	**3.8E+00**	1.5E-01	2.5E-01			**4.3E+00**	8.8E-03
18	Overburden	SME-MW-4	SME MW-4(111004)NS	N	11/10/04	T	INORG	Cadmium	7440-43-9	8.30E-03		5.0E-03	**1.7E+00**	4.6E-03	**1.8E+00**			**1.9E+02**	4.4E-05
18	Overburden	SME-MW-4	SME MW-4(111004)NS	N	11/10/04	T	INORG	Chromium (total)	7440-47-3	8.60E-02		1.0E-01	8.6E-01	1.1E-02	**7.8E+00**			**4.6E+02**	1.9E-04
18	Overburden	SME-MW-4	SME MW-4(111004)NS	N	11/10/04	T	INORG	Copper	7440-50-8	1.38E-01		1.4E+00	9.9E-02	2.1E-02	**6.7E+00**			**7.4E+03**	1.9E-05
18	Overburden	SME-MW-4	SME MW-4(111004)NS	N	11/10/04	T	INORG	Lead	7439-92-1	1.03E-01		4.0E-03	**2.6E+01**	2.9E-02	**3.5E+00**				
18	Overburden	SME-MW-4	SME MW-4(111004)NS	N	11/10/04	T	INORG	Manganese	7439-96-5	1.69E+00		8.6E-01	**2.0E+00**	4.6E+00	3.7E-01			**9.1E+03**	1.9E-04
18	Overburden	SME-MW-4	SME MW-4(111004)NS	N	11/10/04	T	INORG	Vanadium	7440-62-2	5.00E-02		4.5E-03	**1.1E+01**	1.2E-02	**4.2E+00**			**9.7E+02**	5.2E-05
18	Overburden	SME-MW-4	SME MW-4(111004)NS	N	11/10/04	T	INORG	Zinc	7440-66-6	4.35E-01		2.4E+00	1.8E-01	2.7E-01	**1.6E+00**			**1.1E+05**	4.0E-06
18	Overburden	SME-MW-4	SME MW-4(9/17/2003)	N	09/17/03	T	INORG	Arsenic	7440-38-2	2.70E-02		1.0E-02	**2.7E+00**	1.5E-01	1.8E-01			**4.3E+00**	6.3E-03
18	Overburden	SME-MW-4	SME-4(8/19/2003)	N	08/19/03	D	INORG	Arsenic	7440-38-2	1.90E-02	J	1.0E-02	**1.9E+00**	1.5E-01	1.3E-01			**4.3E+00**	4.4E-03
18	Overburden	SME-MW-4	SME-MW-4 (3/5/2003)	N	03/05/03	D	INORG	Lead	7439-92-1	8.00E-03		4.0E-03	**2.0E+00**	2.9E-02	2.7E-01				
18	Overburden	SME-MW-4	SME-MW-4 (3/5/2003)	N	03/05/03	T	INORG	Lead	7439-92-1	8.00E-03		4.0E-03	**2.0E+00**	2.9E-02	2.7E-01				
18	Bedrock	MW-04-01	MW-04-01(110904)NS	N	11/09/04	D	INORG	Arsenic	7440-38-2	1.10E-02		1.0E-02	**1.1E+00**	1.5E-01	7.3E-02			**4.3E+00**	2.6E-03
18	Bedrock	MW-04-01	MW-04-01(110904)NS	N	11/09/04	T	INORG	Cobalt	7440-48-4	4.30E-02		4.0E-02	**1.1E+00**	1.0E-01	4.3E-01			**2.4E+03**	1.8E-05
18	Bedrock	MW-04-01	MW-04-01(110904)NS	N	11/09/04	T	INORG	Manganese	7439-96-5	7.34E+00		8.6E-01	**8.5E+00**	4.6E+00	**1.6E+00**			**9.1E+03**	8.1E-04
18	Bedrock	MW-04-01	MW-04-01(110904)NS	N	11/09/04	T	INORG	Nickel	7440-02-0	1.50E-01		1.0E-01	**1.5E+00**	1.2E-01	**1.3E+00**			**7.4E+04**	2.0E-06
18	Bedrock	MW-04-04	MW-04-04(110804)NS	N	11/08/04	D	INORG	Arsenic	7440-38-2	1.90E-02		1.0E-02	**1.9E+00**	1.5E-01	1.3E-01			**4.3E+00**	4.4E-03

Table A-3b: Groundwater Samples Exceeding Screening Criteria
GM Lansing Plant 6, Lansing, Michigan

Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	Residential Drinking Water Criteria (mg/L)	Ratio of Conc to Residential Drinking Water Criteria	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Conc to Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Conc to Residential Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Conc to Groundwater Contact Criteria
18	Bedrock	MW-04-04	MW-04-04(110804)NS	N	11/08/04	T	INORG	Arsenic	7440-38-2	1.30E-02		1.0E-02	**1.3E+00**	1.5E-01	8.7E-02			**4.3E+00**	3.0E-03
18	Bedrock	MW-04-04	MW-04-04(110804)NS	N	11/08/04	T	INORG	Beryllium	7440-41-7	8.00E-03		4.0E-03	**2.0E+00**	2.9E-02	2.8E-01			**2.9E+02**	2.8E-05
18	Bedrock	MW-04-04	MW-04-04(110804)NS	N	11/08/04	T	INORG	Chromium (total)	7440-47-3	1.53E-01		1.0E-01	**1.5E+00**	1.1E-02	**1.4E+01**			**4.6E+02**	3.3E-04
18	Bedrock	MW-04-04	MW-04-04(110804)NS	N	11/08/04	T	INORG	Cobalt	7440-48-4	5.00E-02		4.0E-02	**1.3E+00**	1.0E-01	5.0E-01			**2.4E+03**	2.1E-05
18	Bedrock	MW-04-04	MW-04-04(110804)NS	N	11/08/04	T	INORG	Lead	7439-92-1	1.80E-02		4.0E-03	**4.5E+00**	2.9E-02	6.1E-01				
18	Bedrock	MW-04-04	MW-04-04(110804)NS	N	11/08/04	T	INORG	Manganese	7439-96-5	6.66E+00		8.6E-01	**7.7E+00**	4.6E+00	**1.5E+00**			**9.1E+03**	7.3E-04
18	Bedrock	MW-04-04	MW-04-04(110804)NS	N	11/08/04	T	INORG	Nickel	7440-02-0	1.46E-01		1.0E-01	**1.5E+00**	1.2E-01	**1.2E+00**			**7.4E+04**	2.0E-06
18	Bedrock	MW-04-04	MW-04-04(110804)NS	N	11/08/04	T	INORG	Vanadium	7440-62-2	3.50E-02		4.5E-03	**7.8E+00**	1.2E-02	**2.9E+00**			**9.7E+02**	3.6E-05
18	Bedrock	MW-04-06	MW-04-06(110904)NS	N	11/09/04	D	INORG	Vanadium	7440-62-2	2.00E-02		4.5E-03	**4.4E+00**	1.2E-02	**1.7E+00**			**9.7E+02**	2.1E-05
18	Bedrock	MW-04-06	MW-04-06(110904)NS	N	11/09/04	T	INORG	Vanadium	7440-62-2	2.00E-02		4.5E-03	**4.4E+00**	1.2E-02	**1.7E+00**			**9.7E+02**	2.1E-05
NA	Overburden	MW-100	MW100(11/26/2002)	N	11/26/02	T	INORG	Lead	7439-92-1	4.72E-01		4.0E-03	**1.2E+02**	2.9E-02	**1.6E+01**				
NA	Overburden	MW-101	MW-101(3/4/2003)	N	03/04/03	D	INORG	Lead	7439-92-1	6.00E-03		4.0E-03	**1.5E+00**	2.9E-02	2.0E-01				
NA	Overburden	MW-101	MW-101(3/4/2003)	N	03/04/03	T	INORG	Lead	7439-92-1	1.60E-02		4.0E-03	**4.0E+00**	2.9E-02	5.4E-01				

Notes:

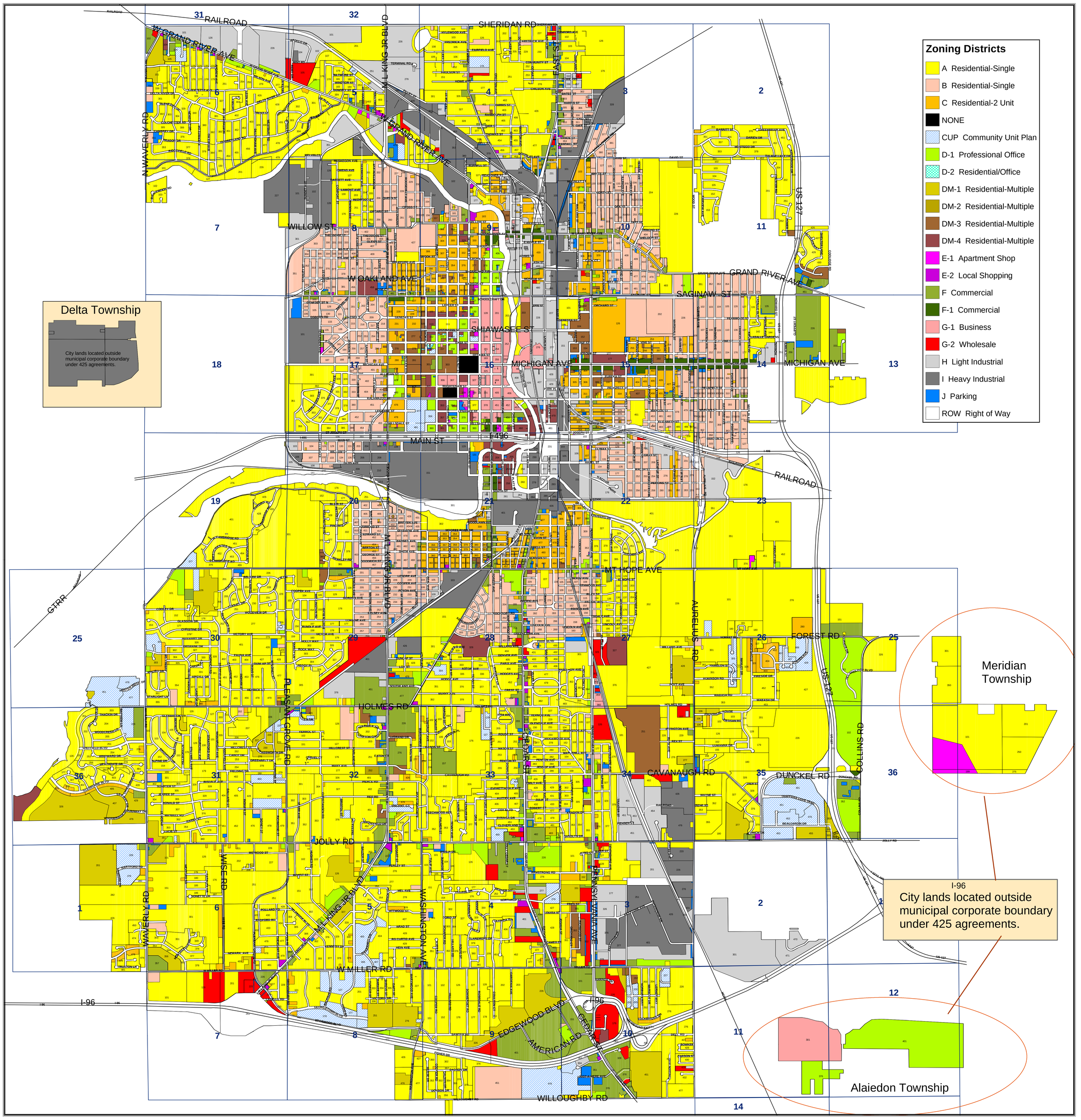
Sample Types: "N" = normal or parent sample, "FD" = field duplicate sample

Meas Basis - measured basis; T = total, D = dissolved

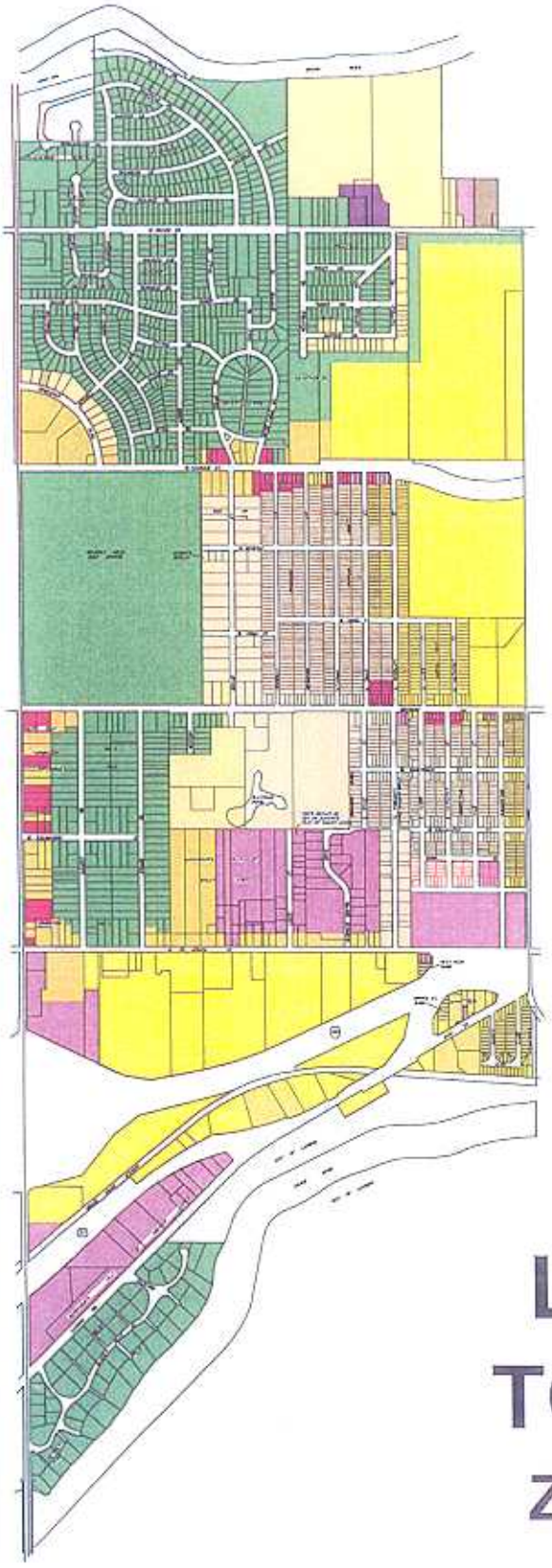
ARCADIS

Area Zoning Maps

City of Lansing
Zoning Map



Prepared by the City of Lansing Planning Office, Planning and Neighbohood Development Office
February 18, 2004
cartographer - John Hodges







ZONING DISTRICT

"A"	RESIDENTIAL (SINGLE FAMILY)
"B"	RESIDENTIAL (SINGLE FAMILY)
"C1"	RESIDENTIAL (MULTI- FAMILY LOW DENSITY)
"C2"	RESIDENTIAL (MULTI-FAMILY INT. DENSITY)
"C3"	RESIDENTIAL (MULTI- FAMILY MEDIUM DENSITY)
"C4"	RESIDENTIAL (MULTI-FAMILY HIGH DENSITY)
"O"	ADMINISTRATION & PROFESSIONAL
"E"	LOCAL BUSINESS
"F"	COMMERCIAL
"G"	GENERAL BUSINESS
"H"	INDUSTRIAL
"PO"	PLANNED DEVELOPMENT

LANSING TOWNSHIP

ZONING MAP

ARCADIS

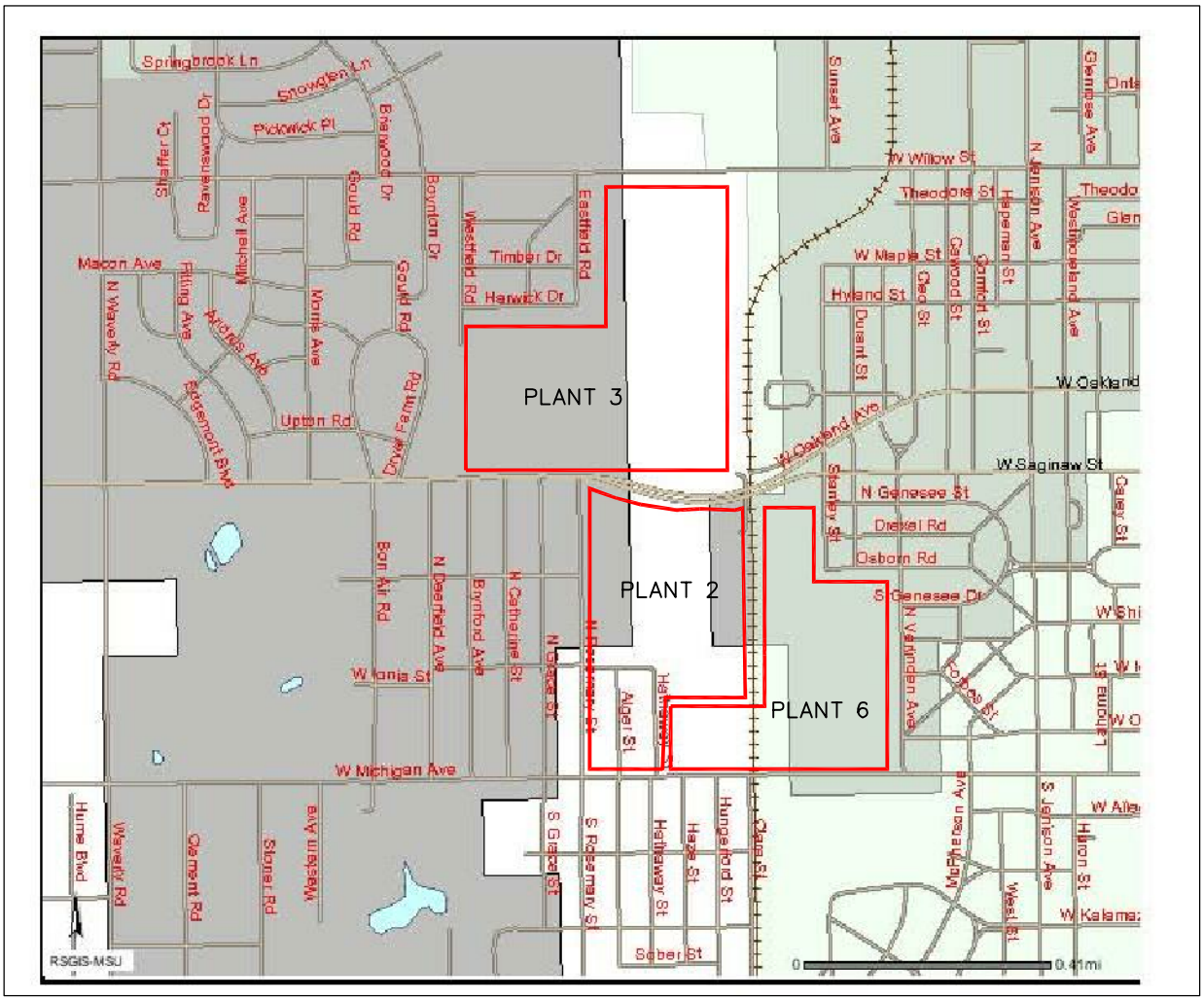
Appendix B

Groundwater Usage Support Data

- Figure B-1 – Wellhead Protection Areas
- LBWL – 2005 Annual Water Quality Report
- LBWL – Analytical Data
- Figure B-2 – Map of LBWL and Township Wells
- LBWL Water Well Logs

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Map of Wellhead Protection Areas



CITY OF LANSING WELLHEAD PROTECTION AREA

TOWNSHIP OF LANSING WELLHEAD PROTECTION AREA

CITY OF LANSING

TOWNSHIP OF LANSING

GENERAL MOTORS CORPORATION
LANSING, MICHIGAN
PLANTS 2, 3, AND 6
CURRENT CONDITIONS REPORT

WELLHEAD PROTECTION AREAS

ARCADIS

FIGURE
B-1

CITY:BRIGHTON DIV/GROUP:85 DB:ADF LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
J:\2008\B0064479\00000\00300\DWG\64479B06.dwg LAYOUT: B-1 SAVED: 7/28/2008 1:46 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: ---PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/28/2008 1:46 PM BY: FOX, AARON
XREFS: IMAGES: PROJECTNAME: ---
city of lansing wellhead.JPG
lansing township wellhead.JPG
lansing wellhead.JPG
map.JPG

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Lansing Board of Water and Light – 2005 Annual Water Quality Report

LANSING BOARD OF WATER & LIGHT

2005 ANNUAL WATER QUALITY REPORT

Dear Customer:

We are pleased to present the eighth annual report summarizing the quality of the drinking water provided to you during the past year. This "Consumer Confidence Report" is required by the Safe Drinking Water Act (SDWA). It tells you where your tap water comes from, what our tests show about it, and includes other things you may wish to know about drinking water.

The BWL is a publicly owned utility. We encourage public interest and participation in our community's decisions affecting drinking water. Our Board of Commissioners meets on the fourth Tuesday of every other month at our Customer Service Center, 1232 Haco Drive in Lansing. Meeting dates and times are published in advance and may be accessed site **here** , or by calling us at 517-702-6006. Our meetings are open to the public.

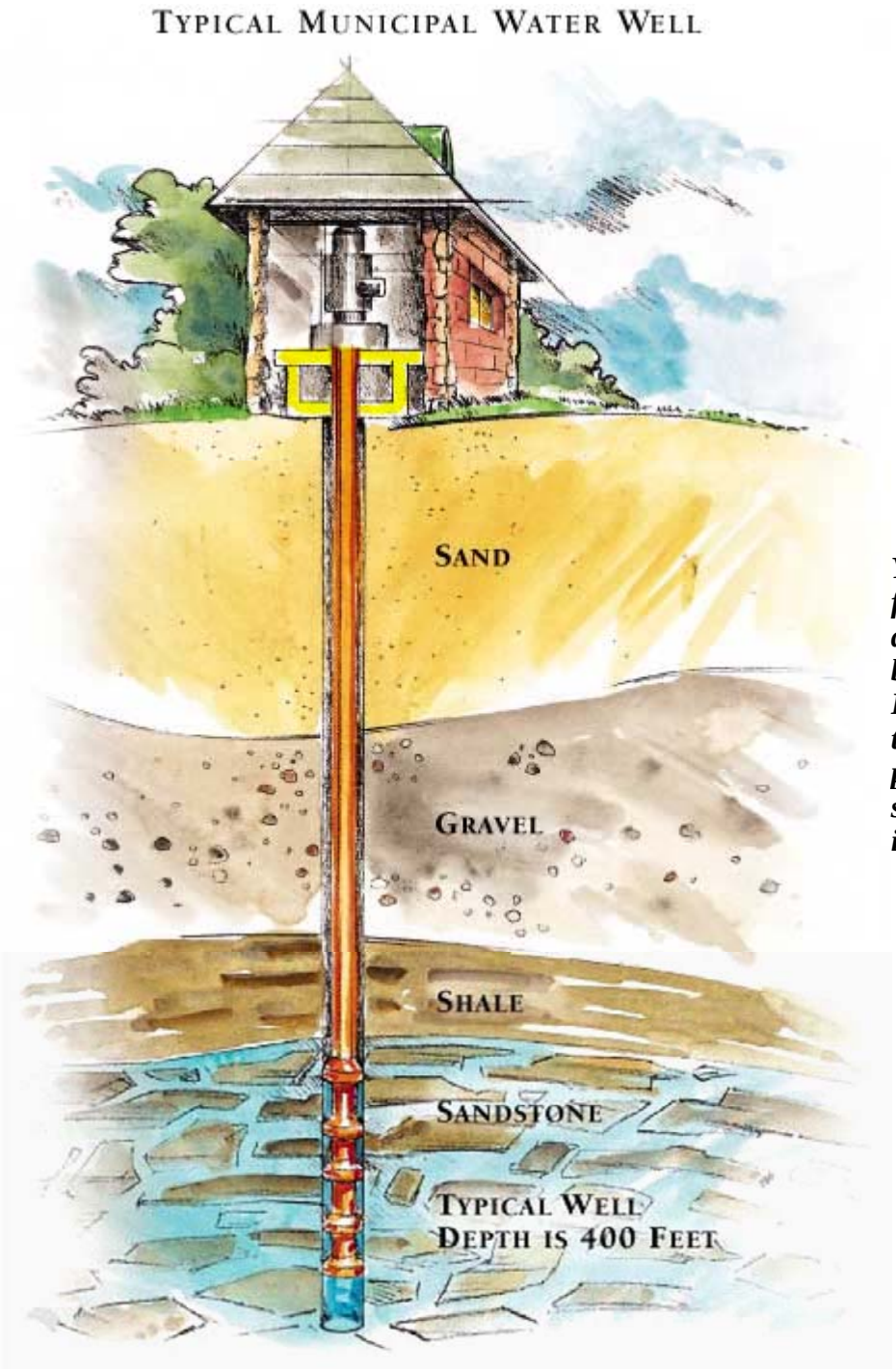
The Bottom Line

During 2005 your drinking water from the BWL met or exceeded all quality standards issued by the U.S. Environmental Protection Agency (EPA) and the Michigan Department of Environmental Quality (MDEQ).

Water Source

Our drinking water comes from 128 wells, drilled about 400 feet into the earth's surface. The source of this plentiful supply is an underground aquifer called the Saginaw Formation, which underlies much of the mid-Michigan region. Water from our wells is transported through large transmission mains to one of two conditioning plants. There, a process removes about 80 percent of the water hardness. The softened water is then chlorinated, fluoridated, filtered and stored in reservoirs for distribution to our customers. Lansing is one of the larger cities in the country to take its

drinking supply entirely from groundwater.



Your drinking water comes from deep water wells, drilled about 400 feet beneath the earth's surface. From here, it's transported to central conditioning plants where the water is softened, treated and stored in reservoirs.

Virtually all the Lansing area's drinking water comes from deep water wells, but the BWL's water conditioning plants greatly improve

water quality. Here at the John Dye Water Conditional Plant, a process removes 80 percent of the water hardness, producing a fresh, good-tasting drinking water that's also easy on your dishes and laundry.



Protecting Your Water Supply

Lansing's drinking water source is shielded in most places from direct contact with the surface by layers of clay and shale, so contaminants don't easily reach it. There are areas at the surface, however, that directly contribute to the aquifer without the benefit of clay and shale filtration. During 2003, the MDEQ conducted an assessment of the vulnerability of our aquifer to impacts from human activities. Because there are several known and potential sources of contamination in and near the BWL's wellhead protection areas, the aquifer in this region has been assessed as "highly susceptible" to contamination. If you desire more information on this local Source Water Assessment, contact Bill Maier, Water Quality Administrator, at 517-702-6813.

Important Information About Lead

Lead is a common, naturally occurring metal that is found throughout the environment in lead-based paint, as well as air, soil, household dust, and, sometimes, water. Lead can pose a significant risk to your health if too much of it enters your body.

Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination – like dirt and dust – that rarely affects an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

Lead in Drinking Water

Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formula and concentrated juices that are mixed with water. EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

How Lead Enters Our Water

There is no detectable lead in BWL drinking water when it leaves our conditioning plants. But, since water is naturally corrosive, small amounts of lead can dissolve into your drinking water if your water sits for several hours in plumbing, fixtures or service lines that contain lead. Lead levels in drinking water are likely to be highest:

- In homes with lead service lines connecting the water main to the house

- In homes with lead indoor plumbing
- In homes that have copper plumbing with lead solder
- In homes that have brass fixtures.

Lead Service Lines

From the early 20th century through the early 1950s the BWL and other water utilities across the country commonly used lead service lines to deliver water from the distribution mains to individual customers. In 2004 our Board of Commissioners made a decision to remove all of the estimated 14,000 lead service lines in our system over the next 10 years, even though we're in compliance with the EPA's lead regulations and are not required to take this action. We simply believe it's in the best interest of our customers and our utility to get lead service lines out of our system.

Protecting Against Lead Exposure

The EPA provides the following guidelines for minimizing exposure to lead in drinking water.
1. Flush your pipes before drinking, and only use cold water for consumption. Any time the water in a particular faucet has not been used for six hours or longer, flush your cold-water pipes by running the water until it becomes as cold as it will get. This could take as little as five to 30 seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer. The more time water has been sitting in your home's pipes, the more lead it may contain.

While this advice is appropriate for customers with standard copper service lines, tests conducted for the BWL by a national consulting firm have concluded that **customers with lead service lines should flush their water longer.** Customers with lead service lines should flush their water for seven minutes before using water for drinking or cooking if the water has been sitting idle in plumbing for six hours or longer. Following high-water usage, such as bathing or washing clothes, flush pipes for at least two minutes. Due to this longer flushing requirement, the BWL provides free water filters and replacement cartridges to its customers with lead service lines.

2. Use only water from the cold-water tap for drinking, cooking, and especially for making baby formula. Hot water is likely to contain higher levels of lead.

The actions recommended above are very important to the health of your family. They will reduce lead levels because most of the lead in household water comes from the plumbing in your house or, if you have one, the lead service line serving your house, not from the local water supply.

Monitoring results for lead can be found on page 3 of this report under the heading, "Substances We Measured in Homes and Businesses." A new round of lead monitoring will be conducted in 2005 and every year thereafter until all lead service lines are removed from the BWL system.

How to Read These Tables

The following tables show the results of our water quality tests. Every regulated contaminant we detected in the water, even in the smallest traces, is listed here. The tables contain the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected, the usual sources of such contamination, footnotes explaining our findings and a key to units of measurement.

The state allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All the data are representative of the water quality, but some are more than a year old.

The tables do not list the hundreds of contaminants we tested for but did not detect.

Key to Table

AL **Action Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

MCL **Maximum Contaminant Level:** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the **MCLGs** as feasible using the best available treatment technology.

MCLG **Maximum Contaminant Level Goal:** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL **Maximum Residual Disinfectant Level:** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG **Maximum Residual Disinfectant Level Goal:** The level of a disinfectant in drinking water below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

PPM **Parts Per Million,** or milligrams per liter (mg/l)

PPB **Parts Per Billion,** or micrograms per liter (ug/l)

SUBSTANCES WE MEASURED AT THE WATER CONDITIONING PLANT

Substance	Unit	MCL	MCLG	Highest Detected Level	Range	Major Sources	Violation?
Barium	PPM	2	2	0.033	0.030 to 0.033	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	No
Fluoride	PPM	4	4	0.9	0.9 to 0.9	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	No
Nitrite	PPM	1	1	0.061	0.059 to 0.061	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	No

SUBSTANCES WE MEASURED IN HOMES AND BUSINESSES

Substance	Unit	AL	9 out of 10 homes were below a level of:	Number of samples above the action	Major Sources	Violation?

				level:		
Copper	PPM	*1.3 at 90th percentile	0.05	0	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	No
Lead	PPB	**15 at 90th percentile	11.3	10	Corrosion of household plumbing systems; erosion of natural deposits	No

Water Quality Table Footnotes:
*9 out of 10 homes tested must show a concentration equal to or lower than 1.3 parts per million.
**9 out of 10 homes tested must show a concentration equal to or lower than 15 parts per billion

Infants and young children are typically more vulnerable to lead in drinking water than is the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to two minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791). Tests at our conditioning plants detect no copper or lead in your water before it's sent to you. Typically, if these substances enter your water they do so through your indoor plumbing system or, if you have one, a lead water service line. Our water conditioning process naturally provides some corrosion protection to prevent this.

If you're concerned about possible lead content in your tap water, there are precautions you can take to minimize exposure:

1. Any time the water in a particular faucet has not been used for six hours or longer, flush your cold-water pipes by running the water until it becomes as cold as it will get. This could take as little as five to 30 seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer. The more time water has been sitting in your home's pipes, the more lead it may contain. Customers with lead service lines should flush their pipes longer. Customers with lead service lines should flush their water for seven minutes before using water for drinking or cooking if the water has been sitting idle in the plumbing for six hours or longer. Even after heavy water use, such as flushing, bathing or washing clothes, a water tap used for drinking should also be flushed until the water turns cold. As an alternative, use filtered water for drinking or cooking. The BWL offers free water filters and replacement cartridges to customers with lead service lines.
2. Use only water from the cold-water tap for drinking, cooking, and especially for making baby formula. Hot water is likely to contain higher levels of lead.

If you're concerned about lead, have the water tested. Arrangements can be made for water testing through the Ingham County Health Department at 517-887-4312. A test costs about $20. Or, you may choose to install a water filter that is NSF- certified for lead removal. If a water filter is installed, replace filters at least as often as recommended by the manufacturer.

SUBSTANCES WE MEASURED IN THE DISTRIBUTION SYSTEM

Substance	Unit	MCL	MCLG	Highest Detected Level	Major Sources	Violation?
Total Coliform	Samples	Presence in less than 5% of samples taken on a monthly basis	0	1.0%	Naturally present in the environment	No

Disinfectants and Disinfection By-Products

The BWL adds chloramine to its water at the conditioning plant to protect against bacterial growth. We use chloramine rather than other disinfectant options because it minimizes the number and level of chlorination by-products, persists better in the distribution system, and leaves little or no unpleasant odor and taste. The following table lists the chloramine levels and disinfectant by-products created by the reaction of our chloramine treatment and naturally occurring organic compounds. The chloramine levels were measured at the water plant tap and the disinfectant by-products were measured in the distribution system.

Substance	Unit	MCL	MCLG	Average Detected Level	Range of Detected Levels	Major Sources	Violation?
Haloacetic Acids (HAA5)	PPB	60	60	2.7	Less than 1 to 3.9	By-product of drinking water chlorination	No
Total Trihalomethanes (THMs)	PPB	80	80	4.0	2.5 to 6.4	By-product of drinking water chlorination	No
Chloramine	PPM	4	4	2.1	1.1 to 2.9	Water additive used to control microbes	No

Unregulated Contaminants

Unregulated contaminants are those that have no MCL or MCLG but are monitored for the purpose of providing information to MDEQ and EPA on their occurrence.

Substance	Unit	Average Detected Level	Lowest Detected Level	Highest Detected Level	Major Source	Violation?
Sodium	PPM	79	47	110	Natural constituent of groundwater	No

Cryptosporidium: We tested for Cryptosporidium in 2000 and did not detect any. Cryptosporidium is a microbial pathogen occasionally found in surface waters. If ingested it can cause cryptosporidiosis, a gastrointestinal infection with symptoms of cramping, nausea or diarrhea. Cryptosporidium can be spread by means other than drinking water. It is not a concern for water systems like ours, which draw drinking water from deep wells.

Radon: We last monitored for radon in 2000. The results were between 140 and 150 picoCuries per liter (pCi/l). This is a relatively low level for groundwater, which contains radon gas that has dissolved into the water from surrounding soils. A proposed EPA Rule for radon, since withdrawn, would have established maximum contaminant levels of between 300 to 4,000 pCi/l for public water supplies. Radon is a radioactive gas that you can't see, taste, or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will, in most cases, be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned

about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 pCi/l or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, call your state radon program or EPA's Radon Hotline (800-SOS-RADON)

Radium 226 and 228: We monitored for both radium 226 and radium 228 in 2003 and did not detect either.

General Health Information Provided by EPA

To ensure that tap water is safe to drink, EPA prescribes limits on the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

A. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

B. Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

C. Pesticides and herbicides, which may come from a variety of sources such as agriculture, stormwater runoff and residential uses.

D. Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, can also come from gas stations, urban stormwater runoff and septic systems.

E. Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than is the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline (800-426-4791).

National Primary Drinking Water Regulation Compliance

For more information about our water quality, please contact Water Quality Administrator Bill Maier at 517-702-6813. Learn more about the Lansing Board of Water & Light water system **here**. For more information about safe drinking water, visit the U.S. Environmental Protection Agency (EPA) at **www.epa.gov/safewater/**.

ARCADIS

Lansing Board of Water and Light
– Analytical Data

Responder's Notes

The data attached can be considered composites of the well water sent to the Water Conditioning Plants over the period July 1998 through June 1999. The most representative data for the requester's purpose would be the data labeled "Dye North Raw, at the top of each two-sided page.

Please do not hesitate to call or email if you have any questions.

Sincerely,

Bill Maier
Environmental, Health and Safety Section
Board of Water and Light
P.O. Box 13007
Lansing, MI 48901-3007
Office: 517-702-6813
Fax: 517-702-6373
Mobile: 517-331-6813
email: wfm@lbwl.com

TYPICAL PLANT INFLUENT CHEMICAL ANALYSIS
DYE NORTH RAW
DYE SOUTH RAW
WISE COMBINED RAW

Data from monthly sample July 1998 - June 1999 by Environmental Services Department

DYE NORTH RAW

	pH	Conductiv us/cm	Tot Alk mg/l as CaCO3	Tot Hard mg/l as CaCO3	Ammonia mg/l as N-NH3	Turbidity NTU	Sulfate mg/l	Chloride mg/l
1998 Jul	7.1	790	320	390		LT 0.10	64	29
1998 Aug	7.2	770	330	440		LT 0.10	95	24
1998 Sep	7.2	820	320	470		LT 0.10	94	23
1998 Oct	7.3	830	320	430		LT 0.10	90	23
1998 Nov	7.2	820	320	380		0.13	99	24
1998 Dec	7.2	830	320	420		0.14	99	27
1999 Jan	7.1	840	330	460		LT 0.10	95	27
1999 Feb	7.4	730	320	380		LT 0.10	59	19
1999 Mar	7.3	750	320	380		0.14	61	22
1999 Apr	7.3	680	300	310		LT 0.10		
1999 May	7.3	780	310	430		LT 0.10	79	22
1999 Jun	7.5	780	320	420		0.15	70	27

DYE SOUTH RAW

	pH	Conductiv us/cm	Tot Alk mg/l as CaCO3	Tot Hard mg/l as CaCO3	Ammonia mg/l as N-NH3	Turbidity NTU	Sulfate mg/l	Chloride mg/l
1998 Jul	7	1200	350	560		LT 0.10	170	97
1998 Aug	7.2	910	330	450		LT 0.10	99	65
1998 Sep	7.2	840	320	390		LT 0.10	66	42
1998 Oct	7.4	720	300	370		LT 0.10	39	28
1998 Nov	7.2	800	310	400		0.15	58	41
1998 Dec	7.3	840	310	390		0.11	71	45
1999 Jan	7.3	850	320	390		0.13	65	53
1999 Feb	7.4	800	310	370		0.15	55	40
1999 Mar	7.3	890	330	410		LT 0.10	75	64
1999 Apr	7.2	880	320	450		0.12		
1999 May	7.2	950	320	440		0.11	110	60
1999 Jun	7.3	1100	340	570		LT 0.10	120	77

	Copper ug/l	Iron mg/l	Antimony ug/l	Arsenic ug/l	Lead ug/l	Selenium ug/l	Thallium ug/l	Mercury ug/l
1998 Jul	LT 20	0.14	LT 2.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1998 Aug	92	0.44	LT 2.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1998 Sep	84	0.49	LT 2.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1998 Oct	36	0.42	LT 5.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1998 Nov	36	0.7	LT 5.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1998 Dec	510	0.65	LT 5.0	LT 5.0	8.7	LT 5.0	LT 2.0	LT 0.2
1999 Jan	30	0.42	LT 5.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1999 Feb	28	0.22	LT 5.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1999 Mar	65	0.31	LT 2.0	1.1	LT 3.0	LT 1.0	LT 2.0	LT 0.2
1999 Apr	24	0.68	LT 2.0	LT 1.0	LT 3.0	LT 1.0	LT 2.0	LT 0.21
1999 May	30	0.51	LT 1.2	LT 5.0	LT 3.0	LT 5.0	LT 0.50	LT 0.21
1999 Jun	37	0.32	LT 1.2	LT 5.0	LT 3.0	LT 5.0	LT 0.50	LT 0.20

	Copper ug/l	Iron mg/l	Antimony ug/l	Arsenic ug/l	Lead ug/l	Selenium ug/l	Thallium ug/l	Mercury ug/l
1998 Jul	69	0.64	LT 2.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1998 Aug	94	0.66	LT 2.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1998 Sep	44	0.95	LT 2.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1998 Oct	50	0.85	LT 5.0	LT 5.0	3.4	LT 5.0	LT 2.0	LT 0.2
1998 Nov	490	0.92	LT 5.0	LT 5.0	14.8	LT 5.0	LT 2.0	LT 0.2
1998 Dec	180	0.96	LT 5.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	
1999 Jan	LT 20	0.7	LT 5.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1999 Feb	LT 20	0.72	LT 5.0	LT 5.0	LT 3.0	LT 5.0	LT 2.0	LT 0.2
1999 Mar	LT 20	0.24	LT 2.0	LT 1.0	LT 3.0	LT 1.0	LT 2.0	LT 0.2
1999 Apr	LT 20	0.9	4	LT 1.0	LT 3.0	LT 1.0	LT 2.0	LT 0.21
1999 May	LT 20	0.69	LT 1.2	LT 5.0	LT 3.0	LT 5.0	LT 0.5	LT 0.21
1999 Jun	27	0.7	LT 1.2	LT 5.0	LT 3.0	LT 5.0	LT 0.5	LT 0.20

	Cyanide mg/l	Aluminum ug/l	Barium ug/l	Beryllium ug/l	Calcium mg/l	Cadmium ug/l	Chromium ug/l	Magnesium mg/l
1998 Jul	LT 0.005	45	160	LT 1.0	94	LT 1.0	LT 5.0	
1998 Aug	LT 0.005	59	160	LT 1.0	110	LT 1.0	LT 5.0	
1998 Sep	LT 0.005	66	150	LT 1.0	110	LT 1.0	LT 5.0	
1998 Oct	LT 0.2	64	160	LT 0.10	110	LT 0.50	LT 5.0	44
1998 Nov	LT 0.02	65	160	LT 0.10	97	LT 0.50	LT 5.0	37
1998 Dec	LT 0.005	55	150	LT 0.10	99	LT 0.50	LT 5.0	38
1999 Jan	LT 0.05	64	160	LT 0.10	100	LT 0.50	LT 5.0	38
1999 Feb	LT 0.005	68	160	LT 0.10	88	LT 0.50	LT 5.0	33
1999 Mar	LT 0.2	55	190	LT 1.0	88	LT 0.2	LT 10	32
1999 Apr	LT 0.005	LT 20	180	LT 1.0	83	LT 0.2	LT 10	32
1999 May	LT 0.005	140	250	LT 0.50	91	LT 2.4	LT 4.2	36
1999 Jun	LT 0.005	110	270	LT 0.50	96	LT 2.4	LT 4.2	34

	Amenable Cyanide mg/l	Aluminum ug/l	Barium ug/l	Beryllium ug/l	Calcium mg/l	Cadmium ug/l	Chromium ug/l	Magnesium mg/l
1998 Jul	LT 0.005	80	140	LT 1.0	140	LT 1.0	LT 5.0	
1998 Aug	LT 0.005	60	160	LT 1.0	120	LT 1.0	LT 5.0	
1998 Sep	LT 0.005	100	160	LT 1.0	110	LT 1.0	LT 5.0	
1998 Oct	LT 0.2	45	150	LT 0.10	89	LT 0.50	LT 5.0	34
1998 Nov	LT 0.02	59	160	LT 0.10	92	LT 0.50	11	32
1998 Dec	LT 0.005	67	150	LT 0.10	98	LT 0.50	LT 5.0	34
1999 Jan	LT 0.05	65	160	LT 0.10	93	LT 0.50	LT 5.0	33
1999 Feb	LT 0.005	62	170	LT 0.10	93	LT 0.50	LT 5.0	32
1999 Mar	LT 0.2	LT 20	190	LT 1.0	100	LT 0.2	LT 10	34
1999 Apr	LT 0.005	62	200	LT 1.0	100	LT 0.2	LT 10	36
1999 May	LT 0.005	120	280	LT 0.5	110	LT 2.4	LT 4.2	40
1999 Jun	LT 0.005	110	280	LT 0.5	120	LT 2.4	LT 4.2	42

	Manganese mg/l	Nickel ug/l	Silver ug/l	Sodium mg/l	Total Zinc ug/l	THM ug/l
1998 Jul		54		12		
1998 Aug		LT 50		14		
1998 Sep		LT 50		15		
1998 Oct		LT 54		16		
1998 Nov		LT 54		15		
1998 Dec		LT 54		17		
1999 Jan		LT 54		16		
1999 Feb		LT 25		14		
1999 Mar		LT 25	LT 0.2	11		
1999 Apr		LT 25	LT 0.2	9.1		
1999 May		LT 25	LT 5.0	13		
1999 Jun		27	LT 5.0	13		

	Manganese mg/l	Nickel ug/l	Silver ug/l	Sodium mg/l	Total Zinc ug/l	THM ug/l
1998 Jul		86		42		
1998 Aug		LT 50		27		
1998 Sep		LT 50		22		
1998 Oct		LT 54		17		
1998 Nov		LT 54		18		
1998 Dec		LT 54		21		
1999 Jan		LT 54		23		
1999 Feb		LT 25		20		
1999 Mar		LT 25	LT 0.2	26		
1999 Apr		LT 25	LT 0.2	25		
1999 May		LT 25	LT 5.0	25		
1999 Jun		40	LT 5.0	37		

	Other Organics ug/l
1998 Jul	
1998 Aug	
1998 Sep	
1998 Oct	ND
1998 Nov	ND
1998 Dec	
1999 Jan	
1999 Feb	ND
1999 Mar	ND
1999 Apr	ND
1999 May	ND
1999 Jun	ND

	Other Organics ug/l
1998 Jul	
1998 Aug	
1998 Sep	
1998 Oct	ND
1998 Nov	ND
1998 Dec	
1999 Jan	
1999 Feb	1,2 methylene chloride
1999 Mar	ND
1999 Apr	ND
1999 May	ND
1999 Jun	ND

ARCADIS

Map of LBWL and Township Wells





Locator Map



GENERAL MOTORS CORPORATION – LANSING, MI
PLANTS 2, 3 AND 6
CURRENT CONDITIONS REPORT

MAP OF LBWL AND TOWNSHIP WELLS

ARCADIS

APPENDIX

B-2

ARCADIS

LBWL Water Well Logs

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 19000002017 **Import ID**: 19050336004

Tax No:	**Permit No**:	**County**: Clinton	**Township**: Watertown

Well ID: 19000002017

Elevation: 850 ft

Latitude: 42.7700024878

Longitude: -84.6032661191

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ SE¼ SE¼	36	05N 03W		

Distance and Direction from Road Intersection: SW CORNER WAVERLY & GND RVER

Well Name:

Well Owner: Glosovatz, Joseph

Well Address:	**Owner Address**:
3439 WAVERLY RD. LANSING MI 48917	3439 WAVERLY RD. LANSING MI 48917

Drilling Method: Rotary

Well Depth: 185.00 ft. **Well Use**: Household

Well Type: Replacement **Date Completed**: 6/10/1972

Casing Type: Steel - black
Casing Joint: Threaded & coupled
Diameter: 4.00 in. to 94.00 ft. depth

Bore Diameter 1: 0.00 in. to 85.00 ft. depth
Bore Diameter 2:
Bore Diameter 3:
Height: 1.00 ft. above grade
Casing Fitting: Drive shoe

Static Water Level: 60.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
0.00 ft. after 0.00 hrs. pumping at 35.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Other From 0.00 ft. to 0.00 ft.

Well Head Completion: Pitless adapter

Nearest source of possible contamination:

Type	**Distance**	**Direction**
None		South

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Red Jacket **Pump Type**: Submersible
Model Number: **Pump Capacity**: 0.00 GPM
Length of Drop Pipe: 84.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay	12.00	12.00
Sand & Gravel	20.00	32.00
Gravel	53.00	85.00
Sandstone	100.00	185.00

Geology Remarks: 1. [CLAY] [12] [12] 2. [SAND & GRAVEL] [32] [20] 3. [GRAVEL] [85] [53] 4. [SANDROCK] [185] [100]

Contractor Type: Unknown
Registration Number: 676
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks:

OTHER REMARKS **Grouting Material 1**: Listed as other in Wellkey

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 03:20

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 23000000122 **Import ID**: 23040312401

Tax No:	**Permit No**:	**County**: Eaton	**Township**: Delta

Well ID: 23000000122

Elevation: 836 ft

Latitude: 42.748448

Longitude: -84.603855

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ SE¼ NE¼	12	04N 03W		2026123

Distance and Direction from Road Intersection: 2026123 GRACE BRETHREN CHURCH

Well Name: 001

Well Owner: Grace Brethren Church

Well Address:
MI

Owner Address:
3904 W. WILLOW HWY.
LANSING MI 48917

Drilling Method: Unknown

Well Depth: 0.00 ft. **Well Use**: Other

Well Type: Replacement **Date Completed**:

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 1.00 ft. above grade
Casing Fitting: None

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	**Thickness**	**Depth to Bottom**
No Lithology Information	0.00	0.00

Geology Remarks: 1. [No Lithology Information] [0] [0]

Contractor Type: Unknown
Registration Number:
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: NO LOG EXISTS AS OF 9/14/98
OTHER REMARKS **Well Use**: Closed Type 2

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 04:19

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 23000005485 **Import ID**: 23040301001

Tax No:	**Permit No**:	**County**: Eaton	**Township**: Delta

Well ID: 23000005485

Elevation: 822 ft

Latitude: 42.7636640281

Longitude: -84.6130029931

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SE¼ NW¼	1	04N 03W		

Distance and Direction from Road Intersection:

Well Name:

Well Owner: Gloria Corey

Well Address:	**Owner Address**:
DELTA RIVER DR LANSING MI 48917	DELTA RIVER DR LANSING MI 48917

Drilling Method: Rotary

Well Depth: 160.00 ft. **Well Use**: Household

Well Type: New **Date Completed**:

Casing Type: Steel - black
Casing Joint: Threaded & coupled
Diameter: 4.00 in. to 72.00 ft. depth

Bore Diameter 1: Unknown in. to
Bore Diameter 2:
Bore Diameter 3:
Height: 1.00 ft. above grade
Casing Fitting: Drive shoe

Static Water Level: 33.00 ft. Above Grade(Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: Yes **Well Intake**:
Filter Packed: No
Screen Diameter: 0.00 in. **Length**: 0.00 ft.
Screen Material Type:
Slot: 0.00 in. Set Between 0.00 ft. and 0.00 ft.
Blank: 0.00 ft. Above
Fittings:
None

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Other From 0.00 ft. to 0.00 ft.

Well Head Completion: Pitless adapter

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Sewer line	50.00 ft.	South

Drilling Machine Operator Name: KLEINFELT

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**: 0.75
Manufacturer: Other **Pump Type**: Submersible
Model Number: **Pump Capacity**: 10.00 GPM
Length of Drop Pipe: 42.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay	27.00	27.00
Sand & Clay	12.00	39.00
Clay	28.00	67.00
Sandstone	93.00	160.00

Geology Remarks: CLAY. [27] [10] [27] SAND AND CLAY. [12] [25] [39] CLAY. [28] [10] [67] SAND ROCK. [93] [50] [160]

Contractor Type: Unknown
Registration Number: 107
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks:

OTHER REMARKS **Grouting Material 1**: Unknown **Pump Manufacturer**: FLINT & WALLING

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

1/29/2001 13:06

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 23000005495 **Import ID**: 23040301015

Tax No:	**Permit No**:	**County**: Eaton	**Township**: Delta

Well ID: 23000005495

Elevation: 849 ft

Latitude: 42.7686658965

Longitude: -84.6165002022

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ SE¼ SE¼	1	04N 03W		

Distance and Direction from Road Intersection:

Well Name:

Well Owner: Bleisener & Sons

Well Address:	**Owner Address**:
4767 CLYDESDALE LANSING MI 48917	LANSING MI 48917

Drilling Method: Rotary

Well Depth: 180.00 ft. **Well Use**: Household

Well Type: New **Date Completed**: 10/18/1966

Casing Type: Steel - black
Casing Joint: Threaded & coupled
Diameter: 4.00 in. to 98.00 ft. depth

Bore Diameter 1: Unknown in. to
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: Drive shoe

Static Water Level: 41.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
60.00 ft. after 2.00 hrs. pumping at 25.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: Yes **Well Intake**:
Filter Packed: No
Screen Diameter: 0.00 in. **Length**: 0.00 ft.
Screen Material Type:
Slot: 0.00 in. Set Between 0.00 ft. and 0.00 ft.
Blank: 0.00 ft. Above
Fittings:
None

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Bentonite slurry From 0.00 ft. to 0.00 ft.

Well Head Completion: Pitless adapter

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Sewer line	50.00 ft.	Northwest

Drilling Machine Operator Name: HART WELL DRILLING

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**: 0.75
Manufacturer: Red Jacket **Pump Type**: Submersible
Model Number: **Pump Capacity**: 14.00 GPM
Length of Drop Pipe: 60.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Brown Clay	8.00	8.00
Gray Clay & Stones	7.00	15.00
Gray Clay & Gravel	15.00	30.00
Gray Clay & Sand	30.00	60.00
Gray Clay	28.00	88.00
Gravel	4.00	92.00
Sandstone & Shale White	6.00	98.00
Sandstone	32.00	130.00
Sandstone W/Shale	50.00	180.00

Geology Remarks: BROWN CLAY. [8] [10] [8] GREY CLAY & STONES. [7] [19] [15] GREY CLAY & GRAVEL. [15] [17] [30] GREY CLAY & SAND STRIPS. [30] [13] [60] GREY CLAY. [28] [10] [88] GRAVEL. [4] [30] [92] SANDSTONE & WHITE SHALE. [6] [52] [98] SANDSTONE. [32] [50] [130] SANDSTONE WITH SHALE STRIPS. [50] [52] [180]

Contractor Type: Unknown
Registration Number: 522
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks:

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

1/29/2001 13:07

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 23000005496 **Import ID**: 23040301016

Tax No:	**Permit No**:	**County**: Eaton	**Township**: Delta

Well ID: 23000005496

Elevation: 847 ft

Latitude: 42.7664997705

Longitude: -84.6125018587

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ SE¼ SE¼	1	04N 03W		

Distance and Direction from Road Intersection:

Well Name:

Well Owner: Loren Boyes

Well Address:	**Owner Address**:
3237 W BROADMOOR GRAND LEDGE MI 48837	2321 DILLINGHAM LANSING MI 48917

Drilling Method: Rotary

Well Depth: 200.00 ft. **Well Use**: Household

Well Type: New **Date Completed**: 9/19/1966

Casing Type: Steel - black
Casing Joint: Threaded & coupled
Diameter: 4.00 in. to 111.00 ft. depth

Bore Diameter 1: Unknown in. to
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: Drive shoe

Static Water Level: 45.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
0.00 ft. after 0.00 hrs. pumping at 60.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: Yes **Well Intake**:
Filter Packed: No
Screen Diameter: 0.00 in. **Length**: 0.00 ft.
Screen Material Type:
Slot: 0.00 in. Set Between 0.00 ft. and 0.00 ft.
Blank: 0.00 ft. Above
Fittings:
None

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Pitless adapter

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name: DAILY & JACKSON

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**: 1.00
Manufacturer: Aermotor **Pump Type**: Submersible
Model Number: **Pump Capacity**: 0.00 GPM
Length of Drop Pipe: 77.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Gravel & Clay	30.00	30.00
Sand Wet/Moist	15.00	45.00
Gravel & Clay	45.00	90.00
Gravel	5.00	95.00
Gravel & Clay	5.00	100.00
Unidentified Consolidated Fm W/Shale	30.00	130.00
Unidentified Consolidated Fm	70.00	200.00

Geology Remarks: GRAVEL AND CLAY. [30] [17] [30] WATER SAND. [15] [29] [45] GRAVEL AND CLAY. [45] [17] [90] GRAVEL. [5] [30] [95] GRAVEL AND CLAY. [5] [17] [100] ROCK AND SHALE. [30] [52] [130] ROCK. [70] [59] [200]

Contractor Type: Unknown
Registration Number: 390
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks:

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

1/29/2001 13:07

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 23000005500 **Import ID**: 23040301020

Tax No: 23040072600140	**Permit No**:	**County**: Eaton	**Township**: Delta

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SE¼ NW¼	1	04N 03W		

Well ID: 23000005500

Elevation: 840 ft

Latitude: 42.7656202533

Longitude: -84.6132956551

Distance and Direction from Road Intersection:

Well Name:

Well Owner: Donald A Drake

Well Address:	**Owner Address**:
3152 E BROADMOOR LANSING MI 48906	3152 E BROADMOOR LANSING MI 48906

Drilling Method: Rotary

Well Depth: 200.00 ft. **Well Use**: Household

Well Type: Replacement **Date Completed**: 8/6/1992

Casing Type: PVC plastic
Casing Joint: Welded
Diameter: 5.00 in. to 107.00 ft. depth

Bore Diameter 1: 8.00 in. to 25.00 ft. depth
Bore Diameter 2:
Bore Diameter 3:
Height: 1.00 ft. above grade
Casing Fitting: None

Static Water Level: 40.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
51.00 ft. after 2.00 hrs. pumping at 20.00 GPM

Abandoned Well Plugged: Yes
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: Yes **Well Intake**:
Filter Packed: No
Screen Diameter: 0.00 in. **Length**: 0.00 ft.
Screen Material Type:
Slot: 0.00 in. Set Between 0.00 ft. and 0.00 ft.
Blank: 0.00 ft. Above
Fittings:
None

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Bentonite slurry From 0.00 ft. to 25.00 ft.

Well Head Completion: Pitless adapter

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Septic tank	30.00 ft.	West

Drilling Machine Operator Name: JACK PERU

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**: 0.50
Manufacturer: Red Jacket **Pump Type**: Submersible
Model Number: **Pump Capacity**: 10.00 GPM
Length of Drop Pipe: 80.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay & Sand	34.00	34.00
Gravel & Sand	42.00	76.00
Clay	11.00	87.00
Sandstone	20.00	107.00
Sandstone & Shale	93.00	200.00

Geology Remarks: CLAY & SAND. [34] [16] [34] GRAVEL & SAND. [42] [32] [76] CLAY. [11] [10] [87] SANDROCK. [20] [54] [107] SANDROCK & SHALE. [93] [54] [200]

Contractor Type: Unknown
Registration Number: 383
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks:

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

1/29/2001 13:07

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 23000005501 **Import ID**: 23040301021

Tax No: 23040059000030	**Permit No**:	**County**: Eaton	**Township**: Delta

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ SE¼ NW¼	1	04N 03W		

Well ID: 23000005501

Elevation: 828 ft

Latitude: 42.7633983908

Longitude: -84.6142644456

Distance and Direction from Road Intersection:

Well Name:

Well Owner: Milton Walters

Well Address:	**Owner Address**:
4221 DELTA RIVER DR LANSING MI 48917	4221 DELTA RIVER DR LANSING MI 48917

Drilling Method: Rotary

Well Depth: 155.00 ft. **Well Use**: Household

Well Type: Replacement **Date Completed**: 12/17/1993

Casing Type: PVC plastic
Casing Joint: Welded
Diameter: 5.00 in. to 88.00 ft. depth

Bore Diameter 1: 8.00 in. to 88.00 ft. depth
Bore Diameter 2:
Bore Diameter 3:
Height: 1.00 ft. above grade
Casing Fitting: None

Static Water Level: 24.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
25.00 ft. after 2.00 hrs. pumping at 20.00 GPM

Abandoned Well Plugged: Yes
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: Yes **Well Intake**:
Filter Packed: No
Screen Diameter: 0.00 in. **Length**: 0.00 ft.
Screen Material Type:
Slot: 0.00 in. Set Between 0.00 ft. and 0.00 ft.
Blank: 0.00 ft. Above
Fittings:
None

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Bentonite slurry From 0.00 ft. to 25.00 ft.

Well Head Completion: Pitless adapter

Nearest source of possible contamination:

Type	**Distance**	**Direction**
None		

Drilling Machine Operator Name: JACK PERU

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**: 0.75
Manufacturer: Aermotor **Pump Type**: Submersible
Model Number: **Pump Capacity**: 12.00 GPM
Length of Drop Pipe: 60.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay	7.00	7.00
Clay & Gravel	17.00	24.00
Clay	39.00	63.00
Shale & Sandstone	21.00	84.00
Sandstone	71.00	155.00

Geology Remarks: CLAY. [7] [10] [7] CLAY & GRAVEL. [17] [17] [24] CLAY. [39] [10] [63] SHALE & SANDROCK. [21] [55] [84] SANDROCK. [71] [54] [155]

Contractor Type: Unknown
Registration Number: 383
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks:

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

1/29/2001 13:07

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 23000009145

Tax No:	**Permit No**: 10482	**County**: Eaton	**Township**: Delta

Well ID: 23000009145

Elevation:

Latitude: 42.72844845

Longitude: -84.61614424

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
U¼ U¼ U¼	13	04N 03W		

Distance and Direction from Road Intersection: 150 FEET E. OF STOLL RD

Well Name:

Well Owner: Peter Mora

Well Address: 323 STOLL RD

Owner Address: 323 STOLL RD

Drilling Method: Rotary

Well Depth: 200.00 ft. **Well Use**: Irrigation

Well Type: New **Date Completed**: 7/27/1990

Casing Type: Steel - unknown
Casing Joint: Unknown
Diameter: 5.00 in. to 80.00 ft. depth

Bore Diameter 1: Unknown in. to
Bore Diameter 2:
Bore Diameter 3:
Height: 1.00 ft. above grade
Casing Fitting: None

Static Water Level: 96.00 ft. Below Grade(Not Flowing)
Yield Test Method: Air
Measurement Taken During Pump Test:
140.00 ft. after 47.00 hrs. pumping at 40.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Bedrock Well
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Bentonite slurry From 0.00 ft. to 80.00 ft.

Well Head Completion: 12 inches above grade, Pitless adapter

Nearest source of possible contamination:

Type	**Distance**	**Direction**
None		

Drilling Machine Operator Name: STEVE

Employment: Employee

Pump Installed: Yes **Pump Installation only**: Yes
Pump Installation date: **HP**: 0.75
Manufacturer: Aermotor **Pump Type**: Submersible
Model Number: **Pump Capacity**: 10.00 GPM
Length of Drop Pipe: 140.00 ft. **Id of Well**:
Diameter of Drop Pipe: Unknown in.
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Unknown
Manufacturer: Well-Rite-Flexcon
Model Number : W-80 **Tank Capacity** : 26 Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay	68.00	68.00
Shale	72.00	140.00
Sandstone	60.00	200.00

Geology Remarks:

Contractor Type: Water well drilling contractor
Registration Number: 1783
Business Name: JOHNSON WELL DRILLING
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks:

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

5/25/2004 08:19

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 23000009146

Tax No:	**Permit No**:	**County**: Eaton	**Township**: Delta

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SW¼ NW¼	13	04N 03W		

Well ID: 23000009146

Elevation:

Latitude: 42.73492011

Longitude: -84.62062526

Distance and Direction from Road Intersection: 250 FEET N. OF INTERSECTIONOF W. MICHIGAN & SNOW RD. 1800 FEET E NE OF PW #2

Well Name:

Well Owner: Delta Township

Well Address:

Owner Address:

Drilling Method: Cable Tool

Well Depth: 426.00 ft. **Well Use**: Type I public

Well Type: Unknown **Date Completed**:

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 12.00 in. to 110.00 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height:
Casing Fitting: None

Static Water Level: 62.60 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
55.00 ft. after 8.00 hrs. pumping at 600.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Bedrock Well
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: No **Grouting Method**:
No. of Bags: **Additives**:
Grouting Materials:

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown		
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Muck	5.00	5.00
Sand & Clay	30.00	35.00
Clay & Stones	30.00	65.00
Dark Gray Shale Soft	35.00	100.00
White Sandstone Medium	35.00	135.00
White Shale Silty	5.00	140.00
White Sandstone Medium	85.00	225.00
Gray Shale Silty	15.00	240.00
Gray Sandstone Fine To Medium Silty	5.00	245.00
White Sandstone Medium To Coarse	52.00	297.00
Dark Gray Shale	44.00	341.00
Dark Gray Shale	4.00	345.00
Gray Limestone W/Shale	5.00	350.00
Gray Silt	55.00	405.00
White Sandstone Very Fine	18.00	423.00
Gray Limestone	3.00	426.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 23000009146

Tax No:	**Permit No**:	**County**: Eaton	**Township**: Delta

Well ID: 23000009146

Elevation:

Latitude: 42.73492011

Longitude: -84.62062526

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SW¼ NW¼	13	04N 03W		

Distance and Direction from Road Intersection: 250 FEET N. OF INTERSECTIONOF W. MICHIGAN & SNOW RD. 1800 FEET E NE OF PW #2

Well Name:

Well Owner: Delta Township

Well Address:

Owner Address:

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000000002 **Import ID**: 33040205009

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NE¼ NE¼ SE¼	5	04N 02W		

Well ID: 33000000002

Elevation: 840 ft

Latitude: 42.7616429693

Longitude: -84.5637414729

Distance and Direction from Road Intersection: 20'SW OF FILLEY ST. BTWN DEWITT AND TAYLOR RDS.

Well Name:

Well Owner: C & O Railroad

Well Address:
2000 N. TURNER ST.
LANSING MI

Owner Address:
LANSING MI

Drilling Method: Unknown

Well Depth: 44.00 ft. **Well Use**: Other

Well Type: New **Date Completed**:

Casing Type: Steel - black
Casing Joint: Threaded & coupled
Diameter: 12.00 in. to 0.00 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 19.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance Direction**
Unknown	0.00 ft.
Unknown	

Drilling Machine Operator Name: LAYNE NORTHERN- NESS, HARRY

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**: 5.00
Manufacturer: Other **Pump Type**: Other
Model Number: **Pump Capacity**:
Length of Drop Pipe: 0.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay	14.00	14.00
Clay & Sand Soft	13.00	27.00
Clay Hard	12.00	39.00
Gravel	5.00	44.00

Geology Remarks: 1. [CLAY] [14] [14] 2. [SOFT CLAY AND SAND] [27] [13] 3. [HARD CLAY] [39] [12] 4. [GRAVEL] [44] [5]

Contractor Type: Unknown
Registration Number:
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: WELL DESTROYED JUNE 1952

OTHER REMARKS **Well Use**: Abandoned **Pump Type**: Type Unknown **Pump Manufacturer**: LAYNE NORTHERN

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/16/2000 17:00

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000000125 **Import ID**: 33040206001

Tax No: 330106226001	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000000125

Elevation: 845 ft

Latitude: 42.7667735014

Longitude: -84.5833419676

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ NE¼ NE¼	6	04N 02W		

Distance and Direction from Road Intersection: 8' N AND 30' E OF SE CORNER OF GARAGE BLDG.

Well Name:

Well Owner: Farm Bureau Services, Inc.

Well Address:	**Owner Address**:
3800 N. GRAND RIVER LANSING MI	3800 N. GRAND RIVER LANSING MI

Drilling Method: Unknown

Well Depth: 49.00 ft. **Well Use**: Other

Well Type: New **Date Completed**: 1/13/1948

Casing Type: Steel - black
Casing Joint: Threaded & coupled
Diameter: 8.00 in. to 0.00 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 27.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name: F.C. WILLARS

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Other
Model Number: **Pump Capacity**:
Length of Drop Pipe: 0.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Topsoil	1.00	1.00
Clay Hard W/Gravel	3.00	4.00
Silt & Clay Soft	6.00	10.00
Blue Clay	24.00	34.00
Sand & Gravel	15.00	49.00

Geology Remarks: 1. [TOP SOIL] [1] [1] 2. [CLAY, HARD AND GRAVEL] [4] [3] 3. [SILT, SOFT AND CLAY] [10] [6] 4. [BLUE CLAY] [34] [24] 5. [SAND, GRAVEL] [49] [15]

Contractor Type: Unknown
Registration Number:
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks:

OTHER REMARKS **Well Use**: Commercial **Pump Type**: Type Unknown **Pump Manufacturer**: Pump Manufacturer unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/16/2000 17:51

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006118 **Import ID**: 33040204301

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SW¼ SE¼	4	04N 02W		3760

Well ID: 33000006118

Elevation: 851 ft

Latitude: 42.756011995

Longitude: -84.5515142886

Distance and Direction from Road Intersection: WSSN 03760; 100' E OF TURNER ST. 100' N OF DOUGLAS ST.

Well Name: BWL WELL 25-22

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-22 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 430.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 9/30/1950

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 106.40 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 138.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay & Sand	15.00	15.00
Gray Clay	20.00	35.00
Clay & Gravel	5.00	40.00
Gravel Coarse	13.00	53.00
Black Shale	17.00	70.00
Gray Shale	10.00	80.00
Coal	2.00	82.00
Light Gray Shale	26.00	108.00
Gray Shale	36.00	144.00
Sandstone Fine	1.00	145.00
Sandstone Fine W/Shale	30.00	175.00
Sandstone Fine To Medium	35.00	210.00
Sandstone Medium	10.00	220.00
Sandstone Medium To Coarse	10.00	230.00
Brown Unidentified Consolidated Fm Hard	5.00	235.00
Sandstone Medium	27.00	262.00
Light Brown Sandstone Medium	8.00	270.00
Sandstone Coarse W/Shale	15.00	285.00
Sandstone Medium To Coarse	12.00	297.00
Black Shale & Sandstone	3.00	300.00
Gray Shale	27.00	327.00
Sandstone W/Shale	3.00	330.00
Sandstone Fine W/Shale	5.00	335.00
Gray Shale	5.00	340.00
Shale W/Sandstone Fine	28.00	368.00
Sandstone Fine To Medium W/Shale	20.00	388.00
Sandstone Medium W/Shale	2.00	390.00
Sandstone Medium To Coarse	18.00	408.00
Sandstone Coarse	4.00	412.00
Sandstone Coarse	9.00	421.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006118

Failure to comply is a misdemeanor.

Import ID: 33040204301

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006118

Elevation: 851 ft

Latitude: 42.756011995

Longitude: -84.5515142886

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SW¼ SE¼	4	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 100' E OF TURNER ST. 100' N OF DOUGLAS ST.

Well Name: BWL WELL 25-22

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-22 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom
Brown Unidentified Consolidated Fm Coarse	3.00	424.00
Gray Shale	6.00	430.00

(Continued from Page 1)

Geology Remarks: 1. [CLAY & SAND] [15] [15] 2. [GRAY CLAY] [35] [20] 3. [CLAY & GRAVEL] [40] [5] 4. [COARSE GRAVEL] [53] [13] 5. [BLACK SHALE] [70] [17] 6. [GRAY SHALE] [80] [10] 7. [COAL] [82] [2] 8. [LIGHT GRAY SHALE] [108] [26] 9. [GRAY SHALE] [144] [36] 10. [FINE SAND ROCK] [145] [1] 11. [FINE SHALEY SAND ROCK] [175] [30] 12. [FINE TO MEDIUM SAND ROCK] [210] [35] 13. [MEDIUM SAND ROCK] [220] [10] 14. [MEDIUM TO COARSE SAND ROCK] [230] [10] 15. [VERY HARD BROWN PUDDEN ROCK] [235] [5] 16. [LIGHT MEDIUM SAND ROCK] [262] [27] 17. [LIGHT BROWN MEDIUM TO COARSE SAND ROCK] [270] [8] 18. [VERY COARSE SHALEY SAND ROCK] [285] [15] 19. [MEDIUM TO COARSE SAND ROCK] [297] [12] 20. [BLACK SHALE SAND ROCK] [300] [3] 21. [GRAY SHALE] [327] [27] 22. [SHALEY SAND ROCK] [330] [3] 23. [FINE SHALEY SAND ROCK] [335] [5] 24. [GRAY SHALE] [340] [5] 25. [SHALEY FINE SAND ROCK] [368] [28] 26. [FINE TO MEDIUM SAND ROCK, SHALEY] [388] [20] 27. [MEDIUM SHALEY SAND ROCK] [390] [2] 28. [MEDIUM TO COARSE SAND ROCK] [408] [18] 29. [COARSE SAND ROCK] [412] [4] 30. [VERY COARSE SAND ROCK] [421] [9] 31. [COARSE BROWN AND WHITE ROCK] [424] [3] 32. [GRAY SHALE] [430] [6]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 04001;

OTHER REMARKS **Pump Manufacturer**: Pump Manufacturer unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:24

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006119 **Import ID**: 33040204302

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ NE¼ SW¼	4	04N 02W		3760

Well ID: 33000006119

Elevation: 855 ft

Latitude: 42.7592287712

Longitude: -84.5536443315

Distance and Direction from Road Intersection: WSSN 03760; 150' E OF TURNER ST. 150' N OF W GIER ST.

Well Name: BWL WELL 25-23

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-23 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 450.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 3/22/1951

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 99.50 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 92.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Yellow Clay & Sand	15.00	15.00
Blue Clay & Sand	10.00	25.00
Sand Gravel Clay	10.00	35.00
Gravel Medium	5.00	40.00
Gravel Medium To Coarse	10.00	50.00
Gravel Coarse	7.00	57.00
Gray Shale	3.00	60.00
Gray Shale	30.00	90.00
Sandstone W/Shale Hard	2.00	92.00
Sandstone	3.00	95.00
Sandstone W/Shale	13.00	108.00
Shale Fine	27.00	135.00
Sandstone Fine	13.00	148.00
Sandstone Coarse	2.00	150.00
Gray Shale	5.00	155.00
Sandstone Coarse W/Shale	10.00	165.00
Sandstone Coarse W/Shale	5.00	170.00
Sandstone Medium W/Shale	8.00	178.00
Sandstone Fine W/Shale	5.00	183.00
Sandstone Coarse W/Shale	10.00	193.00
Sandstone Fine To Medium	5.00	198.00
Sandstone Fine	20.00	218.00
Sandstone Fine To Medium	9.00	227.00
Sandstone Medium	6.00	233.00
Lithology Unknown Medium To Coarse	4.00	237.00
Brown Sandstone W/Shale	10.00	247.00
Sandstone	4.00	251.00
Sandstone Medium	12.00	263.00
Sandstone Medium To Coarse	10.00	273.00
Brown Sandstone W/Shale	5.00	278.00
Brown Sandstone Coarse	10.00	288.00
Brown Sandstone Medium	5.00	293.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006119

Import ID: 33040204302

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006119

Elevation: 855 ft

Latitude: 42.7592287712

Longitude: -84.5536443315

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ NE¼ SW¼	4	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 150' E OF TURNER ST. 150' N OF W GIER ST.

Well Name: BWL WELL 25-23

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-23 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom
Brown Sandstone Coarse	12.00	305.00
Gray Shale	45.00	350.00
Sandstone Fine W/Shale	25.00	375.00
Sandstone Medium W/Shale	12.00	387.00
Sandstone Fine W/Shale	11.00	398.00
Sandstone Medium W/Shale	5.00	403.00
Sandstone Medium To Coarse W/Shale	2.00	405.00
Sandstone Coarse Hard	5.00	410.00
Sandstone Fine	10.00	420.00
Shale Fine	22.00	442.00
Sandstone Fine W/Shale	3.00	445.00
Gray Shale	5.00	450.00

(Continued from Page 1)

Geology Remarks: 1. [YELLOW CLAY AND SAND] [15] [15] 2. [BLUE CLAY & SAND] [25] [10] 3. [SAND, GRAVEL & CLAY MIXTURE] [35] [10] 4. [MEDIUM GRAVEL] [40] [5] 5. [MEDIUM TO COARSE GRAVEL] [50] [10] 6. [COARSE GRAVEL] [57] [7] 7. [GRAY SHALE ROCK] [60] [3] 8. [GRAY SHALE] [90] [30] 9. [SAND ROCK & VERY HARD SHALE LAYERS] [92] [2] 10. [SAND ROCK] [95] [3] 11. [SHALEY SAND ROCK] [108] [13] 12. [FINE SHALEY ROCK] [135] [27] 13. [FINE SAND ROCK] [148] [13] 14. [COARSE SAND ROCK] [150] [2] 15. [GRAY SHALE] [155] [5] 16. [VERY COARSE SHALEY SAND ROCK] [165] [10] 17. [COARSE SHALEY SAND ROCK] [170] [5] 18. [MEDIUM SHALEY SAND ROCK] [178] [8] 19. [FINE SHALEY SAND ROCK] [183] [5] 20. [COARSE SHALEY SAND ROCK] [193] [10] 21. [FINE TO MEDIUM SAND ROCK] [198] [5] 22. [FINE SAND ROCK] [218] [20] 23. [FINE TO MEDIUM SAND ROCK] [227] [9] 24. [MEDIUM SAND ROCK] [233] [6] 25. [MEDIUM TO COARSE] [237] [4] 26. [DARK BROWN COARSE SHALEY SAND ROCK] [247] [10] 27. [LIGHT COLOR SAND ROCK] [251] [4] 28. [MEDIUM SAND ROCK] [263] [12] 29. [MEDIUM TO COARSE SAND ROCK] [273] [10] 30. [BROWN SHALEY SAND ROCK] [278] [5] 31. [VERY COARSE BROWN SAND ROCK] [288] [10] 32. [MEDIUM BROWN SAND ROCK] [293] [5] 33. [VERY COARSE BROWN SAND ROCK] [305] [12] 34. [GRAY SHALE] [350] [45] 35. [FINE SHALEY SAND ROCK] [375] [25] 36. [MEDIUM SHALEY SAND ROCK] [387] [12] 37. [FINE SHALEY SAND ROCK] [398] [11] 38. [MEDIUM SHALEY SAND ROCK] [403] [5] 39. [MEDIUM TO COARSE SHALEY SAND ROCK] [405] [2] 40. [VERY HARD COARSE SAND ROCK] [410] [5] 41. [FINE SAND ROCK] [420] [10] 42. [FINE SHALEY ROCK] [442] [22] 43. [FINE SHALEY SAND ROCK] [445] [3] 44. [GRAY SHALE] [450] [5]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 04002;

OTHER REMARKS **Pump Manufacturer**: Pump Manufacturer unknown

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006123 **Import ID**: 33040204306

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ NW¼ SW¼	4	04N 02W		3760

Well ID: 33000006123

Elevation: 860 ft

Latitude: 42.7621555589

Longitude: -84.5625322169

Distance and Direction from Road Intersection: WSSN 03760; 1300' E OF LOGAN ST. 150' NE OF FILLEY ST.

Well Name: BWL WELL 25-30

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-30 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 432.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 3/1/1956

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 46.50 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 113.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay Sandy	17.00	17.00
Gravel	3.00	20.00
Hardpan W/Gravel	20.00	40.00
Gravel Medium	5.00	45.00
Gravel Coarse	15.00	60.00
Shale	36.00	96.00
Red Sand	4.00	100.00
Shale	8.00	108.00
Gray Shale W/Sandstone Coarse	12.00	120.00
Gray Shale W/Sandstone Fine	5.00	125.00
Shale W/Sandstone Fine	7.00	132.00
Shale	3.00	135.00
Sandstone Fine W/Shale	13.00	148.00
Shale	7.00	155.00
Sandstone Fine W/Shale	10.00	165.00
Gray Sandstone Medium	10.00	175.00
Sandstone Coarse W/Shale	5.00	180.00
Gray Sandstone Coarse	15.00	195.00
Gray Sandstone Medium Hard	15.00	210.00
Sandstone Hard	4.00	214.00
Gray Sandstone Medium	6.00	220.00
Dark Gray Sandstone Medium	5.00	225.00
Gray Sandstone Medium	10.00	235.00
Gray Sandstone Fine	15.00	250.00
Gray Sandstone Very Fine	5.00	255.00
Gray Sandstone Fine W/Shale	5.00	260.00
Shale	35.00	295.00
Gray Sandstone Medium W/Shale	5.00	300.00
Gray Sandstone Fine Hard	45.00	345.00
Gray Sandstone Medium	10.00	355.00
Gray Sandstone Medium Hard	8.00	363.00
Sandstone Coarse	4.00	367.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006123

Import ID: 33040204306

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006123

Elevation: 860 ft

Latitude: 42.7621555589

Longitude: -84.5625322169

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ NW¼ SW¼	4	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 1300' E OF LOGAN ST. 150' NE OF FILLEY ST.

Well Name: BWL WELL 25-30

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-30 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom
Sandstone W/Shale	3.00	370.00
Sandstone Fine W/Shale	8.00	378.00
Gray Sandstone Medium Hard	5.00	383.00
Gray Sandstone Hard	4.00	387.00
Sandstone Hard Fine	6.00	393.00
Shale	1.00	394.00
Sandstone Hard Fine	12.00	406.00
Sandstone Hard Fine	14.00	420.00
Shale Hard	5.00	425.00
Shale & Sandstone	3.00	428.00
Shale	4.00	432.00

(Continued from Page 1)

Geology Remarks: 1. [SANDY CLAY] [17] [17] 2. [GRAVEL] [20] [3] 3. [HARD PAN GRAVEL] [40] [20] 4. [MEDIUM GRAVEL] [45] [5] 5. [COARSE GRAVEL] [60] [15] 6. [SHALE] [96] [36] 7. [LIGHT RED SAND] [100] [4] 8. [SHALE] [108] [8] 9. [SHALEY COARSE GRAY SAND ROCK] [120] [12] 10. [SHALEY FINE GRAY SAND ROCK] [125] [5] 11. [SHALEY FINE SAND ROCK] [132] [7] 12. [SHALE] [135] [3] 13. [FINE SHALEY SAND ROCK] [148] [13] 14. [SHALE] [155] [7] 15. [FINE SHALEY SAND ROCK] [165] [10] 16. [MEDIUM GRAY SAND ROCK] [175] [10] 17. [COARSE SHALEY SAND ROCK] [180] [5] 18. [COARSE GRAY SAND ROCK] [195] [15] 19. [MEDIUM GRAY HARD SAND ROCK] [210] [15] 20. [VERY HARD MEDIUM GRAY SAND ROCK] [214] [4] 21. [MEDIUM GRAY SAND ROCK] [220] [6] 22. [DARK GRAY MEDIUM SAND ROCK] [225] [5] 23. [MEDIUM GRAY SAND ROCK] [235] [10] 24. [FINE GRAY SAND ROCK] [250] [15] 25. [VERY FINE GRAY SAND ROCK] [255] [5] 26. [FINE SHALEY GRAY SAND ROCK] [260] [5] 27. [SHALE] [295] [35] 28. [MEDIUM SHALEY GRAY SAND ROCK] [300] [5] 29. [FINE HARD GRAY SAND ROCK] [345] [45] 30. [MEDIUM GRAY SAND ROCK] [355] [10] 31. [MEDIUM GRAY HARD SAND ROCK] [363] [8] 32. [VERY COARSE SAND ROCK] [367] [4] 33. [SHALEY SAND ROCK] [370] [3] 34. [FINE SHALEY SAND ROCK] [378] [8] 35. [MEDIUM GRAY HARD SAND ROCK] [383] [5] 36. [HARD FINE GRAY SAND ROCK] [387] [4] 37. [VERY HARD FINE GRAY SAND ROCK] [393] [6] 38. [SHALE] [394] [1] 39. [VERY HARD FINE SAND ROCK] [406] [12] 40. [HARD FINE SAND ROCK] [420] [14] 41. [SHALEY HARD SAND ROCK] [425] [5] 42. [HEAVY WITH SHALE SAND ROCK] [428] [3] 43. [SHALE] [432] [4]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 04006;

OTHER REMARKS **Pump Manufacturer**: Pump Manufacturer unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:24

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006125 **Import ID**: 33040204308

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ SW¼ NW¼	4	04N 02W		3760

Well ID: 33000006125

Elevation: 836 ft

Latitude: 42.76534709

Longitude: -84.562106814

Distance and Direction from Road Intersection: WSSN 03760; 1600' E OF SHERIDAN ST. 1400' E OF LOGAN ST

Well Name: BWL WELL 25-32

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-32 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 450.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 10/6/1960

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 133.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 132.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay	30.00	30.00
Clay W/Gravel	10.00	40.00
Hardpan W/Gravel	35.00	75.00
Red Sand	30.00	105.00
Shale	20.00	125.00
Sandstone Fine W/Shale	5.00	130.00
Shale	5.00	135.00
Sandstone Fine W/Shale	25.00	160.00
Shale	15.00	175.00
Sandstone Coarse W/Shale	5.00	180.00
Sandstone Soft	5.00	185.00
Sandstone Medium W/Shale	5.00	190.00
Sandstone Medium	10.00	200.00
Sandstone Coarse	15.00	215.00
Sandstone Medium	25.00	240.00
Sandstone Coarse	5.00	245.00
Sandstone Medium	15.00	260.00
Sandstone Fine	25.00	285.00
Sandstone Medium	5.00	290.00
Sandstone Coarse W/Shale	2.00	292.00
Shale	28.00	320.00
Sandstone Coarse W/Shale	10.00	330.00
Sandstone Fine W/Shale	5.00	335.00
Shale	10.00	345.00
Sandstone Medium W/Shale	5.00	350.00
Sandstone Fine W/Shale	20.00	370.00
Sandstone Fine	5.00	375.00
Sandstone Fine W/Shale	15.00	390.00
Sandstone Medium W/Shale	5.00	395.00
Sandstone Medium	20.00	415.00
Sandstone Medium W/Shale	5.00	420.00
Sandstone Medium	20.00	440.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006125

Failure to comply is a misdemeanor.

Import ID: 33040204308

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006125

Elevation: 836 ft

Latitude: 42.76534709

Longitude: -84.562106814

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ SW¼ NW¼	4	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 1600' E OF SHERIDAN ST. 1400' E OF LOGAN ST

Well Name: BWL WELL 25-32

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-32 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom
Sandstone Hard Coarse	5.00	445.00
Shale	5.00	450.00

(Continued from Page 1)

Geology Remarks: 1. [CLAY] [30] [30] 2. [CLAY WITH GRAVEL] [40] [10] 3. [HARD PAN GRAVEL] [75] [35] 4. [RED SAND] [105] [30] 5. [SHALE] [125] [20] 6. [FINE SHALEY SAND ROCK] [130] [5] 7. [SHALE] [135] [5] 8. [FINE SHALEY SAND ROCK] [160] [25] 9. [SHALE] [175] [15] 10. [COARSE SHALEY SAND ROCK] [180] [5] 11. [SOFT SHALEY SAND ROCK] [185] [5] 12. [MEDIUM SHALEY SAND ROCK] [190] [5] 13. [MEDIUM SAND ROCK] [200] [10] 14. [COARSE SAND ROCK] [215] [15] 15. [GOOD MEDIUM SAND ROCK] [240] [25] 16. [COARSE SAND ROCK] [245] [5] 17. [MEDIUM SAND ROCK] [260] [15] 18. [FINE SAND ROCK] [285] [25] 19. [MEDIUM SAND ROCK] [290] [5] 20. [COARSE SHALEY SAND ROCK] [292] [2] 21. [SHALE] [320] [28] 22. [COARSE SHALEY SAND ROCK] [330] [10] 23. [FINE SHALEY SAND ROCK] [335] [5] 24. [SHALE] [345] [10] 25. [MEDIUM SAND ROCK, SHALEY] [350] [5] 26. [FINE SHALEY SAND ROCK] [370] [20] 27. [FINE SAND ROCK, CLEAN] [375] [5] 28. [FINE SHALEY SAND ROCK] [390] [15] 29. [MEDIUM SHALEY SAND ROCK] [395] [5] 30. [MEDIUM SAND ROCK] [415] [20] 31. [MEDIUM SHALEY SAND ROCK] [420] [5] 32. [MEDIUM SAND ROCK] [440] [20] 33. [HARD COARSE SAND ROCK] [445] [5] 34. [SHALE] [450] [5]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 04008;

OTHER REMARKS **Pump Manufacturer**: Pump Manufacturer unknown

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006127 **Import ID**: 33040204310

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NE¼ SW¼ NE¼	4	04N 02W		3760

Well ID: 33000006127

Elevation: 850 ft

Latitude: 42.7655473979

Longitude: -84.550000882

Distance and Direction from Road Intersection: WSSN 03760; 1400' S OF SHERIDAN RD. 1900' W OF LARCH ST

Well Name: BWL WELL 25-34

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-34 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 440.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 8/12/1960

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 58.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 76.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Topsoil	5.00	5.00
Clay	5.00	10.00
Clay Sandy	15.00	25.00
Clay & Gravel Sandy	30.00	55.00
Sand & Gravel Medium To Coarse	15.00	70.00
Sandstone W/Clay Blue	5.00	75.00
Sandstone Fine	7.00	82.00
Shale	53.00	135.00
Sandstone Fine W/Shale	15.00	150.00
Sandstone Medium W/Shale	5.00	155.00
Sandstone Coarse W/Shale	10.00	165.00
Sandstone Fine W/Shale	25.00	190.00
Sandstone Medium	10.00	200.00
Sandstone Coarse	15.00	215.00
Sandstone Coarse Hard	5.00	220.00
Sandstone Coarse	5.00	225.00
Sandstone Medium W/Shale	10.00	235.00
Sandstone Fine	10.00	245.00
Sandstone Medium W/Shale	10.00	255.00
Sandstone Medium W/Shale	10.00	265.00
Sandstone Fine W/Shale	10.00	275.00
Sandstone Medium W/Shale	5.00	280.00
Sandstone Medium	5.00	285.00
Sandstone Medium W/Shale	15.00	300.00
Sandstone Coarse W/Shale	30.00	330.00
Sandstone Coarse Hard	35.00	365.00
Sandstone Medium	15.00	380.00
Sandstone Hard Medium	5.00	385.00
Sandstone Hard Coarse	5.00	390.00
Sandstone Medium	5.00	395.00
Sandstone Fine W/Shale	35.00	430.00
Sandstone Coarse W/Shale	5.00	435.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006127

Import ID: 33040204310

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006127

Elevation: 850 ft

Latitude: 42.7655473979

Longitude: -84.550000882

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NE¼ SW¼ NE¼	4	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 1400' S OF SHERIDAN RD. 1900' W OF LARCH ST

Well Name: BWL WELL 25-34

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-34 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom
Shale	5.00	440.00

(Continued from Page 1)

Geology Remarks: 1. [TOP SOIL] [5] [5] 2. [CLAY] [10] [5] 3. [SANDY CLAY] [25] [15] 4. [SANDY CLAY & GRAVEL] [55] [30] 5. [MEDIUM & COARSE SAND & GRAVEL] [70] [15] 6. [LAYERED SAND ROCK & BLUE CLAY] [75] [5] 7. [FINE SHARP SAND ROCK] [82] [7] 8. [SHALE] [135] [53] 9. [FINE SAND ROCK, SHALEY] [150] [15] 10. [MEDIUM SHALEY SAND ROCK] [155] [5] 11. [COARSE SHALEY SAND ROCK] [165] [10] 12. [FINE SHALEY SAND ROCK] [190] [25] 13. [GOOD MEDIUM SAND ROCK] [200] [10] 14. [GOOD COARSE SAND ROCK] [215] [15] 15. [VERY HARD COARSE SAND ROCK] [220] [5] 16. [COARSE SAND ROCK] [225] [5] 17. [MEDIUM SHALEY SAND ROCK] [235] [10] 18. [FINE SAND ROCK] [245] [10] 19. [MEDIUM SHALEY SAND ROCK] [255] [10] 20. [GOOD MEDIUM SHALEY SAND ROCK] [265] [10] 21. [FINE SHALEY SAND ROCK] [275] [10] 22. [MEDIUM SHALEY SAND ROCK] [280] [5] 23. [MEDIUM SAND ROCK] [285] [5] 24. [MEDIUM SHALEY SAND ROCK] [300] [15] 25. [COARSE SHALEY SAND ROCK] [330] [30] 26. [COARSE HARD SAND ROCK] [365] [35] 27. [MEDIUM SAND ROCK] [380] [15] 28. [HARD MEDIUM SAND ROCK] [385] [5] 29. [HARD COARSE SAND ROCK] [390] [5] 30. [MEDIUM SAND ROCK] [395] [5] 31. [FINE SHALEY SAND ROCK] [430] [35] 32. [COARSE SHALEY SAND ROCK] [435] [5] 33. [SHALE] [440] [5]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 04010;

OTHER REMARKS **Pump Manufacturer**: Pump Manufacturer unknown

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006129 **Import ID**: 33040204312

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NE¼ NW¼ NW¼	4	04N 02W		3760

Well ID: 33000006129

Elevation: 849 ft

Latitude: 42.7681964428

Longitude: -84.5591979663

Distance and Direction from Road Intersection: WSSN 03760; 850' W OF TURNER ST. 500' S OF SHERIDAN RD.

Well Name: BWL WELL 25-36

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-36 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 450.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 11/15/1960

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 108.50 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 134.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Topsoil W/Clay	15.00	15.00
Clay Sandy	20.00	35.00
Gravel	20.00	55.00
Hardpan W/Gravel Sandy	27.00	82.00
Red Sand & Gravel	3.00	85.00
Sand Heaving/Quick	25.00	110.00
Shale	20.00	130.00
Sandstone W/Shale	5.00	135.00
Shale	45.00	180.00
Sandstone Fine W/Shale	15.00	195.00
Sandstone Medium W/Shale	30.00	225.00
Sandstone Medium	15.00	240.00
Sandstone Hard Coarse	10.00	250.00
Sandstone Medium	20.00	270.00
Sandstone Medium W/Shale	15.00	285.00
Sandstone Medium	20.00	305.00
Sandstone Hard	5.00	310.00
Sandstone Medium	15.00	325.00
Sandstone Fine	15.00	340.00
Shale	20.00	360.00
Sandstone Medium	10.00	370.00
Sandstone Medium W/Shale	5.00	375.00
Sandstone Coarse W/Shale	30.00	405.00
Sandstone Medium W/Shale	45.00	450.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006129 **Import ID**: 33040204312

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NE¼ NW¼ NW¼	4	04N 02W		3760

Well ID: 33000006129

Elevation: 849 ft

Latitude: 42.7681964428

Longitude: -84.5591979663

Distance and Direction from Road Intersection: WSSN 03760; 850' W OF TURNER ST. 500' S OF SHERIDAN RD.

Well Name: BWL WELL 25-36

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-36 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006130 **Import ID**: 33040204313

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ NW¼ NE¼	4	04N 02W		3760

Well ID: 33000006130

Elevation: 845 ft

Latitude: 42.768681339

Longitude: -84.5526991901

Distance and Direction from Road Intersection: WSSN 03760; 200' W OF CRESTON AVE. 350' S OF SHERIDAN R

Well Name: BWL WELL 25-38

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-38 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 444.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 9/13/1960

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 110.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 81.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Sand	40.00	40.00
Gravel	15.00	55.00
Shale	65.00	120.00
Sandstone Coarse W/Shale	5.00	125.00
Sandstone Fine W/Shale	45.00	170.00
Sandstone Fine	30.00	200.00
Sandstone Medium	25.00	225.00
Sandstone Coarse	5.00	230.00
Sandstone Medium	40.00	270.00
Sandstone Medium W/Shale	10.00	280.00
Sandstone Medium	5.00	285.00
Sandstone & Limestone Coarse	10.00	295.00
Brown Sandstone & Limestone Coarse	5.00	300.00
Sandstone Hard Medium	5.00	305.00
Sandstone Hard W/Shale	10.00	315.00
Sandstone Medium W/Shale	20.00	335.00
Sandstone Medium	15.00	350.00
Sandstone Coarse	10.00	360.00
Sandstone Medium	15.00	375.00
Sandstone Medium	5.00	380.00
Sandstone Medium W/Shale	20.00	400.00
Sandstone Fine W/Shale	10.00	410.00
Sandstone Coarse W/Shale	5.00	415.00
Sandstone Fine W/Shale	20.00	435.00
Sandstone Coarse W/Shale	3.00	438.00
Sandstone Coarse Hard	2.00	440.00
Shale	4.00	444.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006130 **Import ID**: 33040204313

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006130

Elevation: 845 ft

Latitude: 42.768681339

Longitude: -84.5526991901

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ NW¼ NE¼	4	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 200' W OF CRESTON AVE. 350' S OF SHERIDAN R

Well Name: BWL WELL 25-38

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-38 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

(Continued from Page 1)

Geology Remarks: 1. [SAND] [40] [40] 2. [GRAVEL] [55] [15] 3. [SHALE] [120] [65] 4. [COARSE SHALEY SAND ROCK] [125] [5] 5. [FINE SHALEY SAND ROCK] [170] [45] 6. [FINE SAND ROCK] [200] [30] 7. [GOOD MEDIUM SAND ROCK] [225] [25] 8. [GOOD COARSE SAND ROCK] [230] [5] 9. [GOOD MEDIUM SAND ROCK] [270] [40] 10. [MEDIUM SAND ROCK, SHALEY] [280] [10] 11. [GOOD MEDIUM SAND ROCK] [285] [5] 12. [GOOD COARSE SAND ROCK & LIMESTONE] [295] [10] 13. [BROWN COARSE SAND ROCK & LIMESTONE] [300] [5] 14. [HARD MEDIUM SAND ROCK] [305] [5] 15. [HARD MEDIUM SHALEY SAND ROCK] [315] [10] 16. [MEDIUM SHALEY SAND ROCK] [335] [20] 17. [GOOD MEDIUM SAND ROCK] [350] [15] 18. [GOOD COARSE SAND ROCK] [360] [10] 19. [GOOD MEDIUM SAND ROCK] [375] [15] 20. [MEDIUM SAND ROCK, NOT CLEAN] [380] [5] 21. [MEDIUM SAND ROCK, SHALEY] [400] [20] 22. [FINE SAND ROCK, SHALEY] [410] [10] 23. [COARSE SHALEY SAND ROCK] [415] [5] 24. [FINE SHALEY SAND ROCK] [435] [20] 25. [COARSE SHALEY SAND ROCK] [438] [3] 26. [VERY HARD COARSE SAND ROCK] [440] [2] 27. [SHALE] [444] [4]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 04013;

OTHER REMARKS **Pump Manufacturer**: Pump Manufacturer unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:24

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006167 **Import ID**: 33040205301

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SE¼ NE¼	5	04N 02W		3760

Well ID: 33000006167

Elevation: 855 ft

Latitude: 42.7635862532

Longitude: -84.5651203766

Distance and Direction from Road Intersection: WSSN 03760;2200' S OF SHERIDAN RD. 600' E OF LOGAN ST.

Well Name: BWL WELL 25-41

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-41 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Cable Tool

Well Depth: 490.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 2/2/1983

Casing Type: Steel - black
Casing Joint: Welded
Diameter: 14.00 in. to 179.50 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 2.00 ft. above grade
Casing Fitting: Drive shoe

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**: 0.00 GPM
Length of Drop Pipe: 400.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Static Water Level: 124.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
224.00 ft. after 6.00 hrs. pumping at 402.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Formation Description	Thickness	Depth to Bottom
Clay	3.00	3.00
Brown Sand	12.00	15.00
Gray Clay & Sand W/Gravel	45.00	60.00
Sand & Gravel Cemented	15.00	75.00
Gray Clay W/Sand W/Gravel	10.00	85.00
Gray Coal W/Shale	2.00	87.00
Sandstone	4.00	91.00
Shale W/Gravel W/Sandstone	23.00	114.00
Sandstone W/Shale	1.00	115.00
Gray Shale Sandy W/Gravel	125.00	240.00
Sandstone Fine To Medium W/Shale	45.00	285.00
Gray Shale	25.00	310.00
Sandstone Fine W/Shale	20.00	330.00
Gray Shale	10.00	340.00
Sandstone Fine To Medium W/Shale	130.00	470.00
Gray Shale & Sandstone	20.00	490.00

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Bentonite slurry From 0.00 ft. to 0.00 ft.

Well Head Completion: 12 inches above grade, Other

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Sewer line	100.00 ft.	South

Drilling Machine Operator Name:

Employment: Unknown

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006167 **Import ID**: 33040205301

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006167

Elevation: 855 ft

Latitude: 42.7635862532

Longitude: -84.5651203766

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SE¼ NE¼	5	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760;2200' S OF SHERIDAN RD. 600' E OF LOGAN ST.

Well Name: BWL WELL 25-41

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-41 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006169 **Import ID**: 33040205303

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ SW¼ NE¼	5	04N 02W		3760

Well ID: 33000006169

Elevation: 854 ft

Latitude: 42.7649490639

Longitude: -84.5721056388

Distance and Direction from Road Intersection: WSSN 03760; 0.25 MILES W OF LOGAN ST. 1200' N OF GRAND

Well Name: BWL WELL 02-02

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 02-02 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 445.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 11/19/1957

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 93.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Sand	15.00	15.00
Hardpan W/Gravel	10.00	25.00
Gravel Medium	5.00	30.00
Gravel Coarse	14.00	44.00
Gray Clay	1.00	45.00
Gray Shale	28.00	73.00
Coal	2.00	75.00
Shale	4.00	79.00
Sandstone	21.00	100.00
Sandstone W/Shale	2.00	102.00
Shale	56.00	158.00
Sandstone W/Shale	5.00	163.00
Shale	7.00	170.00
Sandstone	5.00	175.00
Sandstone W/Shale	30.00	205.00
White Sandstone Fine Wet/Moist	15.00	220.00
White Sandstone Medium	45.00	265.00
Sandstone Hard	5.00	270.00
Limestone	1.00	271.00
Sandstone Fine	14.00	285.00
Sandstone Hard Fine	5.00	290.00
Sandstone Medium	15.00	305.00
Sandstone Fine	15.00	320.00
Sandstone Medium	5.00	325.00
Sandstone Medium To Coarse	10.00	335.00
Sandstone Coarse	20.00	355.00
Sandstone Medium	5.00	360.00
Sandstone Fine W/Shale	15.00	375.00
Sandstone Medium	10.00	385.00
Sandstone Medium W/Shale	10.00	395.00
Sandstone Medium W/Shale	5.00	400.00
Sandstone Fine W/Shale	20.00	420.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006169

Import ID: 33040205303

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006169

Elevation: 854 ft

Latitude: 42.7649490639

Longitude: -84.5721056388

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ SW¼ NE¼	5	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 0.25 MILES W OF LOGAN ST. 1200' N OF GRAND

Well Name: BWL WELL 02-02

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 02-02 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom
Sandstone Fine To Medium	20.00	440.00
Sandstone Medium To Coarse	5.00	445.00

(Continued from Page 1)

Geology Remarks: 1. [SAND] [15] [15] 2. [HARD PAN GRAVEL] [25] [10] 3. [GOOD MEDIUM GRAVEL] [30] [5] 4. [COARSE GRAVEL] [44] [14] 5. [GRAY CLAY] [45] [1] 6. [GRAY SHALE] [73] [28] 7. [COAL] [75] [2] 8. [SHALE] [79] [4] 9. [SAND ROCK] [100] [21] 10. [SHALEY SAND ROCK] [102] [2] 11. [SHALE] [158] [56] 12. [SHALEY SAND ROCK] [163] [5] 13. [SHALE] [170] [7] 14. [SAND ROCK] [175] [5] 15. [SHALEY SAND ROCK] [205] [30] 16. [FINE WHITE SAND ROCK] [220] [15] 17. [MEDIUM WHITE SAND ROCK] [265] [45] 18. [HARD SHARP SAND ROCK] [270] [5] 19. [LIMESTONE ROCK] [271] [1] 20. [FINE SAND ROCK] [285] [14] 21. [HARD FINE SAND ROCK] [290] [5] 22. [MEDIUM SAND ROCK] [305] [15] 23. [FINE SAND ROCK] [320] [15] 24. [MEDIUM SAND ROCK] [325] [5] 25. [MEDIUM COARSE SAND ROCK] [335] [10] 26. [COARSE SAND ROCK] [355] [20] 27. [MEDIUM DARK SAND ROCK] [360] [5] 28. [FINE AND LITTLE SHALEY SAND ROCK] [375] [15] 29. [MEDIUM SAND ROCK] [385] [10] 30. [MEDIUM LIGHT SHALEY SAND ROCK] [395] [10] 31. [MEDIUM SHALEY SAND ROCK] [400] [5] 32. [FINE SHALEY SAND ROCK] [420] [20] 33. [MEDIUM & FINE SAND ROCK] [440] [20] 34. [MEDIUM & COARSE SAND ROCK] [445] [5]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 05003;

OTHER REMARKS

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006170 **Import ID**: 33040205304

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ SW¼ SE¼	5	04N 02W		3760

Well ID: 33000006170

Elevation: 811 ft

Latitude: 42.7562579618

Longitude: -84.569270313

Distance and Direction from Road Intersection: WSSN 03760; 350' N OF MUSKEGON AVE. 400' W OF LOGAN ST.

Well Name: BWL WELL 10-01

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 10-01 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 500.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**:

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 0.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Brown Peat	4.00	4.00
Gray Gravel Silty	4.00	8.00
Brown Gravel	2.00	10.00
Yellow Gravel Silty	9.00	19.00
Gray Sand & Gravel	11.00	30.00
Light Gray Sandstone Medium	25.00	55.00
Gray Shale Sandy	5.00	60.00
Gray Sandstone Fine	10.00	70.00
Light Gray Shale Sandy	5.00	75.00
White Sandstone Medium W/Sand	100.00	175.00
Shale	20.00	195.00
Gray Sandstone Coarse	25.00	220.00
White Sandstone Fine	15.00	235.00
Light Gray Sandstone Fine W/Silt	15.00	250.00
Light Gray Sandstone Medium To Coarse	60.00	310.00
Light Gray Sandstone Medium To Coarse	90.00	400.00
Dark Gray Gypsum W/Shale	5.00	405.00
Light Gray Gypsum W/Shale	15.00	420.00
Light Gray Sandstone W/Shale Gray	10.00	430.00
Light Gray Gypsum W/Shale	10.00	440.00
Light Gray Sandstone W/Shale Gray	5.00	445.00
Light Gray Gypsum W/Shale	5.00	450.00
Light Gray Sandstone	10.00	460.00
Black Shale W/Sandstone	5.00	465.00
Light Gray Sandstone Fine	5.00	470.00
Gray Sandstone W/Shale Gray	3.00	473.00
Gypsum W/Sandstone W/Shale	16.00	489.00
Gray Shale Soft	2.00	491.00
Sandstone Fine	4.00	495.00
Light Gray Shale Soft	5.00	500.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006170 **Import ID**: 33040205304

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ SW¼ SE¼	5	04N 02W		3760

Well ID: 33000006170

Elevation: 811 ft

Latitude: 42.7562579618

Longitude: -84.569270313

Distance and Direction from Road Intersection: WSSN 03760; 350' N OF MUSKEGON AVE. 400' W OF LOGAN ST.

Well Name: BWL WELL 10-01

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 10-01 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

(Continued from Page 1)

Geology Remarks: 1. [DARK BROWN PEAT] [4] [4] 2. [GRAY SILTY GRAVEL] [8] [4] 3. [BROWN FERRUGINOUS GRAVEL] [10] [2] 4. [YELLOWISH GRAY SILTY GRAVEL] [19] [9] 5. [GRAY SAND AND GRAVEL] [30] [11] 6. [LIGHT GRAY MED MICACEOUS SANDSTONE] [55] [25] 7. [GRAY PLASTIC SANDY SHALE] [60] [5] 8. [FINE GRAINED LIGHT GRAY SANDSTONE] [70] [10] 9. [LIGHT GRAY SANDY SHALE] [75] [5] 10. [NEARLY WHITE MEDIUM GRAINED SANDSTONE AND LIGHT GRAY PLASTIC SANDY SHALE] [175] [100] 11. [SHALE] [195] [20] 12. [COARSE GRAY CONGLOMERITIC SANDSTONE (PARMA?) (600 GALS. PER MINUTE)] [220] [25] 13. [FINE GRAINED WHITE MICACEOUS SANDSTONE] [235] [15] 14. [DIRTY LIGHT GRAY FINE GRAINED SANDSTONE] [250] [15] 15. [COARSE TO MEDIUM GRAINED LIGHT GRAY SANDSTONE (IRON STAINED AND W/PYRITE] [310] [60] 16. [COARSE TO MEDIUM GRAINED LIGHT GRAY SANDSTONE] [400] [90] 17. [DARK GRAY SOFT SHALE WITH GYPSUM] [405] [5] 18. [LIGHT GRAY SHALE AND GYPSUM] [420] [15] 19. [LIGHT GRAY SANDSTONE AND DARKER GRAY SHALE] [430] [10] 20. [LIGHT GRAY SHALE AND GYPSUM] [440] [10] 21. [LIGHT GRAY SANDSTONE AND DARKER GRAY SHALE] [445] [5] 22. [LIGHT GRAY SHALE AND GYPSUM] [450] [5] 23. [LIGHT GRAY SANDSTONE (PYRITIC)] [460] [10] 24. [BLACK TO DARK GRAY SHALE AND PYRITIC WHITE SANDSTONE] [465] [5] 25. [LIGHT GRAY FINE GRAINED SANDSTONE] [470] [5] 26. [GRAY SANDSTONE AND DARKER GRAY SHALE] [473] [3] 27. [PYRITIFEROUS FINE GHRAINED SHALEY SANDSTONE AND GYPSUM] [489] [16] 28. [SOFT GRAY SHALE] [491] [2] 29. [FINE PYRITIFEROUS IRON STAINED SANDSTONE] [495] [4] 30. [SOFT LIGHT GRAY SHALE] [500] [5]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 05004; RECORDED BY R.B. NEWCOMBE FROM SAMPLES FURNISHED BY THE BOARD OF ELECTRIC LIGHT AND WATER COMMISSIONERS, AND SUPPLEMENTARY LOG.

OTHER REMARKS **Pump Manufacturer**: Pump Manufacturer unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006173 **Import ID**: 33040205307

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SW¼ SW¼	5	04N 02W		3760

Well ID: 33000006173

Elevation: 811 ft

Latitude: 42.7563058369

Longitude: -84.5804996189

Distance and Direction from Road Intersection: WSSN 03760; 2900' N OF WILLOW ST. 300' W OF SUNSET AVE.

Well Name: BWL WELL 10-13

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 10-13 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 388.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 12/15/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: Drive shoe

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Topsoil	1.00	1.00
Yellow Clay Hard	11.00	12.00
Red Sand	2.00	14.00
Red Clay Sandy Wet/Moist	11.00	25.00
Blue Clay	10.00	35.00
Blue Sandstone	4.00	39.00
Blue Sandstone	47.00	86.00
Blue Sandstone Soft	4.00	90.00
Blue Sandstone Soft	10.00	100.00
Gray & White Sandstone Fine Hard	20.00	120.00
Light Gray Sandstone W/Shale	25.00	145.00
White Sandstone Fine To Medium	1.00	146.00
White Sandstone Fine	4.00	150.00
White Sandstone Fine To Medium	50.00	200.00
White Sandstone Fine To Medium	28.00	228.00
Gray & White Sandstone Fine Hard	3.00	231.00
White Sandstone Hard	19.00	250.00
White Sandstone Hard	20.00	270.00
White Sandstone Hard	18.00	288.00
Blue Shale Hard	2.00	290.00
White Sandstone Medium	4.00	294.00
Gray & White Sandstone W/Shale	10.00	304.00
Gray & White Sandstone W/Shale	10.00	314.00
White Sandstone Fine To Medium	28.00	342.00
White Sandstone Fine To Medium	35.00	377.00
Shale Hard	3.00	380.00
Blue Shale	6.00	386.00
Shale Hard	2.00	388.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006173 **Import ID**: 33040205307

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006173

Elevation: 811 ft

Latitude: 42.7563058369

Longitude: -84.5804996189

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ SW¼ SW¼	5	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 2900' N OF WILLOW ST. 300' W OF SUNSET AVE.

Well Name: BWL WELL 10-13

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 10-13 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

(Continued from Page 1)

Geology Remarks: 1. [TOP SOIL] [1] [1] 2. [HARD YELLOW CLAY] [12] [11] 3. [RED SAND] [14] [2] 4. [RED SANDY CLAY, SOME WATER] [25] [11] 5. [BLUE CLAY] [35] [10] 6. [BLUE GRAY SANDSTONE] [39] [4] 7. [BLUE GRAY SANDSTONE] [86] [47] 8. [BLUE GRAY SANDSTONE SOFT DRILLS EASY] [90] [4] 9. [BLUE GRAY SANDSTONE, DRILLS EASY (SOFT)] [100] [10] 10. [GRAY WHITE SANDSTONE, HARD FINE MUDDY] [120] [20] 11. [LIGHT GRAY SANDSTONE (SHALE MIXED)] [145] [25] 12. [WHITE SANDSTONE, MEDIUM FINE CLEAN] [146] [1] 13. [WHITE SANDSTONE, FINE CLEAN] [150] [4] 14. [WHITE SANDSTONE, MEDIUM FINE CLEAN] [200] [50] 15. [WHITE SANDSTONE, MEDIUM FINE CLEAN] [228] [28] 16. [GRAY WHITE SANDSTONE, HARD FINE] [231] [3] 17. [WHITE, SANDSTONE, HARD FINE] [250] [19] 18. [WHITE SANDSTONE, HARD FINE] [270] [20] 19. [WHITE SANDSTONE, HARD FINE] [288] [18] 20. [BLUE SHALE HARD] [290] [2] 21. [WHITE SANDSTONE, CLEAN MEDIUM] [294] [4] 22. [GRAY WHITE SANDSTONE SHALE MIXED] [304] [10] 23. [GRAY WHITE SANDSTONE SHALE STRIPS] [314] [10] 24. [WHITE MEDIUM FINE HARD SANDSTONE] [342] [28] 25. [WHITE MEDIUM FINE HARD SANDSTONE] [377] [35] 26. [DARK SHALE MEDIUM HARD] [380] [3] 27. [BLUE SHALE, SLOUGH OFF] [386] [6] 28. [DARK SHALE, MEDIUM HARD] [388] [2]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 05007; 14" O.D. DRIVE PIPE WITH CAST STEEL SHOE DRIVEN TO 39'. BOTTOM PIECE INCLUDING SHOE 21'11" TOP PIECE 18'7" LONG. JOINT MADE UP TO BUTT. BACK UP TONGS USED IN PIT. DRIVE SHOE WELDED ON TOP (BY CITY_ LAST DRIVE 1" TO 15 STROK

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006174 **Import ID**: 33040205308

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ SW¼ SW¼	5	04N 02W		3760

Well ID: 33000006174

Elevation: 831 ft

Latitude: 42.7564760693

Longitude: -84.5775152136

Distance and Direction from Road Intersection: WSSN 03760; 3000' N OF WILLOW ST. 500' E OF SUNSET AVE.

Well Name: BWL WELL 10-14

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 10-14 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Cable Tool

Well Depth: 423.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 6/7/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 13.00 in. to 0.00 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 0.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Static Water Level: 80.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Formation Description	Thickness	Depth to Bottom
Topsoil W/Clay	5.00	5.00
Gravel Wet/Moist	15.00	20.00
Clay Sandy	10.00	30.00
Sand & Gravel	25.00	55.00
Sand Coarse	5.00	60.00
Sand & Gravel	15.00	75.00
Blue Clay Stoney	5.00	80.00
Sand & Gravel Wet/Moist	10.00	90.00
Blue Shale	13.00	103.00
White Sandstone Fine	73.00	176.00
White Sandstone Coarse	24.00	200.00
White Sandstone Fine	115.00	315.00
White Sand Soft	3.00	318.00
White Sand	3.00	321.00
Shale Broken	24.00	345.00
White Sand Hard	50.00	395.00
Sand	10.00	405.00
Sand W/Limestone	13.00	418.00
Gray Limestone Coarse	5.00	423.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006174 **Import ID**: 33040205308

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006174

Elevation: 831 ft

Latitude: 42.7564760693

Longitude: -84.5775152136

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ SW¼ SW¼	5	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 3000' N OF WILLOW ST. 500' E OF SUNSET AVE.

Well Name: BWL WELL 10-14

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 10-14 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006175 **Import ID**: 33040207301

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ SE¼ NE¼	7	04N 02W		3760

Well ID: 33000006175

Elevation: 851 ft

Latitude: 42.7485651279

Longitude: -84.5823838811

Distance and Direction from Road Intersection: WSSN 03760; 700' W OF SUNSET AVE. 100' N OF WILLOW ST.

Well Name: BWL WELL 10-15

Well Owner: Board Of Water & Light

Well Address:
BWL WELL 10-15
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

Drilling Method: Unknown

Well Depth: 440.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 5/19/1961

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 123.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 77.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Clay	50.00	50.00
Hardpan-W/Clay	10.00	60.00
Hardpan-Sandy-W/Clay	16.00	76.00
Sandstone	6.00	82.00
Shale	8.00	90.00
Sandstone-Fine	15.00	105.00
Sandstone-W/Shale	10.00	115.00
Shale	25.00	140.00
Sandstone-Fine	5.00	145.00
Sandstone-Medium	65.00	210.00
Sandstone-Fine	20.00	230.00
Sandstone-Coarse	5.00	235.00
Sandstone-Fine	10.00	245.00
Limestone	3.00	248.00
Limestone-Hard	17.00	265.00
Sandstone-Medium	10.00	275.00
Sandstone-Coarse	15.00	290.00
Sandstone-W/Shale	5.00	295.00
Sandstone-Fine-W/Shale	10.00	305.00
Shale	15.00	320.00
Sandstone-Fine-W/Shale	15.00	335.00
Sandstone-Medium-W/Shale	10.00	345.00
Sandstone-Medium	15.00	360.00
Sandstone-Medium-W/Shale	35.00	395.00
Sandstone-Coarse-W/Shale	10.00	405.00
Sandstone-Fine-W/Shale	10.00	415.00
Sandstone-Coarse-W/Shale	15.00	430.00
Shale	10.00	440.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006175 Failure to comply is a misdemeanor. **Import ID**: 33040207301

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ SE¼ NE¼	7	04N 02W		3760

Well ID: 33000006175

Elevation: 851 ft

Latitude: 42.7485651279

Longitude: -84.5823838811

Distance and Direction from Road Intersection: WSSN 03760; 700' W OF SUNSET AVE. 100' N OF WILLOW ST.

Well Name: BWL WELL 10-15

Well Owner: Board Of Water & Light

Well Address:	Owner Address:
BWL WELL 10-15 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [CLAY] [50] [50] 2. [HARD PAN CLAY] [60] [10] 3. [SANDY HARD PAN CLAY] [76] [16] 4. [SAND ROCK] [82] [6] 5. [SHALE] [90] [8] 6. [FINE SAND ROCK] [105] [15] 7. [SHALEY SAND ROCK] [115] [10] 8. [SHALE] [140] [25] 9. [FINE SAND ROCK] [145] [5] 10. [MEDIUM SAND ROCK] [210] [65] 11. [FINE SAND ROCK] [230] [20] 12. [COARSE SAND ROCK] [235] [5] 13. [FINE SAND ROCK] [245] [10] 14. [LIME ROCK] [248] [3] 15. [HARD LIME ROCK] [265] [17] 16. [MEDIUM SAND ROCK] [275] [10] 17. [COARSE SAND ROCK] [290] [15] 18. [SHALEY SAND ROCK] [295] [5] 19. [FINE SHALEY SAND ROCK] [305] [10] 20. [SHALE] [320] [15] 21. [FINE SHALEY SAND ROCK] [335] [15] 22. [MEDIUM SHALEY SAND ROCK] [345] [10] 23. [MEDIUM SAND ROCK] [360] [15] 24. [MEDIUM SHALEY SAND ROCK] [395] [35] 25. [COARSE SHALEY SAND ROCK] [405] [10] 26. [FINE SHALEY SAND ROCK] [415] [10] 27. [COARSE SHALEY SAND ROCK] [430] [15] 28. [SHALE] [440] [10]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 07001;

OTHER REMARKS **Pump Manufacturer**: Pump Manufacturer unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006176 — Failure to comply is a misdemeanor. — **Import ID:** 33040207302

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ NE¼ SW¼	7	04N 02W		3770

Distance and Direction from Road Intersection: WSSN 03770;600'S OF WEST WILLOW ST. 2700' EAST OF WAVER

Well ID: 33000006176

Elevation: 874 ft

Latitude: 42.7463657303

Longitude: -84.5931489428

Well Name: LANSING TWP WELL #5

Well Owner: Lansing Township

Well Address:
LANSING TWP WELL #5
LANSING MI

Owner Address:
LANSING MI 48933

Drilling Method: Unknown

Well Depth: 400.00 ft. — **Well Use:** Type I public

Well Type: Replacement — **Date Completed:** 1/7/1988

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No — **Well Intake:** Unknown
Filter Packed:
Screen Diameter: — **Length:**
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes — **Grouting Method:** Unknown
No. of Bags: — **Additives:** None
Grouting Materials:
Unknown — From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No — **Pump Installation only:**
Pump Installation date: — **HP:**
Manufacturer: — **Pump Type:**
Model Number: — **Pump Capacity:**
Length of Drop Pipe: — **Id of Well:**
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Yellow-Clay	12.00	12.00
Blue-Clay-W/Stones	38.00	50.00
Sand & Clay-Fine	10.00	60.00
Sand	15.00	75.00
Hardpan-Clayey	5.00	80.00
Shale-Soft	15.00	95.00
Sandstone-Broken	7.00	102.00
Gray-Sandstone	18.00	120.00
White-Sandstone	15.00	135.00
Sandstone & Shale	10.00	145.00
White-Sandstone	10.00	155.00
Gray-Sandstone	38.00	193.00
Sandstone & Shale	3.00	196.00
Shale	7.00	203.00
Sandstone & Shale	7.00	210.00
Shale	10.00	220.00
Sandstone & Shale	15.00	235.00
Sandstone	25.00	260.00
Limestone	8.00	268.00
Sandstone	12.00	280.00
Sandstone & Shale	15.00	295.00
Black-Shale	10.00	305.00
Sandstone & Shale	25.00	330.00
Sandstone	70.00	400.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006176 Failure to comply is a misdemeanor. **Import ID**: 33040207302

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006176

Elevation: 874 ft

Latitude: 42.7463657303

Longitude: -84.5931489428

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ NE¼ SW¼	7	04N 02W		3770

Distance and Direction from Road Intersection: WSSN 03770;600'S OF WEST WILLOW ST. 2700' EAST OF WAVER

Well Name: LANSING TWP WELL #5

Well Owner: Lansing Township

Well Address:	Owner Address:
LANSING TWP WELL #5 LANSING MI	LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [YELLOW CLAY] [12] [12] 2. [BLUE CLAY, STONES] [50] [38] 3. [FINE SAND, CLAY] [60] [10] 4. [SAND] [75] [15] 5. [CLAY, HARDPAN] [80] [5] 6. [SHALE (SOFT)] [95] [15] 7. [BROKEN SANDROCK] [102] [7] 8. [GRAY SANDROCK] [120] [18] 9. [WHITE SAND ROCK] [135] [15] 10. [SANDROCK SHALE STREAKS] [145] [10] 11. [WHITE SANDROCK] [155] [10] 12. [GRAY SANDROCK] [193] [38] 13. [SANDROCK, SHALE STREAKS] [196] [3] 14. [SHALE] [203] [7] 15. [SANDROCK SHALE STREAKS] [210] [7] 16. [SHALE] [220] [10] 17. [SANDROCK SHALE STREAKS] [235] [15] 18. [SANDROCK] [260] [25] 19. [LIME ROCK] [268] [8] 20. [SANDROCK] [280] [12] 21. [SANDROCK SHALE STREAKS] [295] [15] 22. [BLACK SHALE] [305] [10] 23. [SANDROCK SHALE STREAKS] [330] [25] 24. [SANDROCK] [400] [70]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 07002; 1800' NORTH OF WELL #4. LANSING MUNICIPAL WELL #5. HOLE 14" DIAMETER. DRILLER; OHIO ,DRILLING

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006177 **Import ID:** 33040207303

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SW¼ SW¼ SE¼	7	04N 02W		3770

Well ID: 33000006177

Elevation: 863 ft

Latitude: 42.7412347515

Longitude: -84.5924354439

Distance and Direction from Road Intersection: WSSN 03770; 90' N OF W SAGINAW ST. 1050' E OF MORRIS AV

Well Name: LANSING TWP WELL #4

Well Owner: Lansing Township

Well Address:
LANSING TWP WELL #4
LANSING MI

Owner Address:
LANSING MI 48933

Drilling Method: Unknown

Well Depth: 404.00 ft. **Well Use:** Type I public

Well Type: Replacement **Date Completed:** 6/17/1952

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: Drive shoe

Static Water Level: 89.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake:** Unknown
Filter Packed:
Screen Diameter: **Length:**
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method:** Unknown
No. of Bags: **Additives:** None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only:**
Pump Installation date: **HP:**
Manufacturer: **Pump Type:**
Model Number: **Pump Capacity:**
Length of Drop Pipe: **Id of Well:**
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Yellow-Clay & Sand	12.00	12.00
Blue-Clay & Sand	13.00	25.00
Yellow-Sand & Clay	10.00	35.00
Blue-Sand & Clay	12.00	47.00
Blue-Clay & Sand	38.00	85.00
Red-Sand & Clay	29.00	114.00
Sandstone-Broken	3.00	117.00
Sandstone	30.00	147.00
Shale	4.00	151.00
Sandstone & Shale-Broken	9.00	160.00
Sandstone	25.00	185.00
Sandstone & Shale	4.00	189.00
Shale	21.00	210.00
Sandstone	10.00	220.00
Unidentified Consolidated Fm-W/Shale	20.00	240.00
Sandstone & Shale	10.00	250.00
Sandstone	33.00	283.00
Shale	14.00	297.00
Shale	11.00	308.00
Sandstone & Shale	12.00	320.00
Sandstone	15.00	335.00
Sandstone-W/Shale	15.00	350.00
Sandstone	30.00	380.00
Sandstone & Shale	24.00	404.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006177 Failure to comply is a misdemeanor. **Import ID**: 33040207303

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006177

Elevation: 863 ft

Latitude: 42.7412347515

Longitude: -84.5924354439

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SW¼ SW¼ SE¼	7	04N 02W		3770

Distance and Direction from Road Intersection: WSSN 03770; 90' N OF W SAGINAW ST. 1050' E OF MORRIS AV

Well Name: LANSING TWP WELL #4

Well Owner: Lansing Township

Well Address:	Owner Address:
LANSING TWP WELL #4 LANSING MI	LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [YELLOW CLAY, SAND] [12] [12] 2. [BLUE CLAY, SAND] [25] [13] 3. [YELLOW SAND, CLAY] [35] [10] 4. [BLUE SAND, CLAY] [47] [12] 5. [BLUE CLAY, SAND] [85] [38] 6. [RED SAND, CLAY] [114] [29] 7. [BROKEN SANDROCK] [117] [3] 8. [SANDROCK] [147] [30] 9. [SHALE] [151] [4] 10. [BROKEN SANDROCK, SHALE] [160] [9] 11. [SANDROCK] [185] [25] 12. [SANDROCK, SHALE] [189] [4] 13. [SHALE] [210] [21] 14. [SHELLS, SANDROCK] [220] [10] 15. [SHELLY ROCK AND SHALE] [240] [20] 16. [SANDROCK, SHALE] [250] [10] 17. [SANDROCK] [283] [33] 18. [SHALE] [297] [14] 19. [SHALE, SHELLS] [308] [11] 20. [SANDROCK, SHALE] [320] [12] 21. [SANDROCK] [335] [15] 22. [SANDROCK, SHELLY] [350] [15] 23. [SANDROCK] [380] [30] 24. [SANDROCK, SHALE] [404] [24]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 07003; WELL CASED WITH 121'11" OF 14"-57 LB BLACK STEEL DRIVE PIPE IN HALF RANDOM LENGHTS, FITTED WITH STEEL DRIVE SHOE. LANSING MUNICIPAL WELL #4. DRILLED BY ELMER WENGER

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006178 **Import ID:** 33040207304

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006178

Elevation: 840 ft

Latitude: 42.7509101546

Longitude: -84.5929687846

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NE¼ SE¼ NW¼	7	04N 02W		3770

Distance and Direction from Road Intersection: WSSN 03770;100' N OF SNOWGLEN LN. 100' E OF BOYNTON DR.

Well Name: LANSING TWP WELL #6

Well Owner: Lansing Township

Well Address:	Owner Address:
LANSING TWP WELL #6 LANSING MI	LANSING MI 48933

Drilling Method: Other

Well Depth: 441.00 ft. **Well Use:** Type I public

Well Type: Replacement **Date Completed:** 6/18/1966

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 16.00 in. to 63.80 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 3.00 ft. above grade
Casing Fitting: None

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
197.00 ft. after 24.00 hrs. pumping at 700.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake:** Unknown
Filter Packed:
Screen Diameter: **Length:**
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method:** Unknown
No. of Bags: **Additives:** None
Grouting Materials:
Neat cement From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name: COONRAD

Employment: Unknown

Pump Installed: Yes **Pump Installation only:** No
Pump Installation date: **HP:**
Manufacturer: Other **Pump Type:** Unknown
Model Number: **Pump Capacity:**
Length of Drop Pipe: 0.00 ft. **Id of Well:**
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Topsoil	1.00	1.00
Blue-Clay	4.00	5.00
Blue-Clay-Gravely	29.00	34.00
Sand & Gravel-W/Clay	6.00	40.00
Sand & Gravel-W/Stones	6.00	46.00
Sandstone-Broken	4.00	50.00
Sandstone	15.00	65.00
White-Sandstone	8.00	73.00
Sandstone-Hard	4.00	77.00
Shale	5.00	82.00
Sandstone	41.00	123.00
Shale	3.00	126.00
Sandstone	105.00	231.00
Shale	1.00	232.00
Limestone & Sandstone-Brown	2.00	234.00
Sandstone	33.00	267.00
Limestone	3.00	270.00
Sandstone	10.00	280.00
Shale	9.00	289.00
Sandstone & Shale	2.00	291.00
Limestone	2.00	293.00
Shale	19.00	312.00
Sandstone	1.00	313.00
Shale	3.00	316.00
Sandstone	2.00	318.00
Shale	2.00	320.00
Sandstone	1.00	321.00
Shale	2.00	323.00
Sandstone	1.00	324.00
Shale	4.00	328.00
Sandstone	84.00	412.00
Sandstone & Shale	3.00	415.00

(Continued on Page 2)

ATTENTION WELL OWNER: FILE WITH DEED

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006178

Failure to comply is a misdemeanor.

Import ID: 33040207304

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NE¼ SE¼ NW¼	7	04N 02W		3770

Well ID: 33000006178

Elevation: 840 ft

Latitude: 42.7509101546

Longitude: -84.5929687846

Distance and Direction from Road Intersection: WSSN 03770;100' N OF SNOWGLEN LN. 100' E OF BOYNTON DR.

Well Name: LANSING TWP WELL #6

Well Owner: Lansing Township

Well Address:	**Owner Address**:
LANSING TWP WELL #6 LANSING MI	LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom
Gray-Sandstone	5.00	420.00
Sandstone	21.00	441.00

Geology Remarks: 1. [TOP SOIL] [1] [1] 2. [BLUE CLAY] [5] [4] 3. [GRAVELY BLUE CLAY] [34] [29] 4. [SAND, GRAVEL, SOME CLAY] [40] [6] 5. [SAND, GRAVEL & STONE] [46] [6] 6. [BROKEN SANDSTONE] [50] [4] 7. [SANDSTONE] [65] [15] 8. [SANDSTONE - WHITE] [73] [8] 9. [SANDSTONE - DARK - HARD] [77] [4] 10. [SHALE] [82] [5] 11. [SANDSTONE] [123] [41] 12. [SHALE] [126] [3] 13. [SANDSTONE] [231] [105] 14. [SHALE] [232] [1] 15. [LIMESTONE & BROWN SANDSTONE] [234] [2] 16. [SANDSTONE] [267] [33] 17. [LIMESTONE] [270] [3] 18. [SANDSTONE] [280] [10] 19. [SHALE] [289] [9] 20. [SANDSTONE & SHALE] [291] [2] 21. [LIMESTONE] [293] [2] 22. [SHALE] [312] [19] 23. [SANDSTONE] [313] [1] 24. [SHALE] [316] [3] 25. [SANDSTONE] [318] [2] 26. [SHALE] [320] [2] 27. [SANDSTONE] [321] [1] 28. [SHALE] [323] [2] 29. [SANDSTONE] [324] [1] 30. [SHALE] [328] [4] 31. [SANDSTONE] [412] [84] 32. [SANDSTONE & SHALE] [415] [3] 33. [GRAY SANDSTONE] [420] [5] 34. [SANDSTONE] [441] [21]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 07004; LANSING MUNICIPAL WELL #6. LANSING TOWNSHIP-WESTSIDE WATER. HOLE 20 & 15" DIAMETER. REVERSE CIRC. DRILLING.

OTHER REMARKS **Drilling Method**: Drilling Method unknown **Pump Manufacturer**: Pump Manufacturer unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006179 Failure to comply is a misdemeanor. **Import ID**: 33040207305

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006179

Elevation: 808 ft

Latitude: 42.7538336691

Longitude: -84.598662007

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NE¼ NW¼ NW¼	7	04N 02W		3770

Distance and Direction from Road Intersection: WSSN 03770; 135'N OF BOYNTON DR. 1150' E OF WAVERLY RD.

Well Name: LANSING TWP WELL #7

Well Owner: Lansing Township

Well Address:	Owner Address:
LANSING TWP WELL #7 LANSING MI	LANSING MI 48933

Drilling Method: Other

Well Depth: 405.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 3/7/1967

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 16.00 in. to 54.00 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 1.00 ft. above grade
Casing Fitting: None

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
118.00 ft. after 24.00 hrs. pumping at 754.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Other **Pump Type**: Unknown
Model Number: **Pump Capacity**:
Length of Drop Pipe: 0.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Topsoil	1.00	1.00
Clay	5.00	6.00
Sand & Gravel	28.00	34.00
Shale	6.00	40.00
Sandstone	2.00	42.00
Shale	1.00	43.00
Sandstone	13.00	56.00
Sandstone-W/Shale	6.00	62.00
Shale	3.00	65.00
Sandstone	4.00	69.00
Shale	2.00	71.00
Sandstone	18.00	89.00
Shale	3.00	92.00
Sandstone	111.00	203.00
Sandstone	25.00	228.00
Limestone	12.00	240.00
Sandstone	18.00	258.00
Limestone	1.00	259.00
Shale	5.00	264.00
Sandstone	3.00	267.00
Shale	3.00	270.00
Sandstone	3.00	273.00
Shale	52.00	325.00
Sandstone	1.00	326.00
Shale	1.00	327.00
Sandstone	46.00	373.00
Sandstone-W/Shale	18.00	391.00
Limestone	1.00	392.00
Sandstone	11.00	403.00
Green-Limestone	2.00	405.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006179 Failure to comply is a misdemeanor. **Import ID**: 33040207305

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NE¼ NW¼ NW¼	7	04N 02W		3770

Well ID: 33000006179

Elevation: 808 ft

Latitude: 42.7538336691

Longitude: -84.598662007

Distance and Direction from Road Intersection: WSSN 03770; 135'N OF BOYNTON DR. 1150' E OF WAVERLY RD.

Well Name: LANSING TWP WELL #7

Well Owner: Lansing Township

Well Address:	Owner Address:
LANSING TWP WELL #7 LANSING MI	LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [TOP SOIL] [1] [1] 2. [CLAY] [6] [5] 3. [SAND & GRAVEL] [34] [28] 4. [SHALE] [40] [6] 5. [SANDSTONE] [42] [2] 6. [SHALE] [43] [1] 7. [SANDSTONE] [56] [13] 8. [SANDSTONE, SHALE STRIPS] [62] [6] 9. [SHALE] [65] [3] 10. [SANDSTONE] [69] [4] 11. [SHALE] [71] [2] 12. [SANDSTONE] [89] [18] 13. [SHALE] [92] [3] 14. [SANDSTONE] [203] [111] 15. [SANDSTONE, DARK] [228] [25] 16. [LIMESTONE] [240] [12] 17. [SANDSTONE] [258] [18] 18. [LIMESTONE] [259] [1] 19. [SHALE] [264] [5] 20. [SANDSTONE] [267] [3] 21. [SHALE] [270] [3] 22. [SANDSTONE] [273] [3] 23. [SHALE] [325] [52] 24. [SANDSTONE] [326] [1] 25. [SHALE] [327] [1] 26. [SANDSTONE] [373] [46] 27. [SANDSTONE, TRACE OF SHALE] [391] [18] 28. [LIMESTONE] [392] [1] 29. [SANDSTONE] [403] [11] 30. [LIMESTONE, GREEN] [405] [2]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 07005; LANSING MUNICIPAL WELL #7. CHARTER TOWNSHIP OF LANSING. DRILLER: L.D. COONROD. REVERSE CIRC. DRILLING.

OTHER REMARKS **Drilling Method**: Drilling Method unknown **Pump Manufacturer**: Pump Manufacturer unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006180 Failure to comply is a misdemeanor. **Import ID**: 33040208007

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NE¼ NW¼ NW¼	8	04N 02W		3760

Distance and Direction from Road Intersection: 350' E OF SUNSET AVE. 2050' N OF WILLOW ST.

Well ID: 33000006180

Elevation: 830 ft

Latitude: 42.7536640898

Longitude: -84.5780108849

Well Name:

Well Owner: Board Of Water & Light

Well Address:
10-12
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

Drilling Method: Cable tool

Well Depth: 436.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 4/12/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 13.25 in. to 0.00 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 55.58 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**:
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Topsoil-W/Clay	20.00	20.00
Sand-Fine-W/Silt	15.00	35.00
Sand-Medium	10.00	45.00
Sand-Medium	5.00	50.00
Sand & Gravel-Medium	15.00	65.00
Sand & Gravel	31.00	96.00
Sand & Gravel-Wet/Moist	2.00	98.00
Sandstone	17.00	115.00
Blue-Shale & Sandstone	15.00	130.00
Sandstone	30.00	160.00
Sandstone	60.00	220.00
Gray-Shale	10.00	230.00
Sandstone	185.00	415.00
Black-Shale	5.00	420.00
Limestone	16.00	436.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006180 Failure to comply is a misdemeanor. **Import ID**: 33040208007

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006180

Elevation: 830 ft

Latitude: 42.7536640898

Longitude: -84.5780108849

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NE¼ NW¼ NW¼	8	04N 02W		3760

Distance and Direction from Road Intersection: 350' E OF SUNSET AVE. 2050' N OF WILLOW ST.

Well Name:

Well Owner: Board Of Water & Light

Well Address: 10-12 LANSING MI

Owner Address: 123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [TOPSOIL AND CLAY] [20] [20] 2. [FINE SAND - DIRTY] [35] [15] 3. [MEDIUM SAND] [45] [10] 4. [MEDIUM SAND] [50] [5] 5. [MEDIUM SAND AND GRAVEL] [65] [15] 6. [SAND AND GRAVEL] [96] [31] 7. [MUDDY SAND AND GRAVEL] [98] [2] 8. [SAND ROCK] [115] [17] 9. [BLUE SHALE AND SANDROCK STRIPS] [130] [15] 10. [SANDROCK] [160] [30] 11. [SANDROCK] [220] [60] 12. [GRAY SHALE] [230] [10] 13. [SANDROCK] [415] [185] 14. [BLACK SHALE] [420] [5] 15. [LIMESTONE-(STRONG ODOR)] [436] [16]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: CITY OF LANSING. STOPPED DRILLING IN LIMESTONE. TOTAL DEPTH OF DRILLING 436'. STATIC MEASURED WHEN DRILLING STOPPED. DRILLERS: BARRETT & PRAMER.

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006183 **Import ID:** 33040208301

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SW¼ SE¼ SW¼	8	04N 02W		3760

Well ID: 33000006183

Elevation: 862.35 ft

Latitude: 42.7413606887

Longitude: -84.5750431662

Distance and Direction from Road Intersection: WSSN 03760; 150' W OF COMFORT ST., 100' N OF E BOUND SA

Well Name: BWL WELL 10-06

Well Owner: Board Of Water & Light

Well Address:	Owner Address:
BWL WELL 10-06 LANSING MI 48915	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 427.00 ft. **Well Use:** Type I public

Well Type: Replacement **Date Completed:** 4/4/1946

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 14.00 in. to 0.00 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake:** Unknown
Filter Packed:
Screen Diameter: **Length:**
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method:** Unknown
No. of Bags: **Additives:** None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only:**
Pump Installation date: **HP:**
Manufacturer: **Pump Type:**
Model Number: **Pump Capacity:**
Length of Drop Pipe: **Id of Well:**
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Topsoil-W/Clay	45.00	45.00
Sandstone-Coarse	45.00	90.00
Sandstone-Very Fine	55.00	145.00
Shale	30.00	175.00
Sandstone-Fine To Medium	110.00	285.00
Shale	15.00	300.00
Sandstone-Fine	15.00	315.00
Shale	30.00	345.00
Sandstone-Fine	65.00	410.00
Shale	17.00	427.00

Geology Remarks: 1. [TOP SOIL (CLAY)] [45] [45] 2. [COARSE SANDSTONE] [90] [45] 3. [VERY FINE SANDSTONE] [145] [55] 4. [SHALE] [175] [30] 5. [FINE TO MEDIUM SANDSTONE] [285] [110] 6. [SHALE] [300] [15] 7. [FINE SANDSTONE] [315] [15] 8. [SHALE] [345] [30] 9. [FINE SANDSTONE] [410] [65] 10. [SHALE] [427] [17]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08001; CASING IS 14" O.D. 13.25" I.D. WELL DYNAMITED AND CLEANED OUT 4-15-46 TO 5-2-46. REMOVED 12 YD. MATERIAL.

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006184 Failure to comply is a misdemeanor. **Import ID**: 33040208302

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006184

Elevation: 860 ft

Latitude: 42.7446905406

Longitude: -84.5738525758

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ NE¼ SW¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 150' E OF COMFORT ST., 100' S OF HYLAND ST.

Well Name: BWL WELL 10-07

Well Owner: Board Of Water & Light

Well Address:	Owner Address:
BWL WELL 10-07 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 443.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 10/16/1946

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown, From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**:
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Clay	5.00	5.00
Gravel-Fine	30.00	35.00
Shale	45.00	80.00
Sandstone-Fine	20.00	100.00
Shale	70.00	170.00
Sandstone	90.00	260.00
Sand	5.00	265.00
Sandstone	25.00	290.00
Shale	10.00	300.00
Sandstone	5.00	305.00
Shale	10.00	315.00
Sandstone-W/Shale	15.00	330.00
Shale	20.00	350.00
Sandstone-W/Shale	30.00	380.00
Shale	10.00	390.00
Sandstone-W/Shale	25.00	415.00
Shale	28.00	443.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006184

Import ID: 33040208302

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ NE¼ SW¼	8	04N 02W		3760

Well ID: 33000006184

Elevation: 860 ft

Latitude: 42.7446905406

Longitude: -84.5738525758

Distance and Direction from Road Intersection: WSSN 03760; 150' E OF COMFORT ST., 100' S OF HYLAND ST.

Well Name: BWL WELL 10-07

Well Owner: Board Of Water & Light

Well Address:
BWL WELL 10-07
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [CLAY] [5] [5] 2. [FINE GRAVEL] [35] [30] 3. [SHALE] [80] [45] 4. [FINE SANDSTONE] [100] [20] 5. [SHALE] [170] [70] 6. [SANDSTONE] [260] [90] 7. [SAND] [265] [5] 8. [SANDSTONE] [290] [25] 9. [SHALE] [300] [10] 10. [SANDSTONE] [305] [5] 11. [SHALE] [315] [10] 12. [SHALEY SANDSTONE] [330] [15] 13. [SHALE] [350] [20] 14. [SHALEY SANDSTONE] [380] [30] 15. [SHALE] [390] [10] 16. [SHALEY SANDSTONE] [415] [25] 17. [SHALE] [443] [28]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08002; WELL DYNAMITED & CLEANED OUT 10-2-46 TO 10-16-46. TOTAL MATERIAL REMOVED 8 YD.

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006185 **Import ID**: 33040208303

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006185

Elevation: 857.63 ft

Latitude: 42.7497888576

Longitude: -84.5763053441

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SW¼ SE¼ NW¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 400' W OF COMFORT ST., 500' N OF WILLOW ST.

Well Name: BWL WELL 10-08

Well Owner: Board Of Water & Light

Well Address:
BWL WELL 10-08
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

Drilling Method: Cable tool

Well Depth: 422.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 6/6/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 104.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name: JOHN JOHNSON

Employment: Unknown

Pump Installed: No **Pump Installation only**:
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Sand & Gravel	10.00	10.00
Gravel-Wet/Moist	25.00	35.00
Sand & Gravel	40.00	75.00
White-Sand	4.00	79.00
Blue-Sand & Silt-Wet/Moist	34.00	113.00
White-Sand	22.00	135.00
Blue-Shale	25.00	160.00
White-Sand	5.00	165.00
Blue-Shale	5.00	170.00
White-Sand	100.00	270.00
Blue-Shale	15.00	285.00
White-Sand	115.00	400.00
Blue-Shale	22.00	422.00

Geology Remarks: 1. [SAND & GRAVEL] [10] [10] 2. [MUD AND GRAVEL] [35] [25] 3. [SAND AND GRAVEL] [75] [40] 4. [WHITE SAND] [79] [4] 5. [BLUE MUD] [113] [34] 6. [SAND WHITE] [135] [22] 7. [BLUE SHALE] [160] [25] 8. [WHITE SAND] [165] [5] 9. [BLUE SHALE] [170] [5] 10. [SAND WHITE] [270] [100] 11. [SHALE BLUE] [285] [15] 12. [SAND WHITE] [400] [1 15] 13. [BLUE SHALE] [422] [22]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08003; CITY OF LANSING. RAN SIZER TO BOTTOM - MR. WRIGHT WITNESSED. TURNED SAMPLES OVER TO MR. WRIGHT. PIPE LEFT IN HOLE 123'3".

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006186

Failure to comply is a misdemeanor.

Import ID: 33040208304

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006186

Elevation: 846 ft

Latitude: 42.7529703739

Longitude: -84.575454385

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SW¼ NE¼ NW¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 1800' N OF WILLOW ST. 200' W OF COMFORT ST.

Well Name: BWL WELL 10-09

Well Owner: Board Of Water & Light

Well Address:	Owner Address:
BWL WELL 10-09 LANSING MI 48915	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 435.00 ft. **Well Use:** Type I public

Well Type: Replacement **Date Completed:** 11/3/1952

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake:** Unknown
Filter Packed:
Screen Diameter: **Length:**
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method:** Unknown
No. of Bags: **Additives:** None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only:**
Pump Installation date: **HP:**
Manufacturer: **Pump Type:**
Model Number: **Pump Capacity:**
Length of Drop Pipe: **Id of Well:**
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Clay	35.00	35.00
Gravel	20.00	55.00
Sandstone	45.00	100.00
Shale	15.00	115.00
Sandstone	10.00	125.00
Shale	35.00	160.00
Sandstone	55.00	215.00
Sandstone-W/Shale	30.00	245.00
Shale	10.00	255.00
Sandstone	20.00	275.00
Shale	20.00	295.00
Sandstone	125.00	420.00
Shale	15.00	435.00

Geology Remarks: 1. [CLAY] [35] [35] 2. [GRAVEL] [55] [20] 3. [SANDSTONE] [100] [45] 4. [SHALE] [115] [15] 5. [SANDSTONE] [125] [10] 6. [SHALE] [160] [35] 7. [SANDSTONE] [215] [55] 8. [SHALEY SANDSTONE] [245] [30] 9. [SHALE] [255] [10] 10. [SANDSTONE] [275] [20] 11. [SHALE] [295] [20] 12. [SANDSTONE] [420] [125] 13. [SHALE] [435] [15]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08004;

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006187 Failure to comply is a misdemeanor. **Import ID**: 33040208305

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006187

Elevation: 855 ft

Latitude: 42.7487958876

Longitude: -84.57832713

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ SW¼ NW¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760;250' N OF WILLOW ST. 1000' W OF COMFORT ST.

Well Name: BWL WELL 10-10

Well Owner: Board Of Water & Light

Well Address:
BWL WELL 10-10
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

Drilling Method: Unknown

Well Depth: 410.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 3/22/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 73.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name: RONALD HANSEN & HARRY WEBS
Employment: Unknown

Pump Installed: No **Pump Installation only**:
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Topsoil	1.00	1.00
Yellow-Clay	35.00	36.00
Blue-Clay-Soft	9.00	45.00
Brown-Clay	15.00	60.00
Gray-Clay-Soft-W/Stones	5.00	65.00
Blue-Clay-Very Hard	12.00	77.00
Blue-Shale	21.00	98.00
Black-Shale	6.00	104.00
Brown-Shale-Hard	2.00	106.00
Gray-Sandstone-Soft	7.00	113.00
Shale-W/Sandstone	48.00	161.00
Shale & Sandstone	14.00	175.00
Sandstone	105.00	280.00
Shale & Sandstone	15.00	295.00
Black-Shale-W/Sand-Wet/Moist	5.00	300.00
Sandstone-W/Shale	50.00	350.00
Sandstone & Shale	45.00	395.00
Shale & Sandstone	15.00	410.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006187 Failure to comply is a misdemeanor. **Import ID**: 33040208305

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ SW¼ NW¼	8	04N 02W		3760

Well ID: 33000006187

Elevation: 855 ft

Latitude: 42.7487958876

Longitude: -84.57832713

Distance and Direction from Road Intersection: WSSN 03760;250' N OF WILLOW ST. 1000' W OF COMFORT ST.

Well Name: BWL WELL 10-10

Well Owner: Board Of Water & Light

Well Address:	Owner Address:
BWL WELL 10-10 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [TOPSOIL] [1] [1] 2. [YELLOW CLAY, MEDIUM HARD] [36] [35] 3. [BLUE CLAY SOFT] [45] [9] 4. [BROWNISH CLAY] [60] [15] 5. [GRAY CLAY, GRITTY SOFT] [65] [5] 6. [BLUE CLAY, VERY HARD] [77] [12] 7. [BLUE SHALE] [98] [21] 8. [DARK SHALE, NEAR BLACK] [104] [6] 9. [BROWN SHALE, HARD] [106] [2] 10. [GRAY SANDSTONE, SOFT] [113] [7] 11. [SHALE, STRIPS SANDSTONE MIXED] [161] [48] 12. [SHALE SANDROCK] [175] [14] 13. [SANDROCK] [280] [105] 14. [SHALE SANDROCK] [295] [15] 15. [BLACK SHALE STICKY MUDDY STRIPS] [300] [5] 16. [SANDROCK, NOT CLEAN STRIPS OF SHALE] [350] [50] 17. [SANDROCK AND SHALE MUDDY STRIPS] [395] [45] 18. [SHALE AND SANDROCK] [410] [15]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08005; CITY OF LANSING.

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006188

Import ID: 33040208306

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006188

Elevation: 845 ft

Latitude: 42.7511851773

Longitude: -84.57865638

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NE¼ SW¼ NW¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 250' E OF SUNSET AVE. 1050' N OF WILLOW ST.

Well Name: BWL WELL 10-11

Well Owner: Board Of Water & Light

Well Address:
BWL WELL 10-11
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

Drilling Method: Unknown

Well Depth: 451.00 ft. | **Well Use**: Type I public

Well Type: Replacement | **Date Completed**: 3/22/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 79.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No | **Well Intake**: Unknown
Filter Packed:
Screen Diameter: | **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes | **Grouting Method**: Unknown
No. of Bags: | **Additives**: None
Grouting Materials:
Unknown | From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name: RONALD HANSON & JOHN JOHNSON
Employment: Unknown

Pump Installed: No | **Pump Installation only**:
Pump Installation date: | **HP**:
Manufacturer: | **Pump Type**:
Model Number: | **Pump Capacity**:
Length of Drop Pipe: | **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Yellow-Clay-Hard	8.00	8.00
Clay-Sandy-Hard	2.00	10.00
Sand-Fine-Wet/Moist	10.00	20.00
Clay-Sandy	19.00	39.00
Gravel-Wet/Moist	3.00	42.00
Gravel & Sand-Fine To Medium	17.00	59.00
Clay-Hard	7.00	66.00
Sandstone-Soft	12.00	78.00
Sandstone-Medium-Hard	13.00	91.00
Sandstone-W/Shale	98.00	189.00
Shale-Soft	1.00	190.00
White-Sandstone-W/Shale	71.00	261.00
Blue-Shale-Soft	5.00	266.00
Blue-Shale-Hard-Black	5.00	271.00
Black-Shale-Hard	5.00	276.00
White-Sandstone-W/Shale	65.00	341.00
Blue-Shale-Soft	2.00	343.00
White-Sandstone-Soft	88.00	431.00
Blue-Shale	20.00	451.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006188

Import ID: 33040208306

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006188

Elevation: 845 ft

Latitude: 42.7511851773

Longitude: -84.57865638

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NE¼ SW¼ NW¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 250' E OF SUNSET AVE. 1050' N OF WILLOW ST.

Well Name: BWL WELL 10-11

Well Owner: Board Of Water & Light

Well Address:
BWL WELL 10-11
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [CLAY, YELLOW HARD] [8] [8] 2. [SANDY CLAY, MEDIUM HARD] [10] [2] 3. [SAND, MUDDY FINE] [20] [10] 4. [SANDY CLAY] [39] [19] 5. [GRAVEL, MUDDY] [42] [3] 6. [GRAVEL & SAND MEDIUM FINE] [59] [17] 7. [GRITTY CLAY, HARD] [66] [7] 8. [SANDSTONE, SOFT] [78] [12] 9. [SANDSTONE, MEDIUM HARD] [91] [13] 10. [SANDSTONE, SHALE MIXED] [189] [98] 11. [SOFT SHALE] [190] [1] 12. [WHITE SANDSTONE, SOME SHALE STRIPS] [261] [71] 13. [BLUE SHALE, SOFT] [266] [5] 14. [BLUE BLACK SHALE, MEDIUM HARD] [271] [5] 15. [BLACK SHALE, HARD] [276] [5] 16. [WHITE SANDSTONE, VERY LITTLE SHALE] [341] [65] 17. [BLUE SHALE, SOFT] [343] [2] 18. [SANDSTONE WHITE SOFT] [431] [88] 19. [BLUE SHALE, MUDDY] [451] [20]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08006; CITY OF LANSING.

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006189

Import ID: 33040208308

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006189

Elevation: 850 ft

Latitude: 42.7464030622

Longitude: -84.5648164439

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NW¼ NE¼ SE¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 4800' W OF S BND CEDAR ST. 1300' N OF W BND

Well Name: BWL WELL 15-06

Well Owner: Board Of Water & Light

Well Address:
BWL WELL 15-06
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

Drilling Method: Unknown

Well Depth: 445.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**:

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 60.67 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
126.00 ft. after 0.00 hrs. pumping at 599.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**:
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Light Brown-Clay	50.00	50.00
Gray-Shale	15.00	65.00
Light Gray-Sandstone-Medium	5.00	70.00
Gray-Shale-Sandy-Soft	20.00	90.00
Gray-Sandstone-Fine-Silty	45.00	135.00
Light Gray-Sandstone-Fine-Wet/Moist	65.00	200.00
Gray-Shale-Wet/Moist	5.00	205.00
Light Gray-Sandstone-Fine To Coarse-W/Silt	45.00	250.00
Brown-Sandstone-Wet/Moist	15.00	265.00
Light Gray-Sandstone-Fine-Wet/Moist	105.00	370.00
Gray-Shale-Wet/Moist	15.00	385.00
Sandstone-W/Silt	10.00	395.00
Light Gray-Sandstone-Fine To Medium-Wet/Moist	35.00	430.00
Dark Gray-Shale-Wet/Moist	15.00	445.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006189

Import ID: 33040208308

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006189

Elevation: 850 ft

Latitude: 42.7464030622

Longitude: -84.5648164439

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NW¼ NE¼ SE¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 4800' W OF S BND CEDAR ST. 1300' N OF W BND

Well Name: BWL WELL 15-06

Well Owner: Board Of Water & Light

Well Address:
BWL WELL 15-06
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [CLAY LIGHT BROWN] [50] [50] 2. [SHALE, GRAY MUDDY] [65] [15] 3. [SANDSTONE, LIGHT GRAY, MEDIUM GRAINED] [70] [5] 4. [SHALE, GRAY, SANDY, MICACEOUS, SOFT] [90] [20] 5. [SANDSTONE, GRAY, FINE GRAINED, SILTY] [135] [45] 6. [SANDSTONE, LIGHT GRAY, FINE MICACEOUS - WITH SOME MUD] [200] [65] 7. [SHALE, GRAY, MUDDY] [205] [5] 8. [SANDSTONE, LIGHT GRAY, FINE TO MEDIUM GRAINED; SOME SILT] [250] [45] 9. [SANSTONE, BROWNISH GRAY, FINE GRAINED - WITH MUD] [265] [15] 10. [SANDSTONE, LIGHT GRAY, FINE - WITH MUD] [370] [105] 11. [SHALE, GRAY, MUDDY] [385] [15] 12. [SANDSTONE & SILT] [395] [10] 13. [SANDSTONE, LIGHT GRAY FINE TO MEDIUM GRAINED WITH MUD] [430] [35] 14. [SHALE, DARK GRAY, MUDDY] [445] [15]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08008;

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006190 Failure to comply is a misdemeanor. **Import ID**: 33040208309

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ NW¼ SE¼	8	04N 02W		3760

Well ID: 33000006190

Elevation: 859 ft

Latitude: 42.7461631203

Longitude: -84.5678343849

Distance and Direction from Road Intersection: WSSN 03760; 100' N OF MAPLE ST. 100' W OF LOGAN ST.

Well Name: BWL WELL 15-07

Well Owner: Board Of Water & Light

Well Address:
BWL WELL 15-07
LANSING MI

Owner Address:
123 W. OTTAWA ST.
LANSING MI 48933

Drilling Method: Unknown

Well Depth: 430.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**:

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 47.01 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
107.00 ft. after 0.00 hrs. pumping at 585.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**:
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Gray-Clay	40.00	40.00
Gray-Sandstone-Fine To Medium-Wet/Moist	30.00	70.00
Gray-Sandstone-Coarse-W/Limestone	4.00	74.00
Coal	1.00	75.00
Gray-Sandstone-Fine-Wet/Moist	5.00	80.00
Gray-Shale-Wet/Moist-Soft	20.00	100.00
Shale-Sandy-Wet/Moist	35.00	135.00
Gray-Shale-Wet/Moist	30.00	165.00
Light Gray-Sandstone-Wet/Moist	30.00	195.00
Gray-Shale-Sandy-Soft	30.00	225.00
Light Gray-Sandstone-Wet/Moist	70.00	295.00
Gray-Shale-Wet/Moist	5.00	300.00
Sandstone-W/Shale	5.00	305.00
Light Gray-Sandstone-Fine	60.00	365.00
Sandstone-Fine To Medium	25.00	390.00
Light Gray-Sandstone-Fine To Medium-W/Limestone	30.00	420.00
Dark Gray-Shale-Wet/Moist	5.00	425.00
Light Gray-Shale-Wet/Moist	5.00	430.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006190 Failure to comply is a misdemeanor. **Import ID:** 33040208309

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ NW¼ SE¼	8	04N 02W		3760

Well ID: 33000006190

Elevation: 859 ft

Latitude: 42.7461631203

Longitude: -84.5678343849

Distance and Direction from Road Intersection: WSSN 03760; 100' N OF MAPLE ST. 100' W OF LOGAN ST.

Well Name: BWL WELL 15-07

Well Owner: Board Of Water & Light

Well Address:	Owner Address:
BWL WELL 15-07 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [CLAY, GRAY - BROWN TO GRAY] [40] [40] 2. [SANDSTONE GRAY, FINE TO MEDIUM GRAINED WITH MUD] [70] [30] 3. [SANDSTONE, GRAY COARSE GRAINED, LIMY] [74] [4] 4. [COAL] [75] [1] 5. [SANDSTONE, GRAY, FINE GRAINED - WITH MUD] [80] [5] 6. [SHALE, GRAY, MUDDY SOFT; A LITTLE MICA] [100] [20] 7. [SHALE, LIGHT, SANDY, MUDDY] [135] [35] 8. [SHALE, GRAY, MUDDY] [165] [30] 9. [SANDSTONE, LIGHT GRAY, WITH MUD] [195] [30] 10. [SHALE, GRAY MUDDY AND SOME SANDY SOFT SHALE] [225] [30] 11. [SANDSTONE, LIGHT GRAY - WITH MUD] [295] [70] 12. [SHALE, GRAY, MUDDY] [300] [5] 13. [SANDSTONE, AND SHALE] [305] [5] 14. [SANDSTONE, LIGHT GRAY, FINE GRAINED] [365] [60] 15. [SANDSTONE, GRAY, MEDIUM TO FINE GRAINED] [390] [25] 16. [SANDSTONE, LIGHT GRAY, MEDIUM TO FINE GRAINED - SLIGHTLY LIMY] [420] [30] 17. [SHALE, DARK GRAY, MUDDY] [425] [5] 18. [SHALE, LIGHT GRAY, MUDDY] [430] [5]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08009;

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006191 Failure to comply is a misdemeanor. **Import ID**: 33040208310

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006191

Elevation: 857 ft

Latitude: 42.7462443079

Longitude: -84.5735291278

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ NE¼ SW¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 100' N OF MAPLE ST. 200' W OF JENNISON ST.

Well Name: BWL WELL 15-08

Well Owner: Board Of Water & Light

Well Address:	Owner Address:
BWL WELL 15-08 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Cable tool

Well Depth: 430.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 7/26/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 13.25 in. to 0.00 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 80.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**:
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Clay & Gravel	10.00	10.00
Gravel & Clay	15.00	25.00
Gravel	10.00	35.00
White-Sand	5.00	40.00
Gravel	5.00	45.00
Blue-Shale	25.00	70.00
Coal	1.00	71.00
Gray-Shale	19.00	90.00
Sand-Broken	50.00	140.00
Blue-Shale	5.00	145.00
Sandstone	260.00	405.00
Shale	25.00	430.00

Geology Remarks: 1. [CLAY AND GRAVEL] [10] [10] 2. [GRAVEL AND CLAY] [25] [15] 3. [GRAVEL] [35] [10] 4. [SAND WHITE] [40] [5] 5. [GRAVEL] [45] [5] 6. [SHALE - BLUE] [70] [25] 7. [COAL] [71] [1] 8. [GRAY SHALE] [90] [19] 9. [SAND BROKEN] [140] [50] 10. [BLUE SHALE] [145] [5] 11. [SANDSTONE] [405] [260] 12. [SHALE] [430] [25]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08010; 430' FROM CASING TOP. PIPE LEFT IN HOLE 97'6". DRILLER: JOHN A. JOHNSON

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006192 — Failure to comply is a misdemeanor. — **Import ID**: 33040208311

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SW¼ NE¼ NE¼	8	04N 02W		3760

Well ID: 33000006192

Elevation: 850 ft

Latitude: 42.7524775688

Longitude: -84.5663443955

Distance and Direction from Road Intersection: WSSN 03760; 400' E OF LOGAN ST. 3600' N OF W BOUND OAKL

Well Name: BWL WELL 20-03

Well Owner: Board Of Water & Light

Well Address:	Owner Address:
BWL WELL 20-03 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 430.00 ft. — **Well Use**: Type I public

Well Type: Replacement — **Date Completed**: 9/28/1959

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 75.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No — **Well Intake**: Unknown
Filter Packed:
Screen Diameter: — **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes — **Grouting Method**: Unknown
No. of Bags: — **Additives**: None
Grouting Materials:
Unknown — From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance Direction
Unknown	0.00 ft.
Unknown	

Drilling Machine Operator Name: COGLEY

Employment: Unknown

Pump Installed: Yes — **Pump Installation only**: No
Pump Installation date: — **HP**:
Manufacturer: Other — **Pump Type**: Unknown
Model Number: — **Pump Capacity**:
Length of Drop Pipe: 78.00 ft. — **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Sand	15.00	15.00
Gravel-Medium	5.00	20.00
Clay & Gravel	8.00	28.00
Hardpan-W/Gravel	2.00	30.00
Gravel-Medium	15.00	45.00
Gravel-Coarse	5.00	50.00
Clay-Sandy	10.00	60.00
Boulders	2.00	62.00
Coal	8.00	70.00
Shale	4.00	74.00
Sandstone-W/Shale	11.00	85.00
Shale	8.00	93.00
Sandstone-Coarse	7.00	100.00
Sandstone-Medium	1.00	101.00
Sandstone-Coarse	19.00	120.00
Sandstone-Coarse-W/Shale	5.00	125.00
Shale	37.00	162.00
Limestone	3.00	165.00
Shale	45.00	210.00
Sandstone-Medium	10.00	220.00
Sandstone-Coarse	10.00	230.00
Sandstone-Medium	5.00	235.00
Sandstone-Fine	5.00	240.00
Sandstone-Fine-W/Shale	5.00	245.00
Sandstone-Medium-W/Shale	10.00	255.00
Sandstone-Fine	15.00	270.00
Shale	10.00	280.00
Sandstone-Hard-Medium	10.00	290.00
Sandstone-Coarse-W/Shale	5.00	295.00
Sandstone-Medium-W/Shale	5.00	300.00
Sandstone-Coarse	25.00	325.00
Sandstone-Medium-W/Shale	5.00	330.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006192

Failure to comply is a misdemeanor.

Import ID: 33040208311

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006192

Elevation: 850 ft

Latitude: 42.7524775688

Longitude: -84.5663443955

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SW¼ NE¼ NE¼	8	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 400' E OF LOGAN ST. 3600' N OF W BOUND OAKL

Well Name: BWL WELL 20-03

Well Owner: Board Of Water & Light

Well Address:	Owner Address:
BWL WELL 20-03 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom
Sandstone-Coarse	25.00	355.00
Shale-W/Sandstone-Coarse	25.00	380.00
Sandstone-Medium-W/Shale	15.00	395.00
Sandstone-Fine-W/Shale	5.00	400.00
Sandstone-Hard-Medium	10.00	410.00
Sandstone-Fine	5.00	415.00
Sandstone-Coarse-Hard	5.00	420.00
Shale	10.00	430.00

Geology Remarks: 1. [SAND] [15] [15] 2. [MEDIUM GRAVEL] [20] [5] 3. [CLAY & GRAVEL] [28] [8] 4. [HARD PAN GRAVEL] [30] [2] 5. [MEDIUM GRAVEL] [45] [15] 6. [COARSE GRAVEL] [50] [5] 7. [SANDY CLAY] [60] [10] 8. [BOULDER] [62] [2] 9. [COAL] [70] [8] 10. [SHALE] [74] [4] 11. [VERY SHALEY SAND ROCK] [85] [11] 12. [SHALE] [93] [8] 13. [COARSE SAND ROCK] [100] [7] 14. [MEDIUM SAND ROCK] [101] [1] 15. [COARSE SAND ROCK] [120] [19] 16. [COARSE SHALEY SAND ROCK] [125] [5] 17. [SHALE] [162] [37] 18. [LIMESTONE] [165] [3] 19. [SHALE] [210] [45] 20. [MEDIUM SAND ROCK] [220] [10] 21. [COARSE SAND ROCK] [230] [10] 22. [MEDIUM SAND ROCK] [235] [5] 23. [FINE SAND ROCK] [240] [5] 24. [FINE SHALEY SAND ROCK] [245] [5] 25. [MEDIUM SHALEY SAND ROCK] [255] [10] 26. [FINE SAND ROCK] [270] [15] 27. [SHALE] [280] [10] 28. [HARD MEDIUM SAND ROCK] [290] [10] 29. [COARSE SHALEY SAND ROCK] [295] [5] 30. [MEDIUM SHALEY SAND ROCK] [300] [5] 31. [COARSE SAND ROCK] [325] [25] 32. [MEDIUM SHALEY SAND ROCK] [330] [5] 33. [COARSE SAND ROCK] [355] [25] 34. [SHALEY COARSE SAND ROCK] [380] [25] 35. [SHALEY MEDIUM SAND ROCK] [395] [15] 36. [FINE SHALEY SAND ROCK] [400] [5] 37. [HARD MEDIUM SAND ROCK] [410] [10] 38. [FINE SAND ROCK] [415] [5] 39. [COARSE SAND ROCK, VERY HARD] [420] [5] 40. [SHALE] [430] [10]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 08011;

OTHER REMARKS **Pump Manufacturer**: Pump Manufacturer unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006194 **Import ID**: 33040209302

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006194

Elevation: 851 ft

Latitude: 42.7529068585

Longitude: -84.5505412889

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ NW¼ NE¼	9	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 250' W OF TURNER ST. 500' N OF GRAND RIVER

Well Name: BWL WELL 25-21

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-21 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 443.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 1/10/1951

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 116.08 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay & Sand	15.00	15.00
Clay & Gravel	9.00	24.00
Hardpan W/Gravel	3.00	27.00
Gravel Fine	5.00	32.00
Gravel Coarse	12.00	44.00
Red Clay	6.00	50.00
Hardpan W/Gravel	6.00	56.00
Gray Shale	11.00	67.00
Sandstone	3.00	70.00
Sandstone W/Shale	12.00	82.00
Coal W/Sand W/Boulders	2.00	84.00
Coal	1.00	85.00
Gray Shale	46.00	131.00
Gray Unidentified Consolidated Fm Hard	5.00	136.00
Gray Shale	7.00	143.00
Sandstone Medium W/Shale	9.00	152.00
Sandstone Fine W/Shale	30.00	182.00
Sandstone Fine To Medium	18.00	200.00
Sandstone Medium	12.00	212.00
Brown Sandstone Coarse	18.00	230.00
Sandstone Medium	21.00	251.00
Light Brown Sandstone	6.00	257.00
Sandstone Fine	14.00	271.00
Sandstone Fine To Medium	6.00	277.00
Light Brown Sandstone	3.00	280.00
Light Brown Sandstone Coarse	8.00	288.00
Sandstone Medium	7.00	295.00
Sandstone Fine To Medium	3.00	298.00
Sandstone Coarse	7.00	305.00
Gray Shale	37.00	342.00
Sandstone Fine	30.00	372.00
Sandstone Fine	3.00	375.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006194

Import ID: 33040209302

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006194

Elevation: 851 ft

Latitude: 42.7529068585

Longitude: -84.5505412889

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SW¼ NW¼ NE¼	9	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 250' W OF TURNER ST. 500' N OF GRAND RIVER

Well Name: BWL WELL 25-21

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-21 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom
Sandstone Medium To Coarse	3.00	378.00
Sandstone Coarse	10.00	388.00
Sandstone Medium To Coarse	2.00	390.00
Sandstone Coarse	7.00	397.00
Sandstone Coarse W/Shale	6.00	403.00
Sandstone Fine W/Shale	24.00	427.00
Gray Shale	16.00	443.00

(Continued from Page 1)

Geology Remarks: 1. [CLAY & SAND] [15] [15] 2. [CLAY & GRAVEL] [24] [9] 3. [HARD PAN GRAVEL] [27] [3] 4. [FINE GRAVEL] [32] [5] 5. [COARSE GRAVEL] [44] [12] 6. [LIGHT RED CLAY] [50] [6] 7. [HARD PAN GRAVEL] [56] [6] 8. [GRAY SHALE ROCK] [67] [11] 9. [SAND ROCK] [70] [3] 10. [SHALEY SAND ROCK] [82] [12] 11. [COAL, SAND ROCK MIXED] [84] [2] 12. [COAL] [85] [1] 13. [GRAY SHALE] [131] [46] 14. [GRAY HARD ROCK] [136] [5] 15. [GRAY SHALE] [143] [7] 16. [MEDIUM SHALEY SAND ROCK] [152] [9] 17. [FINE SHALEY SAND ROCK] [182] [30] 18. [FINE TO MEDIUM SAND ROCK] [200] [18] 19. [MEDIUM SAND ROCK] [212] [12] 20. [DARK BROWN COARSE SAND ROCK] [230] [18] 21. [LIGHT COLOR MEDIUM SAND ROCK] [251] [21] 22. [LIGHT BROWN MEDIUM SAND ROCK] [257] [6] 23. [LIGHT COLOR FINE SAND ROCK] [271] [14] 24. [FINE TO MEDIUM SAND ROCK] [277] [6] 25. [LIGHT BROWN MEDIUM SAND ROCK] [280] [3] 26. [LIGHT BROWN VERY COARSE SAND ROCK] [288] [8] 27. [LIGHT COLOR MEDIUM SAND ROCK] [295] [7] 28. [FINE TO MEDIUM SAND ROCK] [298] [3] 29. [VERY COARSE SAND ROCK] [305] [7] 30. [GRAY SHALE] [342] [37] 31. [LIGHT COLOR FINE SAND ROCK] [372] [30] 32. [FINE SAND ROCK] [375] [3] 33. [MEDIUM TO COARSE SAND ROCK] [378] [3] 34. [VERY COARSE SAND ROCK] [388] [10] 35. [MEDIUM TO COARSE SAND ROCK] [390] [2] 36. [COARSE SAND ROCK] [397] [7] 37. [COARSE SHALEY SAND ROCK] [403] [6] 38. [FINE SHALEY SAND ROCK] [427] [24] 39. [GRAY SHALE] [443] [16]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 09002;

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006199 **Import ID**: 33040209307

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ NW¼ SW¼	9	04N 02W		3760

Well ID: 33000006199

Elevation: 851.84 ft

Latitude: 42.7464196001

Longitude: -84.561369159

Distance and Direction from Road Intersection: WSSN 03760; 4000' W OF S BND CEDAR ST. 1100' N OF W BND

Well Name: BWL WELL 15-04

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 15-04 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 437.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**:

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 47.33 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
51.00 ft. after 0.00 hrs. pumping at 842.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Sand W/Silt Gravely	20.00	20.00
Sand & Clay	5.00	25.00
Gravel & Clay	5.00	30.00
Gravel & Clay Fine	5.00	35.00
Sand & Clay Very Fine Silty	5.00	40.00
Sandstone Very Fine Silty	5.00	45.00
Gray Shale	10.00	55.00
Coal	5.00	60.00
Shale Fine Sandy	25.00	85.00
Sandstone Fine W/Shale	15.00	100.00
Gray Sandstone Fine	20.00	120.00
Sandstone Fine W/Shale	35.00	155.00
Sandstone Fine	20.00	175.00
Sandstone Medium	30.00	205.00
Sandstone Fine	65.00	270.00
White Sandstone Fine	20.00	290.00
Gray Sandstone Medium	25.00	315.00
Gray Sandstone Medium To Coarse	5.00	320.00
Gray Sandstone Medium	5.00	325.00
Gray Sandstone Fine	5.00	330.00
Gray Sandstone Medium	5.00	335.00
Gray Sandstone Fine	15.00	350.00
Gray Sandstone Medium To Coarse	15.00	365.00
Gray Sandstone Medium	5.00	370.00
Gray Sandstone Medium	15.00	385.00
Gray Sandstone Fine	30.00	415.00
Limestone	1.00	416.00
Gray Limestone	5.00	421.00
Gray Shale	16.00	437.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006199

Import ID: 33040209307

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006199

Elevation: 851.84 ft

Latitude: 42.7464196001

Longitude: -84.561369159

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ NW¼ SW¼	9	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 4000' W OF S BND CEDAR ST. 1100' N OF W BND

Well Name: BWL WELL 15-04

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 15-04 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

(Continued from Page 1)

Geology Remarks: 1. [SAND, DIRTY, GRAVELLY] [20] [20] 2. [SAND & CLAY] [25] [5] 3. [GRAVEL & CLAY] [30] [5] 4. [FINE GRAVEL & CLAY] [35] [5] 5. [SAND, VERY FINE, SILTY & CLAY] [40] [5] 6. [SANDSTONE, VERY FINE & SILTY] [45] [5] 7. [SHALE, GRAY] [55] [10] 8. [COAL] [60] [5] 9. [SHALE, FINE, SANDY] [85] [25] 10. [SANDSTONE, VERY FINE, SHALEY, GRAY] [100] [15] 11. [SANDSTONE, FINE, CLEAN, GRAY] [120] [20] 12. [SANDSTONE, FINE, SHALEY GRAY] [155] [35] 13. [SANDSTONE, FINE, CLEAR] [175] [20] 14. [SANDSTONE, MEDIUM, CLEAR, BUFF] [205] [30] 15. [SANDSTONE, FINE, CLEAR, BUFF] [270] [65] 16. [SANDSTONE, FINE, WHITE, CLEAR] [290] [20] 17. [SANDSTONE, MEDIUM, GRAY, CLEAR] [315] [25] 18. [SANDSTONE, MEDIUM TO MEDIUM COARSE, GRAY] [320] [5] 19. [SANDSTONE, MEDIUM, GRAY] [325] [5] 20. [SANDSTONE, FINE, GRAY] [330] [5] 21. [SANDSTONE, MEDIUM, GRAY] [335] [5] 22. [SANDSTONE, FINE, GRAY] [350] [15] 23. [SANDSTONE, MEDIUM COARSE, GRAY] [365] [15] 24. [SANDSTONE, MEDIUM, GRAY] [370] [5] 25. [SANDSTONE, MEDIUM, GRAY] [385] [15] 26. [SANDSTONE, FINE, GRAY] [415] [30] 27. [LIMESTONE, PYRITIFEROUS] [416] [1] 28. [LIMESTONE, GRAY] [421] [5] 29. [SHALE, GRAY] [437] [16]

Contractor Type: Unknown
Registration Number: 729
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 09007;

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:25

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006200 **Import ID**: 33040209308

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ NW¼ SW¼	9	04N 02W		3760

Well ID: 33000006200

Elevation: 847.14 ft

Latitude: 42.7462946669

Longitude: -84.5623705131

Distance and Direction from Road Intersection: 4300' W OF S BND CEDAR ST. 1000' N OF W BND OAKLAND AVE

Well Name:

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 15-05 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Unknown

Well Depth: 425.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**:

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 46.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
69.00 ft. after 0.00 hrs. pumping at 780.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Sand Fine	15.00	15.00
Sand & Gravel Fine	10.00	25.00
Gravel Coarse W/Sand	5.00	30.00
Clay W/Gravel	5.00	35.00
Gray Shale Wet/Moist	5.00	40.00
Light Gray Shale Wet/Moist Sandy	20.00	60.00
Light Gray Shale Sandy Wet/Moist	25.00	85.00
Light Gray Shale Wet/Moist	15.00	100.00
Light Gray Sandstone Fine	25.00	125.00
Light Gray Sandstone Cemented	5.00	130.00
Light Gray Sandstone Very Fine W/Silt	55.00	185.00
Light Gray Sandstone Coarse W/Silt	5.00	190.00
Sandstone Fine To Coarse	5.00	195.00
Gray Sandstone Fine Silty	180.00	375.00
Gray Shale Wet/Moist	10.00	385.00
Light Gray Sandstone Very Fine W/Silt	30.00	415.00
Black Shale Soft	10.00	425.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006200 **Import ID**: 33040209308

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006200

Elevation: 847.14 ft

Latitude: 42.7462946669

Longitude: -84.5623705131

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ NW¼ SW¼	9	04N 02W		3760

Distance and Direction from Road Intersection: 4300' W OF S BND CEDAR ST. 1000' N OF W BND OAKLAND AVE

Well Name:

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 15-05 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006208 **Import ID**: 33040209316

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006208

Elevation: 855 ft

Latitude: 42.7506711064

Longitude: -84.550380816

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ SW¼ NE¼	9	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 250' W OF TURNER ST., 300' S OF NORTH ST.

Well Name: BWL WELL 25-20

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-20 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

Drilling Method: Cable Tool

Well Depth: 443.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 1/2/1946

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 13.25 in. to 0.00 ft. depth

Bore Diameter 1:
Bore Diameter 2:
Bore Diameter 3:
Height: 2.60 ft. above grade
Casing Fitting: None

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Clay	12.00	12.00
Sand	3.00	15.00
Gravel	40.00	55.00
Gravel Fine	9.00	64.00
Blue Shale	3.00	67.00
White Sand	19.00	86.00
Gravel Fine To Coarse	41.00	127.00
White Sand Fine	94.00	221.00
Gray Limestone	5.00	226.00
White Sand	54.00	280.00
Sand W/Shale Broken	90.00	370.00
White Sand Coarse	20.00	390.00
White Sand Fine	39.00	429.00
Gray Shale	14.00	443.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006208 **Import ID**: 33040209316

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006208

Elevation: 855 ft

Latitude: 42.7506711064

Longitude: -84.550380816

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NW¼ SW¼ NE¼	9	04N 02W		3760

Distance and Direction from Road Intersection: WSSN 03760; 250' W OF TURNER ST., 300' S OF NORTH ST.

Well Name: BWL WELL 25-20

Well Owner: Board Of Water & Light

Well Address:	**Owner Address**:
BWL WELL 25-20 LANSING MI	123 W. OTTAWA ST. LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006278 **Import ID**: 33040218004

Tax No: 330118352028	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006278

Elevation: 880 ft

Latitude: 42.7283772518

Longitude: -84.5985788011

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ SW¼ SW¼	18	04N 02W		

Distance and Direction from Road Intersection: 110FT W OF STONER, 480FT S OF KALAMAZOO

Well Name:

Well Owner: John Eaton

Well Address:	Owner Address:
514 STONER LANSING MI	514 STONER LANSING MI

Drilling Method: Rotary

Well Depth: 225.00 ft. **Well Use**: Irrigation

Well Type: New **Date Completed**: 2/18/1990

Casing Type: PVC plastic
Casing Joint: Welded
Diameter: 5.00 in. to 129.00 ft. depth

Bore Diameter 1: 8.00 in. to 129.00 ft. depth
Bore Diameter 2:
Bore Diameter 3:
Height: 1.50 ft. above grade
Casing Fitting: None

Static Water Level: 85.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
120.00 ft. after 0.00 hrs. pumping at 60.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Bedrock Well
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Bentonite slurry From 0.00 ft. to 129.00 ft.

Well Head Completion: Pitless adapter

Nearest source of possible contamination:

Type	Distance	Direction
Sewer line	80.00 ft.	East

Drilling Machine Operator Name: PETES WELL DRILLING

Employment: Unknown

Pump Installed: No **Pump Installation only**:
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Brown-Clay	5.00	5.00
Black-Topsoil	4.00	9.00
Gray-Clay	10.00	19.00
Black & Gray-Clay	30.00	49.00
Clay & Stones-Sandy	16.00	65.00
Red-Clay-Soft	30.00	95.00
Red-Shale	10.00	105.00
Red-Sandstone-Soft	20.00	125.00
White-Sandstone	15.00	140.00
Gray-Sandstone	22.00	162.00
White-Sandstone	23.00	185.00
Gray-Shale	15.00	200.00
Gray-Sandstone-White	25.00	225.00

Geology Remarks: 1. [BROWN CLAY , DEBRIS] [5] [5] 2. [BLACK DIRT] [9] [4] 3. [GRAY CLAY] [19] [10] 4. [BLACK & GRAY CLAY] [49] [30] 5. [SANDY CLAY & STONES] [65] [16] 6. [SOFT & RED CLAY] [95] [30] 7. [GREASY RED SHALE] [105] [10] 8. [SOFT RED SANDROCK] [125] [20] 9. [WHITE SANDROCK] [140] [15] 10. [GRAY SANDROCK] [162] [22] 11. [WHITE SANDROCK] [185] [23] 12. [GRAY SHALE] [200] [15] 13. [GRAY , WHITE SANDROCK] [225] [25]

Contractor Type: Unknown
Registration Number: 2003
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks:
OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:27

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006279 Failure to comply is a misdemeanor. **Import ID**: 33040218301

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006279

Elevation: 880 ft

Latitude: 42.7322673821

Longitude: -84.5934278857

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NE¼ NE¼ SW¼	18	04N 02W		3770

Distance and Direction from Road Intersection: WSSN 03770; 500' S OF MICHIGAN AVE. 1200' W OF GRACE ST

Well Name: LANSING TWP WELL #1

Well Owner: Lansing Township

Well Address:
LANSING TWP WELL #1
LANSING MI

Owner Address:
LANSING MI 48933

Drilling Method: Cable tool

Well Depth: 404.00 ft. **Well Use**: Type I public

Well Type: Replacement **Date Completed**: 9/17/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1: 13.25 in. to 0.00 ft. depth
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 80.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**:
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Black-Loam	4.00	4.00
Blue-Clay	38.00	42.00
Shale-Sandy	13.00	55.00
Sand & Gravel	20.00	75.00
Blue-Shale	36.00	111.00
White-Sand-Coarse	59.00	170.00
Sand-W/Shale	50.00	220.00
White-Sand	70.00	290.00
Blue-Shale	12.00	302.00
Sand	4.00	306.00
Gray-Shale	17.00	323.00
White-Sand	80.00	403.00
Gray-Limestone	1.00	404.00

Geology Remarks: 1. [BLACK LOAM] [4] [4] 2. [BLUE CLAY] [42] [38] 3. [SANDY SHALE] [55] [13] 4. [SAND & GRAVEL] [75] [20] 5. [BLUE SHALE] [111] [36] 6. [SAND WHITE, COARSE] [170] [59] 7. [SAND STREAKED WITH SHALE] [220] [50] 8. [SAND WHITE] [290] [70] 9. [BLUE SHALE] [302] [12] 10. [SAND] [306] [4] 11. [GRAY SHALE] [323] [17] 12. [SAND WHITE] [403] [80] 13. [LIME GREY] [404] [1]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 18001;

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:27

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006280

Import ID: 33040218302

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ NE¼ SW¼	18	04N 02W		3770

Well ID: 33000006280

Elevation: 880 ft

Latitude: 42.7313686621

Longitude: -84.5936984266

Distance and Direction from Road Intersection: WSSN 03770; 850' S OF MICHIGAN AVE. 1300' W OF GRACE ST

Well Name: LANSING TWP WELL #2

Well Owner: Lansing Township

Well Address:
LANSING TWP WELL #2
LANSING MI

Owner Address:
LANSING MI 48933

Drilling Method: Cable tool

Well Depth: 417.00 ft.

Well Use: Type I public

Well Type: Replacement

Date Completed: 10/8/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 0.00 in. to 143.80 ft. depth

Bore Diameter 1: 13.25 in. to 0.00 ft. depth
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 77.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No
Well Intake: Unknown
Filter Packed:
Screen Diameter:
Length:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes
Grouting Method: Unknown
No. of Bags:
Additives: None
Grouting Materials:
Unknown
From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name: F. C. CULLY

Employment: Unknown

Pump Installed: No
Pump Installation only:
Pump Installation date:
HP:
Manufacturer:
Pump Type:
Model Number:
Pump Capacity:
Length of Drop Pipe:
Id of Well:
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Clay-Sandy	5.00	5.00
Sand-W/Shale	60.00	65.00
Sand & Gravel	15.00	80.00
Coal	2.00	82.00
Sand	13.00	95.00
Shale	24.00	119.00
White-Sand	4.00	123.00
Sand-Broken	17.00	140.00
White-Sand	30.00	170.00
Shale & Sandstone	65.00	235.00
White-Sand	45.00	280.00
Black-Shale	13.00	293.00
Sand-Broken	51.00	344.00
White-Sand	61.00	405.00
Gray-Limestone	11.00	416.00
Gray-Shale	1.00	417.00

(Continued on Page 2)

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:27

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 33000006280 Failure to comply is a misdemeanor. **Import ID**: 33040218302

Tax No:	Permit No:	County: Ingham	Township: Lansing

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
SE¼ NE¼ SW¼	18	04N 02W		3770

Well ID: 33000006280

Elevation: 880 ft

Latitude: 42.7313686621

Longitude: -84.5936984266

Distance and Direction from Road Intersection: WSSN 03770; 850' S OF MICHIGAN AVE. 1300' W OF GRACE ST

Well Name: LANSING TWP WELL #2

Well Owner: Lansing Township

Well Address:	Owner Address:
LANSING TWP WELL #2 LANSING MI	LANSING MI 48933

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

Geology Remarks: 1. [SANDY CLAY] [5] [5] 2. [SAND AND SHALE] [65] [60] 3. [SAND AND GRAVEL] [80] [15] 4. [COAL] [82] [2] 5. [SAND] [95] [13] 6. [SHALE] [119] [24] 7. [SAND WHITE] [123] [4] 8. [SAND BROKEN] [140] [17] 9. [SAND WHITE] [170] [30] 10. [SHALE AND SAND] [235] [65] 11. [SAND WHITE] [280] [45] 12. [SHALE BLACK] [293] [13] 13. [SAND BROKEN] [344] [51] 14. [SAND WHITE] [405] [61] 15. [LIME GRAY] [416] [11] 16. [SHALE GRAY] [417] [1]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 18002; TESTED 10-12-45.

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:27

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006281

Import ID: 33040218303

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000006281

Elevation: 860 ft

Latitude: 42.7368222311

Longitude: -84.5944557074

Fraction:	Section:	Town/Range:	French Claim:	WSSN:
NE¼ SE¼ NW¼	18	04N 02W		3770

Distance and Direction from Road Intersection: WSSN 03770; 1500' S OF SAGINAW ST. 100' W OF BONAIR ST.

Well Name: LANSING TWP WELL #3

Well Owner: Lansing Township

Well Address:
LANSING TWP WELL #3
LANSING MI

Owner Address:
LANSING MI 48933

Drilling Method: Cable tool

Well Depth: 399.00 ft. **Well Use:** Type I public

Well Type: Replacement **Date Completed:** 9/6/1945

Casing Type: Unknown
Casing Joint: Unknown
Diameter: 14.00 in. to 102.80 ft. depth

Bore Diameter 1: 13.25 in. to 0.00 ft. depth
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: Drive shoe

Static Water Level: 999.99 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake:** Unknown
Filter Packed:
Screen Diameter: **Length:**
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method:** Unknown
No. of Bags: **Additives:** None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	Distance	Direction
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name: JOHN JOHNSTON

Employment: Unknown

Pump Installed: No **Pump Installation only:**
Pump Installation date: **HP:**
Manufacturer: **Pump Type:**
Model Number: **Pump Capacity:**
Length of Drop Pipe: **Id of Well:**
Diameter of Drop Pipe:
Draw Down Seal Used:

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number:

Formation Description	Thickness	Depth to Bottom
Topsoil-W/Clay	6.00	6.00
Sand & Gravel-Wet/Moist	40.00	46.00
Shale-Sandy	53.00	99.00
White-Sandstone	101.00	200.00
Gray-Shale	5.00	205.00
White-Sandstone	70.00	275.00
Blue-Shale	40.00	315.00
Sandstone	74.00	389.00
Shale-Sandy	10.00	399.00

Geology Remarks: 1. [TOP SOIL, CLAY] [6] [6] 2. [SAND & GRAVEL MUDDY] [46] [40] 3. [SANDY SHALE] [99] [53] 4. [WHITE SANDSTONE] [200] [101] 5. [SHALE GRAY] [205] [5] 6. [WHITE SANDSTONE] [275] [70] 7. [SHALE BLUE] [315] [40] 8. [SANDSTONE] [389] [74] 9. [SANDY DARK SHALE] [399] [10]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: ORIGINAL WELLID# WAS 18003; 6" LENGTH OF DRIVE SHOE. 402' FROM TOP OF FOUNDATION.

OTHER REMARKS

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:27

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000006313 **Import ID**: 33040221001

Tax No:	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000006313

Elevation: 832 ft

Latitude: 42.7226602846

Longitude: -84.5530132808

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
NE¼ SE¼ NW¼	21	04N 02W		

Distance and Direction from Road Intersection: 200' S OF HAZEL ST. 150' W OF WASHINGTON AVE.

Well Name:

Well Owner: Reed & Noyce

Well Address:
LANSING MI

Owner Address:

Drilling Method: Cable Tool

Well Depth: 40.00 ft. **Well Use**: Other

Well Type: Replacement **Date Completed**: 8/24/1967

Casing Type: Unknown
Casing Joint: Unknown
Diameter:

Bore Diameter 1: 16.00 in. to 0.00 ft. depth
Bore Diameter 2:
Bore Diameter 3:
Height: 0.00 ft. above grade
Casing Fitting: None

Static Water Level: 15.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
36.00 ft. after 0.00 hrs. pumping at 411.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Unknown
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Unknown From 0.00 ft. to 0.00 ft.

Well Head Completion: Unknown

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name:

Employment: Unknown

Pump Installed: No **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: **Pump Type**:
Model Number: **Pump Capacity**:
Length of Drop Pipe: **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Debris	1.00	1.00
Brown Clay	15.00	16.00
Blue Clay & Gravel	13.00	29.00
Sand & Gravel Coarse	9.00	38.00
Clay & Gravel W/Shale	2.00	40.00

Geology Remarks: 1. [STREET TOP] [1] [1] 2. [BROWN CLAY] [16] [15] 3. [BLUE CLAY & GRAVEL] [29] [13] 4. [SAND & GRAVEL - COARSE GRAVEL] [38] [9] 5. [CLAY & GRAVEL - SHALE] [40] [2]

Contractor Type: Unknown
Registration Number: 550
Business Name:
Business Address:

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signature of Registered Representative **Date**

General Remarks: THIS WAS DRILLED AS A DEWATERING WALL ON SEWER CONSTRUCTION. ALL MATERIAL TO BE SALVAGED. MADE 16 X 10 GRAVEL WALL CONSTRUCTION. DRILLER: J.H. WESS

OTHER REMARKS **Well Use**: Type Use Unknown

EQP 2017C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

2/17/2000 10:27

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000010343 **Import ID**: 33040220007

Tax No: 330110301001	**Permit No**:	**County**: Ingham	**Township**: Lansing

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ SW¼ NW¼	20	04N 02W		

Well ID: 33000010343

Elevation: 850 ft

Latitude: 42.7196120656

Longitude: -84.5802434199

Distance and Direction from Road Intersection: 600'E OF WEST SEC. LINE; 2700'N OF SOUTH SEC. LINE

Well Name:

Well Owner: Country Club Of Lansing

Well Address:
2200 MOORES RIVER DR.
LANSING MI 48910

Owner Address:
2200 MOORES RIVER DR.
LANSING MI 48910

Drilling Method: Rotary

Well Depth: 370.00 ft. **Well Use**: Irrigation

Well Type: New **Date Completed**: 2/8/1995

Casing Type: PVC plastic
Casing Joint: Unknown
Diameter: 12.00 in. to 55.00 ft. depth

Bore Diameter 1: 15.50 in. to 55.00 ft. depth
Bore Diameter 2:
Bore Diameter 3:
Height: 1.00 ft. above grade
Casing Fitting: None

Static Water Level: 36.00 ft. Below Grade(Not Flowing)
Yield Test Method: Unknown
Measurement Taken During Pump Test:
132.00 ft. after 8.00 hrs. pumping at 350.00 GPM

Abandoned Well Plugged: No
Reason for not plugging Well:

Abandoned well ID:

Screen Installed: No **Well Intake**: Bedrock Well
Filter Packed:
Screen Diameter: **Length**:
Screen Material Type:
Slot:
Blank:
Fittings:

Well Grouted: Yes **Grouting Method**: Unknown
No. of Bags: **Additives**: None
Grouting Materials:
Bentonite slurry From 0.00 ft. to 55.00 ft.

Well Head Completion: 12 inches above grade

Nearest source of possible contamination:

Type	**Distance**	**Direction**
Unknown	0.00 ft.	
Unknown		

Drilling Machine Operator Name: STANLEY BROWN;BROWN DRILLING

Employment: Unknown

Pump Installed: Yes **Pump Installation only**: No
Pump Installation date: **HP**:
Manufacturer: Unknown **Pump Type**: Submersible
Model Number: **Pump Capacity**: 0.00 GPM
Length of Drop Pipe: 0.00 ft. **Id of Well**:
Diameter of Drop Pipe:
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Tank Type:
Manufacturer:
Model Number : **Tank Capacity** : Gallons
Pressure Relief Valve Installed : No

Formation Description	Thickness	Depth to Bottom
Brown Clay	25.00	25.00
Gray Clay & Gravel	10.00	35.00
Shale Soft	10.00	45.00
Shale Hard	5.00	50.00
Black Shale	10.00	60.00
Gray Shale	15.00	75.00
Sandstone	70.00	145.00
Shale & Sandstone	15.00	160.00
Sandstone	45.00	205.00
Sandstone Hard W/Shale	20.00	225.00
Limestone & Sandstone	5.00	230.00
Sandstone	80.00	310.00
Shale & Sandstone	15.00	325.00
Sandstone	15.00	340.00
Sandstone & Shale	5.00	345.00
Sandstone	15.00	360.00
Gray Sandstone W/Shale	5.00	365.00
Black & Gray Shale	5.00	370.00

(Continued on Page 2)

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Failure to comply is a misdemeanor.

Well ID: 33000010343 **Import ID**: 33040220007

Tax No: 330110301001	**Permit No**:	**County**: Ingham	**Township**: Lansing

Well ID: 33000010343

Elevation: 850 ft

Latitude: 42.7196120656

Longitude: -84.5802434199

Fraction:	**Section**:	**Town/Range**:	**French Claim**:	**WSSN**:
SE¼ SW¼ NW¼	20	04N 02W		

Distance and Direction from Road Intersection: 600'E OF WEST SEC. LINE; 2700'N OF SOUTH SEC. LINE

Well Name:

Well Owner: Country Club Of Lansing

Well Address:	**Owner Address**:
2200 MOORES RIVER DR. LANSING MI 48910	2200 MOORES RIVER DR. LANSING MI 48910

(Continued from Page 1)

Formation Description	Thickness	Depth to Bottom

ARCADIS

Appendix C

November 2005 Site Assessment
Support Data

ARCADIS

November 2005 Site Assessment Summary

Introduction

In November of 2005, Blasland, Bouck & Lee, Inc. (BBL) conducted an initial Site Assessment soil investigation to investigate potential releases of hazardous constituents that may be associated with areas of interest (AOIs) at Plant 6. Groundwater sampling and analysis were not included in this investigation. The Plant 6 Site Assessment Work Plan (SAWP) (BBL, 2005) was provided to the Michigan Department of Environmental Quality (MDEQ) in December of 2005.

Sampling Program Rationale and Approach

The site assessment sampling program used for the 2005 site assessment investigation was designed to assess the presence and nature of hazardous constituents in soil at the Facility; develop the data necessary to assess human health and ecological risks associated with exposure scenarios based on current and reasonably expected future land use at and around the Facility. The site assessment sampling program is described in the SAWP, and in more detail in the Plant 6 Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) (BBL, October 2005). Sampling and analysis activities were performed in accordance with the SAWP, FSP, and QAPP.

Soil Sample Collection

At each AOI location, soil samples were collected continuously in 4 or 5-foot sections for geological and visual classification. Soil samples were screened at 2-foot intervals with a photoionization detector (PID) for the presence of organic vapors, as well as visual observations to assess the presence of staining. In areas where caustic substances were stored, soil samples were screened for pH with litmus paper. If there was visual evidence of staining in a particular 2-foot interval, an OIL-IN-SOILTM shake test was performed to verify the presence or absence of oil in the soil. The samples submitted to the laboratory were analyzed according to the following criteria:

- Target Compound List (TCL) volatile organic compounds (VOCs) – a sample was collected if the PID reading ≥ 10 ppm (if more than one reading is ≥ 10 ppm, then the highest PID reading within the boring was collected);

- TCL semivolatile organic compounds (SVOCs) – a sample was collected if a positive result from the OIL-IN-SOILTM shake test is found (if multiple intervals exhibit a positive result, then the interval that visually appears most impacted was collected);

- Target Analyte List (TAL) metals (including cyanide and lead (coarse and fractional) per MDEQ OP Memo 1, October 22, 2004) – a sample was collected if analyzing for VOCs and/or SVOCs, or if metals were indicated as a potential contaminant of concern (COC);

- PCBs – a sample was collected if analyzing for SVOCs and if indicated as a potential COC; and

- If none of the samples within the boring had a PID reading ≥ 10 ppm and there was no visual evidence of oil, then a sample from the 2-foot interval below the approximate depth of interest for the appropriate COCs was submitted. If the above conditions existed and there were no COCs indicated, no samples were submitted.

This sample collection methodology is graphically shown on Figure C-1 attached to this appendix.

Soil Sample Results

Results of the pH, PID and OIL-IN-SOILTM shake test are summarized in Table C-1 and shown on the boring logs included in Appendix I. Results of the sample analysis are included in Sections 11 and 12 of this CCR. Results of the Site Assessment soil samples as well as results of historical data are shown on Figures 27 through 43. Laboratory data sheets and laboratory validation reports are included attached to this appendix.

References

BBL. 2005. Site Assessment Work Plan. Prepared for General Motors Corporation, Lansing Plant #6, Lansing MI (October 28, 2005).

For every 2–foot interval, examine soils visually for evidence of oil and screen with a PID.

Perform an OIL–IN–SOIL™ shake test **IF** there is visual evidence of oil.

Collect soil samples according to the following:

VOCs

- if PID reading ≥10 ppm

(if more than one reading is ≥10 ppm, then the highest PID reading within the boring will be collected)

SVOCs

- if positive result from OIL–IN–SOIL™ shake test

(if multiple intervals exhibit a positive result, then collect the interval that appears most impacted)

Metals *

- if analyzing for VOCs and/or SVOCs

or

- if indicated on AOI concern table

PCBs

- if analyzing for SVOCs

and

- if indicated on AOI concern table

Ethylene Glycol *

- if indicated on AOI concern table

* **IF** none of the samples within the boring have a PID reading ≥10 ppm **AND** there is no visual evidence of oil, **THEN** submit a sample from the 2–foot interval below the approximate depth of interest for the appropriate COCs as indicated on the AOI concern table (if the boring is not listed on the AOI concern table, then no samples will be submitted.)

GENERAL MOTORS CORPORATION
LANSING, MICHIGAN
PLANTS 2, 3, AND 6
CURRENT CONDITIONS REPORT
APPENDIX D

PLANT 6 NOVEMBER 2005 SITE ASSESSMENT SOIL SAMPLING METHODOLOGY

ARCADIS

FIGURE
C-1

CITY:BRIGHTON DIV/GROUP:85 DB:ADF LD:(Opt) PIC:(Opt) PM:(Req'd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
J:\2008\B00644811\0000\0300\DWG\64481N01.dwg LAYOUT: C-1 SAVED: 7/28/2008 1:49 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: ---PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/28/2008 1:50 PM BY: FOX, AARON
XREFS: IMAGES: PROJECTNAME: ---
64429X01

TABLE C-1
GM LANSING PLANT 6
HISTORICAL AND SITE ASSESSMENT DATA SUMMARY

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION

AOI #	Title	Site Assessment Soil Boring IDs	Site Assessment Boring Installation Date	Site Assessment Boring Installation Depth (Feet)	PID > 10 PPM Detected in Field Screening (Boring ID)	LNAPL Detected in Field Screening (Boring ID)	Low (<6.5) or High (>8.5) pH Detected in Field Screening (Boring ID)
6-3	SWMU 3 - Current Hazardous Waste Storage Area	SA7-7	11/7/2005	16	No	No	No
		SA7-8	11/7/2005	16	No	No	No
		SA7-9	11/7/2005	16	No	No	No
		SA8-1	11/9/2005	16	No	No	Yes (High)
		SA8-2	11/9/2005	16	No	No	ND
		SA8-3	11/8/2005	16	No	No	No
		SA8-4	11/8/2005	16	No	No	No
		SA8-5	11/8/2005	16	No	No	No
		SA8-6	11/7/2005	16	No	No	Yes (High)
6-19	Process Waste Tunnel	SA7-6	11/7/2005	16	No	No	No
		SA7-7	11/7/2005	16	No	No	No
		SA10-2	11/3/2005	16	No	No	Yes (High)
		SA10-3	11/7/2005	16	No	No	No
		SA10-4	11/4/2005	16	No	No	No
6-21	Former solder repair pit - 1.5' deep	SA26-3	11/10/2006	16	No	No	No
6-30	New weld pit - 18x50x4	SA29-2	11/9/2005	10	No	No	No
6-31	New drive unit pit - 7' deep	SA29-1	11/9/2005	10	No	No	No
6-40	Solvent tank	SA1-5	11/11/2005	12	No	No	No
6-41	5 hoists	SA1-6	11/11/2005	11	No	No	No
6-42	Storm ceptor spill structure	SA4-1	11/11/2005	16	No	Yes	Yes (High)
6-43	Storm ceptor	SA13-1	11/8/2005	16	No	No	No
		SA13-2	11/8/2005	16	No	No	No
6-44	Gasoline tank #7	SA12-1	11/2/2005	16	No	No	No
		SA12-2	11/2/2005	16	No	No	No
		SA12-3	11/2/2005	16	No	No	No
		SA12-4	11/3/2005	16	Yes	Yes	No
6-47	Leaking Industrial Waste Line	SA4-4	11/10/2005	16	No	No	No
6-48	Former Coal Pile	SA6-1	11/3/2005	10	No	No	No
		SA6-2	11/3/2005	10	No	No	Yes (High)
		SA6-3	11/3/2005	10	No	No	No
		SA6-4	11/3/2005	10	Yes	No	No
		SA6-5	11/3/2005	10	No	No	No
		SA6-6	11/3/2005	10	No	No	No
		SA6-7	11/3/2005	10	No	No	No
		SA6-8	11/2/2005	10	No	No	No
		SA6-9	11/2/2005	10	No	No	No
		SA6-10	11/3/2005	16	No	No	No
		SA6-11	11/4/2005	10	No	No	No
		SA6-12	11/4/2005	10	No	No	Yes (High)
6-49	2nd Lacquer Booth	SA22-2	11/2/2005	10	No	No	No
		SA22-3	11/2/2005	10	No	No	No
6-59	Stormceptor	SA3-1	11/11/2005	16	No	No	No
		SA3-2	11/11/2005	16	No	No	No
6-60	Paint Mix Room	SA5-1	11/10/2005	10	No	No	No
		SA5-4	11/10/2005	4	No	No	No
		SA5-5	11/10/2005	10	Yes	No	No

TABLE C-1
GM LANSING PLANT 6
HISTORICAL AND SITE ASSESSMENT DATA SUMMARY

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION

AOI #	Title	Site Assessment Soil Boring IDs	Site Assessment Boring Installation Date	Site Assessment Boring Installation Depth (Feet)	PID > 10 PPM Detected in Field Screening (Boring ID)	LNAPL Detected in Field Screening (Boring ID)	Low (<6.5) or High (>8.5) pH Detected in Field Screening (Boring ID)
6-63	Sump	SA32-1	11/9/2005	10	No	No	Yes (High)
		SA32-2	11/9/2005	4	No	No	No
6-66	Sump						
6-68	Sump	SA29-3	11/9/2005	7	No	No	No
6-78	Former PCB Transformers	SA7-9	11/7/2005	16	No	No	No
6-81	Former Paint Shop Area	SA11-1	11/2/2005	10	No	No	No
		SA11-2	11/1/2005	10	No	No	No
		SA11-3	10/31/2005	7.5	No	No	ND
		SA11-4	10/31/2005	10	No	No	No
		SA11-5	10/31/2005	10	No	No	No
		SA11-6	10/31/2005	10	No	No	No
		SA11-7	10/31/2005	10	No	No	No
		SA11-8	10/31/2005	10	No	No	No
		SA11-9	11/2/2005	10	No	No	Yes (High)
		SA11-10	11/2/2005	10	No	No	No
		SA11-11	11/1/2005	10	No	No	No
		SA11-12	11/1/2005	10	No	No	No
		SA11-14	11/1/2005	10	No	No	No
		SA11-15	11/1/2005	10	No	No	No
		SA11-16	11/1/2005	10	No	No	No
		SA11-17	11/1/2005	10	No	No	No
		SA11-18	11/1/2005	10	No	No	No
6-82	Former Coal Shoot Building (Basement filed with water)	SA20-1	11/4/2005	16	No	No	No
		SA20-2	11/4/2005	16	No	No	Yes (High)
		SA20-3	11/4/2005	16	No	No	No
		SA20-4	11/4/2005	16	Yes	No	Yes
6-83	Power Plant (Sumps, Pits, Trenches, Old WWTP)	SA7-1	11/8/2005	16	No	No	No
		SA7-2	11/8/2005	16	No	No	No
		SA7-3	11/8/2005	16	No	No	No
		SA7-4	11/8/2005	16	No	No	No
		SA7-5	11/7/2005	16	No	No	No
		SA7-6	11/7/2005	16	No	No	No
		SA7-7	11/7/2005	16	No	No	No
		SA7-8	11/7/2005	16	No	No	No
		SA7-9	11/7/2005	16	No	No	No
		SA7-10	11/7/2005	16	No	No	No

ND = Not Done

ARCADIS

November 2005 Site Assessment
Merit – Laboratory Data Sheets

Analytical Laboratory Report

Report ID: S24673.01(01)
Generated on 11/18/2005

Report to

Attention: Amy Hoeksema/ Jim Heading
Blasland, Bouck & Lee, Inc.
10559 Citation Drive
Suite 100
Brighton, MI 48116

Phone: 810-229-8594 FAX: 810-229-8837

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S24673.01-S24673.09
Project: 64430.200/Plant 6 SSOW# E220002
Submitted Date/Time: 11/07/2005 16:30
Sampled by: Michael Mathiah
P.O. #: 412463

Report Notes

Results relate only to items tested.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak
Laboratory Director

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S24673.01
Sample Tag: SA7-6 (14-16)
Collected Date/Time: 11/07/2005 09:05
Matrix: Soil
COC Reference: 02581

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 13:34	JDP	57-12-5	
Metals								
% Coarse by Weight	88.3	%			11/10/05 12:00	SLS		
% Fine by Weight	11.7	%			11/10/05 12:00	SLS		
Total Solids	88	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:29	SLS	7440-36-0	
Arsenic	0.95	mg/kg	0.10	6020	11/14/05 14:29	SLS	7440-38-2	
Barium	59.3	mg/kg	1.0	6020	11/14/05 14:29	SLS	7440-39-3	
Beryllium	0.23	mg/kg	0.50	6020	11/14/05 17:36	SLS	7440-41-7	b
Cadmium	0.13	mg/kg	0.20	6020	11/14/05 14:29	SLS	7440-43-9	b
Chromium	20.8	mg/kg	2.0	6020	11/14/05 14:29	SLS	7440-47-3	
Cobalt	7.38	mg/kg	0.50	6020	11/14/05 14:29	SLS	7440-48-4	
Copper	11.0	mg/kg	1.0	6020	11/14/05 14:29	SLS	7440-50-8	
Lead, Coarse	3.1	mg/kg	1.0	6020	11/16/05 13:55	PER		
Lead, Fine	18.2	mg/kg	1.0	6020	11/16/05 15:05	PER		
Lead, Total Calculated	4.86	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	6.4	mg/kg	1.0	6020	11/14/05 14:29	SLS	7439-92-1	
Manganese	352	mg/kg	1.0	6020	11/14/05 14:29	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:24	JRT	7439-97-6	b
Nickel	22.3	mg/kg	1.0	6020	11/14/05 14:29	SLS	7440-02-0	
Selenium	0.92	mg/kg	0.20	6020	11/14/05 14:29	SLS	7782-49-2	
Silver	0.02	mg/kg	0.10	6020	11/14/05 14:29	SLS	7440-22-4	b
Thallium	0.07	mg/kg	0.50	6020	11/14/05 14:29	SLS	7440-28-0	b
Vanadium	14.7	mg/kg	1.0	6020	11/14/05 14:29	SLS	7440-62-2	
Zinc	35.4	mg/kg	1.0	6020	11/14/05 14:29	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24673.02
Sample Tag: SA7-5 (12-14)
Collected Date/Time: 11/07/2005 09:35
Matrix: Soil
COC Reference: 02581

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 13:36	JDP	57-12-5	
Metals								
% Coarse by Weight	85.8	%			11/10/05 12:00	SLS		
% Fine by Weight	14.2	%			11/10/05 12:00	SLS		
Total Solids	88	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:33	SLS	7440-36-0	
Arsenic	1.01	mg/kg	0.10	6020	11/14/05 14:33	SLS	7440-38-2	
Barium	50.0	mg/kg	1.0	6020	11/14/05 14:33	SLS	7440-39-3	
Beryllium	0.22	mg/kg	0.50	6020	11/14/05 17:38	SLS	7440-41-7	b
Cadmium	0.12	mg/kg	0.20	6020	11/14/05 14:33	SLS	7440-43-9	b
Chromium	18.5	mg/kg	2.0	6020	11/14/05 14:33	SLS	7440-47-3	
Cobalt	7.50	mg/kg	0.50	6020	11/14/05 14:33	SLS	7440-48-4	
Copper	11.7	mg/kg	1.0	6020	11/14/05 14:33	SLS	7440-50-8	
Lead, Coarse	4.2	mg/kg	1.0	6020	11/16/05 13:56	PER		
Lead, Fine	16.8	mg/kg	1.0	6020	11/16/05 15:06	PER		
Lead, Total Calculated	5.98	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	6.1	mg/kg	1.0	6020	11/14/05 14:33	SLS	7439-92-1	
Manganese	282	mg/kg	1.0	6020	11/14/05 14:33	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:26	JRT	7439-97-6	b
Nickel	20.0	mg/kg	1.0	6020	11/14/05 14:33	SLS	7440-02-0	
Selenium	0.89	mg/kg	0.20	6020	11/14/05 14:33	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 14:33	SLS	7440-22-4	
Thallium	0.06	mg/kg	0.50	6020	11/14/05 14:33	SLS	7440-28-0	b
Vanadium	14.3	mg/kg	1.0	6020	11/14/05 14:33	SLS	7440-62-2	
Zinc	34.5	mg/kg	1.0	6020	11/14/05 14:33	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24673.03
Sample Tag: SA10-3 (14-16)
Collected Date/Time: 11/07/2005 11:05
Matrix: Soil
COC Reference: 02581

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 13:38	JDP	57-12-5	
Metals								
% Coarse by Weight	90.2	%			11/10/05 12:00	SLS		
% Fine by Weight	9.8	%			11/10/05 12:00	SLS		
Total Solids	90	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:36	SLS	7440-36-0	
Arsenic	1.01	mg/kg	0.10	6020	11/14/05 14:36	SLS	7440-38-2	
Barium	79.6	mg/kg	1.0	6020	11/14/05 14:36	SLS	7440-39-3	
Beryllium	0.15	mg/kg	0.50	6020	11/14/05 17:40	SLS	7440-41-7	b
Cadmium	0.08	mg/kg	0.20	6020	11/14/05 14:36	SLS	7440-43-9	b
Chromium	14.7	mg/kg	2.0	6020	11/14/05 14:36	SLS	7440-47-3	
Cobalt	6.44	mg/kg	0.50	6020	11/14/05 14:36	SLS	7440-48-4	
Copper	10.2	mg/kg	1.0	6020	11/14/05 14:36	SLS	7440-50-8	
Lead, Coarse	4.1	mg/kg	1.0	6020	11/16/05 13:57	PER		
Lead, Fine	42.5	mg/kg	1.0	6020	11/16/05 15:07	PER		
Lead, Total Calculated	7.86	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	4.4	mg/kg	1.0	6020	11/14/05 14:36	SLS	7439-92-1	
Manganese	253	mg/kg	1.0	6020	11/14/05 14:36	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:27	JRT	7439-97-6	b
Nickel	16.0	mg/kg	1.0	6020	11/14/05 14:36	SLS	7440-02-0	
Selenium	0.63	mg/kg	0.20	6020	11/14/05 14:36	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 14:36	SLS	7440-22-4	
Thallium	0.05	mg/kg	0.50	6020	11/14/05 14:36	SLS	7440-28-0	b
Vanadium	14.2	mg/kg	1.0	6020	11/14/05 14:36	SLS	7440-62-2	
Zinc	27.8	mg/kg	1.0	6020	11/14/05 14:36	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S24673.04
Sample Tag: SA7-9 (7-9)
Collected Date/Time: 11/07/2005 11:45
Matrix: Soil
COC Reference: 02581

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 13:40	JDP	57-12-5	
Metals								
% Coarse by Weight	87.5	%			11/10/05 12:00	SLS		
% Fine by Weight	12.5	%			11/10/05 12:00	SLS		
Total Solids	89	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:40	SLS	7440-36-0	
Arsenic	0.91	mg/kg	0.10	6020	11/14/05 14:40	SLS	7440-38-2	
Barium	43.8	mg/kg	1.0	6020	11/14/05 14:40	SLS	7440-39-3	
Beryllium	0.18	mg/kg	0.50	6020	11/14/05 17:43	SLS	7440-41-7	b
Cadmium	0.09	mg/kg	0.20	6020	11/14/05 14:40	SLS	7440-43-9	b
Chromium	17.1	mg/kg	2.0	6020	11/14/05 14:40	SLS	7440-47-3	
Cobalt	7.03	mg/kg	0.50	6020	11/14/05 14:40	SLS	7440-48-4	
Copper	10.6	mg/kg	1.0	6020	11/14/05 14:40	SLS	7440-50-8	
Lead, Coarse	4.2	mg/kg	1.0	6020	11/16/05 13:58	PER		
Lead, Fine	19.2	mg/kg	1.0	6020	11/16/05 15:08	PER		
Lead, Total Calculated	6.07	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	5.7	mg/kg	1.0	6020	11/14/05 14:40	SLS	7439-92-1	
Manganese	280	mg/kg	1.0	6020	11/14/05 14:40	SLS	7439-96-5	
Mercury	0.02	mg/kg	0.050	245.1M	11/10/05 15:29	JRT	7439-97-6	b
Nickel	20.2	mg/kg	1.0	6020	11/14/05 14:40	SLS	7440-02-0	
Selenium	0.58	mg/kg	0.20	6020	11/14/05 14:40	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 14:40	SLS	7440-22-4	
Thallium	0.06	mg/kg	0.50	6020	11/14/05 14:40	SLS	7440-28-0	b
Vanadium	14.2	mg/kg	1.0	6020	11/14/05 14:40	SLS	7440-62-2	
Zinc	29.8	mg/kg	1.0	6020	11/14/05 14:40	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S24673.05
Sample Tag: SA7-7 (9-11)
Collected Date/Time: 11/07/2005 12:20
Matrix: Soil
COC Reference: 02581

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 13:42	JDP	57-12-5	
Metals								
% Coarse by Weight	92.4	%			11/10/05 12:00	SLS		
% Fine by Weight	7.6	%			11/10/05 12:00	SLS		
Total Solids	89	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:44	SLS	7440-36-0	
Arsenic	1.06	mg/kg	0.10	6020	11/14/05 14:44	SLS	7440-38-2	
Barium	71.3	mg/kg	1.0	6020	11/14/05 14:44	SLS	7440-39-3	
Beryllium	0.19	mg/kg	0.50	6020	11/14/05 17:45	SLS	7440-41-7	b
Cadmium	0.10	mg/kg	0.20	6020	11/14/05 14:44	SLS	7440-43-9	b
Chromium	18.3	mg/kg	2.0	6020	11/14/05 14:44	SLS	7440-47-3	
Cobalt	10.6	mg/kg	0.50	6020	11/14/05 14:44	SLS	7440-48-4	
Copper	12.7	mg/kg	1.0	6020	11/14/05 14:44	SLS	7440-50-8	
Lead, Coarse	4.5	mg/kg	1.0	6020	11/16/05 13:59	PER		
Lead, Fine	75.2	mg/kg	1.0	6020	11/16/05 15:09	PER		
Lead, Total Calculated	9.87	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	7.0	mg/kg	1.0	6020	11/14/05 14:44	SLS	7439-92-1	
Manganese	655	mg/kg	1.0	6020	11/14/05 14:44	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:31	JRT	7439-97-6	b
Nickel	24.2	mg/kg	1.0	6020	11/14/05 14:44	SLS	7440-02-0	
Selenium	0.40	mg/kg	0.20	6020	11/14/05 14:44	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 14:44	SLS	7440-22-4	
Thallium	0.09	mg/kg	0.50	6020	11/14/05 14:44	SLS	7440-28-0	b
Vanadium	14.7	mg/kg	1.0	6020	11/14/05 14:44	SLS	7440-62-2	
Zinc	33.1	mg/kg	1.0	6020	11/14/05 14:44	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24673.06
Sample Tag: SA7-8 (10-12)
Collected Date/Time: 11/07/2005 14:05
Matrix: Soil
COC Reference: 02581

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 13:44	JDP	57-12-5	
Metals								
% Coarse by Weight	88.8	%			11/10/05 12:00	SLS		
% Fine by Weight	11.2	%			11/10/05 12:00	SLS		
Total Solids	89	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:47	SLS	7440-36-0	
Arsenic	0.95	mg/kg	0.10	6020	11/14/05 14:47	SLS	7440-38-2	
Barium	40.1	mg/kg	1.0	6020	11/14/05 14:47	SLS	7440-39-3	
Beryllium	0.19	mg/kg	0.50	6020	11/14/05 17:47	SLS	7440-41-7	b
Cadmium	0.10	mg/kg	0.20	6020	11/14/05 14:47	SLS	7440-43-9	b
Chromium	18.1	mg/kg	2.0	6020	11/14/05 14:47	SLS	7440-47-3	
Cobalt	5.76	mg/kg	0.50	6020	11/14/05 14:47	SLS	7440-48-4	
Copper	13.2	mg/kg	1.0	6020	11/14/05 14:47	SLS	7440-50-8	
Lead, Coarse	4.5	mg/kg	1.0	6020	11/16/05 14:00	PER		
Lead, Fine	35.1	mg/kg	1.0	6020	11/16/05 15:10	PER		
Lead, Total Calculated	7.92	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	4.9	mg/kg	1.0	6020	11/14/05 14:47	SLS	7439-92-1	
Manganese	256	mg/kg	1.0	6020	11/14/05 14:47	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:33	JRT	7439-97-6	b
Nickel	17.7	mg/kg	1.0	6020	11/14/05 14:47	SLS	7440-02-0	
Selenium	0.94	mg/kg	0.20	6020	11/14/05 14:47	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 14:47	SLS	7440-22-4	
Thallium	0.03	mg/kg	0.50	6020	11/14/05 14:47	SLS	7440-28-0	b
Vanadium	16.9	mg/kg	1.0	6020	11/14/05 14:47	SLS	7440-62-2	
Zinc	32.9	mg/kg	1.0	6020	11/14/05 14:47	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24673.07
Sample Tag: SA7-10 (4-6)
Collected Date/Time: 11/07/2005 14:25
Matrix: Soil
COC Reference: 02581

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 13:46	JDP	57-12-5	
Metals								
% Coarse by Weight	90.2	%			11/10/05 12:00	SLS		
% Fine by Weight	9.8	%			11/10/05 12:00	SLS		
Total Solids	90	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:51	SLS	7440-36-0	
Arsenic	0.94	mg/kg	0.10	6020	11/14/05 14:51	SLS	7440-38-2	
Barium	42.3	mg/kg	1.0	6020	11/14/05 14:51	SLS	7440-39-3	
Beryllium	0.19	mg/kg	0.50	6020	11/14/05 17:49	SLS	7440-41-7	b
Cadmium	0.09	mg/kg	0.20	6020	11/14/05 14:51	SLS	7440-43-9	b
Chromium	13.8	mg/kg	2.0	6020	11/14/05 14:51	SLS	7440-47-3	
Cobalt	4.54	mg/kg	0.50	6020	11/14/05 14:51	SLS	7440-48-4	
Copper	8.4	mg/kg	1.0	6020	11/14/05 14:51	SLS	7440-50-8	
Lead, Coarse	4.3	mg/kg	1.0	6020	11/16/05 14:01	PER		
Lead, Fine	44.5	mg/kg	1.0	6020	11/16/05 15:11	PER		
Lead, Total Calculated	8.23	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	4.4	mg/kg	1.0	6020	11/14/05 14:51	SLS	7439-92-1	
Manganese	223	mg/kg	1.0	6020	11/14/05 14:51	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:35	JRT	7439-97-6	b
Nickel	12.4	mg/kg	1.0	6020	11/14/05 14:51	SLS	7440-02-0	
Selenium	0.78	mg/kg	0.20	6020	11/14/05 14:51	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 14:51	SLS	7440-22-4	
Thallium	0.03	mg/kg	0.50	6020	11/14/05 14:51	SLS	7440-28-0	b
Vanadium	11.0	mg/kg	1.0	6020	11/14/05 14:51	SLS	7440-62-2	
Zinc	21.6	mg/kg	1.0	6020	11/14/05 14:51	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24673.08
Sample Tag: SA8-6 (12-14)
Collected Date/Time: 11/07/2005 15:15
Matrix: Soil
COC Reference: 02581

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 13:48	JDP	57-12-5	
Metals								
% Coarse by Weight	85.9	%			11/10/05 12:00	SLS		
% Fine by Weight	14.1	%			11/10/05 12:00	SLS		
Total Solids	91	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:55	SLS	7440-36-0	
Arsenic	0.95	mg/kg	0.10	6020	11/14/05 14:55	SLS	7440-38-2	
Barium	39.0	mg/kg	1.0	6020	11/14/05 14:55	SLS	7440-39-3	
Beryllium	0.13	mg/kg	0.50	6020	11/14/05 17:51	SLS	7440-41-7	b
Cadmium	0.09	mg/kg	0.20	6020	11/14/05 14:55	SLS	7440-43-9	b
Chromium	12.4	mg/kg	2.0	6020	11/14/05 14:55	SLS	7440-47-3	
Cobalt	5.74	mg/kg	0.50	6020	11/14/05 14:55	SLS	7440-48-4	
Copper	10.4	mg/kg	1.0	6020	11/14/05 14:55	SLS	7440-50-8	
Lead, Coarse	3.9	mg/kg	1.0	6020	11/16/05 14:02	PER		
Lead, Fine	12.2	mg/kg	1.0	6020	11/16/05 15:12	PER		
Lead, Total Calculated	5.07	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	4.0	mg/kg	1.0	6020	11/14/05 14:55	SLS	7439-92-1	
Manganese	226	mg/kg	1.0	6020	11/14/05 14:55	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:36	JRT	7439-97-6	b
Nickel	14.1	mg/kg	1.0	6020	11/14/05 14:55	SLS	7440-02-0	
Selenium	0.28	mg/kg	0.20	6020	11/14/05 14:55	SLS	7782-49-2	
Silver	0.02	mg/kg	0.10	6020	11/14/05 14:55	SLS	7440-22-4	b
Thallium	0.04	mg/kg	0.50	6020	11/14/05 14:55	SLS	7440-28-0	b
Vanadium	11.3	mg/kg	1.0	6020	11/14/05 14:55	SLS	7440-62-2	
Zinc	30.8	mg/kg	1.0	6020	11/14/05 14:55	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24673.09
Sample Tag: Dup-5
Collected Date/Time: 11/07/2005 :
Matrix: Soil
COC Reference: 02581

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 13:50	JDP	57-12-5	
Metals								
% Coarse by Weight	89.9	%			11/11/05 12:00	JRT		
% Fine by Weight	10.1	%			11/11/05 12:00	JRT		
Total Solids	90	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 15:09	SLS	7440-36-0	
Arsenic	1.64	mg/kg	0.10	6020	11/16/05 15:09	SLS	7440-38-2	
Barium	38.0	mg/kg	1.0	6020	11/16/05 15:09	SLS	7440-39-3	
Beryllium	0.17	mg/kg	0.50	6020	11/16/05 15:09	SLS	7440-41-7	b
Cadmium	0.15	mg/kg	0.20	6020	11/16/05 15:09	SLS	7440-43-9	b
Chromium	8.0	mg/kg	2.0	6020	11/16/05 15:09	SLS	7440-47-3	
Cobalt	3.65	mg/kg	0.50	6020	11/16/05 15:09	SLS	7440-48-4	
Copper	6.7	mg/kg	1.0	6020	11/16/05 15:09	SLS	7440-50-8	
Lead, Coarse	3.9	mg/kg	1.0	6020	11/16/05 14:03	PER		
Lead, Fine	22.2	mg/kg	1.0	6020	11/16/05 15:13	PER		
Lead, Total Calculated	5.74	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	4.6	mg/kg	1.0	6020	11/16/05 15:09	SLS	7439-92-1	
Manganese	245	mg/kg	1.0	6020	11/16/05 15:09	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:39	JRT	7439-97-6	b
Nickel	8.2	mg/kg	1.0	6020	11/16/05 15:09	SLS	7440-02-0	
Selenium	0.48	mg/kg	0.20	6020	11/16/05 15:09	SLS	7782-49-2	
Silver	0.08	mg/kg	0.10	6020	11/16/05 15:09	SLS	7440-22-4	b
Thallium	0.06	mg/kg	0.50	6020	11/16/05 15:09	SLS	7440-28-0	b
Vanadium	8.0	mg/kg	1.0	6020	11/16/05 15:09	SLS	7440-62-2	
Zinc	14.8	mg/kg	1.0	6020	11/16/05 15:09	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

GM REALM ENCORE

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

PAGE 1 OF 1

ID # Nº 02581

SSOW Ref. Code: E 220002

Required Client Information:

Company: BBL	Report To: CRA
Address: 10559 Citation Dr. Ste 100 Brighton, MI 48116	Copy To: Jim Heading
	Invoice To: CRA
	P.O.:
Phone: 810 229 8594	Project Name: GM Lansing Plt 6
Fax: 810 229 8837	Project Number: 64430
E-mail:	

Laboratory:	Merit
Laboratory Location:	Lansing, MI
Laboratory Contact:	Maya Murshak
Requested Due Date:	TAT: Standard
QA/QC Requirements:	To be determined

Valid Matrix Codes: WG Groundwater; WB Borehole Water; WS Surface Water; SO Soil; SE Sediment; See Back for Additional Codes

Sample Identification:	Matrix Code	Date Collected	Time Collected	# Containers	Preservative: Unpreserved	HCl	H2SO4	HNO3	NaOH	Other:	Analysis and Method: (PAL) Metals	Remarks/Lab ID
1. SA 7-6 (14-16)	SO	11/7/05	0905	1	X						X	PID 0.1 (ppm)
2. SA 7-5 (12-14)			0935	1	X						X	0.0
3. SA 10-3 (14-16)			1105	1	X						X	0.5
4. SA 7-9 (7-9)			1145	1	X						X	0.1
5. SA 7-7 (9-11)			1220	1	X						X	0.1
6. SA 7-8 (10-12)			1405	1	X						X	0.2
7. SA 7-10 (4-6)			1425	1	X						X	0.0
8. SA 8-6 (12-14)			1515	1	X						X	0.0
9. Dup-5			—	1	X						X	
10.												
11.												
12.												
13.												
14.												
15.												
TOTAL NUMBER OF CONTAINERS				9								

SHIPMENT METHOD	NO. OF COOLERS	RELINQUISHED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME
hand deliv	1	[signature] / BBL	11/7/05	1645	Anne Drake	11/7/05	1630
AIRBILL NO. —							

Sample Condition

Temp in °C	4.1
Received on Ice	Y / N
Sealed Cooler	Y / N
Samples Intact	Y / N

Additional Comments:

Sampler Name: Michael Matthys

Sampler Signature: [signature] Date: 11-7-05

Distribution: WHITE - Fully Executed Copy YELLOW - Receiving Laboratory Copy PINK - Sampler Copy

REV. 0 (6/04)

Analytical Laboratory Report

Report ID: S24603.01(01)
Generated on 11/15/2005

Report to

Attention: Amy Hoeksema/ Jim Heading
Blasland, Bouck & Lee, Inc.
10559 Citation Drive
Suite 100
Brighton, MI 48116

Phone: 810-229-8594 FAX: 810-229-8837

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S24603.01-S24603.10
Project: 64430.200/Plant 6 SSOW# E220002
Submitted Date/Time: 11/02/2005 16:55
Sampled by: Michael Mathiah
P.O. #: 412463

Report Notes

Results relate only to items tested.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak
Laboratory Director

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S24603.01
Sample Tag: SA22-3 (2-4)
Collected Date/Time: 11/02/2005 08:10
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/15/05 12:40	JDP	57-12-5	
Metals								
% Coarse by Weight	88.0	%			11/09/05 12:00	SLS		
% Fine by Weight	12.0	%			11/09/05 12:00	SLS		
Total Solids	86	%	1	160.3	11/09/05 12:00	SLS		
Antimony	Not detected	mg/kg	0.30	6020	11/09/05 13:49	SLS	7440-36-0	
Arsenic	1.79	mg/kg	0.10	6020	11/09/05 13:49	SLS	7440-38-2	
Barium	142	mg/kg	1.0	6020	11/09/05 13:49	SLS	7440-39-3	
Beryllium	0.39	mg/kg	0.50	6020	11/09/05 13:49	SLS	7440-41-7	b
Cadmium	0.16	mg/kg	0.20	6020	11/09/05 13:49	SLS	7440-43-9	b
Chromium	10.6	mg/kg	2.0	6020	11/09/05 13:49	SLS	7440-47-3	
Cobalt	5.50	mg/kg	0.50	6020	11/09/05 13:49	SLS	7440-48-4	
Copper	8.4	mg/kg	1.0	6020	11/09/05 13:49	SLS	7440-50-8	
Lead, Coarse	5.5	mg/kg	1.0	6020	11/10/05 15:53	PER		
Lead, Fine	14.9	mg/kg	1.0	6020	11/10/05 16:49	PER		
Lead, Total Calculated	6.62	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	5.9	mg/kg	1.0	6020	11/09/05 13:49	SLS	7439-92-1	
Manganese	368	mg/kg	1.0	6020	11/09/05 13:49	SLS	7439-96-5	
Mercury	0.02	mg/kg	0.050	245.1M	11/08/05 15:28	JRT	7439-97-6	b
Nickel	10.0	mg/kg	1.0	6020	11/09/05 13:49	SLS	7440-02-0	
Selenium	0.17	mg/kg	0.20	6020	11/09/05 13:49	SLS	7782-49-2	b
Silver	0.02	mg/kg	0.10	6020	11/09/05 13:49	SLS	7440-22-4	b
Thallium	Not detected	mg/kg	0.50	6020	11/09/05 13:49	SLS	7440-28-0	
Vanadium	14.5	mg/kg	1.0	6020	11/09/05 13:49	SLS	7440-62-2	
Zinc	25.4	mg/kg	1.0	6020	11/09/05 13:49	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24603.02
Sample Tag: SA22-2 (2-4)
Collected Date/Time: 11/02/2005 09:05
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/15/05 12:42	JDP	57-12-5	
Metals								
% Coarse by Weight	86.7	%			11/09/05 12:00	SLS		
% Fine by Weight	13.3	%			11/09/05 12:00	SLS		
Total Solids	84	%	1	160.3	11/09/05 12:00	SLS		
Antimony	0.09	mg/kg	0.30	6020	11/09/05 13:58	SLS	7440-36-0	b
Arsenic	1.12	mg/kg	0.10	6020	11/09/05 13:58	SLS	7440-38-2	
Barium	100	mg/kg	1.0	6020	11/09/05 13:58	SLS	7440-39-3	
Beryllium	0.42	mg/kg	0.50	6020	11/09/05 13:58	SLS	7440-41-7	b
Cadmium	0.32	mg/kg	0.20	6020	11/09/05 13:58	SLS	7440-43-9	
Chromium	5.8	mg/kg	2.0	6020	11/09/05 13:58	SLS	7440-47-3	
Cobalt	4.32	mg/kg	0.50	6020	11/09/05 13:58	SLS	7440-48-4	
Copper	7.0	mg/kg	1.0	6020	11/09/05 13:58	SLS	7440-50-8	
Lead, Coarse	7.5	mg/kg	1.0	6020	11/10/05 15:54	PER		
Lead, Fine	20.7	mg/kg	1.0	6020	11/10/05 16:50	PER		
Lead, Total Calculated	9.25	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	7.9	mg/kg	1.0	6020	11/09/05 13:58	SLS	7439-92-1	
Manganese	98.2	mg/kg	1.0	6020	11/09/05 13:58	SLS	7439-96-5	
Mercury	0.04	mg/kg	0.050	245.1M	11/08/05 15:30	JRT	7439-97-6	b
Nickel	5.1	mg/kg	1.0	6020	11/09/05 13:58	SLS	7440-02-0	
Selenium	1.01	mg/kg	0.20	6020	11/09/05 13:58	SLS	7782-49-2	
Silver	0.14	mg/kg	0.10	6020	11/09/05 13:58	SLS	7440-22-4	
Thallium	0.15	mg/kg	0.50	6020	11/09/05 13:58	SLS	7440-28-0	b
Vanadium	9.5	mg/kg	1.0	6020	11/09/05 13:58	SLS	7440-62-2	
Zinc	18.5	mg/kg	1.0	6020	11/09/05 13:58	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24603.03
Sample Tag: SA11-9 (8-10)
Collected Date/Time: 11/02/2005 09:45
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/15/05 12:44	JDP	57-12-5	
Metals								
% Coarse by Weight	94.2	%			11/09/05 12:00	SLS		
% Fine by Weight	5.8	%			11/09/05 12:00	SLS		
Total Solids	89	%	1	160.3	11/09/05 12:00	SLS		
Antimony	Not detected	mg/kg	0.30	6020	11/09/05 14:02	SLS	7440-36-0	
Arsenic	0.80	mg/kg	0.10	6020	11/09/05 14:02	SLS	7440-38-2	
Barium	60.9	mg/kg	1.0	6020	11/09/05 14:02	SLS	7440-39-3	
Beryllium	0.33	mg/kg	0.50	6020	11/09/05 14:02	SLS	7440-41-7	b
Cadmium	0.10	mg/kg	0.20	6020	11/09/05 14:02	SLS	7440-43-9	b
Chromium	19.3	mg/kg	2.0	6020	11/09/05 14:02	SLS	7440-47-3	
Cobalt	6.39	mg/kg	0.50	6020	11/09/05 14:02	SLS	7440-48-4	
Copper	9.6	mg/kg	1.0	6020	11/09/05 14:02	SLS	7440-50-8	
Lead, Coarse	3.9	mg/kg	1.0	6020	11/10/05 15:55	PER		
Lead, Fine	12.8	mg/kg	1.0	6020	11/10/05 16:51	PER		
Lead, Total Calculated	4.41	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	5.2	mg/kg	1.0	6020	11/09/05 14:02	SLS	7439-92-1	
Manganese	340	mg/kg	1.0	6020	11/09/05 14:02	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/08/05 15:32	JRT	7439-97-6	b
Nickel	20.3	mg/kg	1.0	6020	11/09/05 14:02	SLS	7440-02-0	
Selenium	0.65	mg/kg	0.20	6020	11/09/05 14:02	SLS	7782-49-2	
Silver	0.02	mg/kg	0.10	6020	11/09/05 14:02	SLS	7440-22-4	b
Thallium	0.08	mg/kg	0.50	6020	11/09/05 14:02	SLS	7440-28-0	b
Vanadium	14.0	mg/kg	1.0	6020	11/09/05 14:02	SLS	7440-62-2	
Zinc	28.0	mg/kg	1.0	6020	11/09/05 14:02	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24603.04
Sample Tag: SA11-10 (3-5)
Collected Date/Time: 11/02/2005 11:15
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/15/05 12:46	JDP	57-12-5	
Metals								
% Coarse by Weight	93.3	%			11/09/05 12:00	SLS		
% Fine by Weight	6.7	%			11/09/05 12:00	SLS		
Total Solids	86	%	1	160.3	11/09/05 12:00	SLS		
Antimony	Not detected	mg/kg	0.30	6020	11/09/05 14:05	SLS	7440-36-0	
Arsenic	1.06	mg/kg	0.10	6020	11/09/05 14:05	SLS	7440-38-2	
Barium	31.2	mg/kg	1.0	6020	11/09/05 14:05	SLS	7440-39-3	
Beryllium	0.34	mg/kg	0.50	6020	11/09/05 14:05	SLS	7440-41-7	b
Cadmium	0.16	mg/kg	0.20	6020	11/09/05 14:05	SLS	7440-43-9	b
Chromium	7.1	mg/kg	2.0	6020	11/09/05 14:05	SLS	7440-47-3	
Cobalt	3.58	mg/kg	0.50	6020	11/09/05 14:05	SLS	7440-48-4	
Copper	7.3	mg/kg	1.0	6020	11/09/05 14:05	SLS	7440-50-8	
Lead, Coarse	8.9	mg/kg	1.0	6020	11/10/05 15:56	PER		
Lead, Fine	26.9	mg/kg	1.0	6020	11/10/05 16:52	PER		
Lead, Total Calculated	10.1	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	6.7	mg/kg	1.0	6020	11/09/05 14:05	SLS	7439-92-1	
Manganese	282	mg/kg	1.0	6020	11/09/05 14:05	SLS	7439-96-5	
Mercury	0.03	mg/kg	0.050	245.1M	11/08/05 15:34	JRT	7439-97-6	b
Nickel	8.3	mg/kg	1.0	6020	11/09/05 14:05	SLS	7440-02-0	
Selenium	0.29	mg/kg	0.20	6020	11/09/05 14:05	SLS	7782-49-2	
Silver	0.03	mg/kg	0.10	6020	11/09/05 14:05	SLS	7440-22-4	b
Thallium	Not detected	mg/kg	0.50	6020	11/09/05 14:05	SLS	7440-28-0	
Vanadium	8.1	mg/kg	1.0	6020	11/09/05 14:05	SLS	7440-62-2	
Zinc	19.1	mg/kg	1.0	6020	11/09/05 14:05	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24603.05
Sample Tag: SA11-1 (3-5)
Collected Date/Time: 11/02/2005 13:10
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/15/05 12:48	JDP	57-12-5	
Metals								
% Coarse by Weight	96.4	%			11/09/05 12:00	SLS		
% Fine by Weight	3.6	%			11/09/05 12:00	SLS		
Total Solids	83	%	1	160.3	11/09/05 12:00	SLS		
Antimony	Not detected	mg/kg	0.30	6020	11/09/05 14:09	SLS	7440-36-0	
Arsenic	1.44	mg/kg	0.10	6020	11/09/05 14:09	SLS	7440-38-2	
Barium	180	mg/kg	1.0	6020	11/09/05 14:09	SLS	7440-39-3	
Beryllium	0.84	mg/kg	0.50	6020	11/09/05 14:09	SLS	7440-41-7	
Cadmium	0.28	mg/kg	0.20	6020	11/09/05 14:09	SLS	7440-43-9	
Chromium	18.3	mg/kg	2.0	6020	11/09/05 14:09	SLS	7440-47-3	
Cobalt	8.08	mg/kg	0.50	6020	11/09/05 14:09	SLS	7440-48-4	
Copper	18.1	mg/kg	1.0	6020	11/09/05 14:09	SLS	7440-50-8	
Lead, Coarse	6.4	mg/kg	1.0	6020	11/10/05 15:59	PER		
Lead, Fine	14.1	mg/kg	1.0	6020	11/10/05 16:55	PER		
Lead, Total Calculated	6.67	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	6.9	mg/kg	1.0	6020	11/09/05 14:09	SLS	7439-92-1	
Manganese	671	mg/kg	1.0	6020	11/09/05 14:09	SLS	7439-96-5	
Mercury	0.061	mg/kg	0.050	245.1M	11/08/05 15:35	JRT	7439-97-6	
Nickel	18.4	mg/kg	1.0	6020	11/09/05 14:09	SLS	7440-02-0	
Selenium	0.27	mg/kg	0.20	6020	11/09/05 14:09	SLS	7782-49-2	
Silver	0.03	mg/kg	0.10	6020	11/09/05 14:09	SLS	7440-22-4	b
Thallium	Not detected	mg/kg	0.50	6020	11/09/05 14:09	SLS	7440-28-0	
Vanadium	20.2	mg/kg	1.0	6020	11/09/05 14:09	SLS	7440-62-2	
Zinc	55.0	mg/kg	1.0	6020	11/09/05 14:09	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24603.06
Sample Tag: SA12-1 (9-11)
Collected Date/Time: 11/02/2005 14:00
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/15/05 12:50	JDP	57-12-5	
Metals								
% Coarse by Weight	91.7	%			11/09/05 12:00	SLS		
% Fine by Weight	8.3	%			11/09/05 12:00	SLS		
Total Solids	83	%	1	160.3	11/09/05 12:00	SLS		
Antimony	Not detected	mg/kg	0.30	6020	11/09/05 14:13	SLS	7440-36-0	
Arsenic	0.76	mg/kg	0.10	6020	11/09/05 14:13	SLS	7440-38-2	
Barium	104	mg/kg	1.0	6020	11/09/05 14:13	SLS	7440-39-3	
Beryllium	0.74	mg/kg	0.50	6020	11/09/05 14:13	SLS	7440-41-7	
Cadmium	0.22	mg/kg	0.20	6020	11/09/05 14:13	SLS	7440-43-9	
Chromium	22.8	mg/kg	2.0	6020	11/09/05 14:13	SLS	7440-47-3	
Cobalt	17.4	mg/kg	0.50	6020	11/09/05 14:13	SLS	7440-48-4	
Copper	16.3	mg/kg	1.0	6020	11/09/05 14:13	SLS	7440-50-8	
Lead, Coarse	5.9	mg/kg	1.0	6020	11/10/05 16:00	PER		
Lead, Fine	11.7	mg/kg	1.0	6020	11/10/05 16:56	PER		
Lead, Total Calculated	6.38	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	8.6	mg/kg	1.0	6020	11/09/05 14:13	SLS	7439-92-1	
Manganese	548	mg/kg	1.0	6020	11/09/05 14:13	SLS	7439-96-5	
Mercury	0.02	mg/kg	0.050	245.1M	11/08/05 15:37	JRT	7439-97-6	b
Nickel	31.5	mg/kg	1.0	6020	11/09/05 14:13	SLS	7440-02-0	
Selenium	0.26	mg/kg	0.20	6020	11/09/05 14:13	SLS	7782-49-2	
Silver	0.03	mg/kg	0.10	6020	11/09/05 14:13	SLS	7440-22-4	b
Thallium	0.02	mg/kg	0.50	6020	11/09/05 14:13	SLS	7440-28-0	b
Vanadium	15.9	mg/kg	1.0	6020	11/09/05 14:13	SLS	7440-62-2	
Zinc	44.0	mg/kg	1.0	6020	11/09/05 14:13	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24603.07
Sample Tag: SA12-2 (10-12)
Collected Date/Time: 11/02/2005 15:00
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/15/05 12:52	JDP	57-12-5	
Metals								
% Coarse by Weight	98.1	%			11/09/05 12:00	SLS		
% Fine by Weight	1.9	%			11/09/05 12:00	SLS		
Total Solids	79	%	1	160.3	11/09/05 12:00	SLS		
Antimony	Not detected	mg/kg	0.30	6020	11/09/05 14:17	SLS	7440-36-0	
Arsenic	1.01	mg/kg	0.10	6020	11/09/05 14:17	SLS	7440-38-2	
Barium	140	mg/kg	1.0	6020	11/09/05 14:17	SLS	7440-39-3	
Beryllium	1.19	mg/kg	0.50	6020	11/09/05 14:17	SLS	7440-41-7	
Cadmium	0.18	mg/kg	0.20	6020	11/09/05 14:17	SLS	7440-43-9	b
Chromium	25.7	mg/kg	2.0	6020	11/09/05 14:17	SLS	7440-47-3	
Cobalt	22.8	mg/kg	0.50	6020	11/09/05 14:17	SLS	7440-48-4	
Copper	11.9	mg/kg	1.0	6020	11/09/05 14:17	SLS	7440-50-8	
Lead, Coarse	17.5	mg/kg	1.0	6020	11/10/05 16:01	PER		
Lead, Fine	49.6	mg/kg	1.0	6020	11/10/05 16:57	PER		
Lead, Total Calculated	18.1	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	13.9	mg/kg	1.0	6020	11/09/05 14:17	SLS	7439-92-1	
Manganese	191	mg/kg	1.0	6020	11/09/05 14:17	SLS	7439-96-5	
Mercury	0.076	mg/kg	0.050	245.1M	11/08/05 15:39	JRT	7439-97-6	
Nickel	17.3	mg/kg	1.0	6020	11/09/05 14:17	SLS	7440-02-0	
Selenium	0.40	mg/kg	0.20	6020	11/09/05 14:17	SLS	7782-49-2	
Silver	0.04	mg/kg	0.10	6020	11/09/05 14:17	SLS	7440-22-4	b
Thallium	0.03	mg/kg	0.50	6020	11/09/05 14:17	SLS	7440-28-0	b
Vanadium	23.4	mg/kg	1.0	6020	11/09/05 14:17	SLS	7440-62-2	
Zinc	53.2	mg/kg	1.0	6020	11/09/05 14:17	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24603.08
Sample Tag: SA12-3 (10-12)
Collected Date/Time: 11/02/2005 15:50
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	0.35	mg/kg	0.1	9010B	11/15/05 12:54	JDP	57-12-5	
Metals								
% Coarse by Weight	77.3	%			11/09/05 12:00	SLS		
% Fine by Weight	22.7	%			11/09/05 12:00	SLS		
Total Solids	87	%	1	160.3	11/09/05 12:00	SLS		
Antimony	0.10	mg/kg	0.30	6020	11/09/05 14:20	SLS	7440-36-0	b
Arsenic	1.34	mg/kg	0.10	6020	11/09/05 14:20	SLS	7440-38-2	
Barium	50.7	mg/kg	1.0	6020	11/09/05 14:20	SLS	7440-39-3	
Beryllium	0.18	mg/kg	0.50	6020	11/09/05 14:20	SLS	7440-41-7	b
Cadmium	0.17	mg/kg	0.20	6020	11/09/05 14:20	SLS	7440-43-9	b
Chromium	6.4	mg/kg	2.0	6020	11/09/05 14:20	SLS	7440-47-3	
Cobalt	2.36	mg/kg	0.50	6020	11/09/05 14:20	SLS	7440-48-4	
Copper	7.7	mg/kg	1.0	6020	11/09/05 14:20	SLS	7440-50-8	
Lead, Coarse	24.5	mg/kg	1.0	6020	11/10/05 16:02	PER		
Lead, Fine	39.2	mg/kg	1.0	6020	11/10/05 16:58	PER		
Lead, Total Calculated	27.8	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	23.6	mg/kg	1.0	6020	11/09/05 14:20	SLS	7439-92-1	
Manganese	199	mg/kg	1.0	6020	11/09/05 14:20	SLS	7439-96-5	
Mercury	0.03	mg/kg	0.050	245.1M	11/08/05 15:45	JRT	7439-97-6	b
Nickel	4.0	mg/kg	1.0	6020	11/09/05 14:20	SLS	7440-02-0	
Selenium	0.32	mg/kg	0.20	6020	11/09/05 14:20	SLS	7782-49-2	
Silver	0.03	mg/kg	0.10	6020	11/09/05 14:20	SLS	7440-22-4	b
Thallium	0.03	mg/kg	0.50	6020	11/09/05 14:20	SLS	7440-28-0	b
Vanadium	6.3	mg/kg	1.0	6020	11/09/05 14:20	SLS	7440-62-2	
Zinc	20.9	mg/kg	1.0	6020	11/09/05 14:20	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24603.09
Sample Tag: SA12-3 (10-12) MS
Collected Date/Time: 11/02/2005 15:50
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	2.68	mg/kg	0.1	9010B	11/15/05 12:56	JDP	57-12-5	
Metals								
% Coarse by Weight	77.3	%			11/09/05 12:00	SLS		
% Fine by Weight	22.7	%			11/09/05 12:00	SLS		
Total Solids	87	%	1	160.3	11/09/05 12:00	SLS		
Antimony	23.6	mg/kg	0.30	6020	11/09/05 14:24	SLS	7440-36-0	
Arsenic	25.6	mg/kg	0.10	6020	11/09/05 14:24	SLS	7440-38-2	
Barium	75.8	mg/kg	1.0	6020	11/09/05 14:24	SLS	7440-39-3	
Beryllium	22.6	mg/kg	0.50	6020	11/09/05 14:24	SLS	7440-41-7	
Cadmium	23.02	mg/kg	0.20	6020	11/09/05 14:24	SLS	7440-43-9	
Chromium	30.8	mg/kg	2.0	6020	11/09/05 14:24	SLS	7440-47-3	
Cobalt	25.8	mg/kg	0.50	6020	11/09/05 14:24	SLS	7440-48-4	
Copper	30.4	mg/kg	1.0	6020	11/09/05 14:24	SLS	7440-50-8	
Lead, Coarse	60.1	mg/kg	1.0	6020	11/10/05 16:03	PER		
Lead, Fine	91.9	mg/kg	1.0	6020	11/10/05 16:59	PER		
Lead, Total Calculated	67.3	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	47.4	mg/kg	1.0	6020	11/09/05 14:24	SLS	7439-92-1	
Manganese	218	mg/kg	1.0	6020	11/09/05 14:24	SLS	7439-96-5	
Mercury	0.148	mg/kg	0.050	245.1M	11/08/05 15:46	JRT	7439-97-6	
Nickel	26.3	mg/kg	1.0	6020	11/09/05 14:24	SLS	7440-02-0	
Selenium	22.6	mg/kg	0.20	6020	11/09/05 14:24	SLS	7782-49-2	
Silver	22.16	mg/kg	0.10	6020	11/09/05 14:24	SLS	7440-22-4	
Thallium	24.6	mg/kg	0.50	6020	11/09/05 14:24	SLS	7440-28-0	
Vanadium	32.0	mg/kg	1.0	6020	11/09/05 14:24	SLS	7440-62-2	
Zinc	42.0	mg/kg	1.0	6020	11/09/05 14:24	SLS	7440-66-6	

Analytical Laboratory Report

Lab Sample ID: S24603.10
Sample Tag: SA12-3 (10-12) MSD
Collected Date/Time: 11/02/2005 15:50
Matrix: Soil
COC Reference: 02578

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/09/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/09/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/09/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/08/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/07/05 12:00	SLS		
Inorganics								
Cyanide	2.56	mg/kg	0.1	9010B	11/15/05 12:58	JDP	57-12-5	
Metals								
% Coarse by Weight	77.3	%			11/09/05 12:00	SLS		
% Fine by Weight	22.7	%			11/09/05 12:00	SLS		
Total Solids	87	%	1	160.3	11/09/05 12:00	SLS		
Antimony	24.2	mg/kg	0.30	6020	11/09/05 14:28	SLS	7440-36-0	
Arsenic	26.0	mg/kg	0.10	6020	11/09/05 14:28	SLS	7440-38-2	
Barium	78.0	mg/kg	1.0	6020	11/09/05 14:28	SLS	7440-39-3	
Beryllium	22.6	mg/kg	0.50	6020	11/09/05 14:28	SLS	7440-41-7	
Cadmium	23.22	mg/kg	0.20	6020	11/09/05 14:28	SLS	7440-43-9	
Chromium	31.2	mg/kg	2.0	6020	11/09/05 14:28	SLS	7440-47-3	
Cobalt	25.2	mg/kg	0.50	6020	11/09/05 14:28	SLS	7440-48-4	
Copper	29.8	mg/kg	1.0	6020	11/09/05 14:28	SLS	7440-50-8	
Lead, Coarse	64.1	mg/kg	1.0	6020	11/10/05 16:04	PER		
Lead, Fine	95.3	mg/kg	1.0	6020	11/10/05 17:00	PER		
Lead, Total Calculated	71.1	mg/kg	1.0	6020	11/10/05 17:30	PER	7439-92-1C	
Lead	46.8	mg/kg	1.0	6020	11/09/05 14:28	SLS	7439-92-1	
Manganese	225	mg/kg	1.0	6020	11/09/05 14:28	SLS	7439-96-5	
Mercury	0.147	mg/kg	0.050	245.1M	11/08/05 15:48	JRT	7439-97-6	
Nickel	25.5	mg/kg	1.0	6020	11/09/05 14:28	SLS	7440-02-0	
Selenium	23.4	mg/kg	0.20	6020	11/09/05 14:28	SLS	7782-49-2	
Silver	22.52	mg/kg	0.10	6020	11/09/05 14:28	SLS	7440-22-4	
Thallium	24.5	mg/kg	0.50	6020	11/09/05 14:28	SLS	7440-28-0	
Vanadium	31.4	mg/kg	1.0	6020	11/09/05 14:28	SLS	7440-62-2	
Zinc	42.1	mg/kg	1.0	6020	11/09/05 14:28	SLS	7440-66-6	

GM REALM ENCORE

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

PAGE 1 OF 1

ID # Nº 02578

SSOW Ref. Code: ~~E088008-WP~~ E 220002

Required Client Information:

Company: BBL	Report To: CRA
Address: 10559 Citation Dr Brighton MI 48116	Copy To: Jim Heading
	Invoice To: CRA
	P.O.:
Phone: (810)-229-8594	Project Name: Lansing Plant 6
Fax: (810)-229-8837	Project Number: 64480.200
E-mail: Jheading@BBL-Inc.com	

Laboratory: Merit	
Laboratory Location: East Lansing Michigan	
Laboratory Contact: Maya Murshaich	
Requested Due Date:	TAT: Standard
QA/QC Requirements: To be determined	

Valid Matrix Codes: WG Groundwater; WB Borehole Water; WS Surface Water; SO Soil; SE Sediment; See Back for Additional Codes

Analysis and Method

Sample Identification:	Matrix Code	Date Collected	Time Collected	# Containers	Preservative: Unpreserved	HCl	H2SO4	HNO3	NaOH	Other:	PAL Metals	PID	Remarks/Lab ID
24603 .01 1. SA 22-3 (2-4)	SO	11/2/05	0840	1	1						X	4.2	
.02 2. SA 22-2 (2-4)			0905									4.1	
.03 3. SA 11-9 (8-10)			0945									3.6	
.04 4. SA 11-10 (3-5)			1115									1.9	
.05 5. SA 11-1 (3-5)			1310									0.9	
.06 6. SA 12-1 (9-11)			1400									0.9	
.07 7. SA 12-2 (10-12)			1500									0.6	
.08 8. SA 12-3 (10-12)			1550									0.4	MS/MSD
9.													
10.													
11.													
12.													
13.													
14.													
15.													
TOTAL NUMBER OF CONTAINERS													

SHIPMENT METHOD	NO. OF COOLERS	RELINQUISHED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME
BBL Drop off	1	Wayne [illegible] / BBL	11-2-05	1655	Anne Stakie Merit	11-2-05	1655
AIRBILL NO.							

Sample Condition

Temp in °C	3.7
Received on Ice	Y / N
Sealed Cooler	Y / N
Samples Intact	Y / N

Additional Comments:

Sampler Name: Michael Mathis

Sampler Signature: [signature] Date: 11-2-05

Distribution: WHITE - Fully Executed Copy YELLOW - Receiving Laboratory Copy PINK - Sampler Copy

REV. 0 (6/04)

Analytical Laboratory Report

Report ID: S24738.01(01)
Generated on 11/29/2005

Report to

Attention: Amy Hoeksema/ Jim Heading
Blasland, Bouck & Lee, Inc.
10559 Citation Drive
Suite 100
Brighton, MI 48116

Phone: 810-229-8594 FAX: 810-229-8837

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S24738.01-S24738.09
Project: 64430.200/Plant 6 SSOW# E220002
Submitted Date/Time: 11/10/2005 16:15
Sampled by: Wayne Patterson
P.O. #: 412463

Report Notes

Results relate only to items tested.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
""Not detected"" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Lab Sample ID: S24738.01
Sample Tag: SA26-3 (3-5)
Collected Date/Time: 11/10/2005 08:40
Matrix: Soil
COC Reference: 02585

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.7	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/18/05 13:10	JDP	57-12-5	
Metals								
% Coarse by Weight	32.4	%			11/11/05 13:00	JRT		
% Fine by Weight	67.6	%			11/11/05 13:00	JRT		
Total Solids	91	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 15:42	SLS	7440-36-0	
Arsenic	0.89	mg/kg	0.10	6020	11/17/05 15:42	SLS	7440-38-2	
Barium	7.0	mg/kg	1.0	6020	11/17/05 15:42	SLS	7440-39-3	
Beryllium	0.05	mg/kg	0.50	6020	11/17/05 15:42	SLS	7440-41-7	b
Cadmium	0.05	mg/kg	0.20	6020	11/17/05 15:42	SLS	7440-43-9	b
Chromium	1.8	mg/kg	2.0	6020	11/17/05 15:42	SLS	7440-47-3	b
Cobalt	1.39	mg/kg	0.50	6020	11/17/05 15:42	SLS	7440-48-4	
Copper	2.5	mg/kg	1.0	6020	11/17/05 15:42	SLS	7440-50-8	
Lead, Coarse	3.0	mg/kg	1.0	6020	11/18/05 15:31	PER		
Lead, Fine	3.6	mg/kg	1.0	6020	11/18/05 16:23	PER		
Lead, Total Calculated	3.40	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	2.2	mg/kg	1.0	6020	11/17/05 15:42	SLS	7439-92-1	
Manganese	121	mg/kg	1.0	6020	11/17/05 15:42	SLS	7439-96-5	
Mercury	Not detected	mg/kg	0.050	245.1M	11/15/05 15:08	JRT	7439-97-6	
Nickel	2.8	mg/kg	1.0	6020	11/17/05 15:42	SLS	7440-02-0	
Selenium	Not detected	mg/kg	0.20	6020	11/17/05 15:42	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/17/05 15:42	SLS	7440-22-4	
Thallium	Not detected	mg/kg	0.50	6020	11/17/05 15:42	SLS	7440-28-0	
Vanadium	2.6	mg/kg	1.0	6020	11/17/05 15:42	SLS	7440-62-2	
Zinc	5.5	mg/kg	1.0	6020	11/17/05 15:42	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24738.02
Sample Tag: SA5-5 (8-10)
Collected Date/Time: 11/10/2005 09:10
Matrix: Soil
COC Reference: 02585

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.7	IR
1	40 ml Glass	MeOH	Yes	4.7	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/18/05 13:18	JDP	57-12-5	
Metals								
% Coarse by Weight	70.7	%			11/11/05 13:00	JRT		
% Fine by Weight	29.3	%			11/11/05 13:00	JRT		
Total Solids	97	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 15:46	SLS	7440-36-0	
Arsenic	0.80	mg/kg	0.10	6020	11/17/05 15:46	SLS	7440-38-2	
Barium	6.0	mg/kg	1.0	6020	11/17/05 15:46	SLS	7440-39-3	
Beryllium	0.04	mg/kg	0.50	6020	11/17/05 15:46	SLS	7440-41-7	b
Cadmium	0.06	mg/kg	0.20	6020	11/17/05 15:46	SLS	7440-43-9	b
Chromium	1.8	mg/kg	2.0	6020	11/17/05 15:46	SLS	7440-47-3	b
Cobalt	1.01	mg/kg	0.50	6020	11/17/05 15:46	SLS	7440-48-4	
Copper	3.9	mg/kg	1.0	6020	11/17/05 15:46	SLS	7440-50-8	
Lead, Coarse	1.5	mg/kg	1.0	6020	11/18/05 15:32	PER		
Lead, Fine	4.9	mg/kg	1.0	6020	11/18/05 16:24	PER		
Lead, Total Calculated	2.49	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	2.3	mg/kg	1.0	6020	11/17/05 15:46	SLS	7439-92-1	
Manganese	132	mg/kg	1.0	6020	11/17/05 15:46	SLS	7439-96-5	
Mercury	Not detected	mg/kg	0.050	245.1M	11/15/05 15:09	JRT	7439-97-6	
Nickel	2.3	mg/kg	1.0	6020	11/17/05 15:46	SLS	7440-02-0	
Selenium	0.36	mg/kg	0.20	6020	11/17/05 15:46	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/17/05 15:46	SLS	7440-22-4	
Thallium	Not detected	mg/kg	0.50	6020	11/17/05 15:46	SLS	7440-28-0	
Vanadium	2.0	mg/kg	1.0	6020	11/17/05 15:46	SLS	7440-62-2	
Zinc	6.9	mg/kg	1.0	6020	11/17/05 15:46	SLS	7440-66-6	
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	25,200	ug/kg	800	5035/8260B	11/22/05 13:18	JGH	67-64-1	E
2-Butanone (MEK)	Not detected	ug/kg	1,500	5035/8260B	11/22/05 13:18	JGH	78-93-3	X
Benzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	71-43-2	

b-Value detected less than reporting limit, but greater than MDL
E-Concentration exceeds calibration range
X-Elevated reporting limit due to matrix interference

Lab Sample ID: S24738.02 (continued)

Sample Tag: SA5-5 (8-10)

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
Bromodichloromethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	75-27-4	
Bromoform	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	75-25-2	
Bromomethane	Not detected	ug/kg	300	5035/8260B	11/22/05 13:18	JGH	74-83-9	
Carbon disulfide	Not detected	ug/kg	300	5035/8260B	11/22/05 13:18	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	56-23-5	
Chlorobenzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	108-90-7	
Chloroethane	Not detected	ug/kg	300	5035/8260B	11/22/05 13:18	JGH	75-00-3	
Chloroform	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	67-66-3	
Chloromethane	Not detected	ug/kg	300	5035/8260B	11/22/05 13:18	JGH	74-87-3	
Cyclohexane	40	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	110-82-7	J
1,1-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/kg	20	5035/8260B	11/22/05 13:18	JGH	106-93-4	M
1,2-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	10061-01-5	
Dibromochloromethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	10061-02-6	
Ethylbenzene	5,630	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	100-41-4	
2-Hexanone	Not detected	ug/kg	3,000	5035/8260B	11/22/05 13:18	JGH	591-78-6	
Isopropylbenzene	110	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	98-82-8	
Methyl Acetate	Not detected	ug/kg	3,000	5035/8260B	11/22/05 13:18	JGH	79-20-9	
4-Methyl-2-pentanone (MIBK)	2,000	ug/kg	3,000	5035/8260B	11/22/05 13:18	JGH	108-10-1	J
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	300	5035/8260B	11/22/05 13:18	JGH	1634-04-4	
Methyl cyclohexane	6	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	108-87-2	J
Methylene chloride	Not detected	ug/kg	300	5035/8260B	11/22/05 13:18	JGH	75-09-2	
Styrene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	79-34-5	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	100	5035/8260B	11/22/05 13:18	JGH	76-13-1	
1,1,2-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/kg	100	5035/8260B	11/22/05 13:18	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	127-18-4	
Toluene	390	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	108-88-3	
Trichloroethene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	5035/8260B	11/22/05 13:18	JGH	75-69-4	
Vinyl chloride	Not detected	ug/kg	100	5035/8260B	11/22/05 13:18	JGH	75-01-4	
o-Xylene	5,200	ug/kg	50	5035/8260B	11/22/05 13:18	JGH	95-47-6	
p,m-Xylene	17,500	ug/kg	50	5035/8260B	11/22/05 13:18	JGH		

J-Estimated value less than reporting limit, but greater than MDL

M-Result reported to MDL not RDL

Lab Sample ID: S24738.02 (continued)

Sample Tag: SA5-5 (8-10)

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (Replicate 01)								
Acetone	35,000	ug/kg	7,000	5035/8260B	11/24/05 19:46	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/kg	7,000	5035/8260B	11/24/05 19:46	JGH	78-93-3	
Benzene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	75-27-4	
Bromoform	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	75-25-2	
Bromomethane	Not detected	ug/kg	2,000	5035/8260B	11/24/05 19:46	JGH	74-83-9	
Carbon disulfide	Not detected	ug/kg	2,000	5035/8260B	11/24/05 19:46	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	56-23-5	
Chlorobenzene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	108-90-7	
Chloroethane	Not detected	ug/kg	2,000	5035/8260B	11/24/05 19:46	JGH	75-00-3	
Chloroform	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	67-66-3	
Chloromethane	Not detected	ug/kg	2,000	5035/8260B	11/24/05 19:46	JGH	74-87-3	
Cyclohexane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/kg	200	5035/8260B	11/24/05 19:46	JGH	106-93-4	
1,2-Dichlorobenzene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	10061-01-5	
Dibromochloromethane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	10061-02-6	
Ethylbenzene	6,100	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	100-41-4	
2-Hexanone	Not detected	ug/kg	20,000	5035/8260B	11/24/05 19:46	JGH	591-78-6	
Isopropylbenzene	100	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	98-82-8	J
Methyl Acetate	Not detected	ug/kg	20,000	5035/8260B	11/24/05 19:46	JGH	79-20-9	
4-Methyl-2-pentanone (MIBK)	3,000	ug/kg	20,000	5035/8260B	11/24/05 19:46	JGH	108-10-1	J
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	2,000	5035/8260B	11/24/05 19:46	JGH	1634-04-4	
Methyl cyclohexane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	108-87-2	
Methylene chloride	Not detected	ug/kg	2,000	5035/8260B	11/24/05 19:46	JGH	75-09-2	
Styrene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	79-34-5	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	1,000	5035/8260B	11/24/05 19:46	JGH	76-13-1	
1,1,2-Trichloroethane	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/kg	1,000	5035/8260B	11/24/05 19:46	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	127-18-4	
Toluene	500	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	108-88-3	BJ
Trichloroethene	Not detected	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	1,000	5035/8260B	11/24/05 19:46	JGH	75-69-4	
Vinyl chloride	Not detected	ug/kg	1,000	5035/8260B	11/24/05 19:46	JGH	75-01-4	

J-Estimated value less than reporting limit, but greater than MDL

B-Compound also found in associated method blank

Lab Sample ID: S24738.02 (continued)

Sample Tag: SA5-5 (8-10)

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (Replicate 01) (continued)								
o-Xylene	5,700	ug/kg	500	5035/8260B	11/24/05 19:46	JGH	95-47-6	
p,m-Xylene	28,800	ug/kg	500	5035/8260B	11/24/05 19:46	JGH		

Analytical Laboratory Report

Lab Sample ID: S24738.03
Sample Tag: SA5-1 (8-10)
Collected Date/Time: 11/10/2005 09:30
Matrix: Soil
COC Reference: 02585

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.7	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/18/05 13:20	JDP	57-12-5	
Metals								
% Coarse by Weight	94.3	%			11/11/05 13:00	JRT		
% Fine by Weight	5.7	%			11/11/05 13:00	JRT		
Total Solids	89	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 15:50	SLS	7440-36-0	
Arsenic	1.16	mg/kg	0.10	6020	11/17/05 15:50	SLS	7440-38-2	
Barium	36.4	mg/kg	1.0	6020	11/17/05 15:50	SLS	7440-39-3	
Beryllium	0.17	mg/kg	0.50	6020	11/17/05 15:50	SLS	7440-41-7	b
Cadmium	0.08	mg/kg	0.20	6020	11/17/05 15:50	SLS	7440-43-9	b
Chromium	5.9	mg/kg	2.0	6020	11/17/05 15:50	SLS	7440-47-3	
Cobalt	3.89	mg/kg	0.50	6020	11/17/05 15:50	SLS	7440-48-4	
Copper	6.2	mg/kg	1.0	6020	11/17/05 15:50	SLS	7440-50-8	
Lead, Coarse	3.3	mg/kg	1.0	6020	11/18/05 15:33	PER		
Lead, Fine	26.0	mg/kg	1.0	6020	11/18/05 16:25	PER		
Lead, Total Calculated	4.59	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	3.9	mg/kg	1.0	6020	11/17/05 15:50	SLS	7439-92-1	
Manganese	276	mg/kg	1.0	6020	11/17/05 15:50	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/15/05 15:11	JRT	7439-97-6	b
Nickel	9.4	mg/kg	1.0	6020	11/17/05 15:50	SLS	7440-02-0	
Selenium	0.35	mg/kg	0.20	6020	11/17/05 15:50	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/17/05 15:50	SLS	7440-22-4	
Thallium	0.04	mg/kg	0.50	6020	11/17/05 15:50	SLS	7440-28-0	b
Vanadium	6.9	mg/kg	1.0	6020	11/17/05 15:50	SLS	7440-62-2	
Zinc	13.9	mg/kg	1.0	6020	11/17/05 15:50	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24738.04
Sample Tag: Dup-6
Collected Date/Time: 11/10/2005 :
Matrix: Soil
COC Reference: 02585

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.7	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/18/05 13:22	JDP	57-12-5	
Metals								
% Coarse by Weight	94.0	%			11/11/05 13:00	JRT		
% Fine by Weight	6.0	%			11/11/05 13:00	JRT		
Total Solids	89	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 15:53	SLS	7440-36-0	
Arsenic	1.22	mg/kg	0.10	6020	11/17/05 15:53	SLS	7440-38-2	
Barium	34.1	mg/kg	1.0	6020	11/17/05 15:53	SLS	7440-39-3	
Beryllium	0.17	mg/kg	0.50	6020	11/17/05 15:53	SLS	7440-41-7	b
Cadmium	0.08	mg/kg	0.20	6020	11/17/05 15:53	SLS	7440-43-9	b
Chromium	5.5	mg/kg	2.0	6020	11/17/05 15:53	SLS	7440-47-3	
Cobalt	3.72	mg/kg	0.50	6020	11/17/05 15:53	SLS	7440-48-4	
Copper	6.1	mg/kg	1.0	6020	11/17/05 15:53	SLS	7440-50-8	
Lead, Coarse	3.9	mg/kg	1.0	6020	11/18/05 15:34	PER		
Lead, Fine	22.4	mg/kg	1.0	6020	11/18/05 16:26	PER		
Lead, Total Calculated	5.00	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	4.0	mg/kg	1.0	6020	11/17/05 15:53	SLS	7439-92-1	
Manganese	235	mg/kg	1.0	6020	11/17/05 15:53	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/15/05 15:13	JRT	7439-97-6	b
Nickel	8.0	mg/kg	1.0	6020	11/17/05 15:53	SLS	7440-02-0	
Selenium	0.17	mg/kg	0.20	6020	11/17/05 15:53	SLS	7782-49-2	b
Silver	Not detected	mg/kg	0.10	6020	11/17/05 15:53	SLS	7440-22-4	
Thallium	0.03	mg/kg	0.50	6020	11/17/05 15:53	SLS	7440-28-0	b
Vanadium	6.7	mg/kg	1.0	6020	11/17/05 15:53	SLS	7440-62-2	
Zinc	13.1	mg/kg	1.0	6020	11/17/05 15:53	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24738.05
Sample Tag: SA4-5 (9-11)
Collected Date/Time: 11/10/2005 10:30
Matrix: Soil
COC Reference: 02585

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.7	IR
1	40 ml Glass	MeOH	Yes	4.7	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/18/05 13:24	JDP	57-12-5	
Metals								
% Coarse by Weight	84.9	%			11/11/05 13:00	JRT		
% Fine by Weight	15.1	%			11/11/05 13:00	JRT		
Total Solids	95	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 15:57	SLS	7440-36-0	
Arsenic	1.42	mg/kg	0.10	6020	11/17/05 15:57	SLS	7440-38-2	
Barium	8.8	mg/kg	1.0	6020	11/17/05 15:57	SLS	7440-39-3	
Beryllium	0.07	mg/kg	0.50	6020	11/17/05 15:57	SLS	7440-41-7	b
Cadmium	0.05	mg/kg	0.20	6020	11/17/05 15:57	SLS	7440-43-9	b
Chromium	3.2	mg/kg	2.0	6020	11/17/05 15:57	SLS	7440-47-3	
Cobalt	1.92	mg/kg	0.50	6020	11/17/05 15:57	SLS	7440-48-4	
Copper	6.0	mg/kg	1.0	6020	11/17/05 15:57	SLS	7440-50-8	
Lead, Coarse	5.2	mg/kg	1.0	6020	11/18/05 15:35	PER		
Lead, Fine	17.7	mg/kg	1.0	6020	11/18/05 16:26	PER		
Lead, Total Calculated	7.08	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	4.2	mg/kg	1.0	6020	11/17/05 15:57	SLS	7439-92-1	
Manganese	195	mg/kg	1.0	6020	11/17/05 15:57	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/15/05 15:15	JRT	7439-97-6	b
Nickel	4.2	mg/kg	1.0	6020	11/17/05 15:57	SLS	7440-02-0	
Selenium	0.28	mg/kg	0.20	6020	11/17/05 15:57	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/17/05 15:57	SLS	7440-22-4	
Thallium	0.03	mg/kg	0.50	6020	11/17/05 15:57	SLS	7440-28-0	b
Vanadium	3.5	mg/kg	1.0	6020	11/17/05 15:57	SLS	7440-62-2	
Zinc	11.7	mg/kg	1.0	6020	11/17/05 15:57	SLS	7440-66-6	
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	Not detected	ug/kg	800	5035/8260B	11/22/05 13:34	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/kg	800	5035/8260B	11/22/05 13:34	JGH	78-93-3	
Benzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	75-27-4	
Bromoform	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	75-25-2	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S24738.05 (continued)

Sample Tag: SA4-5 (9-11)

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
Bromomethane	Not detected	ug/kg	300	5035/8260B	11/22/05 13:34	JGH	74-83-9	
Carbon disulfide	Not detected	ug/kg	300	5035/8260B	11/22/05 13:34	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	56-23-5	
Chlorobenzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	108-90-7	
Chloroethane	Not detected	ug/kg	300	5035/8260B	11/22/05 13:34	JGH	75-00-3	
Chloroform	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	67-66-3	
Chloromethane	Not detected	ug/kg	300	5035/8260B	11/22/05 13:34	JGH	74-87-3	
Cyclohexane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/kg	20	5035/8260B	11/22/05 13:34	JGH	106-93-4	M
1,2-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	10061-01-5	
Dibromochloromethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	10061-02-6	
Ethylbenzene	550	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	100-41-4	
2-Hexanone	Not detected	ug/kg	3,000	5035/8260B	11/22/05 13:34	JGH	591-78-6	
Isopropylbenzene	1,180	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	98-82-8	
Methyl Acetate	Not detected	ug/kg	3,000	5035/8260B	11/22/05 13:34	JGH	79-20-9	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/kg	3,000	5035/8260B	11/22/05 13:34	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	300	5035/8260B	11/22/05 13:34	JGH	1634-04-4	
Methyl cyclohexane	1,160	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	108-87-2	
Methylene chloride	Not detected	ug/kg	300	5035/8260B	11/22/05 13:34	JGH	75-09-2	
Styrene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	79-34-5	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	100	5035/8260B	11/22/05 13:34	JGH	76-13-1	
1,1,2-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/kg	100	5035/8260B	11/22/05 13:34	JGH	120-82-1	
Tetrachloroethene	40	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	127-18-4	J
Toluene	50	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	108-88-3	
Trichloroethene	Not detected	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	5035/8260B	11/22/05 13:34	JGH	75-69-4	
Vinyl chloride	Not detected	ug/kg	100	5035/8260B	11/22/05 13:34	JGH	75-01-4	
o-Xylene	30	ug/kg	50	5035/8260B	11/22/05 13:34	JGH	95-47-6	J
p,m-Xylene	260	ug/kg	50	5035/8260B	11/22/05 13:34	JGH		

M-Result reported to MDL not RDL

J-Estimated value less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24738.06
Sample Tag: SA4-3 (12-14)
Collected Date/Time: 11/10/2005 14:00
Matrix: Soil
COC Reference: 02585

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.7	IR
1	40 ml Glass	HCL	Yes	4.7	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/18/05 13:26	JDP	57-12-5	
Metals								
% Coarse by Weight	89.6	%			11/11/05 13:00	JRT		
% Fine by Weight	10.4	%			11/11/05 13:00	JRT		
Total Solids	87	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 16:08	SLS	7440-36-0	
Arsenic	1.11	mg/kg	0.10	6020	11/17/05 16:08	SLS	7440-38-2	
Barium	4.5	mg/kg	1.0	6020	11/17/05 16:08	SLS	7440-39-3	
Beryllium	0.07	mg/kg	0.50	6020	11/17/05 16:08	SLS	7440-41-7	b
Cadmium	0.06	mg/kg	0.20	6020	11/17/05 16:08	SLS	7440-43-9	b
Chromium	1.8	mg/kg	2.0	6020	11/17/05 16:08	SLS	7440-47-3	b
Cobalt	1.37	mg/kg	0.50	6020	11/17/05 16:08	SLS	7440-48-4	
Copper	4.7	mg/kg	1.0	6020	11/17/05 16:08	SLS	7440-50-8	
Lead, Coarse	44.5	mg/kg	1.0	6020	11/18/05 15:36	PER		
Lead, Fine	28.6	mg/kg	1.0	6020	11/18/05 16:27	PER		
Lead, Total Calculated	42.8	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	3.0	mg/kg	1.0	6020	11/17/05 16:08	SLS	7439-92-1	
Manganese	126	mg/kg	1.0	6020	11/17/05 16:08	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/15/05 15:17	JRT	7439-97-6	b
Nickel	2.9	mg/kg	1.0	6020	11/17/05 16:08	SLS	7440-02-0	
Selenium	0.44	mg/kg	0.20	6020	11/17/05 16:08	SLS	7782-49-2	
Silver	0.03	mg/kg	0.10	6020	11/17/05 16:08	SLS	7440-22-4	b
Thallium	0.08	mg/kg	0.50	6020	11/17/05 16:08	SLS	7440-28-0	b
Vanadium	2.5	mg/kg	1.0	6020	11/17/05 16:08	SLS	7440-62-2	
Zinc	10.0	mg/kg	1.0	6020	11/17/05 16:08	SLS	7440-66-6	
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	Not detected	ug/kg	8,000	5035/8260B	11/22/05 17:51	JGH	67-64-1	Y
2-Butanone (MEK)	Not detected	ug/kg	8,000	5035/8260B	11/22/05 17:51	JGH	78-93-3	Y
Benzene	200	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	71-43-2	JY

b-Value detected less than reporting limit, but greater than MDL
Y-Elevated reporting limit due to high target concentration
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S24738.06 (continued)

Sample Tag: SA4-3 (12-14)

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
Bromodichloromethane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	75-27-4	Y
Bromoform	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	75-25-2	Y
Bromomethane	Not detected	ug/kg	3,000	5035/8260B	11/22/05 17:51	JGH	74-83-9	Y
Carbon disulfide	Not detected	ug/kg	3,000	5035/8260B	11/22/05 17:51	JGH	75-15-0	Y
Carbon tetrachloride	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	56-23-5	Y
Chlorobenzene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	108-90-7	Y
Chloroethane	Not detected	ug/kg	3,000	5035/8260B	11/22/05 17:51	JGH	75-00-3	Y
Chloroform	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	67-66-3	Y
Chloromethane	Not detected	ug/kg	3,000	5035/8260B	11/22/05 17:51	JGH	74-87-3	Y
Cyclohexane	1,400	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	110-82-7	Y
1,1-Dichloroethane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	75-34-3	Y
1,1-Dichloroethene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	75-35-4	Y
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	96-12-8	Y
1,2-Dibromoethane	Not detected	ug/kg	200	5035/8260B	11/22/05 17:51	JGH	106-93-4	MY
1,2-Dichlorobenzene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	95-50-1	Y
1,2-Dichloroethane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	107-06-2	Y
1,2-Dichloropropane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	78-87-5	Y
1,3-Dichlorobenzene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	541-73-1	Y
1,4-Dichlorobenzene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	106-46-7	Y
cis-1,2-Dichloroethene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	156-59-2	Y
cis-1,3-Dichloropropene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	10061-01-5	Y
Dibromochloromethane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	124-48-1	Y
Dichlorodifluoromethane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	75-71-8	Y
trans-1,2-Dichloroethene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	156-60-5	Y
trans-1,3-Dichloropropene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	10061-02-6	Y
Ethylbenzene	23,500	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	100-41-4	Y
2-Hexanone	Not detected	ug/kg	30,000	5035/8260B	11/22/05 17:51	JGH	591-78-6	Y
Isopropylbenzene	38,900	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	98-82-8	Y
Methyl Acetate	Not detected	ug/kg	30,000	5035/8260B	11/22/05 17:51	JGH	79-20-9	Y
4-Methyl-2-pentanone (MIBK)	Not detected	ug/kg	30,000	5035/8260B	11/22/05 17:51	JGH	108-10-1	Y
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	3,000	5035/8260B	11/22/05 17:51	JGH	1634-04-4	Y
Methyl cyclohexane	59,300	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	108-87-2	Y
Methylene chloride	Not detected	ug/kg	3,000	5035/8260B	11/22/05 17:51	JGH	75-09-2	Y
Styrene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	100-42-5	Y
1,1,1-Trichloroethane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	71-55-6	Y
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	79-34-5	Y
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	1,000	5035/8260B	11/22/05 17:51	JGH	76-13-1	Y
1,1,2-Trichloroethane	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	79-00-5	Y
1,2,4-Trichlorobenzene	Not detected	ug/kg	1,000	5035/8260B	11/22/05 17:51	JGH	120-82-1	Y
Tetrachloroethene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	127-18-4	Y
Toluene	500	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	108-88-3	BJY
Trichloroethene	Not detected	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	79-01-6	Y
Trichlorofluoromethane	Not detected	ug/kg	1,000	5035/8260B	11/22/05 17:51	JGH	75-69-4	Y
Vinyl chloride	Not detected	ug/kg	1,000	5035/8260B	11/22/05 17:51	JGH	75-01-4	Y
o-Xylene	52,800	ug/kg	600	5035/8260B	11/22/05 17:51	JGH	95-47-6	Y
p,m-Xylene	84,400	ug/kg	600	5035/8260B	11/22/05 17:51	JGH		Y

Y-Elevated reporting limit due to high target concentration

M-Result reported to MDL not RDL

B-Compound also found in associated method blank J-Estimated value less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24738.07
Sample Tag: SA4-4 (14-16)
Collected Date/Time: 11/10/2005 14:40
Matrix: Soil
COC Reference: 02585

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.7	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/18/05 13:28	JDP	57-12-5	
Metals								
% Coarse by Weight	92.0	%			11/11/05 13:00	JRT		
% Fine by Weight	8.0	%			11/11/05 13:00	JRT		
Total Solids	84	%	1	160.3	11/11/05 13:00	JRT		
Antimony	0.09	mg/kg	0.30	6020	11/17/05 16:12	SLS	7440-36-0	b
Arsenic	1.07	mg/kg	0.10	6020	11/17/05 16:12	SLS	7440-38-2	
Barium	31.6	mg/kg	1.0	6020	11/17/05 16:12	SLS	7440-39-3	
Beryllium	0.27	mg/kg	0.50	6020	11/17/05 16:12	SLS	7440-41-7	b
Cadmium	0.38	mg/kg	0.20	6020	11/17/05 16:12	SLS	7440-43-9	
Chromium	7.2	mg/kg	2.0	6020	11/17/05 16:12	SLS	7440-47-3	
Cobalt	3.06	mg/kg	0.50	6020	11/17/05 16:12	SLS	7440-48-4	
Copper	13.4	mg/kg	1.0	6020	11/17/05 16:12	SLS	7440-50-8	
Lead, Coarse	7.2	mg/kg	1.0	6020	11/18/05 15:41	PER		
Lead, Fine	20.0	mg/kg	1.0	6020	11/18/05 16:32	PER		
Lead, Total Calculated	8.22	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	7.3	mg/kg	1.0	6020	11/17/05 16:12	SLS	7439-92-1	
Manganese	43.1	mg/kg	1.0	6020	11/17/05 16:12	SLS	7439-96-5	
Mercury	0.03	mg/kg	0.050	245.1M	11/15/05 15:19	JRT	7439-97-6	b
Nickel	13.6	mg/kg	1.0	6020	11/17/05 16:12	SLS	7440-02-0	
Selenium	1.03	mg/kg	0.20	6020	11/17/05 16:12	SLS	7782-49-2	
Silver	0.41	mg/kg	0.10	6020	11/17/05 16:12	SLS	7440-22-4	
Thallium	0.11	mg/kg	0.50	6020	11/17/05 16:12	SLS	7440-28-0	b
Vanadium	11.4	mg/kg	1.0	6020	11/17/05 16:12	SLS	7440-62-2	
Zinc	36.1	mg/kg	1.0	6020	11/17/05 16:12	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24738.08
Sample Tag: Dup-7
Collected Date/Time: 11/10/2005 :
Matrix: Soil
COC Reference: 02585

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.7	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/18/05 13:30	JDP	57-12-5	
Metals								
% Coarse by Weight	92.3	%			11/11/05 13:00	JRT		
% Fine by Weight	7.7	%			11/11/05 13:00	JRT		
Total Solids	68	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 16:16	SLS	7440-36-0	
Arsenic	2.17	mg/kg	0.10	6020	11/17/05 16:16	SLS	7440-38-2	
Barium	46.2	mg/kg	1.0	6020	11/17/05 16:16	SLS	7440-39-3	
Beryllium	0.33	mg/kg	0.50	6020	11/17/05 16:16	SLS	7440-41-7	b
Cadmium	0.34	mg/kg	0.20	6020	11/17/05 16:16	SLS	7440-43-9	
Chromium	8.9	mg/kg	2.0	6020	11/17/05 16:16	SLS	7440-47-3	
Cobalt	5.00	mg/kg	0.50	6020	11/17/05 16:16	SLS	7440-48-4	
Copper	21.6	mg/kg	1.0	6020	11/17/05 16:16	SLS	7440-50-8	
Lead, Coarse	7.9	mg/kg	1.0	6020	11/18/05 15:43	PER		
Lead, Fine	23.0	mg/kg	1.0	6020	11/18/05 16:34	PER		
Lead, Total Calculated	9.06	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	7.7	mg/kg	1.0	6020	11/17/05 16:16	SLS	7439-92-1	
Manganese	169	mg/kg	1.0	6020	11/17/05 16:16	SLS	7439-96-5	
Mercury	0.02	mg/kg	0.050	245.1M	11/15/05 15:20	JRT	7439-97-6	b
Nickel	17.1	mg/kg	1.0	6020	11/17/05 16:16	SLS	7440-02-0	
Selenium	1.26	mg/kg	0.20	6020	11/17/05 16:16	SLS	7782-49-2	
Silver	0.07	mg/kg	0.10	6020	11/17/05 16:16	SLS	7440-22-4	b
Thallium	0.10	mg/kg	0.50	6020	11/17/05 16:16	SLS	7440-28-0	b
Vanadium	15.6	mg/kg	1.0	6020	11/17/05 16:16	SLS	7440-62-2	
Zinc	35.7	mg/kg	1.0	6020	11/17/05 16:16	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24738.09
Sample Tag: TB-111005
Collected Date/Time: 11/10/2005 :
Matrix: Water Quality
COC Reference: 02585

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40 ml Glass	MeOH	Yes	4.7	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	Not detected	ug/kg	800	5035/8260B	11/23/05 13:10	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/kg	800	5035/8260B	11/23/05 13:10	JGH	78-93-3	
Benzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	75-27-4	
Bromoform	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	75-25-2	
Bromomethane	Not detected	ug/kg	300	5035/8260B	11/23/05 13:10	JGH	74-83-9	
Carbon disulfide	Not detected	ug/kg	300	5035/8260B	11/23/05 13:10	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	56-23-5	
Chlorobenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	108-90-7	
Chloroethane	Not detected	ug/kg	300	5035/8260B	11/23/05 13:10	JGH	75-00-3	
Chloroform	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	67-66-3	
Chloromethane	Not detected	ug/kg	300	5035/8260B	11/23/05 13:10	JGH	74-87-3	
Cyclohexane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/kg	20	5035/8260B	11/23/05 13:10	JGH	106-93-4	M
1,2-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	10061-01-5	
Dibromochloromethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	10061-02-6	
Ethylbenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	100-41-4	
2-Hexanone	Not detected	ug/kg	3,000	5035/8260B	11/23/05 13:10	JGH	591-78-6	
Isopropylbenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	98-82-8	
Methyl Acetate	Not detected	ug/kg	3,000	5035/8260B	11/23/05 13:10	JGH	79-20-9	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/kg	3,000	5035/8260B	11/23/05 13:10	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	300	5035/8260B	11/23/05 13:10	JGH	1634-04-4	
Methyl cyclohexane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	108-87-2	
Methylene chloride	Not detected	ug/kg	300	5035/8260B	11/23/05 13:10	JGH	75-09-2	
Styrene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	79-34-5	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	100	5035/8260B	11/23/05 13:10	JGH	76-13-1	
1,1,2-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	79-00-5	

M-Result reported to MDL not RDL

Lab Sample ID: S24738.09 (continued)

Sample Tag: TB-111005

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
1,2,4-Trichlorobenzene	Not detected	ug/kg	100	5035/8260B	11/23/05 13:10	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	127-18-4	
Toluene	20	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	108-88-3	BJ
Trichloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	5035/8260B	11/23/05 13:10	JGH	75-69-4	
Vinyl chloride	Not detected	ug/kg	100	5035/8260B	11/23/05 13:10	JGH	75-01-4	
o-Xylene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH	95-47-6	
p,m-Xylene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:10	JGH		

B-Compound also found in associated method blank J-Estimated value less than reporting limit, but greater than MDL

GM REALM ENCORE

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

PAGE 1 OF 1

ID # Nº 02585

SSOW Ref. Code: E220002

Required Client Information:

Company: BBL	Report To: CRA
Address: 10559 Citation	Copy To: Jim Keading
DR. STE 100	Invoice To: CRA
Brighton, MI 48116	P.O.:
Phone: 810-229-	Project Name:
Fax: 810-229	Project Number: 64430
E-mail:	

Laboratory: Mes, t	
Laboratory Location: Lansing, MI	
Laboratory Contact: Maya Murshak	
Requested Due Date:	TAT: Standard
QA/QC Requirements: To be determined	

Analysis and Method

Sample Identification:	Matrix Code	Date Collected	Time Collected	# Containers	Preservative: Unpreserved	HCl	H2SO4	HNO3	NaOH	Other:	PAL metals	VOCs	PID	Remarks/Lab ID
1. SA26-3 (3-5)	SO		0846	1							X		0.0	
2. SA 5-5 (8-10)			0910	2							X	X	631	
3. SA 5-1 (8-10)			0930	1							X		0.3	
4. 11/10 Dup-6			—	1							X		—	
5. ~~SA 5-~~ (MS/MSD)														
6. 11/10 SA 4-5 (9-11)	SO		1030	2							X	X	169	
7. SA 4-3 (12-14)	SO		1400	2							X	X	700	
8. SA 4-4 (14-16)	SO		1440	1							X		6.1	
9. Dup-7	SO		—	1							X		—	
10. TB-111005	WQ		—	1								X	—	
11.														
12.														
13.														
14.														
15.														
TOTAL NUMBER OF CONTAINERS				12										

Valid Matrix Codes: WG Groundwater; WB Borehole Water; WS Surface Water; SO Soil; SE Sediment; See Back for Additional Codes

SHIPMENT METHOD	NO. OF COOLERS	RELINQUISHED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME
Drop off	1		11-10-05	1615		11-10-05	1615
AIRBILL NO.							

Sample Condition

Temp in °C	
Received on Ice	Y / N
Sealed Cooler	Y / N
Samples Intact	Y / N

Additional Comments:

Sampler Name: Michael Mathial

Sampler Signature: Date: 11-10-05

Distribution: WHITE - Fully Executed Copy YELLOW - Receiving Laboratory Copy PINK - Sampler Copy

REV. 0 (6/04)

Analytical Laboratory Report

Report ID: S24707.01(01)
Generated on 11/21/2005

Report to

Attention: Amy Hoeksema/ Jim Heading
Blasland, Bouck & Lee, Inc.
10559 Citation Drive
Suite 100
Brighton, MI 48116

Phone: 810-229-8594 FAX: 810-229-8837

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S24707.01-S24707.07
Project: 64430.200/Plant 6 SSOW# E220002
Submitted Date/Time: 11/09/2005 16:15
Sampled by: Wayne Patterson
P.O. #: 412463

Report Notes

Results relate only to items tested.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
""Not detected"" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak
Laboratory Director

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S24707.01
Sample Tag: SA8-1 (9-11)
Collected Date/Time: 11/09/2005 09:05
Matrix: Soil
COC Reference: 02583

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:10	JDP	57-12-5	
Metals								
% Coarse by Weight	94.3	%			11/11/05 13:00	JRT		
% Fine by Weight	5.7	%			11/11/05 13:00	JRT		
Total Solids	88	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 16:41	SLS	7440-36-0	
Arsenic	1.31	mg/kg	0.10	6020	11/17/05 16:41	SLS	7440-38-2	
Barium	35.0	mg/kg	1.0	6020	11/17/05 16:41	SLS	7440-39-3	
Beryllium	0.18	mg/kg	0.50	6020	11/17/05 16:41	SLS	7440-41-7	b
Cadmium	0.09	mg/kg	0.20	6020	11/17/05 16:41	SLS	7440-43-9	b
Chromium	6.1	mg/kg	2.0	6020	11/17/05 16:41	SLS	7440-47-3	
Cobalt	4.07	mg/kg	0.50	6020	11/17/05 16:41	SLS	7440-48-4	
Copper	7.9	mg/kg	1.0	6020	11/17/05 16:41	SLS	7440-50-8	
Lead, Coarse	3.6	mg/kg	1.0	6020	11/18/05 15:23	PER		
Lead, Fine	44.0	mg/kg	1.0	6020	11/18/05 16:14	PER		
Lead, Total Calculated	5.90	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	4.2	mg/kg	1.0	6020	11/17/05 16:41	SLS	7439-92-1	
Manganese	359	mg/kg	1.0	6020	11/17/05 16:41	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/15/05 14:55	JRT	7439-97-6	b
Nickel	9.5	mg/kg	1.0	6020	11/17/05 16:41	SLS	7440-02-0	
Selenium	0.33	mg/kg	0.20	6020	11/17/05 16:41	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/17/05 16:41	SLS	7440-22-4	
Thallium	0.03	mg/kg	0.50	6020	11/17/05 16:41	SLS	7440-28-0	b
Vanadium	7.1	mg/kg	1.0	6020	11/17/05 16:41	SLS	7440-62-2	
Zinc	14.8	mg/kg	1.0	6020	11/17/05 16:41	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24707.02
Sample Tag: SA8-1 (9-11) MS
Collected Date/Time: 11/09/2005 09:05
Matrix: Soil
COC Reference: 02583

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	0.093	mg/kg	0.01	9010B	11/17/05 07:14	JDP	57-12-5	
Metals								
% Coarse by Weight	94.3	%			11/11/05 13:00	JRT		
% Fine by Weight	5.7	%			11/11/05 13:00	JRT		
Total Solids	88	%	1	160.3	11/11/05 13:00	JRT		
Antimony	25.0	mg/kg	0.30	6020	11/17/05 16:45	SLS	7440-36-0	
Arsenic	26.8	mg/kg	0.10	6020	11/17/05 16:45	SLS	7440-38-2	
Barium	61.6	mg/kg	1.0	6020	11/17/05 16:45	SLS	7440-39-3	
Beryllium	22.3	mg/kg	0.50	6020	11/17/05 16:45	SLS	7440-41-7	
Cadmium	24.26	mg/kg	0.20	6020	11/17/05 16:45	SLS	7440-43-9	
Chromium	31.2	mg/kg	2.0	6020	11/17/05 16:45	SLS	7440-47-3	
Cobalt	28.3	mg/kg	0.50	6020	11/17/05 16:45	SLS	7440-48-4	
Copper	30.5	mg/kg	1.0	6020	11/17/05 16:45	SLS	7440-50-8	
Lead, Coarse	47.6	mg/kg	1.0	6020	11/18/05 15:23	PER		
Lead, Fine	85.3	mg/kg	1.0	6020	11/18/05 16:15	PER		
Lead, Total Calculated	49.7	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	27.2	mg/kg	1.0	6020	11/17/05 16:45	SLS	7439-92-1	
Manganese	379	mg/kg	1.0	6020	11/17/05 16:45	SLS	7439-96-5	
Mercury	0.148	mg/kg	0.050	245.1M	11/15/05 14:57	JRT	7439-97-6	
Nickel	32.6	mg/kg	1.0	6020	11/17/05 16:45	SLS	7440-02-0	
Selenium	24.5	mg/kg	0.20	6020	11/17/05 16:45	SLS	7782-49-2	
Silver	24.83	mg/kg	0.10	6020	11/17/05 16:45	SLS	7440-22-4	
Thallium	23.7	mg/kg	0.50	6020	11/17/05 16:45	SLS	7440-28-0	
Vanadium	33.3	mg/kg	1.0	6020	11/17/05 16:45	SLS	7440-62-2	
Zinc	35.1	mg/kg	1.0	6020	11/17/05 16:45	SLS	7440-66-6	

Analytical Laboratory Report

Lab Sample ID: S24707.03
Sample Tag: SA8-1 (9-11) MSD
Collected Date/Time: 11/09/2005 09:05
Matrix: Soil
COC Reference: 02583

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	0.096	mg/kg	0.01	9010B	11/17/05 07:16	JDP	57-12-5	
Metals								
% Coarse by Weight	94.3	%			11/11/05 13:00	JRT		
% Fine by Weight	5.7	%			11/11/05 13:00	JRT		
Total Solids	88	%	1	160.3	11/11/05 13:00	JRT		
Antimony	25.0	mg/kg	0.30	6020	11/17/05 16:49	SLS	7440-36-0	
Arsenic	26.9	mg/kg	0.10	6020	11/17/05 16:49	SLS	7440-38-2	
Barium	61.1	mg/kg	1.0	6020	11/17/05 16:49	SLS	7440-39-3	
Beryllium	22.3	mg/kg	0.50	6020	11/17/05 16:49	SLS	7440-41-7	
Cadmium	24.41	mg/kg	0.20	6020	11/17/05 16:49	SLS	7440-43-9	
Chromium	30.8	mg/kg	2.0	6020	11/17/05 16:49	SLS	7440-47-3	
Cobalt	28.2	mg/kg	0.50	6020	11/17/05 16:49	SLS	7440-48-4	
Copper	31.5	mg/kg	1.0	6020	11/17/05 16:49	SLS	7440-50-8	
Lead, Coarse	48.4	mg/kg	1.0	6020	11/18/05 15:24	PER		
Lead, Fine	83.6	mg/kg	1.0	6020	11/18/05 16:16	PER		
Lead, Total Calculated	50.4	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	27.1	mg/kg	1.0	6020	11/17/05 16:49	SLS	7439-92-1	
Manganese	375	mg/kg	1.0	6020	11/17/05 16:49	SLS	7439-96-5	
Mercury	0.146	mg/kg	0.050	245.1M	11/15/05 14:58	JRT	7439-97-6	
Nickel	32.4	mg/kg	1.0	6020	11/17/05 16:49	SLS	7440-02-0	
Selenium	25.4	mg/kg	0.20	6020	11/17/05 16:49	SLS	7782-49-2	
Silver	24.83	mg/kg	0.10	6020	11/17/05 16:49	SLS	7440-22-4	
Thallium	23.7	mg/kg	0.50	6020	11/17/05 16:49	SLS	7440-28-0	
Vanadium	32.6	mg/kg	1.0	6020	11/17/05 16:49	SLS	7440-62-2	
Zinc	36.1	mg/kg	1.0	6020	11/17/05 16:49	SLS	7440-66-6	

Analytical Laboratory Report

Lab Sample ID: S24707.04
Sample Tag: SA8-2 (14-16)
Collected Date/Time: 11/09/2005 09:30
Matrix: Soil
COC Reference: 02583

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:18	JDP	57-12-5	
Metals								
% Coarse by Weight	83.8	%			11/11/05 13:00	JRT		
% Fine by Weight	16.2	%			11/11/05 13:00	JRT		
Total Solids	91	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 16:27	SLS	7440-36-0	
Arsenic	1.05	mg/kg	0.10	6020	11/17/05 16:27	SLS	7440-38-2	
Barium	19.9	mg/kg	1.0	6020	11/17/05 16:27	SLS	7440-39-3	
Beryllium	0.12	mg/kg	0.50	6020	11/17/05 16:27	SLS	7440-41-7	b
Cadmium	0.08	mg/kg	0.20	6020	11/17/05 16:27	SLS	7440-43-9	b
Chromium	3.6	mg/kg	2.0	6020	11/17/05 16:27	SLS	7440-47-3	
Cobalt	2.54	mg/kg	0.50	6020	11/17/05 16:27	SLS	7440-48-4	
Copper	7.4	mg/kg	1.0	6020	11/17/05 16:27	SLS	7440-50-8	
Lead, Coarse	3.4	mg/kg	1.0	6020	11/18/05 15:27	PER		
Lead, Fine	24.1	mg/kg	1.0	6020	11/18/05 16:19	PER		
Lead, Total Calculated	6.75	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	3.2	mg/kg	1.0	6020	11/17/05 16:27	SLS	7439-92-1	
Manganese	205	mg/kg	1.0	6020	11/17/05 16:27	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/15/05 14:51	JRT	7439-97-6	b
Nickel	5.7	mg/kg	1.0	6020	11/17/05 16:27	SLS	7440-02-0	
Selenium	0.24	mg/kg	0.20	6020	11/17/05 16:27	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/17/05 16:27	SLS	7440-22-4	
Thallium	0.04	mg/kg	0.50	6020	11/17/05 16:27	SLS	7440-28-0	b
Vanadium	4.6	mg/kg	1.0	6020	11/17/05 16:27	SLS	7440-62-2	
Zinc	10.4	mg/kg	1.0	6020	11/17/05 16:27	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24707.05
Sample Tag: SA14-1 (8-10)
Collected Date/Time: 11/09/2005 10:00
Matrix: Soil
COC Reference: 02583

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:20	JDP	57-12-5	
Metals								
% Coarse by Weight	81.8	%			11/11/05 13:00	JRT		
% Fine by Weight	18.2	%			11/11/05 13:00	JRT		
Total Solids	90	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 16:30	SLS	7440-36-0	
Arsenic	0.90	mg/kg	0.10	6020	11/17/05 16:30	SLS	7440-38-2	
Barium	18.9	mg/kg	1.0	6020	11/17/05 16:30	SLS	7440-39-3	
Beryllium	0.12	mg/kg	0.50	6020	11/17/05 16:30	SLS	7440-41-7	b
Cadmium	0.10	mg/kg	0.20	6020	11/17/05 16:30	SLS	7440-43-9	b
Chromium	2.8	mg/kg	2.0	6020	11/17/05 16:30	SLS	7440-47-3	
Cobalt	1.54	mg/kg	0.50	6020	11/17/05 16:30	SLS	7440-48-4	
Copper	4.8	mg/kg	1.0	6020	11/17/05 16:30	SLS	7440-50-8	
Lead, Coarse	15.6	mg/kg	1.0	6020	11/18/05 15:28	PER		
Lead, Fine	38.0	mg/kg	1.0	6020	11/18/05 16:20	PER		
Lead, Total Calculated	19.6	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	15.9	mg/kg	1.0	6020	11/17/05 16:30	SLS	7439-92-1	
Manganese	125	mg/kg	1.0	6020	11/17/05 16:30	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/15/05 14:53	JRT	7439-97-6	b
Nickel	3.1	mg/kg	1.0	6020	11/17/05 16:30	SLS	7440-02-0	
Selenium	Not detected	mg/kg	0.20	6020	11/17/05 16:30	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/17/05 16:30	SLS	7440-22-4	
Thallium	0.02	mg/kg	0.50	6020	11/17/05 16:30	SLS	7440-28-0	b
Vanadium	3.4	mg/kg	1.0	6020	11/17/05 16:30	SLS	7440-62-2	
Zinc	14.4	mg/kg	1.0	6020	11/17/05 16:30	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24707.06
Sample Tag: SA32-1 (8-10)
Collected Date/Time: 11/09/2005 13:50
Matrix: Soil
COC Reference: 02583

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:22	JDP	57-12-5	
Metals								
% Coarse by Weight	94.7	%			11/11/05 13:00	JRT		
% Fine by Weight	5.3	%			11/11/05 13:00	JRT		
Total Solids	85	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 16:34	SLS	7440-36-0	
Arsenic	1.34	mg/kg	0.10	6020	11/17/05 16:34	SLS	7440-38-2	
Barium	58.1	mg/kg	1.0	6020	11/17/05 16:34	SLS	7440-39-3	
Beryllium	0.26	mg/kg	0.50	6020	11/17/05 16:34	SLS	7440-41-7	b
Cadmium	0.09	mg/kg	0.20	6020	11/17/05 16:34	SLS	7440-43-9	b
Chromium	9.0	mg/kg	2.0	6020	11/17/05 16:34	SLS	7440-47-3	
Cobalt	6.25	mg/kg	0.50	6020	11/17/05 16:34	SLS	7440-48-4	
Copper	9.2	mg/kg	1.0	6020	11/17/05 16:34	SLS	7440-50-8	
Lead, Coarse	5.2	mg/kg	1.0	6020	11/18/05 15:29	PER		
Lead, Fine	31.6	mg/kg	1.0	6020	11/18/05 16:21	PER		
Lead, Total Calculated	6.59	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	5.5	mg/kg	1.0	6020	11/17/05 16:34	SLS	7439-92-1	
Manganese	350	mg/kg	1.0	6020	11/17/05 16:34	SLS	7439-96-5	
Mercury	0.02	mg/kg	0.050	245.1M	11/15/05 15:04	JRT	7439-97-6	b
Nickel	13.1	mg/kg	1.0	6020	11/17/05 16:34	SLS	7440-02-0	
Selenium	0.49	mg/kg	0.20	6020	11/17/05 16:34	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/17/05 16:34	SLS	7440-22-4	
Thallium	0.05	mg/kg	0.50	6020	11/17/05 16:34	SLS	7440-28-0	b
Vanadium	10.1	mg/kg	1.0	6020	11/17/05 16:34	SLS	7440-62-2	
Zinc	18.4	mg/kg	1.0	6020	11/17/05 16:34	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24707.07
Sample Tag: SA29-2 (8-10)
Collected Date/Time: 11/09/2005 14:20
Matrix: Soil
COC Reference: 02583

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 13:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/16/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:24	JDP	57-12-5	
Metals								
% Coarse by Weight	86.1	%			11/11/05 13:00	JRT		
% Fine by Weight	13.9	%			11/11/05 13:00	JRT		
Total Solids	88	%	1	160.3	11/11/05 13:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/17/05 16:38	SLS	7440-36-0	
Arsenic	1.05	mg/kg	0.10	6020	11/17/05 16:38	SLS	7440-38-2	
Barium	26.1	mg/kg	1.0	6020	11/17/05 16:38	SLS	7440-39-3	
Beryllium	0.15	mg/kg	0.50	6020	11/17/05 16:38	SLS	7440-41-7	b
Cadmium	0.09	mg/kg	0.20	6020	11/17/05 16:38	SLS	7440-43-9	b
Chromium	5.6	mg/kg	2.0	6020	11/17/05 16:38	SLS	7440-47-3	
Cobalt	3.29	mg/kg	0.50	6020	11/17/05 16:38	SLS	7440-48-4	
Copper	5.6	mg/kg	1.0	6020	11/17/05 16:38	SLS	7440-50-8	
Lead, Coarse	3.7	mg/kg	1.0	6020	11/18/05 15:30	PER		
Lead, Fine	24.3	mg/kg	1.0	6020	11/18/05 16:22	PER		
Lead, Total Calculated	6.56	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	3.6	mg/kg	1.0	6020	11/17/05 16:38	SLS	7439-92-1	
Manganese	190	mg/kg	1.0	6020	11/17/05 16:38	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/15/05 15:06	JRT	7439-97-6	b
Nickel	6.8	mg/kg	1.0	6020	11/17/05 16:38	SLS	7440-02-0	
Selenium	0.29	mg/kg	0.20	6020	11/17/05 16:38	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/17/05 16:38	SLS	7440-22-4	
Thallium	0.02	mg/kg	0.50	6020	11/17/05 16:38	SLS	7440-28-0	b
Vanadium	6.2	mg/kg	1.0	6020	11/17/05 16:38	SLS	7440-62-2	
Zinc	12.4	mg/kg	1.0	6020	11/17/05 16:38	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

GM REALM ENCORE

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

PAGE 1 OF 1

ID # Nº 02583

SSOW Ref. Code: E220002

Required Client Information:

Company: BBL	Report To: CRA
Address: 10559 Citation Dr. Ste 100 Brighton, MI 48116	Copy To: Jim Heading
	Invoice To: CRA
	P.O.:
Phone: 810-229-8594	Project Name: GM Lansing 11f6
Fax: 810-229-8837	Project Number: 64430
E-mail:	

Laboratory: MVTL	
Laboratory Location: Lansing, MI	
Laboratory Contact: Mayd Murshak	
Requested Due Date:	TAT: standard
QA/QC Requirements:	To be determined

Valid Matrix Codes:
WG Groundwater
WB Borehole Water
WS Surface Water
SO Soil
SE Sediment
See Back for Additional Codes

Analysis and Method

Sample Identification:	Matrix Code	Date Collected	Time Collected	# Containers	Preservative: Unpreserved	HCl	H2SO4	HNO3	NaOH	Other:	PAL Metals	PID	Remarks/Lab ID
1. SA 8-1 (9-11)	SO	11/9/05	0905	3	X						X	0.2	MS/MSD
2. SA 8-2 (14-16)	↓	↓	0930	1	↓						↓	0.4	
3. SA 14-1 (8-10)			1000	1								5.5	
4. SA 32-1 (8-10)			1350	1								8.4	
5. SA 29-2 (8-10)	↓	↓	1420	↓							↓	8.1	
6.													
7.													
8.													
9.													
10.													
11.													
12.													
13.													
14.													
15.													
TOTAL NUMBER OF CONTAINERS				7									

SHIPMENT METHOD	NO. OF COOLERS	RELINQUISHED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME
hand deliver	1	Wayne Patterson / BBL	11/9/05		Paula [illegible]	11-9-05	1615
AIRBILL NO. —							

Sample Condition

Temp in °C	3.7
Received on Ice	Y / N
Sealed Cooler	Y / N
Samples Intact	Y / N

Additional Comments:

Sampler Name: Wayne Patterson

Sampler Signature: Wayne Patterson Date: 11/9/05

Distribution: WHITE - Fully Executed Copy YELLOW - Receiving Laboratory Copy PINK - Sampler Copy

REV. 0 (6/04)

Analytical Laboratory Report

Report ID: S24759.01(01)
Generated on 11/29/2005

Report to

Attention: Amy Hoeksema/ Jim Heading
Blasland, Bouck & Lee, Inc.
10559 Citation Drive
Suite 100
Brighton, MI 48116

Phone: 810-229-8594 FAX: 810-229-8837

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S24759.01-S24759.07
Project: 64430.200/Plant 6 SSOW# E220002
Submitted Date/Time: 11/11/2005 16:00
Sampled by: Michael Mathiah
P.O. #: 412463

Report Notes

Results relate only to items tested.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Lab Sample ID: S24759.01
Sample Tag: SA34-6 (6-8)
Collected Date/Time: 11/11/2005 10:00
Matrix: Soil
COC Reference: 02554

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.2	IR
1	40 ml Glass	MeOH	Yes	3.2	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/22/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/15/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/22/05 12:00	PER		
Mercury Digestion	Completed			7471A	11/17/05 13:00	JRT		
Metal Digestion	Completed			3050B	11/17/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/23/05 07:44	JDP	57-12-5	
Metals								
% Coarse by Weight	92.6	%			11/15/05 12:00	SLS		
% Fine by Weight	7.4	%			11/15/05 12:00	SLS		
Total Solids	46	%	1	160.3	11/15/05 12:00	SLS		
Antimony	30.0	mg/kg	0.30	6020	11/21/05 14:09	SLS	7440-36-0	
Arsenic	1.24	mg/kg	0.10	6020	11/21/05 14:09	SLS	7440-38-2	
Barium	119	mg/kg	1.0	6020	11/21/05 14:09	SLS	7440-39-3	
Beryllium	0.57	mg/kg	0.50	6020	11/21/05 14:09	SLS	7440-41-7	
Cadmium	2.60	mg/kg	0.20	6020	11/21/05 14:09	SLS	7440-43-9	
Chromium	9.9	mg/kg	2.0	6020	11/21/05 14:09	SLS	7440-47-3	
Cobalt	0.98	mg/kg	0.50	6020	11/21/05 14:09	SLS	7440-48-4	
Copper	6.3	mg/kg	1.0	6020	11/21/05 14:09	SLS	7440-50-8	
Lead, Coarse	147	mg/kg	1.0	6020	11/23/05 11:55	PER		
Lead, Fine	158	mg/kg	1.0	6020	11/23/05 13:06	PER		
Lead, Total Calculated	147	mg/kg	1.0	6020	11/23/05 14:15	PER	7439-92-1C	
Lead	22.2	mg/kg	1.0	6020	11/21/05 14:09	SLS	7439-92-1	
Manganese	12.7	mg/kg	1.0	6020	11/21/05 14:09	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/17/05 16:34	JRT	7439-97-6	b
Nickel	11.9	mg/kg	1.0	6020	11/21/05 14:09	SLS	7440-02-0	
Selenium	1.09	mg/kg	0.20	6020	11/21/05 14:09	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/21/05 14:09	SLS	7440-22-4	
Thallium	Not detected	mg/kg	0.50	6020	11/21/05 14:09	SLS	7440-28-0	
Vanadium	9.6	mg/kg	1.0	6020	11/21/05 14:09	SLS	7440-62-2	
Zinc	18.9	mg/kg	1.0	6020	11/21/05 14:09	SLS	7440-66-6	
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	Not detected	ug/kg	1,000	5035/8260B	11/23/05 13:43	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/kg	1,000	5035/8260B	11/23/05 13:43	JGH	78-93-3	
Benzene	160	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	75-27-4	
Bromoform	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	75-25-2	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S24759.01 (continued)

Sample Tag: SA34-6 (6-8)

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
Bromomethane	Not detected	ug/kg	400	5035/8260B	11/23/05 13:43	JGH	74-83-9	
Carbon disulfide	Not detected	ug/kg	400	5035/8260B	11/23/05 13:43	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	56-23-5	
Chlorobenzene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	108-90-7	
Chloroethane	Not detected	ug/kg	400	5035/8260B	11/23/05 13:43	JGH	75-00-3	
Chloroform	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	67-66-3	
Chloromethane	Not detected	ug/kg	400	5035/8260B	11/23/05 13:43	JGH	74-87-3	
Cyclohexane	110	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/kg	30	5035/8260B	11/23/05 13:43	JGH	106-93-4	M
1,2-Dichlorobenzene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	10061-01-5	
Dibromochloromethane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	10061-02-6	
Ethylbenzene	1,230	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	100-41-4	
2-Hexanone	Not detected	ug/kg	4,000	5035/8260B	11/23/05 13:43	JGH	591-78-6	
Isopropylbenzene	350	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	98-82-8	
Methyl Acetate	Not detected	ug/kg	4,000	5035/8260B	11/23/05 13:43	JGH	79-20-9	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/kg	4,000	5035/8260B	11/23/05 13:43	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	400	5035/8260B	11/23/05 13:43	JGH	1634-04-4	
Methyl cyclohexane	740	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	108-87-2	
Methylene chloride	Not detected	ug/kg	400	5035/8260B	11/23/05 13:43	JGH	75-09-2	
Styrene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	79-34-5	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	200	5035/8260B	11/23/05 13:43	JGH	76-13-1	
1,1,2-Trichloroethane	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/kg	200	5035/8260B	11/23/05 13:43	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	127-18-4	
Toluene	2,630	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	108-88-3	
Trichloroethene	Not detected	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	200	5035/8260B	11/23/05 13:43	JGH	75-69-4	
Vinyl chloride	Not detected	ug/kg	200	5035/8260B	11/23/05 13:43	JGH	75-01-4	
o-Xylene	1,760	ug/kg	80	5035/8260B	11/23/05 13:43	JGH	95-47-6	
p,m-Xylene	6,350	ug/kg	80	5035/8260B	11/23/05 13:43	JGH		

M-Result reported to MDL not RDL

Analytical Laboratory Report

Lab Sample ID: S24759.02
Sample Tag: SA4-1 (9-11)
Collected Date/Time: 11/11/2005 11:25
Matrix: Soil
COC Reference: 02554

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.2	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/22/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/15/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/22/05 12:00	PER		
Mercury Digestion	Completed			7471A	11/17/05 13:00	JRT		
Metal Digestion	Completed			3050B	11/17/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/23/05 07:46	JDP	57-12-5	
Metals								
% Coarse by Weight	61.4	%			11/15/05 12:00	SLS		
% Fine by Weight	38.6	%			11/15/05 12:00	SLS		
Total Solids	91	%	1	160.3	11/15/05 12:00	SLS		
Antimony	0.08	mg/kg	0.30	6020	11/21/05 14:12	SLS	7440-36-0	b
Arsenic	0.60	mg/kg	0.10	6020	11/21/05 14:12	SLS	7440-38-2	
Barium	9.4	mg/kg	1.0	6020	11/21/05 14:12	SLS	7440-39-3	
Beryllium	0.05	mg/kg	0.50	6020	11/21/05 14:12	SLS	7440-41-7	b
Cadmium	Not detected	mg/kg	0.20	6020	11/21/05 14:12	SLS	7440-43-9	
Chromium	1.6	mg/kg	2.0	6020	11/21/05 14:12	SLS	7440-47-3	b
Cobalt	1.33	mg/kg	0.50	6020	11/21/05 14:12	SLS	7440-48-4	
Copper	1.9	mg/kg	1.0	6020	11/21/05 14:12	SLS	7440-50-8	
Lead, Coarse	6.5	mg/kg	1.0	6020	11/23/05 11:55	PER		
Lead, Fine	4.1	mg/kg	1.0	6020	11/23/05 13:07	PER		
Lead, Total Calculated	5.57	mg/kg	1.0	6020	11/23/05 14:15	PER	7439-92-1C	
Lead	7.7	mg/kg	1.0	6020	11/21/05 14:12	SLS	7439-92-1	
Manganese	118	mg/kg	1.0	6020	11/21/05 14:12	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/17/05 16:35	JRT	7439-97-6	b
Nickel	3.1	mg/kg	1.0	6020	11/21/05 14:12	SLS	7440-02-0	
Selenium	0.17	mg/kg	0.20	6020	11/21/05 14:12	SLS	7782-49-2	b
Silver	Not detected	mg/kg	0.10	6020	11/21/05 14:12	SLS	7440-22-4	
Thallium	Not detected	mg/kg	0.50	6020	11/21/05 14:12	SLS	7440-28-0	
Vanadium	2.2	mg/kg	1.0	6020	11/21/05 14:12	SLS	7440-62-2	
Zinc	4.5	mg/kg	1.0	6020	11/21/05 14:12	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24759.03
Sample Tag: SA3-1 (14-16)
Collected Date/Time: 11/11/2005 11:50
Matrix: Soil
COC Reference: 02554

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.2	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/22/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/15/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/22/05 12:00	PER		
Mercury Digestion	Completed			7471A	11/17/05 13:00	JRT		
Metal Digestion	Completed			3050B	11/17/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/23/05 07:48	JDP	57-12-5	
Metals								
% Coarse by Weight	83.6	%			11/15/05 12:00	SLS		
% Fine by Weight	16.4	%			11/15/05 12:00	SLS		
Total Solids	90	%	1	160.3	11/15/05 12:00	SLS		
Antimony	Not detected	mg/kg	0.30	6020	11/21/05 14:16	SLS	7440-36-0	
Arsenic	2.25	mg/kg	0.10	6020	11/21/05 14:16	SLS	7440-38-2	
Barium	23.3	mg/kg	1.0	6020	11/21/05 14:16	SLS	7440-39-3	
Beryllium	0.14	mg/kg	0.50	6020	11/21/05 14:16	SLS	7440-41-7	b
Cadmium	0.11	mg/kg	0.20	6020	11/21/05 14:16	SLS	7440-43-9	b
Chromium	3.8	mg/kg	2.0	6020	11/21/05 14:16	SLS	7440-47-3	
Cobalt	3.07	mg/kg	0.50	6020	11/21/05 14:16	SLS	7440-48-4	
Copper	9.5	mg/kg	1.0	6020	11/21/05 14:16	SLS	7440-50-8	
Lead, Coarse	4.6	mg/kg	1.0	6020	11/23/05 11:56	PER		
Lead, Fine	33.5	mg/kg	1.0	6020	11/23/05 13:10	PER		
Lead, Total Calculated	9.33	mg/kg	1.0	6020	11/23/05 14:15	PER	7439-92-1C	
Lead	4.4	mg/kg	1.0	6020	11/21/05 14:16	SLS	7439-92-1	
Manganese	231	mg/kg	1.0	6020	11/21/05 14:16	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/17/05 16:37	JRT	7439-97-6	b
Nickel	7.8	mg/kg	1.0	6020	11/21/05 14:16	SLS	7440-02-0	
Selenium	0.68	mg/kg	0.20	6020	11/21/05 14:16	SLS	7782-49-2	
Silver	0.02	mg/kg	0.10	6020	11/21/05 14:16	SLS	7440-22-4	b
Thallium	0.06	mg/kg	0.50	6020	11/21/05 14:16	SLS	7440-28-0	b
Vanadium	5.0	mg/kg	1.0	6020	11/21/05 14:16	SLS	7440-62-2	
Zinc	18.4	mg/kg	1.0	6020	11/21/05 14:16	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24759.04
Sample Tag: SA3-2 (9-11)
Collected Date/Time: 11/11/2005 13:40
Matrix: Soil
COC Reference: 02554

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.2	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/22/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/15/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/22/05 12:00	PER		
Mercury Digestion	Completed			7471A	11/17/05 13:00	JRT		
Metal Digestion	Completed			3050B	11/17/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/23/05 07:50	JDP	57-12-5	
Metals								
% Coarse by Weight	83.3	%			11/15/05 12:00	SLS		
% Fine by Weight	16.7	%			11/15/05 12:00	SLS		
Total Solids	90	%	1	160.3	11/15/05 12:00	SLS		
Antimony	Not detected	mg/kg	0.30	6020	11/21/05 14:20	SLS	7440-36-0	
Arsenic	0.52	mg/kg	0.10	6020	11/21/05 14:20	SLS	7440-38-2	
Barium	25.3	mg/kg	1.0	6020	11/21/05 14:20	SLS	7440-39-3	
Beryllium	0.12	mg/kg	0.50	6020	11/21/05 14:20	SLS	7440-41-7	b
Cadmium	0.09	mg/kg	0.20	6020	11/21/05 14:20	SLS	7440-43-9	b
Chromium	3.5	mg/kg	2.0	6020	11/21/05 14:20	SLS	7440-47-3	
Cobalt	2.51	mg/kg	0.50	6020	11/21/05 14:20	SLS	7440-48-4	
Copper	5.5	mg/kg	1.0	6020	11/21/05 14:20	SLS	7440-50-8	
Lead, Coarse	3.9	mg/kg	1.0	6020	11/23/05 11:57	PER		
Lead, Fine	18.5	mg/kg	1.0	6020	11/23/05 13:11	PER		
Lead, Total Calculated	6.33	mg/kg	1.0	6020	11/23/05 14:15	PER	7439-92-1C	
Lead	3.0	mg/kg	1.0	6020	11/21/05 14:20	SLS	7439-92-1	
Manganese	188	mg/kg	1.0	6020	11/21/05 14:20	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/17/05 16:39	JRT	7439-97-6	b
Nickel	6.1	mg/kg	1.0	6020	11/21/05 14:20	SLS	7440-02-0	
Selenium	0.61	mg/kg	0.20	6020	11/21/05 14:20	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/21/05 14:20	SLS	7440-22-4	
Thallium	0.02	mg/kg	0.50	6020	11/21/05 14:20	SLS	7440-28-0	b
Vanadium	4.8	mg/kg	1.0	6020	11/21/05 14:20	SLS	7440-62-2	
Zinc	10.9	mg/kg	1.0	6020	11/21/05 14:20	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24759.05
Sample Tag: SA1-5 (3-5)
Collected Date/Time: 11/11/2005 14:20
Matrix: Soil
COC Reference: 02554

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.2	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/22/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/15/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/22/05 12:00	PER		
Mercury Digestion	Completed			7471A	11/17/05 13:00	JRT		
Metal Digestion	Completed			3050B	11/17/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/23/05 07:52	JDP	57-12-5	
Metals								
% Coarse by Weight	41.3	%			11/15/05 12:00	SLS		
% Fine by Weight	58.7	%			11/15/05 12:00	SLS		
Total Solids	91	%	1	160.3	11/15/05 12:00	SLS		
Antimony	Not detected	mg/kg	0.30	6020	11/21/05 14:24	SLS	7440-36-0	
Arsenic	0.59	mg/kg	0.10	6020	11/21/05 14:24	SLS	7440-38-2	
Barium	11.2	mg/kg	1.0	6020	11/21/05 14:24	SLS	7440-39-3	
Beryllium	0.07	mg/kg	0.50	6020	11/21/05 14:24	SLS	7440-41-7	b
Cadmium	Not detected	mg/kg	0.20	6020	11/21/05 14:24	SLS	7440-43-9	
Chromium	1.4	mg/kg	2.0	6020	11/21/05 14:24	SLS	7440-47-3	b
Cobalt	1.48	mg/kg	0.50	6020	11/21/05 14:24	SLS	7440-48-4	
Copper	2.1	mg/kg	1.0	6020	11/21/05 14:24	SLS	7440-50-8	
Lead, Coarse	4.6	mg/kg	1.0	6020	11/23/05 11:58	PER		
Lead, Fine	5.1	mg/kg	1.0	6020	11/23/05 13:12	PER		
Lead, Total Calculated	4.89	mg/kg	1.0	6020	11/23/05 14:15	PER	7439-92-1C	
Lead	2.5	mg/kg	1.0	6020	11/21/05 14:24	SLS	7439-92-1	
Manganese	125	mg/kg	1.0	6020	11/21/05 14:24	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/17/05 16:13	JRT	7439-97-6	b
Nickel	2.3	mg/kg	1.0	6020	11/21/05 14:24	SLS	7440-02-0	
Selenium	0.16	mg/kg	0.20	6020	11/21/05 14:24	SLS	7782-49-2	b
Silver	Not detected	mg/kg	0.10	6020	11/21/05 14:24	SLS	7440-22-4	
Thallium	Not detected	mg/kg	0.50	6020	11/21/05 14:24	SLS	7440-28-0	
Vanadium	2.3	mg/kg	1.0	6020	11/21/05 14:24	SLS	7440-62-2	
Zinc	3.9	mg/kg	1.0	6020	11/21/05 14:24	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24759.06
Sample Tag: TB-111105
Collected Date/Time: 11/11/2005 :
Matrix: Water Quality
COC Reference: 02554

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40 ml Glass	MeOH	Yes	3.2	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	Not detected	ug/kg	800	5035/8260B	11/23/05 13:26	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/kg	800	5035/8260B	11/23/05 13:26	JGH	78-93-3	
Benzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	75-27-4	
Bromoform	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	75-25-2	
Bromomethane	Not detected	ug/kg	300	5035/8260B	11/23/05 13:26	JGH	74-83-9	
Carbon disulfide	Not detected	ug/kg	300	5035/8260B	11/23/05 13:26	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	56-23-5	
Chlorobenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	108-90-7	
Chloroethane	Not detected	ug/kg	300	5035/8260B	11/23/05 13:26	JGH	75-00-3	
Chloroform	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	67-66-3	
Chloromethane	Not detected	ug/kg	300	5035/8260B	11/23/05 13:26	JGH	74-87-3	
Cyclohexane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/kg	20	5035/8260B	11/23/05 13:26	JGH	106-93-4	M
1,2-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	10061-01-5	
Dibromochloromethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	10061-02-6	
Ethylbenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	100-41-4	
2-Hexanone	Not detected	ug/kg	3,000	5035/8260B	11/23/05 13:26	JGH	591-78-6	
Isopropylbenzene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	98-82-8	
Methyl Acetate	Not detected	ug/kg	3,000	5035/8260B	11/23/05 13:26	JGH	79-20-9	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/kg	3,000	5035/8260B	11/23/05 13:26	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	300	5035/8260B	11/23/05 13:26	JGH	1634-04-4	
Methyl cyclohexane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	108-87-2	
Methylene chloride	Not detected	ug/kg	300	5035/8260B	11/23/05 13:26	JGH	75-09-2	
Styrene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	79-34-5	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	100	5035/8260B	11/23/05 13:26	JGH	76-13-1	
1,1,2-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	79-00-5	

M-Result reported to MDL not RDL

Lab Sample ID: S24759.06 (continued)

Sample Tag: TB-111105

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
1,2,4-Trichlorobenzene	Not detected	ug/kg	100	5035/8260B	11/23/05 13:26	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	127-18-4	
Toluene	20	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	108-88-3	BJ
Trichloroethene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	5035/8260B	11/23/05 13:26	JGH	75-69-4	
Vinyl chloride	Not detected	ug/kg	100	5035/8260B	11/23/05 13:26	JGH	75-01-4	
o-Xylene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH	95-47-6	
p,m-Xylene	Not detected	ug/kg	50	5035/8260B	11/23/05 13:26	JGH		

B-Compound also found in associated method blank J-Estimated value less than reporting limit, but greater than MDL

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S24759.07
Sample Tag: WC(111105)
Collected Date/Time: 11/11/2005 15:30
Matrix: Soil
COC Reference: 02554

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	32 oz Glass	None	Yes	3.2	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Extraction, PCB	Completed			3550B	11/17/05 16:43	JES		
Mercury Digestion	Completed			7470A	11/17/05 10:00	JRT		
Metal Digestion	Completed			3015A	11/18/05 12:00	SLS		
TCLP Zero Headspace Ext.	Completed			1311	11/15/05 08:00	LBR		
TCLP/SPLP BNA Extraction	Completed			3510C	11/17/05 13:57	EMR		
TCLP Extraction								
% Solids	100			1311	11/15/05 08:00	LBR		
Sample Used g	100			1311	11/15/05 08:00	LBR		
Final Volume mL	2,000			1311	11/15/05 08:00	LBR		
Final Extract pH	5.68			1311	11/15/05 08:00	LBR		
Inorganics								
Flashpoint for Solids	Negative	mm/sec	2.2	1030	11/18/05 14:30	LBR		
pH	9.22	STD Units	0.01	9045D	11/18/05 16:49	LBR		
Releasable Cyanide	Not detected	mg/kg	0.1	9010B	11/23/05 07:54	JDP	57-12-5	
Releasable Sulfide	Not detected	mg/kg	0.5	9030B	11/23/05 10:10	JDP		
Total Solids	88	%	1	160.3	11/14/05 12:31	LBR		
Metals								
Arsenic, TCLP	Not detected	mg/L	0.001	200.8	11/18/05 15:08	SLS	7440-38-2	
Barium, TCLP	0.930	mg/L	0.01	200.8	11/18/05 15:08	SLS	7440-39-3	
Cadmium, TCLP	0.0035	mg/L	0.0005	200.8	11/18/05 15:08	SLS	7440-43-9	
Chromium, TCLP	0.036	mg/L	0.005	200.8	11/18/05 15:08	SLS	7440-47-3	
Lead, TCLP	0.019	mg/L	0.003	200.8	11/18/05 15:08	SLS	7439-92-1	
Mercury, TCLP	Not detected	mg/L	0.0002	245.1M	11/17/05 15:32	JRT	7439-97-6	
Selenium, TCLP	0.011	mg/L	0.005	200.8	11/18/05 15:08	SLS	7782-49-2	
Silver, TCLP	0.0003	mg/L	0.0002	200.8	11/18/05 15:08	SLS	7440-22-4	
Organics - PCBs/Pesticides								
TCL PCB List (Column 1)								
PCB-1016	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	12674-11-2	
PCB-1242	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	53469-21-9	
PCB-1221	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	11104-28-2	
PCB-1232	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	11141-16-5	
PCB-1248	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	12672-29-6	
PCB-1254	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	11097-69-1	
PCB-1260	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	11096-82-5	
TCL PCB List (Column 2)								
PCB-1016	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	12674-11-2	
PCB-1242	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	53469-21-9	
PCB-1221	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	11104-28-2	

Lab Sample ID: S24759.07 (continued)
Sample Tag: WC(111105)

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
TCL PCB List (Column 2) (continued)								
PCB-1232	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	11141-16-5	
PCB-1248	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	12672-29-6	
PCB-1254	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	11097-69-1	
PCB-1260	Not detected	ug/kg	330	8082	11/17/05 16:43	JANB	11096-82-5	
Organics - Semi-Volatiles								
TCLP/SPLP Semi Volatiles								
o-Cresol	Not detected	ug/L	1,000	8270C	11/22/05 13:43	ARH	95-48-7	
p,m-Cresol	Not detected	ug/L	1,000	8270C	11/22/05 13:43	ARH	106-44-5	
Pentachlorophenol	Not detected	ug/L	1,000	8270C	11/22/05 13:43	ARH	87-86-5	
2,4,5-Trichlorophenol	Not detected	ug/L	1,000	8270C	11/22/05 13:43	ARH	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	1,000	8270C	11/22/05 13:43	ARH	88-06-2	
2,4-Dinitrotoluene	Not detected	ug/L	90	8270C	11/22/05 13:43	ARH	121-14-2	
Hexachlorobenzene	Not detected	ug/L	90	8270C	11/22/05 13:43	ARH	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	100	8270C	11/22/05 13:43	ARH	87-68-3	
Hexachloroethane	Not detected	ug/L	100	8270C	11/22/05 13:43	ARH	67-72-1	
Nitrobenzene	Not detected	ug/L	100	8270C	11/22/05 13:43	ARH	98-95-3	
Pyridine	Not detected	ug/L	100	8270C	11/22/05 13:43	ARH	110-86-1	
Organics - Volatiles								
TCLP/SPLP Volatiles								
Benzene	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	71-43-2	
Carbon tetrachloride	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	108-90-7	
Chloroform	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	67-66-3	
1,4-Dichlorobenzene	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	106-46-7	
1,2-Dichloroethane	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	107-06-2	
1,1-Dichloroethene	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	75-35-4	
2-Butanone (MEK)	Not detected	ug/L	1,000	8260B	11/22/05 15:46	JGH	78-93-3	
Tetrachloroethene	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	127-18-4	
Trichloroethene	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	79-01-6	
Vinyl chloride	Not detected	ug/L	100	8260B	11/22/05 15:46	JGH	75-01-4	

GM REALM ENCORE

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

PAGE 1 OF 1

ID # Nº 02554

SSOW Ref. Code: F220002

Required Client Information:

Company: BBL	Report To: CRA
Address: 10559 Citation Dr Ste 100	Copy To: Jim Heading
Brighton MI 48116	Invoice To: CRA
Phone: (810) 229-8594	P.O.:
Fax: (810) 229-8837	Project Name: Plant 6 Lansing
E-mail:	Project Number: 64430

Laboratory: Merit	
Laboratory Location: Lansing MI	
Laboratory Contact: Maria Mostak	
Requested Due Date: Standard	TAT:
QA/QC Requirements:	

Valid Matrix Codes: WG Groundwater; WB Borehole Water; WS Surface Water; SO Soil; SE Sediment; See Back for Additional Codes

Analysis and Method

Sample Identification:	Matrix Code	Date Collected	Time Collected	# Containers	Preservative: Unpreserved	HCl	H2SO4	HNO3	NaOH	Other:	VOC's	BAL Metals	TCLP VOC	TCLP SVOCs	TCLP RCRA metals	RCI	PCBs				Remarks/Lab ID
24759.01 1. SA 34-6 (6-8)	SO	11-11-05	1000	2	X	X				X	X	X								6.7	PID (ppm)
.02 2. SA 4-1 (9-11)	SO	11-11-05	1125	1	X							X								0.2	
.03 3. SA 3-1 (14-16)	SO	11-11-05	1150	1	X							X								0.0	
.04 4. SA 3-2 (9-11)	SO	11-11-05	1340	1	X							X								0.4	
.05 5. SA 1-5 (3-5)	SO	11-11-05	1420	1	X							X								0.0	
.06 6. TB - 111105	WQ	11-11-05	—	1						X	X									—	
.07 7. WC (111105)	SO	11-11-05	1530	2	X								X	X	X	X	X				
8.																					
9.																					
10.																					
11.																					
12.																					
13.																					
14.																					
15.																					
TOTAL NUMBER OF CONTAINERS																					

SHIPMENT METHOD	NO. OF COOLERS	RELINQUISHED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME
BBL Dropoff	1		11-11-05			11-11-05	1600
AIRBILL NO.							

Sample Condition

Temp in °C	3.6
Received on Ice	Y / N
Sealed Cooler	Y / N
Samples Intact	Y / N

Additional Comments:

Sampler Name: Michael Mathiak

Sampler Signature: Date: 11-11-05

Distribution: WHITE - Fully Executed Copy YELLOW - Receiving Laboratory Copy PINK - Sampler Copy

REV. 0 (6/04)

Analytical Laboratory Report

Report ID: S24651.01(01)
Generated on 11/17/2005

Report to

Attention: Amy Hoeksema/ Jim Heading
Blasland, Bouck & Lee, Inc.
10559 Citation Drive
Suite 100
Brighton, MI 48116

Phone: 810-229-8594 FAX: 810-229-8837

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S24651.01-S24651.11
Project: 64430.200/Plant 6 SSOW# E220002
Submitted Date/Time: 11/04/2005 16:00
Sampled by: Wayne Patterson
P.O. #: 412463

Report Notes

Results relate only to items tested.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Lab Sample ID: S24651.01
Sample Tag: SA6-11 (8-10)
Collected Date/Time: 11/04/2005 08:50
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 06:25	JDP	57-12-5	
Metals								
% Coarse by Weight	87.5	%			11/10/05 12:00	SLS		
% Fine by Weight	12.5	%			11/10/05 12:00	SLS		
Total Solids	87	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 13:44	SLS	7440-36-0	
Arsenic	1.06	mg/kg	0.10	6020	11/14/05 13:44	SLS	7440-38-2	
Barium	26.3	mg/kg	1.0	6020	11/14/05 13:44	SLS	7440-39-3	
Beryllium	Not detected	mg/kg	0.50	6020	11/14/05 16:06	SLS	7440-41-7	
Cadmium	0.06	mg/kg	0.20	6020	11/14/05 13:44	SLS	7440-43-9	b
Chromium	4.5	mg/kg	2.0	6020	11/14/05 13:44	SLS	7440-47-3	
Cobalt	1.51	mg/kg	0.50	6020	11/14/05 13:44	SLS	7440-48-4	
Copper	4.9	mg/kg	1.0	6020	11/14/05 13:44	SLS	7440-50-8	
Lead, Coarse	3.7	mg/kg	1.0	6020	11/16/05 13:38	PER		
Lead, Fine	11.6	mg/kg	1.0	6020	11/16/05 14:47	PER		
Lead, Total Calculated	4.68	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	3.2	mg/kg	1.0	6020	11/14/05 13:44	SLS	7439-92-1	
Manganese	164	mg/kg	1.0	6020	11/14/05 13:44	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:02	JRT	7439-97-6	b
Nickel	5.4	mg/kg	1.0	6020	11/14/05 13:44	SLS	7440-02-0	
Selenium	0.37	mg/kg	0.20	6020	11/14/05 13:44	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 13:44	SLS	7440-22-4	
Thallium	Not detected	mg/kg	0.50	6020	11/14/05 13:44	SLS	7440-28-0	
Vanadium	5.5	mg/kg	1.0	6020	11/14/05 13:44	SLS	7440-62-2	
Zinc	10.5	mg/kg	1.0	6020	11/14/05 13:44	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24651.02
Sample Tag: SA20-3 (7-9)
Collected Date/Time: 11/04/2005 09:05
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 06:29	JDP	57-12-5	
Metals								
% Coarse by Weight	95.6	%			11/10/05 12:00	SLS		
% Fine by Weight	4.4	%			11/10/05 12:00	SLS		
Total Solids	85	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 13:48	SLS	7440-36-0	
Arsenic	1.19	mg/kg	0.10	6020	11/14/05 13:48	SLS	7440-38-2	
Barium	96.8	mg/kg	1.0	6020	11/14/05 13:48	SLS	7440-39-3	
Beryllium	Not detected	mg/kg	0.50	6020	11/14/05 16:08	SLS	7440-41-7	
Cadmium	0.26	mg/kg	0.20	6020	11/14/05 13:48	SLS	7440-43-9	
Chromium	16.1	mg/kg	2.0	6020	11/14/05 13:48	SLS	7440-47-3	
Cobalt	7.21	mg/kg	0.50	6020	11/14/05 13:48	SLS	7440-48-4	
Copper	11.5	mg/kg	1.0	6020	11/14/05 13:48	SLS	7440-50-8	
Lead, Coarse	8.8	mg/kg	1.0	6020	11/16/05 13:39	PER		
Lead, Fine	66.2	mg/kg	1.0	6020	11/16/05 14:49	PER		
Lead, Total Calculated	11.3	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	10.9	mg/kg	1.0	6020	11/14/05 13:48	SLS	7439-92-1	
Manganese	283	mg/kg	1.0	6020	11/14/05 13:48	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:04	JRT	7439-97-6	b
Nickel	18.9	mg/kg	1.0	6020	11/14/05 13:48	SLS	7440-02-0	
Selenium	0.52	mg/kg	0.20	6020	11/14/05 13:48	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 13:48	SLS	7440-22-4	
Thallium	0.06	mg/kg	0.50	6020	11/14/05 13:48	SLS	7440-28-0	b
Vanadium	14.1	mg/kg	1.0	6020	11/14/05 13:48	SLS	7440-62-2	
Zinc	32.1	mg/kg	1.0	6020	11/14/05 13:48	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24651.03
Sample Tag: SA20-1 (4-6)
Collected Date/Time: 11/04/2005 09:40
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 06:31	JDP	57-12-5	
Metals								
% Coarse by Weight	96.1	%			11/10/05 12:00	SLS		
% Fine by Weight	3.9	%			11/10/05 12:00	SLS		
Total Solids	87	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 13:52	SLS	7440-36-0	
Arsenic	1.31	mg/kg	0.10	6020	11/14/05 13:52	SLS	7440-38-2	
Barium	45.2	mg/kg	1.0	6020	11/14/05 13:52	SLS	7440-39-3	
Beryllium	Not detected	mg/kg	0.50	6020	11/14/05 16:10	SLS	7440-41-7	
Cadmium	0.10	mg/kg	0.20	6020	11/14/05 13:52	SLS	7440-43-9	b
Chromium	13.7	mg/kg	2.0	6020	11/14/05 13:52	SLS	7440-47-3	
Cobalt	7.90	mg/kg	0.50	6020	11/14/05 13:52	SLS	7440-48-4	
Copper	10.4	mg/kg	1.0	6020	11/14/05 13:52	SLS	7440-50-8	
Lead, Coarse	7.2	mg/kg	1.0	6020	11/16/05 13:40	PER		
Lead, Fine	24.7	mg/kg	1.0	6020	11/16/05 14:50	PER		
Lead, Total Calculated	7.88	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	5.7	mg/kg	1.0	6020	11/14/05 13:52	SLS	7439-92-1	
Manganese	326	mg/kg	1.0	6020	11/14/05 13:52	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:06	JRT	7439-97-6	b
Nickel	17.4	mg/kg	1.0	6020	11/14/05 13:52	SLS	7440-02-0	
Selenium	0.84	mg/kg	0.20	6020	11/14/05 13:52	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 13:52	SLS	7440-22-4	
Thallium	0.05	mg/kg	0.50	6020	11/14/05 13:52	SLS	7440-28-0	b
Vanadium	12.8	mg/kg	1.0	6020	11/14/05 13:52	SLS	7440-62-2	
Zinc	26.7	mg/kg	1.0	6020	11/14/05 13:52	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24651.04
Sample Tag: SA20-2 (14-16)
Collected Date/Time: 11/04/2005 10:20
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 06:33	JDP	57-12-5	
Metals								
% Coarse by Weight	90.2	%			11/10/05 12:00	SLS		
% Fine by Weight	9.8	%			11/10/05 12:00	SLS		
Total Solids	90	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 13:55	SLS	7440-36-0	
Arsenic	0.62	mg/kg	0.10	6020	11/14/05 13:55	SLS	7440-38-2	
Barium	36.8	mg/kg	1.0	6020	11/14/05 13:55	SLS	7440-39-3	
Beryllium	Not detected	mg/kg	0.50	6020	11/14/05 16:12	SLS	7440-41-7	
Cadmium	0.09	mg/kg	0.20	6020	11/14/05 13:55	SLS	7440-43-9	b
Chromium	11.9	mg/kg	2.0	6020	11/14/05 13:55	SLS	7440-47-3	
Cobalt	5.09	mg/kg	0.50	6020	11/14/05 13:55	SLS	7440-48-4	
Copper	8.0	mg/kg	1.0	6020	11/14/05 13:55	SLS	7440-50-8	
Lead, Coarse	3.4	mg/kg	1.0	6020	11/16/05 13:43	PER		
Lead, Fine	21.7	mg/kg	1.0	6020	11/16/05 14:53	PER		
Lead, Total Calculated	5.19	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	3.7	mg/kg	1.0	6020	11/14/05 13:55	SLS	7439-92-1	
Manganese	252	mg/kg	1.0	6020	11/14/05 13:55	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:07	JRT	7439-97-6	b
Nickel	13.0	mg/kg	1.0	6020	11/14/05 13:55	SLS	7440-02-0	
Selenium	1.01	mg/kg	0.20	6020	11/14/05 13:55	SLS	7782-49-2	
Silver	0.02	mg/kg	0.10	6020	11/14/05 13:55	SLS	7440-22-4	b
Thallium	0.06	mg/kg	0.50	6020	11/14/05 13:55	SLS	7440-28-0	b
Vanadium	11.4	mg/kg	1.0	6020	11/14/05 13:55	SLS	7440-62-2	
Zinc	21.9	mg/kg	1.0	6020	11/14/05 13:55	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24651.05
Sample Tag: SA20-4 (10-12)
Collected Date/Time: 11/04/2005 11:20
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR
1	40 ml Glass	MeOH	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 06:35	JDP	57-12-5	
Metals								
% Coarse by Weight	83.6	%			11/10/05 12:00	SLS		
% Fine by Weight	16.4	%			11/10/05 12:00	SLS		
Total Solids	84	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 16:27	SLS	7440-36-0	
Arsenic	2.41	mg/kg	0.10	6020	11/16/05 16:27	SLS	7440-38-2	
Barium	24.0	mg/kg	1.0	6020	11/16/05 16:27	SLS	7440-39-3	
Beryllium	0.19	mg/kg	0.50	6020	11/16/05 16:27	SLS	7440-41-7	b
Cadmium	0.07	mg/kg	0.20	6020	11/16/05 16:27	SLS	7440-43-9	b
Chromium	4.1	mg/kg	2.0	6020	11/16/05 16:27	SLS	7440-47-3	
Cobalt	2.59	mg/kg	0.50	6020	11/16/05 16:27	SLS	7440-48-4	
Copper	6.2	mg/kg	1.0	6020	11/16/05 16:27	SLS	7440-50-8	
Lead, Coarse	7.2	mg/kg	1.0	6020	11/16/05 13:44	PER		
Lead, Fine	20.8	mg/kg	1.0	6020	11/16/05 14:54	PER		
Lead, Total Calculated	9.43	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	3.9	mg/kg	1.0	6020	11/16/05 16:27	SLS	7439-92-1	
Manganese	277	mg/kg	1.0	6020	11/16/05 16:27	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:15	JRT	7439-97-6	b
Nickel	5.6	mg/kg	1.0	6020	11/16/05 16:27	SLS	7440-02-0	
Selenium	0.67	mg/kg	0.20	6020	11/16/05 16:27	SLS	7782-49-2	
Silver	0.02	mg/kg	0.10	6020	11/16/05 16:27	SLS	7440-22-4	b
Thallium	0.07	mg/kg	0.50	6020	11/16/05 16:27	SLS	7440-28-0	b
Vanadium	7.1	mg/kg	1.0	6020	11/16/05 16:27	SLS	7440-62-2	
Zinc	14.9	mg/kg	1.0	6020	11/16/05 16:27	SLS	7440-66-6	
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	Not detected	ug/kg	900	5035/8260B	11/09/05 19:24	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/kg	900	5035/8260B	11/09/05 19:24	JGH	78-93-3	
Benzene	30	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	71-43-2	J
Bromodichloromethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	75-27-4	

b-Value detected less than reporting limit, but greater than MDL
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S24651.05 (continued)

Sample Tag: SA20-4 (10-12)

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
Bromoform	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	75-25-2	
Bromomethane	Not detected	ug/kg	300	5035/8260B	11/09/05 19:24	JGH	74-83-9	
Carbon disulfide	Not detected	ug/kg	300	5035/8260B	11/09/05 19:24	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	56-23-5	
Chlorobenzene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	108-90-7	
Chloroethane	Not detected	ug/kg	300	5035/8260B	11/09/05 19:24	JGH	75-00-3	
Chloroform	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	67-66-3	
Chloromethane	Not detected	ug/kg	300	5035/8260B	11/09/05 19:24	JGH	74-87-3	
Cyclohexane	30	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	110-82-7	J
1,1-Dichloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/kg	20	5035/8260B	11/09/05 19:24	JGH	106-93-4	M
1,2-Dichlorobenzene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	10061-01-5	
Dibromochloromethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	10061-02-6	
Ethylbenzene	30	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	100-41-4	J
2-Hexanone	Not detected	ug/kg	3,000	5035/8260B	11/09/05 19:24	JGH	591-78-6	
Isopropylbenzene	10	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	98-82-8	J
Methyl Acetate	Not detected	ug/kg	3,000	5035/8260B	11/09/05 19:24	JGH	79-20-9	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/kg	3,000	5035/8260B	11/09/05 19:24	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	300	5035/8260B	11/09/05 19:24	JGH	1634-04-4	
Methyl cyclohexane	110	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	108-87-2	
Methylene chloride	80	ug/kg	300	5035/8260B	11/09/05 19:24	JGH	75-09-2	BJ
Styrene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	79-34-5	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	100	5035/8260B	11/09/05 19:24	JGH	76-13-1	
1,1,2-Trichloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/kg	100	5035/8260B	11/09/05 19:24	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	127-18-4	
Toluene	120	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	108-88-3	
Trichloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	5035/8260B	11/09/05 19:24	JGH	75-69-4	
Vinyl chloride	Not detected	ug/kg	100	5035/8260B	11/09/05 19:24	JGH	75-01-4	
o-Xylene	60	ug/kg	60	5035/8260B	11/09/05 19:24	JGH	95-47-6	
p,m-Xylene	120	ug/kg	60	5035/8260B	11/09/05 19:24	JGH		

J-Estimated value less than reporting limit, but greater than MDL

M-Result reported to MDL not RDL

B-Compound also found in associated method blank

Analytical Laboratory Report

Lab Sample ID: S24651.06
Sample Tag: SA20-4 (10-12) MS
Collected Date/Time: 11/04/2005 11:20
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR
1	40 ml Glass	MeOH	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	0.088	mg/kg	0.01	9010B	11/16/05 06:37	JDP	57-12-5	
Metals								
% Coarse by Weight	83.6	%			11/10/05 12:00	SLS		
% Fine by Weight	16.4	%			11/10/05 12:00	SLS		
Total Solids	84	%	1	160.3	11/10/05 10:30	JRT		
Antimony	25.2	mg/kg	0.30	6020	11/16/05 16:35	SLS	7440-36-0	
Arsenic	27.8	mg/kg	0.10	6020	11/16/05 16:35	SLS	7440-38-2	
Barium	50.2	mg/kg	1.0	6020	11/16/05 16:35	SLS	7440-39-3	
Beryllium	22.5	mg/kg	0.50	6020	11/16/05 16:35	SLS	7440-41-7	
Cadmium	24.64	mg/kg	0.20	6020	11/16/05 16:35	SLS	7440-43-9	
Chromium	30.7	mg/kg	2.0	6020	11/16/05 16:35	SLS	7440-47-3	
Cobalt	28.0	mg/kg	0.50	6020	11/16/05 16:35	SLS	7440-48-4	
Copper	28.5	mg/kg	1.0	6020	11/16/05 16:35	SLS	7440-50-8	
Lead, Coarse	44.1	mg/kg	1.0	6020	11/16/05 13:45	PER		
Lead, Fine	69.2	mg/kg	1.0	6020	11/16/05 14:55	PER		
Lead, Total Calculated	48.2	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	26.3	mg/kg	1.0	6020	11/16/05 16:35	SLS	7439-92-1	
Manganese	307	mg/kg	1.0	6020	11/16/05 16:35	SLS	7439-96-5	
Mercury	0.133	mg/kg	0.050	245.1M	11/10/05 15:16	JRT	7439-97-6	
Nickel	28.8	mg/kg	1.0	6020	11/16/05 16:35	SLS	7440-02-0	
Selenium	25.1	mg/kg	0.20	6020	11/16/05 16:35	SLS	7782-49-2	
Silver	24.48	mg/kg	0.10	6020	11/16/05 16:35	SLS	7440-22-4	
Thallium	23.4	mg/kg	0.50	6020	11/16/05 16:35	SLS	7440-28-0	
Vanadium	35.8	mg/kg	1.0	6020	11/16/05 16:35	SLS	7440-62-2	
Zinc	34.8	mg/kg	1.0	6020	11/16/05 16:35	SLS	7440-66-6	
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	1,000	ug/kg	900	5035/8260B	11/09/05 22:06	JGH	67-64-1	1
2-Butanone (MEK)	3,500	ug/kg	900	5035/8260B	11/09/05 22:06	JGH	78-93-3	1
Benzene	3,020	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	71-43-2	1
Bromodichloromethane	3,170	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	75-27-4	1
Bromoform	3,050	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	75-25-2	1

1-Spiked at 2.5mg/kg

Lab Sample ID: S24651.06 (continued)

Sample Tag: SA20-4 (10-12) MS

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
Bromomethane	1,200	ug/kg	300	5035/8260B	11/09/05 22:06	JGH	74-83-9	1
Carbon disulfide	1,600	ug/kg	300	5035/8260B	11/09/05 22:06	JGH	75-15-0	1
Carbon tetrachloride	2,980	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	56-23-5	1
Chlorobenzene	3,120	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	108-90-7	1
Chloroethane	1,200	ug/kg	300	5035/8260B	11/09/05 22:06	JGH	75-00-3	1
Chloroform	3,070	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	67-66-3	1
Chloromethane	1,900	ug/kg	300	5035/8260B	11/09/05 22:06	JGH	74-87-3	1
Cyclohexane	3,160	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	110-82-7	1
1,1-Dichloroethane	3,060	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	75-34-3	1
1,1-Dichloroethene	2,110	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	75-35-4	1
1,2-Dibromo-3-chloropropane	3,730	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	96-12-8	1
1,2-Dibromoethane	3,360	ug/kg	20	5035/8260B	11/09/05 22:06	JGH	106-93-4	1M
1,2-Dichlorobenzene	3,180	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	95-50-1	1
1,2-Dichloroethane	2,820	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	107-06-2	1
1,2-Dichloropropane	2,940	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	78-87-5	1
1,3-Dichlorobenzene	3,110	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	541-73-1	1
1,4-Dichlorobenzene	3,030	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	106-46-7	1
cis-1,2-Dichloroethene	3,070	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	156-59-2	1
cis-1,3-Dichloropropene	3,000	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	10061-01-5	1
Dibromochloromethane	3,280	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	124-48-1	1
Dichlorodifluoromethane	2,010	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	75-71-8	1
trans-1,2-Dichloroethene	2,900	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	156-60-5	1
trans-1,3-Dichloropropene	3,190	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	10061-02-6	1
Ethylbenzene	3,100	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	100-41-4	1
2-Hexanone	4,000	ug/kg	3,000	5035/8260B	11/09/05 22:06	JGH	591-78-6	1
Isopropylbenzene	3,500	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	98-82-8	1
Methyl Acetate	2,000	ug/kg	3,000	5035/8260B	11/09/05 22:06	JGH	79-20-9	J1
4-Methyl-2-pentanone (MIBK)	3,000	ug/kg	3,000	5035/8260B	11/09/05 22:06	JGH	108-10-1	1
tert-Methyl butyl ether (MTBE)	3,200	ug/kg	300	5035/8260B	11/09/05 22:06	JGH	1634-04-4	1
Methyl cyclohexane	3,210	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	108-87-2	1
Methylene chloride	2,000	ug/kg	300	5035/8260B	11/09/05 22:06	JGH	75-09-2	B1
Styrene	3,330	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	100-42-5	1
1,1,1-Trichloroethane	3,130	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	71-55-6	1
1,1,2,2-Tetrachloroethane	3,810	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	79-34-5	1
1,1,2-Trichloro-1,2,2-trifluoroethane	2,200	ug/kg	100	5035/8260B	11/09/05 22:06	JGH	76-13-1	1
1,1,2-Trichloroethane	3,230	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	79-00-5	1
1,2,4-Trichlorobenzene	3,300	ug/kg	100	5035/8260B	11/09/05 22:06	JGH	120-82-1	1
Tetrachloroethene	2,880	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	127-18-4	1
Toluene	3,070	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	108-88-3	1
Trichloroethene	2,930	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	79-01-6	1
Trichlorofluoromethane	1,900	ug/kg	100	5035/8260B	11/09/05 22:06	JGH	75-69-4	1
Vinyl chloride	1,500	ug/kg	100	5035/8260B	11/09/05 22:06	JGH	75-01-4	1
o-Xylene	3,240	ug/kg	60	5035/8260B	11/09/05 22:06	JGH	95-47-6	1
p,m-Xylene	6,480	ug/kg	60	5035/8260B	11/09/05 22:06	JGH		1

1-Spiked at 2.5mg/kg

M-Result reported to MDL not RDL

J-Estimated value less than reporting limit, but greater than MDL

B-Compound also found in associated method blank

Analytical Laboratory Report

Lab Sample ID: S24651.07
Sample Tag: SA20-4 (10-12) MSD
Collected Date/Time: 11/04/2005 11:20
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR
1	40 ml Glass	MeOH	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	0.087	mg/kg	0.01	9010B	11/16/05 06:39	JDP	57-12-5	
Metals								
% Coarse by Weight	83.6	%			11/10/05 12:00	SLS		
% Fine by Weight	16.4	%			11/10/05 12:00	SLS		
Total Solids	84	%	1	160.3	11/10/05 10:30	JRT		
Antimony	25.2	mg/kg	0.30	6020	11/16/05 16:31	SLS	7440-36-0	
Arsenic	27.6	mg/kg	0.10	6020	11/16/05 16:31	SLS	7440-38-2	
Barium	49.6	mg/kg	1.0	6020	11/16/05 16:31	SLS	7440-39-3	
Beryllium	22.4	mg/kg	0.50	6020	11/16/05 16:31	SLS	7440-41-7	
Cadmium	24.46	mg/kg	0.20	6020	11/16/05 16:31	SLS	7440-43-9	
Chromium	30.1	mg/kg	2.0	6020	11/16/05 16:31	SLS	7440-47-3	
Cobalt	27.4	mg/kg	0.50	6020	11/16/05 16:31	SLS	7440-48-4	
Copper	28.3	mg/kg	1.0	6020	11/16/05 16:31	SLS	7440-50-8	
Lead, Coarse	43.8	mg/kg	1.0	6020	11/16/05 13:46	PER		
Lead, Fine	69.2	mg/kg	1.0	6020	11/16/05 14:56	PER		
Lead, Total Calculated	47.9	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	25.9	mg/kg	1.0	6020	11/16/05 16:31	SLS	7439-92-1	
Manganese	316	mg/kg	1.0	6020	11/16/05 16:31	SLS	7439-96-5	
Mercury	0.130	mg/kg	0.050	245.1M	11/10/05 15:18	JRT	7439-97-6	
Nickel	28.3	mg/kg	1.0	6020	11/16/05 16:31	SLS	7440-02-0	
Selenium	24.5	mg/kg	0.20	6020	11/16/05 16:31	SLS	7782-49-2	
Silver	24.16	mg/kg	0.10	6020	11/16/05 16:31	SLS	7440-22-4	
Thallium	23.2	mg/kg	0.50	6020	11/16/05 16:31	SLS	7440-28-0	
Vanadium	34.8	mg/kg	1.0	6020	11/16/05 16:31	SLS	7440-62-2	
Zinc	34.9	mg/kg	1.0	6020	11/16/05 16:31	SLS	7440-66-6	
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	900	ug/kg	900	5035/8260B	11/09/05 22:22	JGH	67-64-1	1
2-Butanone (MEK)	3,700	ug/kg	900	5035/8260B	11/09/05 22:22	JGH	78-93-3	1
Benzene	3,150	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	71-43-2	1
Bromodichloromethane	3,330	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	75-27-4	1
Bromoform	3,030	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	75-25-2	1

1-Spiked at 2.5mg/kg

Lab Sample ID: S24651.07 (continued)

Sample Tag: SA20-4 (10-12) MSD

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
Bromomethane	1,200	ug/kg	300	5035/8260B	11/09/05 22:22	JGH	74-83-9	1
Carbon disulfide	1,600	ug/kg	300	5035/8260B	11/09/05 22:22	JGH	75-15-0	1
Carbon tetrachloride	3,040	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	56-23-5	1
Chlorobenzene	3,150	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	108-90-7	1
Chloroethane	1,300	ug/kg	300	5035/8260B	11/09/05 22:22	JGH	75-00-3	1
Chloroform	3,220	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	67-66-3	1
Chloromethane	1,900	ug/kg	300	5035/8260B	11/09/05 22:22	JGH	74-87-3	1
Cyclohexane	3,170	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	110-82-7	1
1,1-Dichloroethane	3,200	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	75-34-3	1
1,1-Dichloroethene	2,120	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	75-35-4	1
1,2-Dibromo-3-chloropropane	3,810	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	96-12-8	1
1,2-Dibromoethane	3,480	ug/kg	20	5035/8260B	11/09/05 22:22	JGH	106-93-4	1M
1,2-Dichlorobenzene	3,250	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	95-50-1	1
1,2-Dichloroethane	2,950	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	107-06-2	1
1,2-Dichloropropane	3,160	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	78-87-5	1
1,3-Dichlorobenzene	3,130	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	541-73-1	1
1,4-Dichlorobenzene	3,150	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	106-46-7	1
cis-1,2-Dichloroethene	3,210	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	156-59-2	1
cis-1,3-Dichloropropene	3,200	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	10061-01-5	1
Dibromochloromethane	3,350	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	124-48-1	1
Dichlorodifluoromethane	1,980	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	75-71-8	1
trans-1,2-Dichloroethene	2,820	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	156-60-5	1
trans-1,3-Dichloropropene	3,370	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	10061-02-6	1
Ethylbenzene	3,100	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	100-41-4	1
2-Hexanone	4,000	ug/kg	3,000	5035/8260B	11/09/05 22:22	JGH	591-78-6	1
Isopropylbenzene	3,500	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	98-82-8	1
Methyl Acetate	3,000	ug/kg	3,000	5035/8260B	11/09/05 22:22	JGH	79-20-9	J1
4-Methyl-2-pentanone (MIBK)	4,000	ug/kg	3,000	5035/8260B	11/09/05 22:22	JGH	108-10-1	1
tert-Methyl butyl ether (MTBE)	3,300	ug/kg	300	5035/8260B	11/09/05 22:22	JGH	1634-04-4	1
Methyl cyclohexane	3,210	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	108-87-2	1
Methylene chloride	2,000	ug/kg	300	5035/8260B	11/09/05 22:22	JGH	75-09-2	B1
Styrene	3,370	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	100-42-5	1
1,1,1-Trichloroethane	3,170	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	71-55-6	1
1,1,2,2-Tetrachloroethane	3,860	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	79-34-5	1
1,1,2-Trichloro-1,2,2-trifluoroethane	2,100	ug/kg	100	5035/8260B	11/09/05 22:22	JGH	76-13-1	1
1,1,2-Trichloroethane	3,370	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	79-00-5	1
1,2,4-Trichlorobenzene	3,400	ug/kg	100	5035/8260B	11/09/05 22:22	JGH	120-82-1	1
Tetrachloroethene	3,030	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	127-18-4	1
Toluene	3,200	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	108-88-3	1
Trichloroethene	3,050	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	79-01-6	1
Trichlorofluoromethane	1,900	ug/kg	100	5035/8260B	11/09/05 22:22	JGH	75-69-4	1
Vinyl chloride	1,500	ug/kg	100	5035/8260B	11/09/05 22:22	JGH	75-01-4	1
o-Xylene	3,260	ug/kg	60	5035/8260B	11/09/05 22:22	JGH	95-47-6	1
p,m-Xylene	6,580	ug/kg	60	5035/8260B	11/09/05 22:22	JGH		1

1-Spiked at 2.5mg/kg

M-Result reported to MDL not RDL

J-Estimated value less than reporting limit, but greater than MDL

B-Compound also found in associated method blank

Analytical Laboratory Report

Lab Sample ID: S24651.08
Sample Tag: SA6-12 (8-10)
Collected Date/Time: 11/04/2005 13:20
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 06:41	JDP	57-12-5	
Metals								
% Coarse by Weight	91.5	%			11/10/05 12:00	SLS		
% Fine by Weight	8.5	%			11/10/05 12:00	SLS		
Total Solids	89	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 13:59	SLS	7440-36-0	
Arsenic	1.08	mg/kg	0.10	6020	11/14/05 13:59	SLS	7440-38-2	
Barium	43.6	mg/kg	1.0	6020	11/14/05 13:59	SLS	7440-39-3	
Beryllium	Not detected	mg/kg	0.50	6020	11/14/05 16:15	SLS	7440-41-7	
Cadmium	0.06	mg/kg	0.20	6020	11/14/05 13:59	SLS	7440-43-9	b
Chromium	16.1	mg/kg	2.0	6020	11/14/05 13:59	SLS	7440-47-3	
Cobalt	8.35	mg/kg	0.50	6020	11/14/05 13:59	SLS	7440-48-4	
Copper	9.3	mg/kg	1.0	6020	11/14/05 13:59	SLS	7440-50-8	
Lead, Coarse	4.1	mg/kg	1.0	6020	11/16/05 13:47	PER		
Lead, Fine	27.3	mg/kg	1.0	6020	11/16/05 14:57	PER		
Lead, Total Calculated	6.07	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	5.0	mg/kg	1.0	6020	11/14/05 13:59	SLS	7439-92-1	
Manganese	352	mg/kg	1.0	6020	11/14/05 13:59	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:09	JRT	7439-97-6	b
Nickel	18.5	mg/kg	1.0	6020	11/14/05 13:59	SLS	7440-02-0	
Selenium	0.56	mg/kg	0.20	6020	11/14/05 13:59	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 13:59	SLS	7440-22-4	
Thallium	0.04	mg/kg	0.50	6020	11/14/05 13:59	SLS	7440-28-0	b
Vanadium	12.7	mg/kg	1.0	6020	11/14/05 13:59	SLS	7440-62-2	
Zinc	26.8	mg/kg	1.0	6020	11/14/05 13:59	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24651.09
Sample Tag: Dup-4
Collected Date/Time: 11/04/2005 :
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR
1	40 ml Glass	MeOH	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 06:43	JDP	57-12-5	
Metals								
% Coarse by Weight	83.2	%			11/10/05 12:00	SLS		
% Fine by Weight	16.8	%			11/10/05 12:00	SLS		
Total Solids	87	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:03	SLS	7440-36-0	
Arsenic	1.56	mg/kg	0.10	6020	11/14/05 14:03	SLS	7440-38-2	
Barium	29.2	mg/kg	1.0	6020	11/14/05 14:03	SLS	7440-39-3	
Beryllium	Not detected	mg/kg	0.50	6020	11/14/05 16:17	SLS	7440-41-7	
Cadmium	0.08	mg/kg	0.20	6020	11/14/05 14:03	SLS	7440-43-9	b
Chromium	9.0	mg/kg	2.0	6020	11/14/05 14:03	SLS	7440-47-3	
Cobalt	4.63	mg/kg	0.50	6020	11/14/05 14:03	SLS	7440-48-4	
Copper	10.0	mg/kg	1.0	6020	11/14/05 14:03	SLS	7440-50-8	
Lead, Coarse	12.2	mg/kg	1.0	6020	11/16/05 13:48	PER		
Lead, Fine	29.0	mg/kg	1.0	6020	11/16/05 14:58	PER		
Lead, Total Calculated	15.0	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	4.5	mg/kg	1.0	6020	11/14/05 14:03	SLS	7439-92-1	
Manganese	250	mg/kg	1.0	6020	11/14/05 14:03	SLS	7439-96-5	
Mercury	Not detected	mg/kg	0.050	245.1M	11/10/05 15:11	JRT	7439-97-6	
Nickel	10.6	mg/kg	1.0	6020	11/14/05 14:03	SLS	7440-02-0	
Selenium	0.87	mg/kg	0.20	6020	11/14/05 14:03	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 14:03	SLS	7440-22-4	
Thallium	0.03	mg/kg	0.50	6020	11/14/05 14:03	SLS	7440-28-0	b
Vanadium	9.1	mg/kg	1.0	6020	11/14/05 14:03	SLS	7440-62-2	
Zinc	19.1	mg/kg	1.0	6020	11/14/05 14:03	SLS	7440-66-6	
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	Not detected	ug/kg	800	5035/8260B	11/09/05 19:41	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/kg	800	5035/8260B	11/09/05 19:41	JGH	78-93-3	
Benzene	10	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	71-43-2	J
Bromodichloromethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	75-27-4	

b-Value detected less than reporting limit, but greater than MDL
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S24651.09 (continued)

Sample Tag: Dup-4

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
Bromoform	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	75-25-2	
Bromomethane	Not detected	ug/kg	300	5035/8260B	11/09/05 19:41	JGH	74-83-9	
Carbon disulfide	Not detected	ug/kg	300	5035/8260B	11/09/05 19:41	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	56-23-5	
Chlorobenzene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	108-90-7	
Chloroethane	Not detected	ug/kg	300	5035/8260B	11/09/05 19:41	JGH	75-00-3	
Chloroform	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	67-66-3	
Chloromethane	Not detected	ug/kg	300	5035/8260B	11/09/05 19:41	JGH	74-87-3	
Cyclohexane	20	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	110-82-7	J
1,1-Dichloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/kg	20	5035/8260B	11/09/05 19:41	JGH	106-93-4	M
1,2-Dichlorobenzene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	10061-01-5	
Dibromochloromethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	10061-02-6	
Ethylbenzene	10	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	100-41-4	J
2-Hexanone	Not detected	ug/kg	3,000	5035/8260B	11/09/05 19:41	JGH	591-78-6	
Isopropylbenzene	8	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	98-82-8	J
Methyl Acetate	Not detected	ug/kg	3,000	5035/8260B	11/09/05 19:41	JGH	79-20-9	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/kg	3,000	5035/8260B	11/09/05 19:41	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	300	5035/8260B	11/09/05 19:41	JGH	1634-04-4	
Methyl cyclohexane	50	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	108-87-2	J
Methylene chloride	90	ug/kg	300	5035/8260B	11/09/05 19:41	JGH	75-09-2	BJ
Styrene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	79-34-5	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	100	5035/8260B	11/09/05 19:41	JGH	76-13-1	
1,1,2-Trichloroethane	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/kg	100	5035/8260B	11/09/05 19:41	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	127-18-4	
Toluene	50	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	108-88-3	J
Trichloroethene	Not detected	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	5035/8260B	11/09/05 19:41	JGH	75-69-4	
Vinyl chloride	Not detected	ug/kg	100	5035/8260B	11/09/05 19:41	JGH	75-01-4	
o-Xylene	30	ug/kg	60	5035/8260B	11/09/05 19:41	JGH	95-47-6	J
p,m-Xylene	50	ug/kg	60	5035/8260B	11/09/05 19:41	JGH		J

J-Estimated value less than reporting limit, but greater than MDL

M-Result reported to MDL not RDL

B-Compound also found in associated method blank

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S24651.10
Sample Tag: SA10-4 (8-10)
Collected Date/Time: 11/04/2005 14:45
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/15/05 13:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/10/05 12:00	SLS		
Lead, Fine Digestion	Completed			3050B	11/15/05 15:00	PER		
Mercury Digestion	Completed			7471A	11/10/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/10/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/16/05 06:45	JDP	57-12-5	
Metals								
% Coarse by Weight	94.7	%			11/10/05 12:00	SLS		
% Fine by Weight	5.3	%			11/10/05 12:00	SLS		
Total Solids	89	%	1	160.3	11/10/05 10:30	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/14/05 14:07	SLS	7440-36-0	
Arsenic	1.05	mg/kg	0.10	6020	11/14/05 14:07	SLS	7440-38-2	
Barium	52.9	mg/kg	1.0	6020	11/14/05 14:07	SLS	7440-39-3	
Beryllium	Not detected	mg/kg	0.50	6020	11/14/05 16:19	SLS	7440-41-7	
Cadmium	0.09	mg/kg	0.20	6020	11/14/05 14:07	SLS	7440-43-9	b
Chromium	13.9	mg/kg	2.0	6020	11/14/05 14:07	SLS	7440-47-3	
Cobalt	6.55	mg/kg	0.50	6020	11/14/05 14:07	SLS	7440-48-4	
Copper	9.9	mg/kg	1.0	6020	11/14/05 14:07	SLS	7440-50-8	
Lead, Coarse	4.4	mg/kg	1.0	6020	11/16/05 13:49	PER		
Lead, Fine	30.5	mg/kg	1.0	6020	11/16/05 14:59	PER		
Lead, Total Calculated	5.78	mg/kg	1.0	6020	11/16/05 15:30	PER	7439-92-1C	
Lead	4.9	mg/kg	1.0	6020	11/14/05 14:07	SLS	7439-92-1	
Manganese	335	mg/kg	1.0	6020	11/14/05 14:07	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/10/05 15:13	JRT	7439-97-6	b
Nickel	16.0	mg/kg	1.0	6020	11/14/05 14:07	SLS	7440-02-0	
Selenium	0.78	mg/kg	0.20	6020	11/14/05 14:07	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/14/05 14:07	SLS	7440-22-4	
Thallium	0.05	mg/kg	0.50	6020	11/14/05 14:07	SLS	7440-28-0	b
Vanadium	12.7	mg/kg	1.0	6020	11/14/05 14:07	SLS	7440-62-2	
Zinc	25.6	mg/kg	1.0	6020	11/14/05 14:07	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24651.11
Sample Tag: TB-110405
Collected Date/Time: 11/04/2005 :
Matrix: Soil
COC Reference: 02568

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40 ml Glass	MeOH	Yes	3.8	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
TCL Volatile Organics 5035/8260								
Acetone	Not detected	ug/kg	800	5035/8260B	11/09/05 19:57	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/kg	800	5035/8260B	11/09/05 19:57	JGH	78-93-3	
Benzene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	75-27-4	
Bromoform	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	75-25-2	
Bromomethane	Not detected	ug/kg	300	5035/8260B	11/09/05 19:57	JGH	74-83-9	
Carbon disulfide	Not detected	ug/kg	300	5035/8260B	11/09/05 19:57	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	56-23-5	
Chlorobenzene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	108-90-7	
Chloroethane	Not detected	ug/kg	300	5035/8260B	11/09/05 19:57	JGH	75-00-3	
Chloroform	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	67-66-3	
Chloromethane	Not detected	ug/kg	300	5035/8260B	11/09/05 19:57	JGH	74-87-3	
Cyclohexane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/kg	20	5035/8260B	11/09/05 19:57	JGH	106-93-4	M
1,2-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	10061-01-5	
Dibromochloromethane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	10061-02-6	
Ethylbenzene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	100-41-4	
2-Hexanone	Not detected	ug/kg	3,000	5035/8260B	11/09/05 19:57	JGH	591-78-6	
Isopropylbenzene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	98-82-8	
Methyl Acetate	Not detected	ug/kg	3,000	5035/8260B	11/09/05 19:57	JGH	79-20-9	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/kg	3,000	5035/8260B	11/09/05 19:57	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/kg	300	5035/8260B	11/09/05 19:57	JGH	1634-04-4	
Methyl cyclohexane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	108-87-2	
Methylene chloride	70	ug/kg	300	5035/8260B	11/09/05 19:57	JGH	75-09-2	BJ
Styrene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	79-34-5	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/kg	100	5035/8260B	11/09/05 19:57	JGH	76-13-1	

M-Result reported to MDL not RDL
B-Compound also found in associated method blank J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S24651.11 (continued)

Sample Tag: TB-110405

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 5035/8260 (continued)								
1,1,2-Trichloroethane	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/kg	100	5035/8260B	11/09/05 19:57	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	127-18-4	
Toluene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	108-88-3	
Trichloroethene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	5035/8260B	11/09/05 19:57	JGH	75-69-4	
Vinyl chloride	Not detected	ug/kg	100	5035/8260B	11/09/05 19:57	JGH	75-01-4	
o-Xylene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH	95-47-6	
p,m-Xylene	Not detected	ug/kg	50	5035/8260B	11/09/05 19:57	JGH		

GM REALM ENCORE

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

PAGE 1 OF 1

ID # Nº 02568

SSOW Ref. Code: E220002

Required Client Information:

Company: BBL	Report To: CRA	Laboratory: Merit	
Address: 10559 Citation Dr. Ste 100	Copy To: Jim Heading	Laboratory Location: Lansing	
Brighton MI 48116	Invoice To: CRA	Laboratory Contact: Mayd Murshak	
Phone: 810-229-8594	P.O.:	Requested Due Date:	TAT: Standard
Fax: 810-229-8837	Project Name: GM Lansing P146	QA/QC Requirements: To be determined	
E-mail: jheading@bbl-inc.com	Project Number: 64430		

24651

Valid Matrix Codes: WG Groundwater, WB Borehole Water, WS Surface Water, SO Soil, SE Sediment, See Back for Additional Codes

Analysis and Method

	Sample Identification:	Matrix Code	Date Collected	Time Collected	# Containers	Preservative: Unpreserved	HCl	H2SO4	HNO3	NaOH	Other: meoH	PAL Metals	VOCs	PID	Remarks/Lab ID
01.	SA 6-11 (8-10)	SO	11/4/05	0850	1	1						X		0.5	
02.	SA 20-3 (7-9)			0905										0.7	
03.	SA 20-1 (4-6)			0940										0.3	
04.	SA 20-2 (14-16)			1020										0.5	
05.	SA 20-4 (10-12)			1120	6	3					3	X	X	13.3	MS/MSD
06.	SA 6-12 (8-10)			1320	1	1						X		0.4	
07.	DUP-4			-	2	1					1	X	X	-	
08.	SA 10-4 (8-10)			1445	1	1						X		0.3	
09.	TB-110405	WQ			2								X	-	
10.															
11.															
12.															
13.															
14.															
15.															
	TOTAL NUMBER OF CONTAINERS				15										

SHIPMENT METHOD	NO. OF COOLERS	RELINQUISHED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME
hand deliver	1	Wayne Patterson / BBL	11/4/05	1535	[illegible]	11/4/05	1600
AIRBILL NO. —							

Sample Condition

Temp in °C	3.8
Received on Ice	Y / N
Sealed Cooler	Y / N
Samples Intact	Y / N

Additional Comments:

Sampler Name: Wayne Patterson

Sampler Signature: Wayne Patterson Date: 11/4/05

Distribution: WHITE - Fully Executed Copy YELLOW - Receiving Laboratory Copy PINK - Sampler Copy

REV. 0 (6/04)

Analytical Laboratory Report

Report ID: S24686.01(01)
Generated on 11/21/2005

Report to

Attention: Amy Hoeksema/ Jim Heading
Blasland, Bouck & Lee, Inc.
10559 Citation Drive
Suite 100
Brighton, MI 48116

Phone: 810-229-8594 FAX: 810-229-8837

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S24686.01-S24686.09
Project: 64430.200/Plant 6 SSOW# E220002
Submitted Date/Time: 11/08/2005 16:25
Sampled by: Wayne Patterson
P.O. #: 412463

Report Notes

Results relate only to items tested.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak
Laboratory Director

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S24686.01
Sample Tag: SA7-4 (8-10)
Collected Date/Time: 11/08/2005 09:15
Matrix: Soil
COC Reference: 02580

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/14/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:38	JDP	57-12-5	
Metals								
% Coarse by Weight	96.2	%			11/11/05 12:00	JRT		
% Fine by Weight	3.8	%			11/11/05 12:00	JRT		
Total Solids	87	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 15:54	SLS	7440-36-0	
Arsenic	1.53	mg/kg	0.10	6020	11/16/05 15:54	SLS	7440-38-2	
Barium	35.0	mg/kg	1.0	6020	11/16/05 15:54	SLS	7440-39-3	
Beryllium	0.20	mg/kg	0.50	6020	11/16/05 15:54	SLS	7440-41-7	b
Cadmium	0.11	mg/kg	0.20	6020	11/16/05 15:54	SLS	7440-43-9	b
Chromium	7.9	mg/kg	2.0	6020	11/16/05 15:54	SLS	7440-47-3	
Cobalt	3.58	mg/kg	0.50	6020	11/16/05 15:54	SLS	7440-48-4	
Copper	10.1	mg/kg	1.0	6020	11/16/05 15:54	SLS	7440-50-8	
Lead, Coarse	4.8	mg/kg	1.0	6020	11/18/05 15:13	PER		
Lead, Fine	57.8	mg/kg	1.0	6020	11/18/05 16:05	PER		
Lead, Total Calculated	6.81	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	4.1	mg/kg	1.0	6020	11/16/05 15:54	SLS	7439-92-1	
Manganese	224	mg/kg	1.0	6020	11/16/05 15:54	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/14/05 16:04	JRT	7439-97-6	b
Nickel	10.6	mg/kg	1.0	6020	11/16/05 15:54	SLS	7440-02-0	
Selenium	1.31	mg/kg	0.20	6020	11/16/05 15:54	SLS	7782-49-2	
Silver	0.04	mg/kg	0.10	6020	11/16/05 15:54	SLS	7440-22-4	b
Thallium	0.09	mg/kg	0.50	6020	11/16/05 15:54	SLS	7440-28-0	b
Vanadium	9.3	mg/kg	1.0	6020	11/16/05 15:54	SLS	7440-62-2	
Zinc	17.9	mg/kg	1.0	6020	11/16/05 15:54	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24686.02
Sample Tag: SA7-3 (7-9)
Collected Date/Time: 11/08/2005 09:50
Matrix: Soil
COC Reference: 02580

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/14/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:40	JDP	57-12-5	
Metals								
% Coarse by Weight	95.5	%			11/11/05 12:00	JRT		
% Fine by Weight	4.5	%			11/11/05 12:00	JRT		
Total Solids	89	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 15:57	SLS	7440-36-0	
Arsenic	1.50	mg/kg	0.10	6020	11/16/05 15:57	SLS	7440-38-2	
Barium	50.6	mg/kg	1.0	6020	11/16/05 15:57	SLS	7440-39-3	
Beryllium	0.21	mg/kg	0.50	6020	11/16/05 15:57	SLS	7440-41-7	b
Cadmium	0.11	mg/kg	0.20	6020	11/16/05 15:57	SLS	7440-43-9	b
Chromium	7.9	mg/kg	2.0	6020	11/16/05 15:57	SLS	7440-47-3	
Cobalt	7.29	mg/kg	0.50	6020	11/16/05 15:57	SLS	7440-48-4	
Copper	8.2	mg/kg	1.0	6020	11/16/05 15:57	SLS	7440-50-8	
Lead, Coarse	3.8	mg/kg	1.0	6020	11/18/05 15:15	PER		
Lead, Fine	72.1	mg/kg	1.0	6020	11/18/05 16:07	PER		
Lead, Total Calculated	6.87	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	5.3	mg/kg	1.0	6020	11/16/05 15:57	SLS	7439-92-1	
Manganese	363	mg/kg	1.0	6020	11/16/05 15:57	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/14/05 16:06	JRT	7439-97-6	b
Nickel	11.9	mg/kg	1.0	6020	11/16/05 15:57	SLS	7440-02-0	
Selenium	0.81	mg/kg	0.20	6020	11/16/05 15:57	SLS	7782-49-2	
Silver	0.02	mg/kg	0.10	6020	11/16/05 15:57	SLS	7440-22-4	b
Thallium	0.07	mg/kg	0.50	6020	11/16/05 15:57	SLS	7440-28-0	b
Vanadium	9.1	mg/kg	1.0	6020	11/16/05 15:57	SLS	7440-62-2	
Zinc	25.8	mg/kg	1.0	6020	11/16/05 15:57	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24686.03
Sample Tag: SA7-2 (4-6)
Collected Date/Time: 11/08/2005 10:15
Matrix: Soil
COC Reference: 02580

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/14/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:42	JDP	57-12-5	
Metals								
% Coarse by Weight	94.6	%			11/11/05 12:00	JRT		
% Fine by Weight	5.4	%			11/11/05 12:00	JRT		
Total Solids	88	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 16:01	SLS	7440-36-0	
Arsenic	1.43	mg/kg	0.10	6020	11/16/05 16:01	SLS	7440-38-2	
Barium	36.0	mg/kg	1.0	6020	11/16/05 16:01	SLS	7440-39-3	
Beryllium	0.19	mg/kg	0.50	6020	11/16/05 16:01	SLS	7440-41-7	b
Cadmium	0.09	mg/kg	0.20	6020	11/16/05 16:01	SLS	7440-43-9	b
Chromium	7.5	mg/kg	2.0	6020	11/16/05 16:01	SLS	7440-47-3	
Cobalt	4.06	mg/kg	0.50	6020	11/16/05 16:01	SLS	7440-48-4	
Copper	7.2	mg/kg	1.0	6020	11/16/05 16:01	SLS	7440-50-8	
Lead, Coarse	3.6	mg/kg	1.0	6020	11/18/05 15:16	PER		
Lead, Fine	30.0	mg/kg	1.0	6020	11/18/05 16:08	PER		
Lead, Total Calculated	5.02	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	4.6	mg/kg	1.0	6020	11/16/05 16:01	SLS	7439-92-1	
Manganese	275	mg/kg	1.0	6020	11/16/05 16:01	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/14/05 16:08	JRT	7439-97-6	b
Nickel	9.5	mg/kg	1.0	6020	11/16/05 16:01	SLS	7440-02-0	
Selenium	0.55	mg/kg	0.20	6020	11/16/05 16:01	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/16/05 16:01	SLS	7440-22-4	
Thallium	0.05	mg/kg	0.50	6020	11/16/05 16:01	SLS	7440-28-0	b
Vanadium	8.9	mg/kg	1.0	6020	11/16/05 16:01	SLS	7440-62-2	
Zinc	15.6	mg/kg	1.0	6020	11/16/05 16:01	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24686.04
Sample Tag: SA7-1 (9-11)
Collected Date/Time: 11/08/2005 10:45
Matrix: Soil
COC Reference: 02580

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/14/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:44	JDP	57-12-5	
Metals								
% Coarse by Weight	88.0	%			11/11/05 12:00	JRT		
% Fine by Weight	12.0	%			11/11/05 12:00	JRT		
Total Solids	89	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 16:05	SLS	7440-36-0	
Arsenic	1.65	mg/kg	0.10	6020	11/16/05 16:05	SLS	7440-38-2	
Barium	42.5	mg/kg	1.0	6020	11/16/05 16:05	SLS	7440-39-3	
Beryllium	0.20	mg/kg	0.50	6020	11/16/05 16:05	SLS	7440-41-7	b
Cadmium	0.08	mg/kg	0.20	6020	11/16/05 16:05	SLS	7440-43-9	b
Chromium	10.3	mg/kg	2.0	6020	11/16/05 16:05	SLS	7440-47-3	
Cobalt	4.11	mg/kg	0.50	6020	11/16/05 16:05	SLS	7440-48-4	
Copper	9.5	mg/kg	1.0	6020	11/16/05 16:05	SLS	7440-50-8	
Lead, Coarse	4.0	mg/kg	1.0	6020	11/18/05 15:17	PER		
Lead, Fine	25.5	mg/kg	1.0	6020	11/18/05 16:09	PER		
Lead, Total Calculated	6.58	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	4.5	mg/kg	1.0	6020	11/16/05 16:05	SLS	7439-92-1	
Manganese	366	mg/kg	1.0	6020	11/16/05 16:05	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/14/05 16:09	JRT	7439-97-6	b
Nickel	11.4	mg/kg	1.0	6020	11/16/05 16:05	SLS	7440-02-0	
Selenium	0.65	mg/kg	0.20	6020	11/16/05 16:05	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/16/05 16:05	SLS	7440-22-4	
Thallium	0.04	mg/kg	0.50	6020	11/16/05 16:05	SLS	7440-28-0	b
Vanadium	10.9	mg/kg	1.0	6020	11/16/05 16:05	SLS	7440-62-2	
Zinc	18.6	mg/kg	1.0	6020	11/16/05 16:05	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24686.05
Sample Tag: SA9-2 (8-10)
Collected Date/Time: 11/08/2005 12:20
Matrix: Soil
COC Reference: 02580

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/14/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:46	JDP	57-12-5	
Metals								
% Coarse by Weight	93.1	%			11/11/05 12:00	JRT		
% Fine by Weight	6.9	%			11/11/05 12:00	JRT		
Total Solids	89	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 16:09	SLS	7440-36-0	
Arsenic	1.40	mg/kg	0.10	6020	11/16/05 16:09	SLS	7440-38-2	
Barium	50.4	mg/kg	1.0	6020	11/16/05 16:09	SLS	7440-39-3	
Beryllium	0.19	mg/kg	0.50	6020	11/16/05 16:09	SLS	7440-41-7	b
Cadmium	0.10	mg/kg	0.20	6020	11/16/05 16:09	SLS	7440-43-9	b
Chromium	7.7	mg/kg	2.0	6020	11/16/05 16:09	SLS	7440-47-3	
Cobalt	4.34	mg/kg	0.50	6020	11/16/05 16:09	SLS	7440-48-4	
Copper	7.2	mg/kg	1.0	6020	11/16/05 16:09	SLS	7440-50-8	
Lead, Coarse	3.7	mg/kg	1.0	6020	11/18/05 15:18	PER		
Lead, Fine	45.6	mg/kg	1.0	6020	11/18/05 16:10	PER		
Lead, Total Calculated	6.59	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	3.7	mg/kg	1.0	6020	11/16/05 16:09	SLS	7439-92-1	
Manganese	250	mg/kg	1.0	6020	11/16/05 16:09	SLS	7439-96-5	
Mercury	0.01	mg/kg	0.050	245.1M	11/14/05 16:11	JRT	7439-97-6	b
Nickel	10.3	mg/kg	1.0	6020	11/16/05 16:09	SLS	7440-02-0	
Selenium	0.51	mg/kg	0.20	6020	11/16/05 16:09	SLS	7782-49-2	
Silver	0.02	mg/kg	0.10	6020	11/16/05 16:09	SLS	7440-22-4	b
Thallium	0.06	mg/kg	0.50	6020	11/16/05 16:09	SLS	7440-28-0	b
Vanadium	8.8	mg/kg	1.0	6020	11/16/05 16:09	SLS	7440-62-2	
Zinc	16.6	mg/kg	1.0	6020	11/16/05 16:09	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24686.06
Sample Tag: SA8-5 (7-9)
Collected Date/Time: 11/08/2005 12:35
Matrix: Soil
COC Reference: 02580

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/14/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:48	JDP	57-12-5	
Metals								
% Coarse by Weight	85.3	%			11/11/05 12:00	JRT		
% Fine by Weight	14.7	%			11/11/05 12:00	JRT		
Total Solids	86	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 16:12	SLS	7440-36-0	
Arsenic	0.76	mg/kg	0.10	6020	11/16/05 16:12	SLS	7440-38-2	
Barium	29.5	mg/kg	1.0	6020	11/16/05 16:12	SLS	7440-39-3	
Beryllium	0.13	mg/kg	0.50	6020	11/16/05 16:12	SLS	7440-41-7	b
Cadmium	0.09	mg/kg	0.20	6020	11/16/05 16:12	SLS	7440-43-9	b
Chromium	6.2	mg/kg	2.0	6020	11/16/05 16:12	SLS	7440-47-3	
Cobalt	3.21	mg/kg	0.50	6020	11/16/05 16:12	SLS	7440-48-4	
Copper	6.9	mg/kg	1.0	6020	11/16/05 16:12	SLS	7440-50-8	
Lead, Coarse	7.2	mg/kg	1.0	6020	11/18/05 15:19	PER		
Lead, Fine	28.9	mg/kg	1.0	6020	11/18/05 16:10	PER		
Lead, Total Calculated	10.3	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	3.2	mg/kg	1.0	6020	11/16/05 16:12	SLS	7439-92-1	
Manganese	417	mg/kg	1.0	6020	11/16/05 16:12	SLS	7439-96-5	
Mercury	0.02	mg/kg	0.050	245.1M	11/14/05 16:13	JRT	7439-97-6	b
Nickel	7.7	mg/kg	1.0	6020	11/16/05 16:12	SLS	7440-02-0	
Selenium	0.63	mg/kg	0.20	6020	11/16/05 16:12	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/16/05 16:12	SLS	7440-22-4	
Thallium	0.05	mg/kg	0.50	6020	11/16/05 16:12	SLS	7440-28-0	b
Vanadium	6.9	mg/kg	1.0	6020	11/16/05 16:12	SLS	7440-62-2	
Zinc	13.8	mg/kg	1.0	6020	11/16/05 16:12	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24686.07
Sample Tag: SA8-3 (14-16)
Collected Date/Time: 11/08/2005 13:30
Matrix: Soil
COC Reference: 02580

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/14/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:50	JDP	57-12-5	
Metals								
% Coarse by Weight	92.2	%			11/11/05 12:00	JRT		
% Fine by Weight	7.8	%			11/11/05 12:00	JRT		
Total Solids	90	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 16:16	SLS	7440-36-0	
Arsenic	0.61	mg/kg	0.10	6020	11/16/05 16:16	SLS	7440-38-2	
Barium	21.5	mg/kg	1.0	6020	11/16/05 16:16	SLS	7440-39-3	
Beryllium	0.12	mg/kg	0.50	6020	11/16/05 16:16	SLS	7440-41-7	b
Cadmium	0.18	mg/kg	0.20	6020	11/16/05 16:16	SLS	7440-43-9	b
Chromium	4.4	mg/kg	2.0	6020	11/16/05 16:16	SLS	7440-47-3	
Cobalt	2.66	mg/kg	0.50	6020	11/16/05 16:16	SLS	7440-48-4	
Copper	7.2	mg/kg	1.0	6020	11/16/05 16:16	SLS	7440-50-8	
Lead, Coarse	3.2	mg/kg	1.0	6020	11/18/05 15:20	PER		
Lead, Fine	26.2	mg/kg	1.0	6020	11/18/05 16:11	PER		
Lead, Total Calculated	4.99	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	3.2	mg/kg	1.0	6020	11/16/05 16:16	SLS	7439-92-1	
Manganese	227	mg/kg	1.0	6020	11/16/05 16:16	SLS	7439-96-5	
Mercury	Not detected	mg/kg	0.050	245.1M	11/14/05 16:15	JRT	7439-97-6	
Nickel	6.8	mg/kg	1.0	6020	11/16/05 16:16	SLS	7440-02-0	
Selenium	0.52	mg/kg	0.20	6020	11/16/05 16:16	SLS	7782-49-2	
Silver	0.02	mg/kg	0.10	6020	11/16/05 16:16	SLS	7440-22-4	b
Thallium	0.06	mg/kg	0.50	6020	11/16/05 16:16	SLS	7440-28-0	b
Vanadium	5.8	mg/kg	1.0	6020	11/16/05 16:16	SLS	7440-62-2	
Zinc	22.6	mg/kg	1.0	6020	11/16/05 16:16	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S24686.08
Sample Tag: SA13-1 (7-9)
Collected Date/Time: 11/08/2005 14:10
Matrix: Soil
COC Reference: 02580

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/14/05 12:00	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:52	JDP	57-12-5	
Metals								
% Coarse by Weight	70.5	%			11/11/05 12:00	JRT		
% Fine by Weight	29.5	%			11/11/05 12:00	JRT		
Total Solids	97	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 16:20	SLS	7440-36-0	
Arsenic	1.26	mg/kg	0.10	6020	11/16/05 16:20	SLS	7440-38-2	
Barium	8.4	mg/kg	1.0	6020	11/16/05 16:20	SLS	7440-39-3	
Beryllium	0.06	mg/kg	0.50	6020	11/16/05 16:20	SLS	7440-41-7	b
Cadmium	0.05	mg/kg	0.20	6020	11/16/05 16:20	SLS	7440-43-9	b
Chromium	5.5	mg/kg	2.0	6020	11/16/05 16:20	SLS	7440-47-3	
Cobalt	2.77	mg/kg	0.50	6020	11/16/05 16:20	SLS	7440-48-4	
Copper	4.1	mg/kg	1.0	6020	11/16/05 16:20	SLS	7440-50-8	
Lead, Coarse	2.5	mg/kg	1.0	6020	11/18/05 15:21	PER		
Lead, Fine	11.3	mg/kg	1.0	6020	11/18/05 16:12	PER		
Lead, Total Calculated	5.09	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	3.1	mg/kg	1.0	6020	11/16/05 16:20	SLS	7439-92-1	
Manganese	144	mg/kg	1.0	6020	11/16/05 16:20	SLS	7439-96-5	
Mercury	Not detected	mg/kg	0.050	245.1M	11/14/05 15:49	JRT	7439-97-6	
Nickel	3.5	mg/kg	1.0	6020	11/16/05 16:20	SLS	7440-02-0	
Selenium	0.29	mg/kg	0.20	6020	11/16/05 16:20	SLS	7782-49-2	
Silver	0.34	mg/kg	0.10	6020	11/16/05 16:20	SLS	7440-22-4	
Thallium	0.03	mg/kg	0.50	6020	11/16/05 16:20	SLS	7440-28-0	b
Vanadium	3.0	mg/kg	1.0	6020	11/16/05 16:20	SLS	7440-62-2	
Zinc	7.9	mg/kg	1.0	6020	11/16/05 16:20	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S24686.09
Sample Tag: SA13-2 (9-11)
Collected Date/Time: 11/08/2005 14:50
Matrix: Soil
COC Reference: 02580

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz. Glass	None	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion	Completed			3050B	11/18/05 12:00	PER		
Lead, Fine and Coarse Prep	Completed			3050B	11/11/05 12:00	JRT		
Lead, Fine Digestion	Completed			3050B	11/18/05 13:00	PER		
Mercury Digestion	Completed			7471A	11/15/05 12:30	JRT		
Metal Digestion	Completed			3050B	11/14/05 12:00	SLS		
Inorganics								
Cyanide	Not detected	mg/kg	0.1	9010B	11/17/05 07:54	JDP	57-12-5	
Metals								
% Coarse by Weight	72.3	%			11/11/05 12:00	JRT		
% Fine by Weight	27.7	%			11/11/05 12:00	JRT		
Total Solids	94	%	1	160.3	11/11/05 12:00	JRT		
Antimony	Not detected	mg/kg	0.30	6020	11/16/05 16:23	SLS	7440-36-0	
Arsenic	0.67	mg/kg	0.10	6020	11/16/05 16:23	SLS	7440-38-2	
Barium	5.5	mg/kg	1.0	6020	11/16/05 16:23	SLS	7440-39-3	
Beryllium	0.05	mg/kg	0.50	6020	11/16/05 16:23	SLS	7440-41-7	b
Cadmium	0.06	mg/kg	0.20	6020	11/16/05 16:23	SLS	7440-43-9	b
Chromium	1.9	mg/kg	2.0	6020	11/16/05 16:23	SLS	7440-47-3	b
Cobalt	1.31	mg/kg	0.50	6020	11/16/05 16:23	SLS	7440-48-4	
Copper	3.5	mg/kg	1.0	6020	11/16/05 16:23	SLS	7440-50-8	
Lead, Coarse	1.9	mg/kg	1.0	6020	11/18/05 15:22	PER		
Lead, Fine	8.3	mg/kg	1.0	6020	11/18/05 16:13	PER		
Lead, Total Calculated	3.67	mg/kg	1.0	6020	11/18/05 18:00	PER	7439-92-1C	
Lead	1.9	mg/kg	1.0	6020	11/16/05 16:23	SLS	7439-92-1	
Manganese	123	mg/kg	1.0	6020	11/16/05 16:23	SLS	7439-96-5	
Mercury	Not detected	mg/kg	0.050	245.1M	11/15/05 14:41	JRT	7439-97-6	
Nickel	3.0	mg/kg	1.0	6020	11/16/05 16:23	SLS	7440-02-0	
Selenium	0.30	mg/kg	0.20	6020	11/16/05 16:23	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	11/16/05 16:23	SLS	7440-22-4	
Thallium	0.02	mg/kg	0.50	6020	11/16/05 16:23	SLS	7440-28-0	b
Vanadium	3.7	mg/kg	1.0	6020	11/16/05 16:23	SLS	7440-62-2	
Zinc	7.7	mg/kg	1.0	6020	11/16/05 16:23	SLS	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

GM REALM ENCORE

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

PAGE 1 OF 1

ID # Nº 02580

SSOW Ref. Code: E220002

Required Client Information:

Company: BBL	Report To: CRA	Laboratory: Merit	
Address: 10559 Citation Dr. STE 100	Copy To: Jim Harding	Laboratory Location: Lansing, MI	
Brighton, MI 48116	Invoice To: CRA	Laboratory Contact: Maya/Murshat	
Phone: 810-229-8594	P.O.:	Requested Due Date:	TAT: Standard
Fax: 810-229-8837	Project Name: GM Lansing 9146	QA/QC Requirements: To be determined	
E-mail:	Project Number: 64430		

Analysis and Method

Preservative

Sample Identification:	Matrix Code	Date Collected	Time Collected	# Containers	Unpreserved	HCl	H2SO4	HNO3	NaOH	Other:	TAL mets/S	Remarks/Lab ID
24686.01 1. SA7-4 (8-10)	SO	11/8/05	0915	1	X						X	PID PDM (0.0)
.02 2. SA7-3 (7-9)			0950									(0.0)
.03 3. SA7-2 (4-6)			1015									(0.0)
.04 4. SA7-1 (9-11)			1045									(0.0)
.05 5. SA9-2 (8-10)			1220									(5.2)
.06 6. SA8-5 (7-9)			1235									(6.6)
.07 7. SA8-3 (14-16)			1330									(3.4)
.08 8. SA13-1 (7-9)			1410									(1.0)
.09 9. SA13-2 (9-11)			1450									(0.5)
10.												
11.												
12.												
13.												
14.												
15.												
TOTAL NUMBER OF CONTAINERS												

Valid Matrix Codes: WG Groundwater; WB Borehole Water; WS Surface Water; SO Soil; SE Sediment; See Back for Additional Codes

SHIPMENT METHOD	NO. OF COOLERS	RELINQUISHED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME
hand deliv	1	Wayne Patterson / BBL	11/9/05		[signature]	11-8-05	1625
AIRBILL NO. —							

Sample Condition

Temp in °C	4.1
Received on Ice	Y / N
Sealed Cooler	Y / N
Samples Intact	Y / N

Additional Comments:

Sampler Name: Wayne Patterson

Sampler Signature: [signature] Date: 11/8/05

Distribution: WHITE - Fully Executed Copy YELLOW - Receiving Laboratory Copy PINK - Sampler Copy

REV. 0 (6/04)

ARCADIS

November 2005 Site Assessment
CRA – Laboratory Validation
Report

CONESTOGA-ROVERS & ASSOCIATES

2055 Niagara Falls Blvd., Suite #3
Niagara Falls, New York 14304
Telephone: (716) 297-6150 Fax: (716) 297-2265
www.CRAworld.com

MEMORANDUM

TO: Amy Hoeksema

REF. NO.: 17307-220002

FROM: Chris Hollingsworth/jbh/7

DATE: January 4, 2006

E-Mail and U.S. Mail

RE: Data Quality Assessment and Validation
Lansing Plant 6 – Subsurface Investigation of Manufacturing Facility
General Motors
Lansing, Michigan

The following details a quality assessment and validation of the analytical data resulting from the collection of 81 soil samples (excluding quality control [QC] samples) from the General Motors – Lansing Plant 6 Site (Site) in Lansing, Michigan, from October 31 to November 11, 2005. The sample summary detailing sample identification, sample location, QC samples, and analytical parameters is presented in Table 1. Sample analysis was completed at Merit Laboratories, Inc. in East Lansing, Michigan (Merit), in accordance with the methodologies presented in Table 2. The QC criteria used to assess the data were established by the methods and following documents:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-99/008, October 1999;

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, February 1994; and

iii) "Innovative Approaches to Data Validation", USEPA Region III, June 1995.

Full Contract Laboratory Program (CLP)-equivalent raw data deliverables were provided by the laboratory for approximately 10 percent of the data. The data quality assessment and validation presented in the following subsections were performed based on the sample results and supporting quality assurance/quality control (QA/QC) provided.

For the remaining 90 percent (approximate) of the analytical data, a reduced validation (verification) was performed. The reduced validation of the data was based on information obtained from the Chain of Custody forms, finished report forms, blank data, duplicate data, and recovery data for matrix, laboratory control, surrogate spikes, and internal standards.

Holding Time Period and Sample Analysis – ***Full and Reduced Validations***

The holding time periods are presented in the analytical methods. All samples were properly cooled after collection and upon receipt at the laboratory. In addition, all samples were prepared and analyzed within the method-required holding times and no qualification was required.

Gas Chromatography/Mass Spectrometer (GC/MS) Mass Calibration – ***Full Validation Only***

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the volatile organic compound (VOC) and semi-volatile organic compound (SVOC) methods require the analysis of the specific tuning compounds bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP), respectively. The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Instrument tuning data were reviewed. Tuning compounds were analyzed at the required frequency throughout the VOC and SVOC analysis periods. All tuning criteria were met for the analyses, indicating proper optimization of the instrumentation.

Initial Calibration – Organic Analyses, GC/MS – ***Full Validation Only***

To quantify compounds of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a minimum of a five-point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each analyte over a specific concentration range.

Calibration data were reviewed for all samples. Linearity of the calibration curve and instrument sensitivity were evaluated against the following criteria:

i) all relative response factors (RRFs) must be greater than or equal to 0.05; and

ii) percent relative standard deviation (%RSD) values must not exceed 30 percent or if quadratic/linear regression is used, the correlation coefficient (R^2) value must be at least 0.995/0.990, respectively.

Initial calibration standards were analyzed as required and all data showed acceptable sensitivity and linearity for VOCs. For SVOCs most data showed acceptable sensitivity and linearity; however, the following compounds had %RSDs above 30: pyrene; indeno(1,2,3-c,d)pyrene; dibenzo(a,h)anthracene; and benzo(g,h,i)perylene. All associated data were qualified as estimated (see Table 3).

Initial Calibration - Organics, GC – ***Full Validation Only***

To quantify compounds of interest, calibration of the GC over a specific concentration range must be performed. The initial calibration for polychlorinated biphenyls (PCBs) requires only three Aroclors be calibrated using multiple points. A minimum of a five-point calibration curve is analyzed for Aroclors 1264, 1016, and 1260, while the remaining Aroclors are calibrated using a single point. Linearity of the calibration curves are acceptable if %RSD values are less than or equal to 20 percent or if the correlation coefficient is greater than 0.995. Retention time windows are also calculated from the initial calibration analyses. These windows are then used to identify all compounds of interest in subsequent analyses.

Initial calibration standards were analyzed at the required frequencies. All retention time and linearity criteria were satisfied.

Inductively Coupled Plasma/Mass Spectrometer (ICP/MS) –
Mass Calibration and Resolution Checks – Metal Analyses – ***Full Validation Only***

To ensure adequate mass resolution, identification, and to some degree, sensitivity; the performance of each ICP/MS instrument used for metals analyses was checked prior to calibration before initiating an analysis sequence through the analysis of a tuning solution. The results of the tuning solution analysis were reviewed against the following criteria:

i) analyze tuning solution a minimum of four times with a %RSD of less than or equal to five for the analytes contained in the tuning solution; and

ii) the mass resolution must be within 0.1 amu of the true value over the analytical range.

Instrument performance check data were reviewed. The tuning solution was analyzed at the required frequency throughout the analyses. The results of all instrument performance checks were within the acceptance criteria indicating acceptable instrument performance.

Initial Calibration – Inorganic Analyses – ***Full Validation Only***

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For ICP and ICP/MS analyses, a calibration blank, and at least one standard must be analyzed at each wavelength to establish the analytical curve. For cold vapor atomic absorption (CVAA) and instrumental wet chemistry analyses, a calibration blank and a minimum of four standards must be analyzed to establish the analytical curve. Resulting correlation coefficients for curves consisting of a blank and four or more standards must be at least 0.995.

After the analyses of the calibration curves, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within the following control limits:

Analytical Method	*Inorganic Species*	*Control Limits (Percent)*
ICP and ICP/MS	Metals	90 – 110
CVAA	Mercury	90 – 110
Instrumental Wet Chemistry	Cyanide	90 - 110

Upon review of the data, it was determined that all inorganic calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that instrumentation used for these analyses was properly calibrated prior to sample analyses.

Continuing Calibration - Organics, GC/MS – ***Full Validation Only***

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) all RRF values must be greater than or equal to 0.05; and

ii) percent difference (%D) values must not exceed 25 percent.

Initial calibration standards were analyzed as required and all data showed acceptable sensitivity and linearity for VOCs and SVOCs.

Continuing Calibration - Organics, GC – ***Full Validation Only***

To ensure that the calibration of the instrument is valid throughout the sample analysis period, continuing calibration standards are analyzed and evaluated on a regular basis. To evaluate the continued linearity of the calibration, %D values are calculated for each compound in all continuing standards and assessed against an acceptance criterion of 15 percent.

To ensure that compound retention times do not vary over the analysis period, all retention times must fall within the established retention time windows.

Continuing calibration standards were analyzed at the required frequency and all method criteria were met for analyte linearity.

Continuing Calibration – Inorganics – ***Full Validation Only***

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

Method Blank Samples – ***Full and Reduced Validations***

The purpose of assessing the results of laboratory blank analyses is to determine the existence and magnitude of sample contamination introduced during analysis. Laboratory blanks are prepared from de-ionized water and analyzed as samples.

For this study, method blanks were analyzed at a minimum frequency of one per analytical batch.

In accordance with the "Guidelines", all sample results greater than the method detection limit (MDL) but less than five times the amount detected in the associated blank were qualified as non-detect. The blank results were non-detect for the analytes of interest with the exception of metals and VOCs. All associated results for metals and VOCs were qualified as non-detect (see Table 4). Investigative samples associated with contaminated laboratory blanks that yielded either non-detect concentrations or concentrations greater than five times the associated laboratory blank concentrations for the analytes of interest required no qualification.

Surrogate Compound Percent Recoveries – Organics – ***Full and Reduced Validations***

In accordance with the methods employed, all samples, blanks, and standards analyzed for VOCs, SVOCs, and PCBs, were spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of individual sample matrices on analytical efficiency and are assessed against method control limits. For the SVOC method, it is acceptable for one surrogate recovery per fraction (base neutral or acid phenolic) to fall outside of these limits, provided it is greater than 10 percent.

All surrogate recoveries were within the laboratory specified control limits demonstrating acceptable analytical accuracy and no qualification was required.

Internal Standard (IS) Summaries – Organics – ***Full and Reduced Validations***

To correct for changes in GC/MS response and sensitivity, IS compounds are added to investigative samples and QC samples prior to VOC and SVOC analyses. All results are calculated as a ratio of the IS response. The criteria by which the IS results are assessed are as follows:

i) IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard; and

ii) the retention time of the IS must not vary more than ±30 seconds from the associated calibration standard.

All sample IS results met the above criteria and all were correctly used to calculate sample results.

Laboratory Control Sample (LCS) Analysis – ***Full and Reduced Validations***

The LCS serves as a measure of overall analytical performance. LCSs are prepared with all analytes of interest and analyzed with each sample batch.

LCSs were prepared and analyzed for all parameters. The LCS recoveries were within the laboratory specified control limits for all analytes of interest with the exception of some VOC and SVOC recoveries. For VOCs, the compound acetone demonstrated a recovery of <10 percent and all associated acetone results were qualified as reject. All remaining VOC and SVOC results associated with non-compliant LCS recoveries were qualified as estimated (see Table 5).

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses – ***Full and Reduced Validations***

MS/MSD samples are prepared for each parameter and analyzed with each sample batch for the organic parameters. MS/MSD samples are prepared and analyzed with the samples for each metal and inorganic analyte. The recoveries of spike analyses are used to assess the analytical accuracy achieved on individual sample matrices. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. The RPD between the MS and MSD is used to assess analytical precision.

MS/MSD analyses were performed as shown in Table 1. The laboratory performed additional analyses internally. All MS/MSD recoveries were within laboratory control limits demonstrating acceptable overall

analytical accuracy and precision. No qualification was performed when only the MS or MSD was slightly outside of control limits.

Field Duplicate Sample Analyses – ***Full and Reduced Validations***

Analytical precision is also evaluated based on the analysis of duplicate samples. The samples selected for duplicate analyses are identified in Table 1. The laboratory performed additional analyses internally. Most duplicate analyses performed were acceptable, demonstrating good analytical precision. For metals analyses, several field duplicates demonstrated non-compliant RPDs, therefore, these sample results were qualified as estimated (see Table 6).

Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Analysis – ***Full Validation Only***

To verify that proper inter-element and background correction factors have been established by the laboratory, ICSs are analyzed. These samples contain high concentrations of aluminum, calcium, magnesium, and iron and are analyzed at the beginning and end of each sample analysis period.

ICS analysis results were evaluated for all samples. All ICS recoveries were within the established control limits of 80 to 120 percent.

Serial Dilution – ICP/MS Analyses – ***Full Validation Only***

The serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. A minimum of one per 20 investigative samples is analyzed at a five-fold dilution. For samples with sufficient analyte concentrations, the serial dilution results must agree within 10 percent of the original results.

Serial dilution analyses were performed and the results were acceptable.

Target Compound Identification – ***Full Validation Only***

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra (if applicable) were evaluated according to identification criteria established by the methods. The samples identified in Table 1 were reviewed. The organics reported adhered to the specified identification criteria.

Trip Blanks – VOCs – ***Full and Reduced Validations***

Trip blanks are transported, stored, and analyzed with the investigative samples to identify potential cross-contamination of VOCs. Trip blanks were collected at the proper frequency, and all results were non-detect for the analytes of interest.

Calibration Range Exceedances- ***Full and Reduced Validations***

For all analytes (organic and inorganic), instrument-determined values must be within the calibrated range of analytes demonstrated during the initial calibration of the instrument. All analytes were within this calibration range.

System Performance – ***Full Validation Only***

System performance between various QC checks was evaluated to monitor for changes that may have caused the degradation of data quality. The samples identified in Table 1 were reviewed. No technical problems or chromatographic anomalies were observed which require qualification of the data.

Overall Assessment

Based on the assessment detailed in the foregoing, the data produced by Merit were found to exhibit acceptable levels of accuracy and precision, based on the provided information, and may be used as reported with the specific qualifications noted within.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
SUBSURFACE INVESTIGATION OF MANUFACTURING FACILITY
GENERAL MOTORS - LANSING PLANT 6
LANSING, MICHIGAN
NOVEMBER 2005

						Analysis/Parameters									
Sample ID	*Location ID*	*Start Depth (ft bgs)*	*End Depth (ft bgs)*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*VOCs*	*TCLP VOC*	*TCLP SVOC*	*TCLP RCRA Metals*	*RCI*	*SVOCs*	*Site TAL Metals(Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, V, Zn)*	*PCBs*	*Cyanide*	*Comments*
SA 11-5 (0.7-2.7)	SA 11-5	0.7	2.7	10/31/05	13:50							X		X	
SA 11-3 (5.5-7.5)	SA 11-3	5.5	7.5	10/31/05	16:00							X		X	
SA 11-7 (4-6)	SA 11-7	4	6	10/31/05	12:00							X		X	
SA 11-8 (8-10)	SA 11-8	8	10	10/31/05	11:25							X		X	
SA 11-6 (2-4)	SA 11-6	2	4	10/31/05	13:10							X		X	
SA 11-4 (8-10)	SA 11-4	8	10	10/31/05	14:40							X		X	
SA 11-2 (6-8)	SA 11-2	6	8	11/01/05	8:00							X		X	
SA 11-17 (4-6)	SA 11-17	4	6	11/01/05	9:10							X		X	
SA 11-15 (0-2)	SA 11-15	0	2	11/01/05	10:25							X		X	
SA 11-14 (8-10)	SA 11-14	8	10	11/01/05	11:25							X		X	
SA 11-18 (6-8)	SA 11-18	6	8	11/01/05	13:20							X		X	
SA 11-11 (4-6)	SA 11-11	4	6	11/01/05	14:10							X		X	
SA 11-12 (2-4)	SA 11-12	2	4	11/01/05	14:50							X		X	
SA 11-16 (2-4)	SA 11-16	2	4	11/01/05	9:55							X		X	
DUP-01	SA 11-15	0	2	11/01/05	10:25							X		X	Duplicate of SA 11-15 (0-2)
SA22-3 (2-4)	SA 22-3	2	4	11/02/05	8:10							X		X	
SA22-2 (2-4)	SA 22-2	2	4	11/02/05	9:05							X		X	
SA11-9 (8-10)	SA 11-9	8	10	11/02/05	9:45							X		X	
SA11-10 (3-5)	SA 11-10	3	5	11/02/05	11:15							X		X	
SA11-1 (3-5)	SA 11-1	3	5	11/02/05	13:10							X		X	
SA12-1 (9-11)	SA 12-1	9	11	11/02/05	14:00							X		X	
SA12-2 (10-12)	SA 12-2	10	12	11/02/05	15:00							X		X	
SA12-3 (10-12)	SA 12-3	10	12	11/02/05	15:50							X		X	MS/MSD
SA12-4 (11-13)	SA 12-4	11	13	11/03/05	8:25	X					X	X		X	
SA6-10 (14-16)	SA 6-10	14	16	11/03/05	9:25							X		X	
SA6-9 (6-8)	SA 6-9	6	8	11/03/05	9:50							X		X	
SA10-2 (2-4)	SA 10-2	2	4	11/03/05	10:20							X		X	
SA6-8 (3-5)	SA 6-8	3	5	11/03/05	10:50							X		X	
SA6-7 (4-6)	SA 6-7	4	6	11/03/05	11:15							X		X	
SA6-6 (3-5)	SA 6-6	3	5	11/03/05	12:35							X		X	
SA6-5 (3-5)	SA 6-5	3	5	11/03/05	13:10							X		X	
SA6-1 (2.5-4.5)	SA 6-1	2.5	4.5	11/03/05	14:05							X		X	
SA6-2 (4-6)	SA 6-2	4	6	11/03/05	14:45							X		X	
SA6-3 (3-5)	SA 6-3	3	5	11/03/05	15:00							X		X	MS/MSD
SA6-4 (8-10)	SA 6-4	8	10	11/03/05	15:25	X						X		X	
TB-110305	TB-110305	-	-	11/03/05	NA	X									
Dup-2	SA 6-2	4	6	11/03/05	14:45							X		X	Duplicate of SA 6-2 (4-6)
Dup-3	SA 6-4	8	10	11/03/05	15:25	X						X		X	Duplicate of SA 6-4 (8-10)
SA 6-11 (8-10)	SA 6-11	8	10	11/04/05	8:50							X		X	
SA 20-3 (7-9)	SA 20-3	7	9	11/04/05	9:05							X		X	
SA 20-1 (4-6)	SA 20-1	4	6	11/04/05	9:40							X		X	
SA 20-2 (14-16)	SA 20-2	14	16	11/04/05	10:20							X		X	
SA 20-4 (10-12)	SA 20-4	10	12	11/04/05	11:20	X						X		X	MS/MSD
SA 6-12 (8-10)	SA 6-12	8	10	11/04/05	13:20							X		X	
DUP-4	SA 20-4	10	12	11/04/05		X						X		X	Duplicate of SA 20-4 (10-12)
SA 10-4 (8-10)	SA 10-4	8	10	11/04/05	14:45							X		X	
TB-110405		-	-	11/04/05		X									
SA 7-6 (14-16)	SA 7-6	14	16	11/07/05	9:05							X		X	
SA 7-5 (12-14)	SA 7-5	12	14	11/07/05	9:35							X		X	
SA 10-3 (14-16)	SA 10-3	14	16	11/07/05	11:05							X		X	
SA 7-9 (7-9)	SA 7-9	7	9	11/07/05	11:45							X		X	
SA 7-7 (9-11)	SA 7-7	9	11	11/07/05	12:20							X		X	
SA 7-8 (10-12)	SA 7-8	10	12	11/07/05	14:05							X		X	
SA 7-10 (4-6)	SA 7-10	4	6	11/07/05	14:25							X		X	
SA 8-6 (12-14)	SA 8-6	12	14	11/07/05	15:15							X		X	
DUP-5	SA 8-6	12	14	11/07/05								X		X	Duplicate of SA 8-6 (12-14)
SA 7-4 (8-10)	SA 7-4	8	10	11/08/05	9:15							X		X	
SA 7-3 (7-9)	SA 7-3	7	9	11/08/05	9:50							X		X	
SA 7-2 (4-6)	SA 7-2	4	6	11/08/05	10:15							X		X	

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
SUBSURFACE INVESTIGATION OF MANUFACTURING FACILITY
GENERAL MOTORS - LANSING PLANT 6
LANSING, MICHIGAN
NOVEMBER 2005

						Analysis/Parameters									
Sample ID	*Location ID*	*Start Depth (ft bgs)*	*End Depth (ft bgs)*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*VOCs*	*TCLP VOC*	*TCLP SVOC*	*TCLP RCRA Metals*	*RCI*	*SVOCs*	*Site TAL Metals(Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, V, Zn)*	*PCBs*	*Cyanide*	*Comments*
SA 7-1 (9-11)	SA 7-1	9	11	11/08/05	10:45							X		X	
SA 9-2 (8-10)	SA 9-2	8	10	11/08/05	12:20							X		X	
SA 8-5 (7-9)	SA 8-5	7	9	11/08/05	12:35							X		X	
SA 8-3 (14-16)	SA 8-3	14	16	11/08/05	13:30							X		X	
SA 13-1 (7-9)	SA 13-1	7	9	11/08/05	14:10							X		X	
SA 13-2 (9-11)	SA 13-2	9	11	11/08/05	14:50							X		X	
SA 8-1 (9-11)	SA 8-1	9	11	11/09/05	9:05							X		X	MS/MSD
SA 8-2 (14-16)	SA 8-2	14	16	11/09/05	9:30							X		X	
SA 14-1 (8-10)	SA 14-1	8	10	11/09/05	10:00							X		X	
SA 32-1 (8-10)	SA 32-1	8	10	11/09/05	13:50							X		X	
SA 29-2 (8-10)	SA 29-2	8	10	11/09/05	14:20							X		X	
SA 26-3 (3-5)	SA 26-3	3	5	11/10/05	8:40							X		X	
SA 5-5 (8-10)	SA 5-5	8	10	11/10/05	9:10	X						X		X	
SA 5-1 (8-10)	SA 5-1	8	10	11/10/05	9:30							X		X	
Dup-6	SA 5-1	8	10	11/10/05								X		X	Duplicate of SA 5-1 (8-10)
SA 4-5 (9-11)	SA 4-5	9	11	11/10/05	10:30	X						X		X	
SA 4-3 (12-14)	SA 4-3	12	14	11/10/05	14:00	X						X		X	
SA 4-4 (14-16)	SA 4-4	14	16	11/10/05	14:40							X		X	
Dup-7	SA 4-4	14	16	11/10/05								X		X	Duplicate of SA 4-4 (14-16)
SA 34-6 (6-8)	SA 34-6	6	8	11/11/05	10:00							X		X	
SA 4-1 (9-11)	SA 4-1	9	11	11/11/05	11:25							X		X	
SA 3-1 (14-16)	SA 3-1	14	16	11/11/05	11:50							X		X	
SA 3-2 (9-11)	SA 3-2	9	11	11/11/05	13:40							X		X	
SA 1-5 (3-5)	SA 1-5	3	5	11/11/05	14:20							X		X	
TB - 111105	Trip Blank	-	-	11/11/05											
WC (111105)		-	-	11/11/05	15:30		X	X	X	X			X		

Notes:

-	Not applicable.
Ag	Silver.
As	Arsenic.
Ba	Barium.
Be	Beryllium.
Cd	Cadmium.
Co	Cobalt.
Cr	Chromium.
Cu	Copper.
ft bgs	Feet Below Ground Surface.
Hg	Mercury.
Mn	Manganese.
MS	Matrix Spike.
MSD	Matrix Spike Duplicate.
Ni	Nickel.
Pb	Lead.
PCBs	Polychlorinated Biphenyls.
RCI	Reactivity, Corrosivity, and Ignitability.
Sb	Antimony.
Se	Selenium.
SVOC	Semi-Volatile Organic Compounds.
T1	Thallium.
TAL	Target Analyte List.
TCLP	Toxicity Characteristic Leaching Procedure.
V	Vanadium.
VOCs	Volatile Organic Compounds.
Zn	Zinc.

TABLE 2

SUMMARY OF ANALYTICAL METHODOLOGIES
SUBSURFACE INVESTIGATION OF MANUFACTURING FACILITY
GENERAL MOTORS - LANSING PLANT 6
LANSING, MICHIGAN
NOVEMBER 2005

Parameter	*Method*
TCL Volatile Organic Compounds (VOCs)	SW-846 8260[1]
TCL Semi-Volatile Organic Compounds (SVOCs)	SW-846 8270[1]
SSPL Metals	SW-846 6020/7471[1]
Cyanide	SW-846 9010B[1]
PolyChlorinated Biphenyls (PCBs)	SW-846 8082[1]
Coarse & Fractional Lead	SW-846 6020[1]
TCLP Volatile Organic Compounds (VOCs)	SW-846 1311/8260[1]
TCLP Semi-Volatile Organic Compounds (SVOCs)	SW-846 1311/8270[1]
TCLP Metals	SW-846 1311/6010/7470/7471[1]
Reactivity, Corrosivity, Ignitability (RCI)	SW-846 Chapter 7[1]

Notes:

[1] "Test Methods for Solid Waste Physical/Chemical Methods", SW-846, 3rd Edition, September 1986 (with subsequent revisions).

[2] Multi-Media, Multi-Concentration, Inorganic Analysis, (ILM05.3), March 2004. Referenced from "Methods for the Chemical Analysis of Water and Wastes", (MCAWW), EPA-600/4-79-020, March 1983 and subsequent revisions.

TAL Target Analyte List.

TCL Target Compound List.

SSPL Site Specific Parameter List

TCLP Toxicity Characteristic Leaching Procedure

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING INITIAL CALIBRATION RESULTS
SUBSURFACE INVESTIGATION OF MANUFACTURING FACILITY
GENERAL MOTORS - LANSING PLANT 6
LANSING, MICHIGAN
NOVEMBER 2005

Parameter	*Compound*	*Calibration Date*	*%D*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
SVOC	Pyrene	10/19/05	34.65	SA12-4 (11-13)	330 U	µg/kg	UJ
SVOC	Indeno(1,2,3-cd)pyrene	10/19/05	43.43	SA12-4 (11-13)	80 J	µg/kg	J
SVOC	Dibenz(a,h)anthracene	10/19/05	42.01	SA12-4 (11-13)	80 J	µg/kg	J
SVOC	Benzo(g,h,i)perylene	10/19/05	38.43	SA12-4 (11-13)	90 J	µg/kg	J

Notes:
%D Percent Difference.
J Estimated.
SVOC Semi-Volatile Organic Compounds.
U Non-detect at associated value.
UJ The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
SUBSURFACE INVESTIGATION OF MANUFACTURING FACILITY
GENERAL MOTORS - LANSING PLANT 6
LANSING, MICHIGAN
NOVEMBER 2005

Parameter	*Analysis Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Result*	*Units*
VOC	11/09/05	Methylene chloride	85.5	Dup-3	90 J	300 U	µg/kg
VOC	11/09/05	Methylene chloride	85.5	SA20-4 (10-12)	80 J	300 U	µg/kg
				Dup-4	90 J	300 U	µg/kg
				TB-110405	70 J	300 U	µg/kg
VOC	11/22/05	Toluene	28	SA4-5 (9-11)	50	50 U	µg/kg
VOC	11/23/05	Toluene	25	TB-111005	20 J	50 U	µg/kg
VOC	11/23/05	Toluene	25	TB-111105	20 J	50 U	µg/kg
Metals	11/09/05	Silver	0.03	SA6-10 (14-16)	0.02 J	0.10 U	mg/Kg
				SA6-8 (3-5)	0.02 J	0.10 U	mg/Kg
				SA6-2 (4-6)	0.09 J	0.10 U	mg/Kg
Metals	11/09/05	Beryllium	0.03	SA6-10 (14-16)	0.13 J	0.50 U	mg/Kg
				SA10-2 (2-4)	0.04 J	0.50 U	mg/Kg
				SA6-6 (3-5)	0.08 J	0.50 U	mg/Kg
				SA6-5 (3-5)	0.10 J	0.50 U	mg/Kg
				SA6-2 (4-6)	0.09 J	0.50 U	mg/Kg
				SA6-3 (3-5)	0.11 J	0.50 U	mg/Kg
				Dup-2	0.06 J	0.50 U	mg/Kg
Metals	11/09/05	Antimony	0.08	Dup-3	0.10 J	0.30 U	mg/Kg
Metals	11/09/05	Selenium	0.29	SA12-4 (11-13)	0.34	0.34 U	mg/Kg
				SA6-10 (14-16)	0.22	0.22 U	mg/Kg
				SA6-9 (6-8)	0.29	0.29 U	mg/Kg
				SA6-8 (3-5)	0.29	0.29 U	mg/Kg
				SA6-7 (4-6)	0.60	0.60 U	mg/Kg
				SA6-6 (3-5)	0.12 J	0.20 U	mg/Kg
				SA6-5 (3-5)	0.33	0.33 U	mg/Kg
				SA6-3 (3-5)	0.28	0.28 U	mg/Kg
				SA6-4 (8-10)	0.32	0.32 U	mg/Kg
				Dup-2	0.11 J	0.20 U	mg/Kg
				Dup-3	0.16 J	0.20 U	mg/Kg
			0.52	SA6-1 (2.5-4.5)	1.76	1.76 U	mg/Kg
Metals	11/09/05	Thallium	0.08	SA12-4 (11-13)	0.04 J	0.50 U	mg/Kg
				SA6-10 (14-16)	0.04 J	0.50 U	mg/Kg
				SA6-9 (6-8)	0.03 J	0.50 U	mg/Kg
				SA6-8 (3-5)	0.11 J	0.50 U	mg/Kg
				SA6-7 (4-6)	0.06 J	0.50 U	mg/Kg
				SA6-6 (3-5)	0.03 J	0.50 U	mg/Kg
				SA6-5 (3-5)	0.06 J	0.50 U	mg/Kg
				SA6-1 (2.5-4.5)	0.30 J	0.50 U	mg/Kg
				SA6-2 (4-6)	0.05 J	0.50 U	mg/Kg
				SA6-3 (3-5)	0.18 J	0.50 U	mg/Kg
				SA6-4 (8-10)	0.04 J	0.50 U	mg/Kg
				Dup-2	0.05 J	0.50 U	mg/Kg
				Dup-3	0.05 J	0.50 U	mg/Kg

Notes:
J Estimated.
U Non-detect at associated value.
VOCs Volatile Organic Compounds.

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING LABORATORY CONTROL SAMPLE RESULTS
SUBSURFACE INVESTIGATION OF MANUFACTURING FACILITY
GENERAL MOTORS - LANSING PLANT 6
LANSING, MICHIGAN
NOVEMBER 2005

Parameter	*Compound*	*Percent Recovery*	*Control Limits (percent)*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
SVOC	N-Nitrosodiphenylamine	26.4	38.9 - 137.5	SA12-4 (11-13)	330 U	µg/kg	UJ
VOC	Methyl acetate	64.6	67.7 - 136.9	TB-111005	3000 U	µg/kg	UJ
VOC	Acetone	8.3	13.2 - 200.8	SA4-5 (9-11)	800 U	µg/kg	R
				SA4-3 (12-14)	8000 U	µg/kg	R
VOC	Carbon disulfide	40.1	43.3 - 120	SA4-5 (9-11)	300 U	µg/kg	UJ
				SA4-3 (12-14)	3000 U	µg/kg	UJ
VOC	Methyl acetate	63.6	67.7 - 136.9	SA4-5 (9-11)	3000 U	µg/kg	UJ
				SA4-3 (12-14)	30000 U	µg/kg	UJ
VOC	1,1-Dichloroethene	55.6	59 - 172	SA4-5 (9-11)	50 U	µg/kg	UJ
				SA4-3 (12-14)	600 U	µg/kg	UJ
VOC	Trifluorotrichloroethane (Freon 113)	55.9	56.5 - 120	SA4-5 (9-11)	100 U	µg/kg	UJ
				SA4-3 (12-14)	1000 U	µg/kg	UJ
VOC	Methyl acetate	64.7	67.7 - 136.9	SA34-6 (6-8)	4000 U	µg/kg	UJ
				TB-111105	3000 U	µg/kg	UJ

Notes:
R Rejected.
U Non-detect at associated value.
UJ The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.
VOC Volatile Organic Compounds.

TABLE 6

QUALIFIED SAMPLE RESULTS DUE TO VARIABILITY IN FIELD DUPLICATE RESULTS
SUBSURFACE INVESTIGATION OF MANUFACTURING FACILITY
GENERAL MOTORS - LANSING PLANT 6
LANSING, MICHIGAN
NOVEMBER 2005

Parameter	*Analyte*	*Original Sample ID*	*Original Result*	*Duplicate Sample ID*	*Duplicate Result*	*RPD*	*Units*	*Qualifier* [(1)]
Metals	Selenium	SA11-15 (0-2)	0.71	Dup-01	0.20U	112	mg/kg	J/UJ
Metals	Manganese	SA4-4 (14-16)	43.1	Dup-7	169	118.7	mg/kg	J
	Silver		0.41		0.07J	141.7	mg/kg	J
Metals	Arsenic	SA6-2 (4-6)	1.15	Dup-2	1.97	53	mg/Kg	J
	Lead - Coarse Fraction		159		55.3	97	mg/Kg	J
	Lead - Fine Fraction		240		83.2	97	mg/Kg	J
	Lead - Total (Calculated)		172		62.5	93	mg/Kg	J
	Zinc		188		74.6	86	mg/Kg	J
Metals	Manganese	SA6-4 (8-10)	373	Dup-3	68.1	138	mg/Kg	J

Notes:
(1) Qualifer is associated with both the original and duplicate samples.
J Estimated.
RPD Relative Percent Difference.
UJ The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.

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Appendix D

Summary of Historical Sanborn Maps and Aerial Photographs

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Aerial Photograph and Sandborn® Map Summaries

Aerial Photograph Summary

Aerial photographs were reviewed to document the general development of the Facility and properties in the vicinity of the Facility and to identify potential on-Site solid waste disposal areas. Aerial photographs of the Facility and surrounding areas were obtained from Environmental Data Resources, Inc. (EDR) for the years 1938, 1955, 1963, 1970, 1981, and 1993. An aerial photograph for the year 1998 was obtained from the Terraserver.com internet website. The aerial photographs discussed below are included with this appendix.

1938 Aerial Photograph

The 1938 aerial photograph depicts that Plant 2 had previously been constructed on the Facility. Plant 3 had not yet been constructed. This area was vacant with the exception of two small buildings. The land appears to have been used for agricultural purposes. Small roads are depicted throughout the area. Plant 6 had also been previously constructed on the Facility. Disturbed soil is depicted outside the northwest portion of Plant 6. Saginaw Street is depicted north of Plants 2 and 6. CSX railroad is depicted east of Plant 2 and west of Plant 6 running north to south with spurs running to each plant. West Michigan Avenue is depicted south of the Facility, beyond which residences, vacant properties, and wooded land are depicted. North Rosemary Avenue is depicted west of the Facility, beyond which vacant/agricultural land and residences are depicted.

1955 Aerial Photograph

The 1955 aerial photograph shows that a large addition had been constructed onto the north and west sides of Plant 2. Several small buildings had also been constructed along the CSX railroad on the west side of Plant 2. Plant 3 and its associated parking lots had been constructed north of Plant 2 beyond Saginaw Street. Several small buildings had also been constructed north of Saginaw Street along the CSX railroad. Three aboveground storage tanks (ASTs) are depicted northeast of Plant 3. An addition had been constructed onto the southwest portion of Plant 6 and parking lots constructed to the north of Plant 6. Several small buildings had been constructed west of Plant 6. Further residential development had occurred east, south, and west of the Facility. A high school had been constructed south of Plant 6 beyond West Michigan Avenue. A baseball diamond and a running track had been constructed east of Plant 3 beyond the CSX railroad.

1963 Aerial Photograph

The 1963 aerial photograph depicts disturbed soil north and northwest of Plant 2. An AST is depicted near the northwest corner of Plant 2. Several small buildings had been demolished and one small building had been constructed southwest of Plant 2. The wooded land south of Plant 2 had been cleared and a parking lot constructed. An addition had been constructed onto a small building near the CSX railroad east of Plant 3. One AST had been removed from northeast of Plant 3 and several small buildings had been demolished from the east side of Plant 3. An addition was constructed onto the south side of Plant 6 over a former parking lot. No significant discernable changes were observed on surrounding properties from the 1955 aerial photograph.

1970 Aerial Photograph

The 1970 aerial photograph depicts that the parking lot north of Plant 2 had been reshaped and expanded due to the rerouting of Saginaw Street. A large building had been constructed northeast of Plant 2 and another large building had been constructed west of Plant 2. A large building had also been constructed west of Plant 3. The parking lot located north of Plant 6 had been expanded. No significant discernable changes were observed on surrounding properties from the 1963 aerial photograph.

1981 Aerial Photograph

The 1981 aerial photograph depicts that an addition had been constructed on the north and east sides of the building located west of Plant 2. The Plant 2 parking lots had been reshaped and parking lots had been constructed south of the Plant 2 buildings. The AST is no longer depicted northeast of Plant 2. An addition was constructed onto the west side of a small building located northeast of Plant 3 and the parking lots south of Plant 3 had been expanded. An addition had been constructed onto the west side of the northeast portion of Plant 6. No significant discernable changes were observed on surrounding properties from the 1970 aerial photograph.

1993 Aerial Photograph

The 1993 aerial photograph depicts that a wastewater treatment plant had been installed and an addition constructed onto the south side of Plant 2. No other significant discernable changes were observed on the Facility or surrounding properties from the 1981 aerial photograph.

1998 Aerial Photograph

The 1998 aerial photograph depicts that a building had been constructed on the west side of Plant 3. No other significant discernable changes were observed on the Facility or surrounding properties from the 1993 aerial photograph.

Sanborn® Fire Insurance Map Summary

Sanborn® Fire Insurance Maps assist in the identification of historical land use and commonly indicate the existence and location of ASTs and underground storage tanks (USTs), structures, improvements, and Facility operations. Sanborn® Maps were reported to be available for the vicinities of Plants 2 and 6 for the years 1951, 1953, and 1966. Sanborn® Map coverage does not exist in the vicinity of Plant 3. The Sanborn® Maps discussed below are included with this appendix.

1951 Sanborn® Map

The 1951 Sanborn® Map indicated that Plant 2 ("To Be General Motors Corporation Olds Motor Works Division Heaving Stampings and Forge Shop") existed on-Site. No ASTs or USTs were identified in association with Plant 2. The area to the north of Plant 2 was not described, as it was "outside of corporate limits." The property to the south of Plant 2 is depicted as vacant and undeveloped. The property to the west of Plant 2 is not depicted on the map.

Plant 6 ("Fisher Body, Lansing Division, General Motors Corporation") was also identified on the 1951 Sanborn® Map, located east of Plant 2. Plant 6 had been constructed in 1921 with an addition to the north side of the plant constructed in 1928. The Sanborn® Map identifies building uses including welding, assembly, and final touch-up. Two butane ASTs are depicted outside the northwest corner of the building. Several small buildings are depicted west of Plant 6, including an incinerator building and storage buildings. A 25,000-gallon AST, coal pile, and power plant are also depicted west of Plant 6. An acetylene plant is noted in the southwestern portion of Plant 6. No USTs were identified in association with Plant 6 on the map. Osborn Road is depicted north of Plant 6, beyond which residences and vacant properties are depicted. Verlinden Avenue is depicted to the east and Michigan Avenue is depicted to the south of Plant 6. Railroad tracks are depicted west of Plant 6, beyond which Plant 2 and residences are depicted.

1953 Sanborn® Map

The 1953 Sanborn® Map depicts that the "To Be" portion of the label for Plant 2 had been deleted from the map. No other significant discernable changes were observed on the Facility or surrounding properties from the 1951 Sanborn® Map.

1966 Sanborn® Map

The 1966 Sanborn® Map depicts no significant discernable changes to the Facility or surrounding properties from the 1953 Sanborn® Map. However, it is noted that the map had not been corrected in the vicinity of Plant 2 since December 1965.

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Aerial Photos

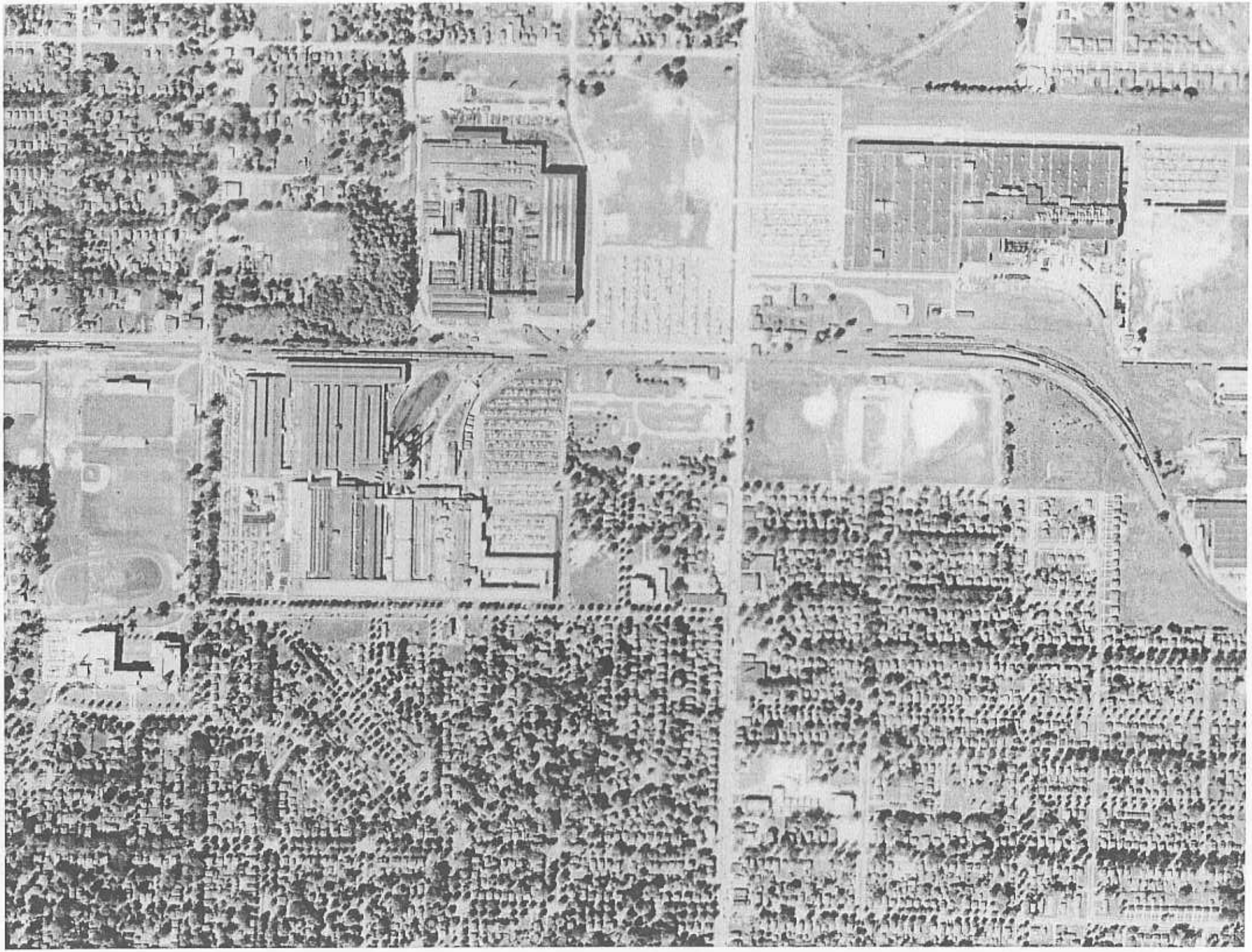
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Aerial Photo – 1938



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Aerial Photo – 1955



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Aerial Photo – 1963



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Aerial Photo – 1970



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Aerial Photo – 1981


USDA

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Aerial Photo – 1993



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Aerial Photo – 1998

TerraServer Aerial Photo, USGS, 1998 N ↑



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Sanborn Maps

"Linking Technology with Tradition"

Sanborn® Map Report

Ship To: Brad Saunders
EEC
455 E. Eisenhower
Ann Arbor, MI 48108

Order Date: 1/26/2004 **Completion Date:** 1/27/2004
Inquiry #: 1118335.5s
P.O. #: EEC Commercial
Site Name: Vacant Lot
Address: NE Corner Stanley St/Drexel Rd
City/State: Lansing, MI 48921
Cross Streets:

Customer Project: 64436.087
1232387DPM 734-668-1133

Based on client-supplied information, fire insurance maps for the following years were identified

1951 - 1 Map
1953 - 1 Map
1966 - 1 Map

Limited Permission to Photocopy

Total Maps: 3

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Organization of Electronic Sanborn Image File

- First Page Sanborn Map Report, listing years of coverage
- Second Page Electronic Sanborn Map Images USER'S GUIDE
- Third Page Oldest Sanborn Map Image
- Last Page Most recent Sanborn Map Image

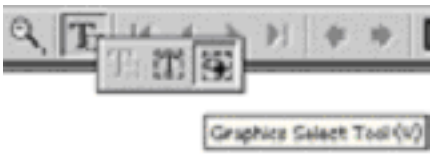
Navigating the Electronic Sanborn Image File

- Open file on screen.
- Identify TP (Target Property) on the most recent map.
- Find TP on older printed images.
- Using Acrobat, zoom to 250% in order to view more clearly.
  - 200-250% is the approximate equivalent scale of hardcopy Sanborn Maps.
- Zooming in on an image:
  - On the menu bar, click "View" and then zoom.
  - Use the magnifying tool and drag a box around the TP area.

Printing a Sanborn Map from the Electronic File

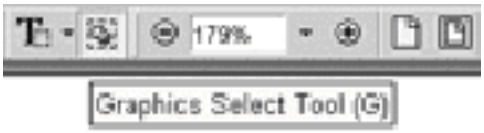
- EDR recommends printing all images at 300 dpi (300 dpi prints faster than 600 dpi).
- To print only the TP area, cut and paste the area from Adobe Acrobat to your word processor.

Acrobat Version 4



- Go to the Menu bar
- Press and hold the "T" button
- Choose the Graphics Select Tool
- Draw a box around the area selected
- Go to "Menu"
- Hightlight "Edit"
- Hightlight "Copy"
- Go to a word processor such as Microsoft Word, paste and print.

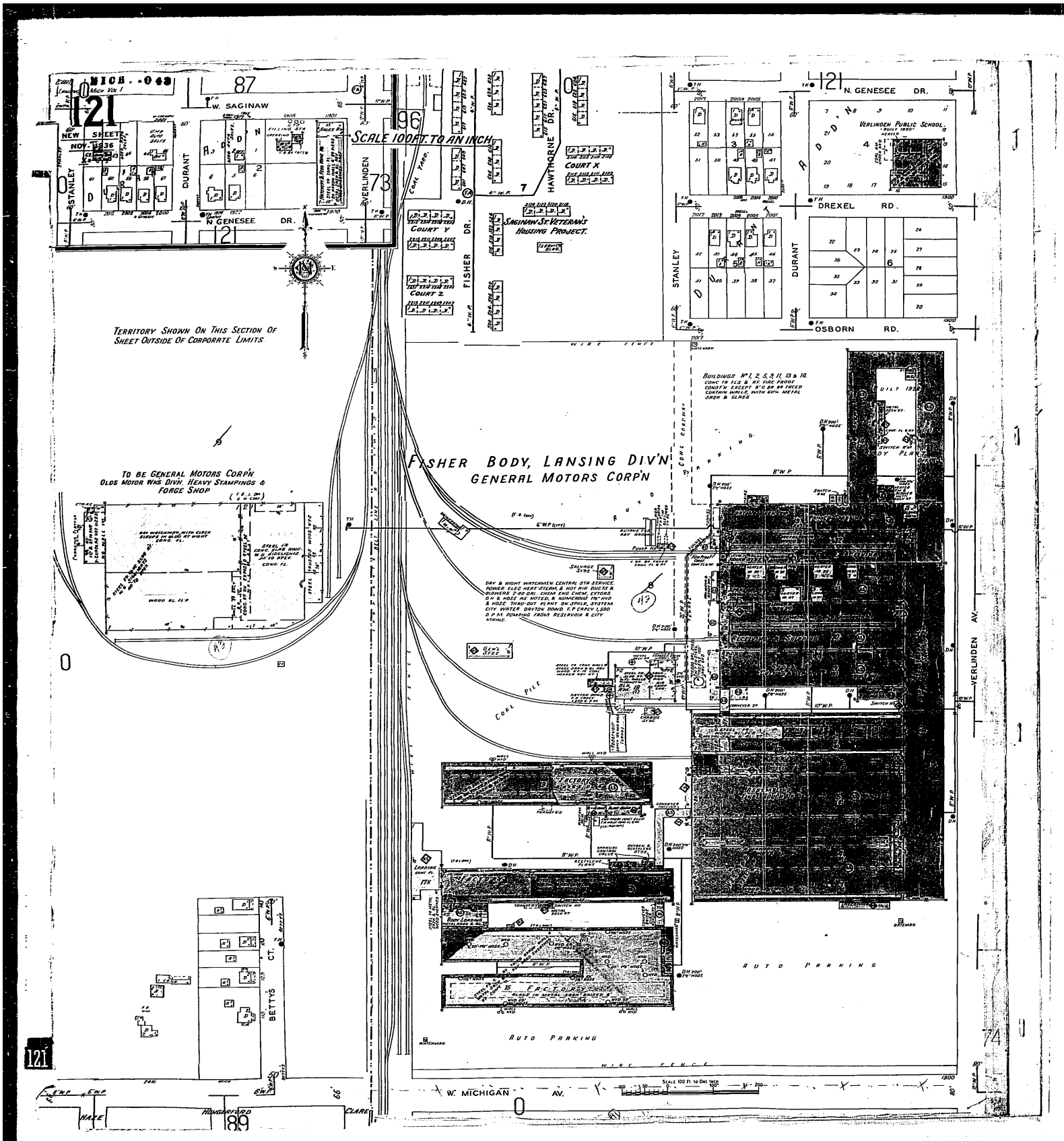
Acrobat Version 5



- Go to the Menu bar
- Click the "Graphics Select Tool"
- Draw a box around the area selected
- Go to "Menu"
- Highlight "Edit"
- Highlight "Copy"
- Go to a word processor such as Microsoft Word, paste and print.

Important Information about Email Delivery of Electronic

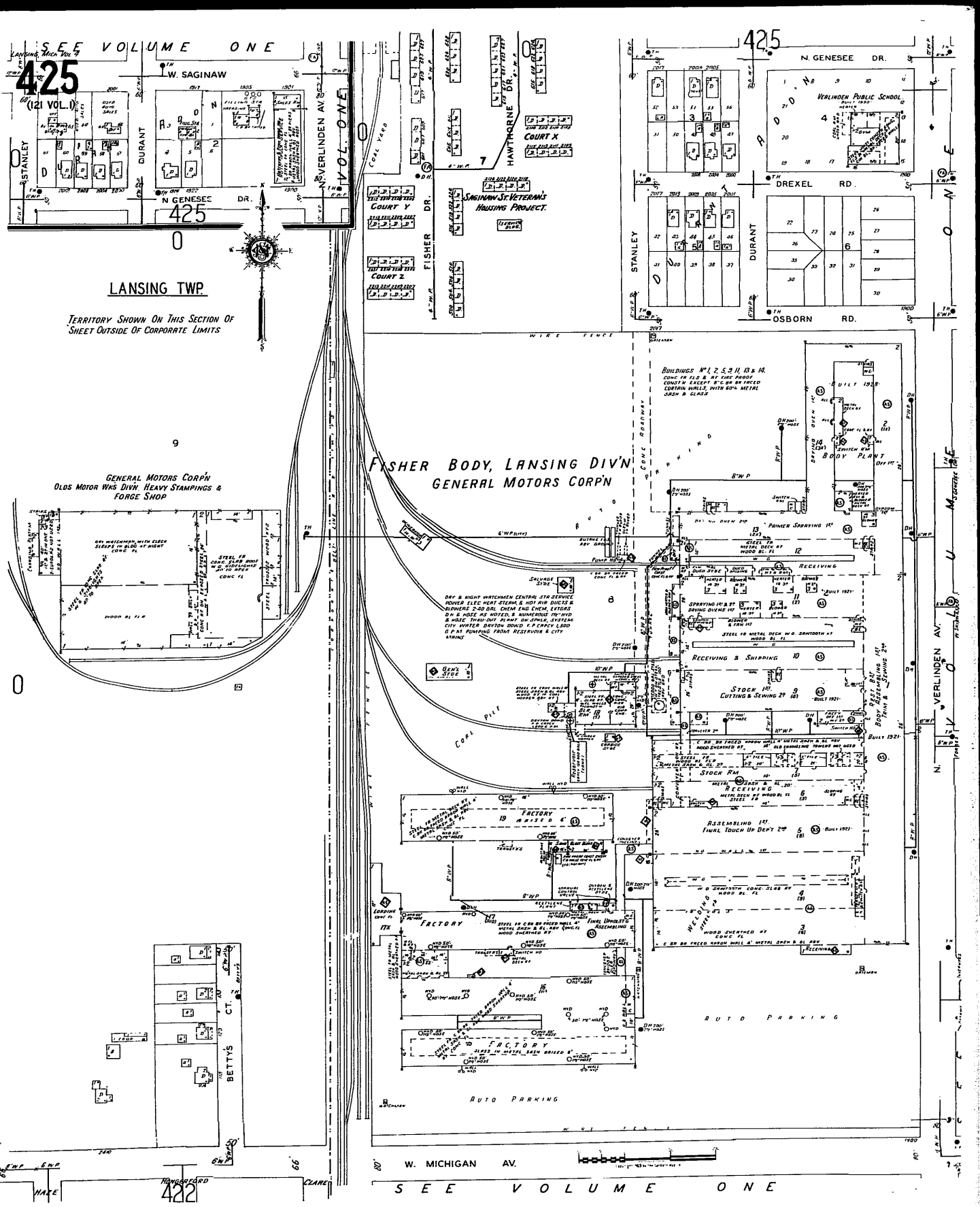
- Images are grouped intro one file, up to 2MB.
- In cases where in excess of 6-7 map years are available, the file size typically exceeds 2MB. In these cases, you will receive multiple files, labeled as 1 of 3, 2 of 3, etc. including all available map years.
- Due to file size limitations, certain ISPs, including AOL, may occasionally delay or decline to deliver files. Please contact your ISP to identify their specific file size limitations.



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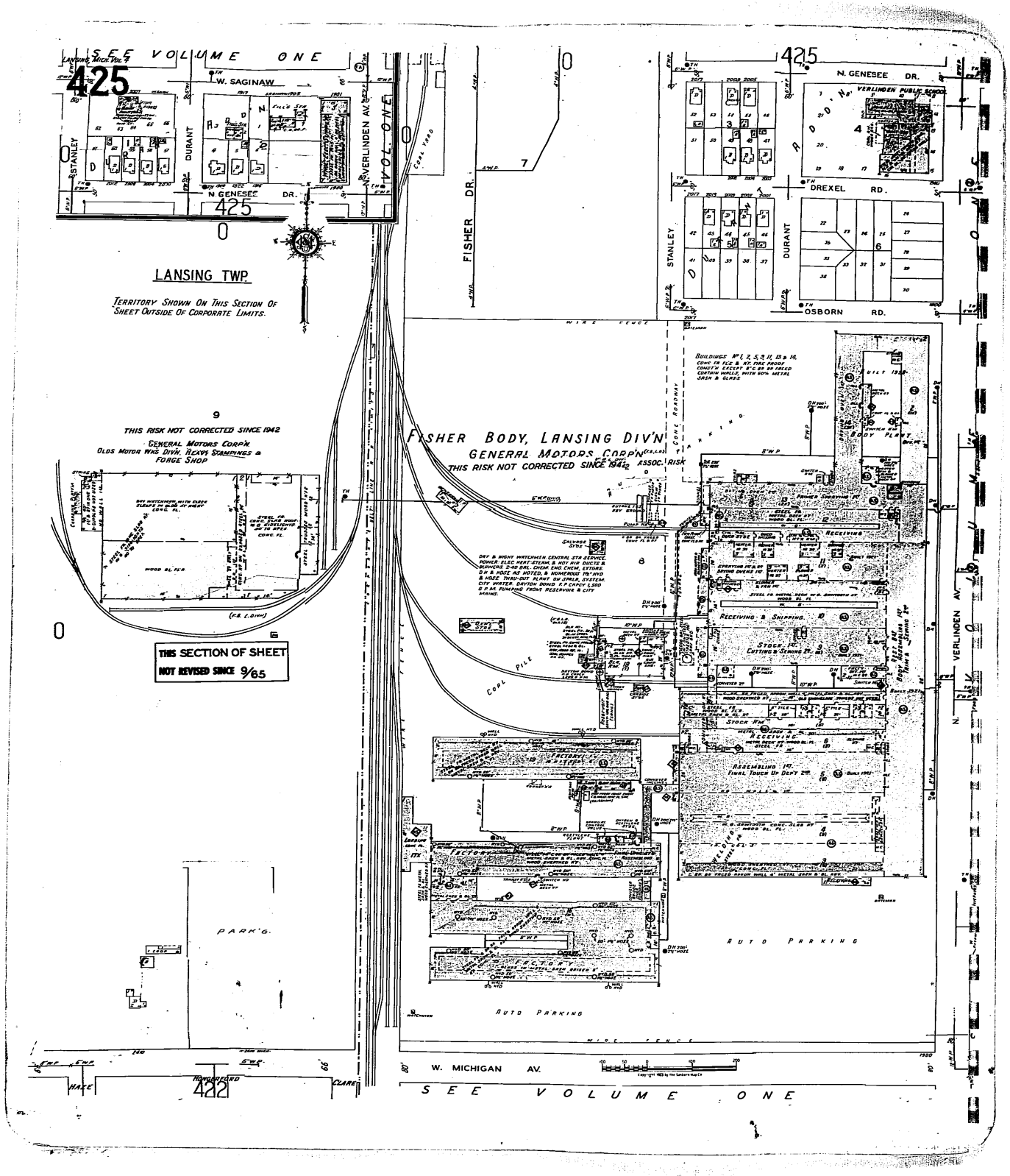
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Appendix E

Plant 2 Production Well Logs

1 W E L L

Location - Building #220 at Saginaw Street
Installed - 2-3-44
Hole #2 - Total Depth - 427 ft.
Casing 80 ft. of 12" pipe
Static Water Level - 62 ft.
Pumping Level - 190 ft. at 450 GPM
Pump Data: Peerless - 10 stage bowls - Type 10MA
Bronze Impellers - 9-1/2" diameter
Motor - 60 HP, 1760 RPM, 440 volt, 3 phase
Pumping Test - 400 GPM at 350 ft. total head
Pump Length - 200'-0" Column
7'-6" Bowls
20'-0" Suction
227'-6" Total
2'-0" Strainer

Work performed on Pump and Well:

Job	Description	Date	Contractor
F44-210	20 ft. of column added	2-23-44	Ohio Drilling
F50-230	Dynamite well and repair pump	9-22-50	Ohio Drilling
F55-210	Repair column, install 40 ft. additional drop pipe, new 9-stage bowl assembly and new plastic air line. Type of pump 10RKHC Layne, bronze impellers, size of pump 10", 9-stages 5RK17, Impeller 4 full field performance 525 GPM, 370 ft. hd., 80% eff., 62 HP. non-reverse ratchet removed.	2- 6-56	Layne Northern
F56-144	Pull pump and repair break in drop pipe, 2-10 ft. lengths of column replaced	10-16-56	
F56-151	Pull pump, install new carbon shafting, S.S. couplings and 2-10' lengths of 8" column, 260' of 1½" OD carbon steel shafting with Monel sleeves, new motor drive shaft, 20' of 8" column pipe.	11-28-56	
F56-101	Repair broken column pipe: 2-10' lengths of column & line shaft 3-10' lengths of line shaft 1 new motor shaft 1 new impeller shaft 1 bronze bushing and rubber bearing	5-21-58	
F62-117	Run Pumping Test 9-9-64 Layne Northern says pump length 291 ft., no suction pipe. figures 229'-6" + 20'-0" + 40'-0" = 289'-6" with 20' of suction	5-14-62	

Job	Description	Date	Contractor
F-65-107	Rebuild pump. Replace 205 ft. of 8" Layne Column with couplings and shaft and rubber bearings new column at bottom of well old suction pipe reused.	3-16-65	LAYNE NORTHERN

f-9-41-KBCo.

THE OHIO DRILLING CO.

INCORPORATED

MASSILLON, OHIO

well #1

DRILLED FOR Oldsmobile Division, General Motors Corporation
Lansing, Michigan

HOLE NO. 2 - 12"

DRILLED BY The Ohio Drilling Company DRILLER
Massillon, Ohio

COMPLETED February 3, 1944

LOCATION Northeast corner of property

THICKNESS OF STRATA	STRATA	TOTAL DEPTH	HEAVED	WATER FROM SURFACE
70 ft.	Drift	70 ft.	—	
8 ft.	Shale	78 ft.		
6 ft.	Sandrock	84 ft.		
40 ft.	Shale & sandrock	124 ft.		
22 ft.	Shale	146 ft.		
129 ft.	Sandrock	275 ft.		62 ft.
3 ft.	Brown lime	278 ft.		" "
40 ft.	Lime & shale	318 ft.		" "
102 ft.	Sand rock	420 ft.		" "
7 ft.	Shale	427 ft.		" "
	Well cased with 80 ft. of 12" -51 lb. steel drive pipe,			
	threaded & coupled, with steel drive shoe on bottom.			
	Static water level 62 ft.			
	Pumped well for 10 hours . At 350 GPM, pumping level 172 ft.			
	At 450 GPM, pumping level 190 ft.			

Layne-Northern Company, Inc.
401 S. DeLorenzi Ave.,
Mishawaka, Indiana

PUMP INSTALLATION REPORT

Date April 27 19 65

Layne Pump No. 33260

Sales Order No. L-31202

OWNER Oldsmobile Forge CITY Lansing STATE Michigan

LOCATION OF WELL Forge Plant

MOTOR Make US Type CFU Frame 950 Ser.No. 390807

HP 60 Volts 220/440 Phase 3 Cycles 60 RPM 1800 Hollowshaft

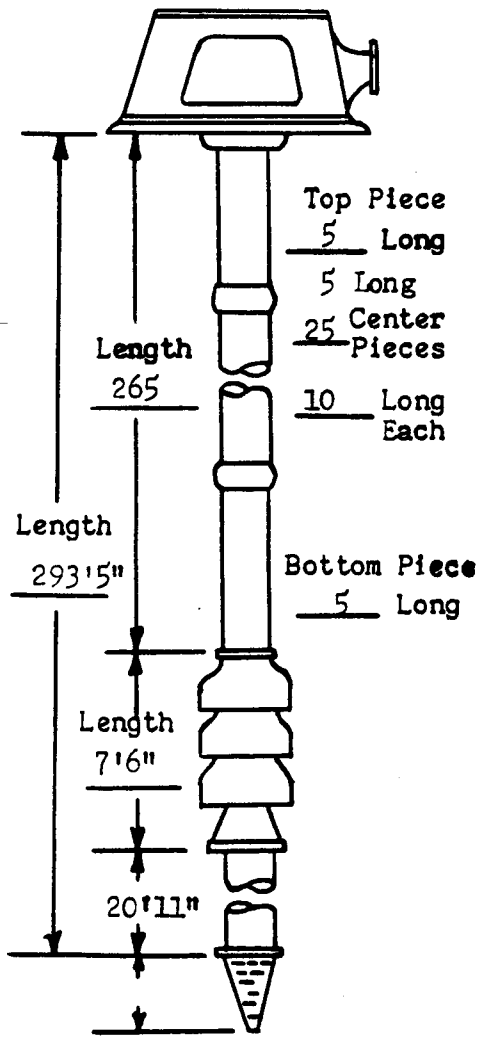
Bearing Nos. Upper _____ Lower _____

GEAR DRIVE Make _____ Type _____

STARTER Make _____ Type _____ Ser.No. _____

HP _____ Volts _____ Phase _____ Cycles _____ Operated by _____

CONTROL Make _____ Type _____ Ser.No. _____ Range _____ to _____ Ft. psi



PUMP HEAD Type Peerless
Discharge Pipe Size 8
Flanged x Threaded _____
Separate Base Plate,? No

COLUMN Pipe Size 8
Flanged _____ Coupled x
Tubing Size _____
Zinc Sleeves _____ Inside _____ Outside
Shaft Size 1-1/2"
~~Stainless~~ Carbon

PUMP BOWL Type RKHC
Diameter 10
No. of Stages 9
Drain Ports Open _____
Impellers - Bronze ~~Stainless~~
Shaft - ~~Stainless~~ Carbon
SUCTION PIPE Size 6"
Length 20'11"
Threads on Bottom? Yes
STRAINER? No Size _____

WELL
Owners Well No. 1.
Layne Well No. _____
Inside Dia. 12 " to 406'8" ft.
then _____ " Dia. to _____ ft.
Total depth from top of the foundation 406'8" ft.
Static Water Level from top of foundation 152'7" ft.
Foundation top above natural ground level 3 ft.
AIR LINE Material 1/4 Pipe XH
Size 1/4 Length 265
GAUGE - Direct Reading Feet
Altitude _____
OILER Essex Electric
Water Lubricated
PUMPING TEST Pumped _____ GPM after _____ hours with pumping level _____ ft. below pump base. Pressure at pump head was _____ lbs.

REMARKS: 205' New Layne Column Complete - 15# HTH

Make report for each new pump set and each time an old pump is repaired. Sign and mail to office.

#1 Well 7/1/58

Layne-Northern Company, Inc.
401 S. DeLorenzi Ave.,
Mishawaka, Indiana

PUMP INSTALLATION REPORT

Date 7/6/ 1958

Layne Pump No. 33260

Sales Order No. L- 9720

OWNER Olds Forge Plant CITY Lansing STATE Michigan

LOCATION OF WELL

MOTOR Make U.S. Type CRU Frame 950 Ser.No. 390807

HP 60 Volts 440/220 Phase 3 Cycles 60 RPM 1800 Solid Hollowshaft

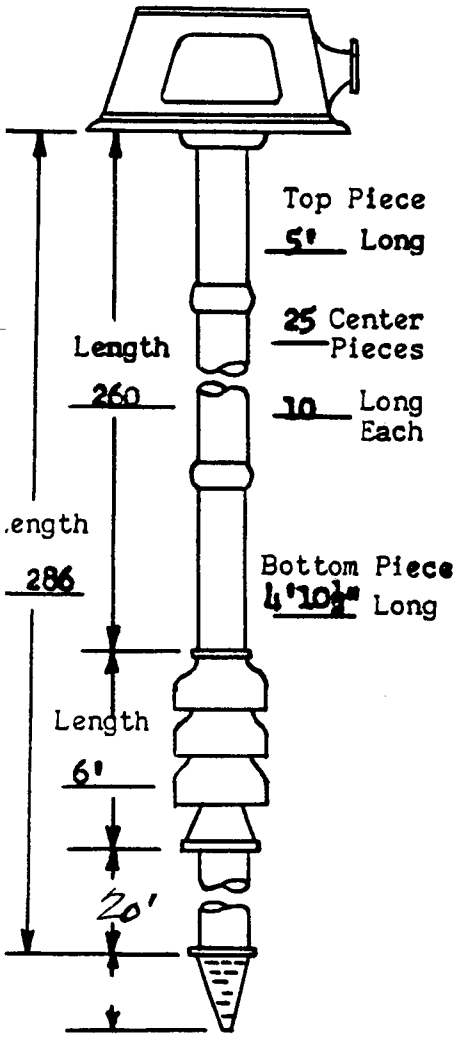
Bearing Nos. Upper Lower

GEAR DRIVE Make Type

STARTER Make Type Ser.No.

HP Volts Phase Cycles Operated by

CONTROL Make Type Ser.No. Range to Ft. psi



PUMP HEAD Type Peerless
Discharge Pipe Size 8"
Flanged x Threaded
Separate Base Plate,? no

COLUMN Pipe Size 8"
Flanged Coupled x
Tubing Size
Zinc Sleeves Inside Outside
Shaft Size 1⅛
Stainless or Carbon

PUMP BOWL Type RKHC
Diameter 10"
No. of Stages 9
Drain Ports Open
Impellers - Bronze or Iron
Shaft - Stainless or Carbon
SUCTION PIPE Size 6"
Length 20'
Threads on Bottom? x
STRAINER? Size

WELL
Owners Well No. Along Saginaw Street
Layne Well No.
Inside Dia. 12" to 401 ft.
then " Dia.to ft.
Total depth from top of the foundation 403 ft.
Static Water Level from top of foundation 126 ft.
Foundation top above natural ground level 2 ft.

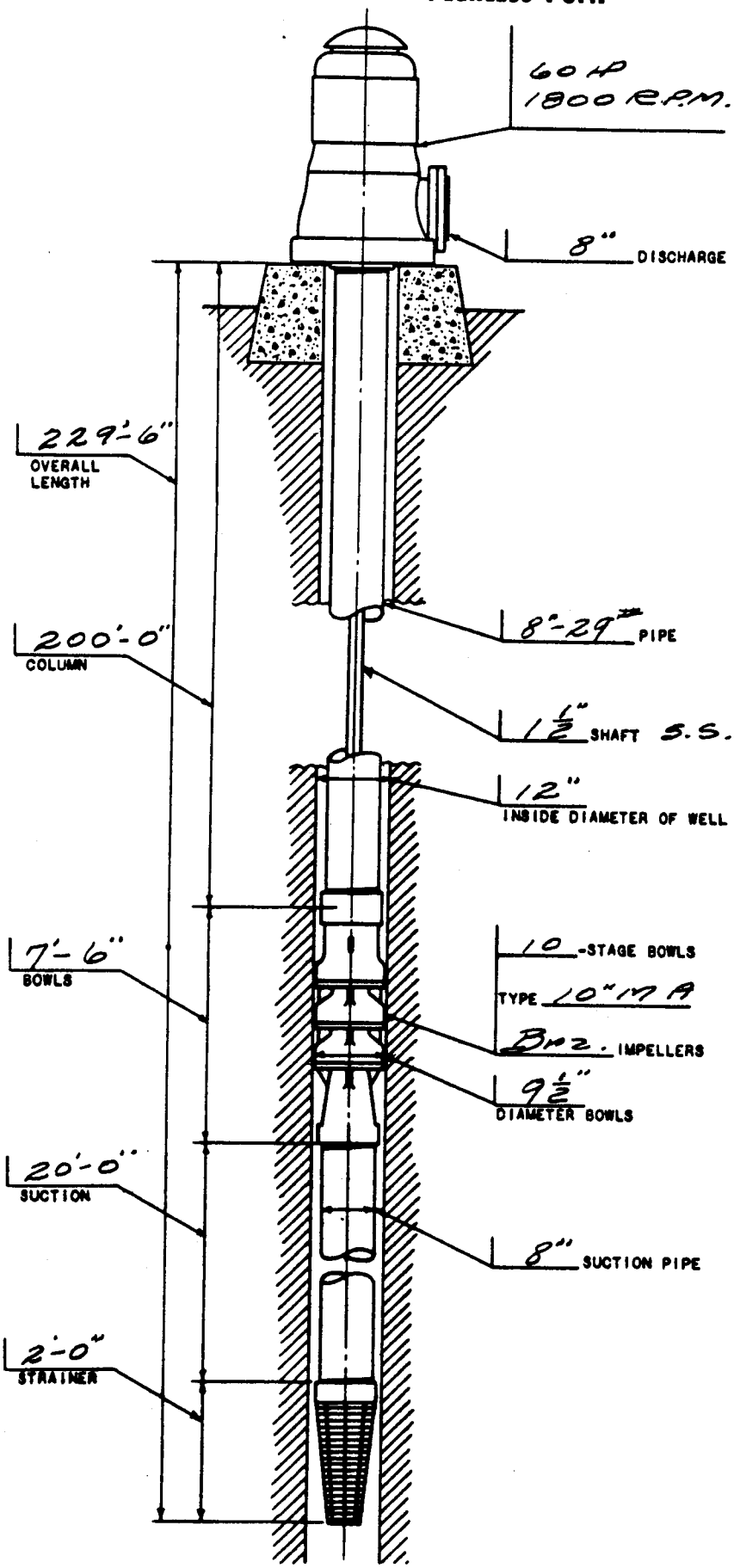
AIR LINE Material Plastic
Size 1/4 Length 260
GAUGE - Direct Reading x
Altitude
OILER Essex Electric
Hand Water Lubricated
PUMPING TEST Pumped GPM after hours with pumping level ft. below pump base. Pressure at pump head was lbs.

REMARKS: Note: Only bowls are Layne, balance of pump is Peerless column. Pump was pulled because of column separation at 200' depth level. Replaced two lengths of column.

Make report for each new pump set and each time an old pump is repaired. Sign and mail to office.

Oldsmobile Div., G.M. Corp.

PEERLESS PUMP



400 G.P.M.

350' TOTAL HEAD

1760 R.P.M.

60 H.P. REQUIRED

PEERLESS PUMP DIVISION

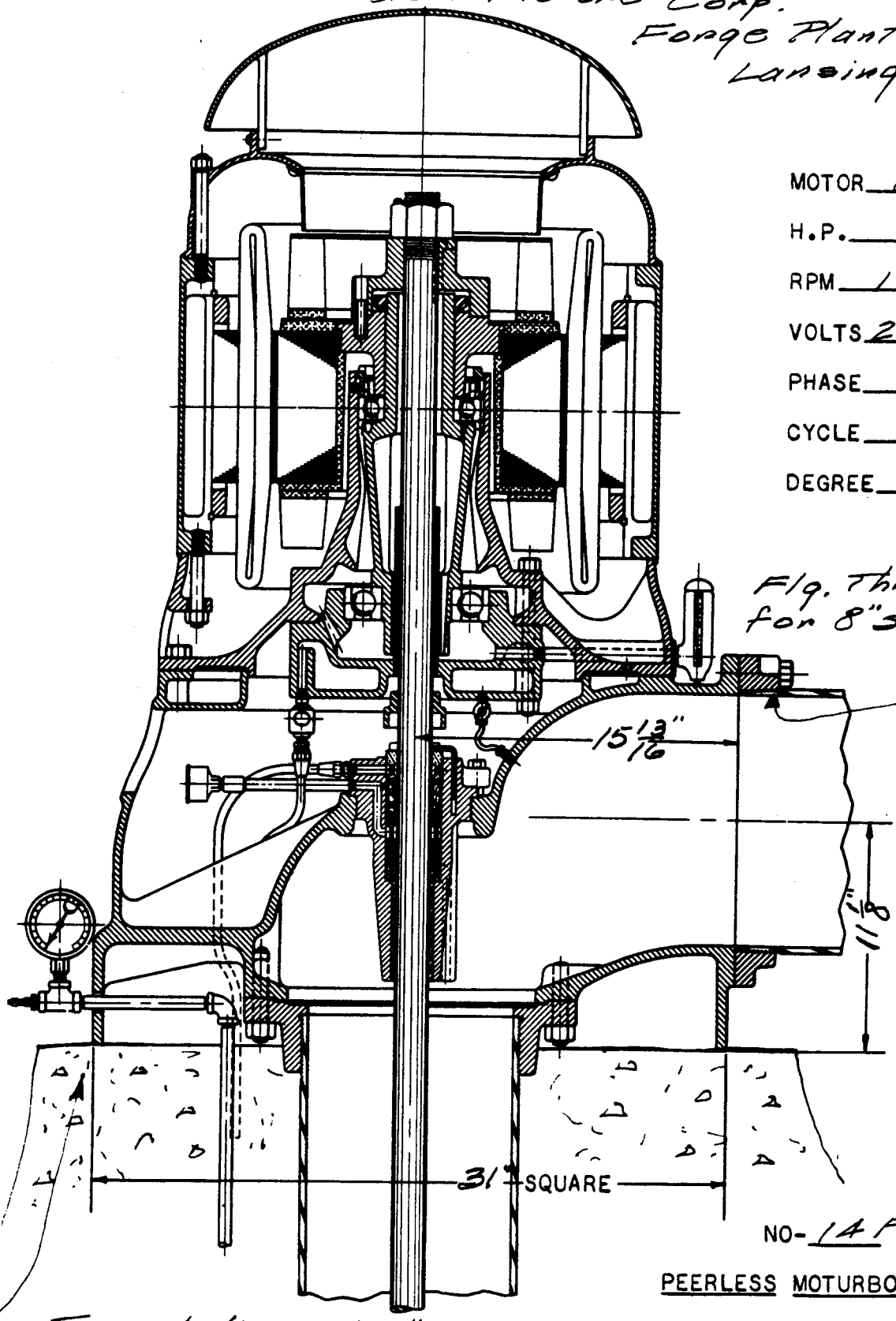
FOOD MACHINERY CORPORATION

Canton ~~MASSILLON~~ OHIO

R-L CO

MS-1430

Oldsmobile Division
Gen Motors Corp.
Forge Plant
Lansing



MOTOR U.S.

H.P. 60

RPM 1800

VOLTS 220-440

PHASE 3

CYCLE 60

DEGREE 40

Flg. Threaded for 8" Steel Pipe

NO-14A

PEERLESS MOTURBO HEAD

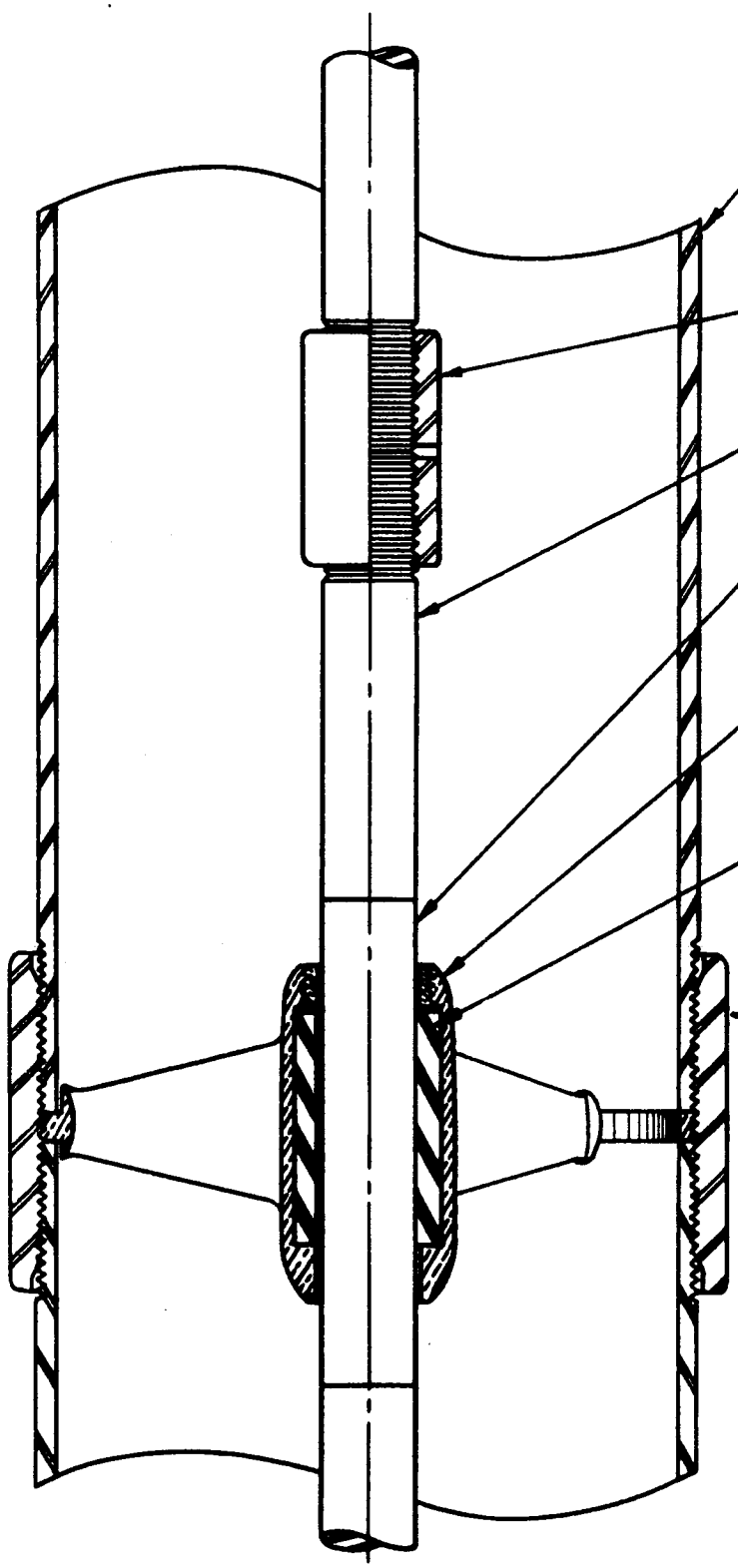
SURFACE DISCHARGE

OPEN LINE SHAFT

Foundation 42" Square

R-L CO

MS-1451



COLUMN PIPE 8"-29#
LENGTHS 10'-0"

SHAFT COUPLING

DRIVE SHAFT S.S.
LENGTHS 10'-0"

STAINLESS SHAFT SLEEVE
(FLUSH TYPE)

BRONZE BEARING SPIDER

CUTLESS RUBBER BEARING
SPACED EACH 10 FEET

COLUMN PIPE COUPLING

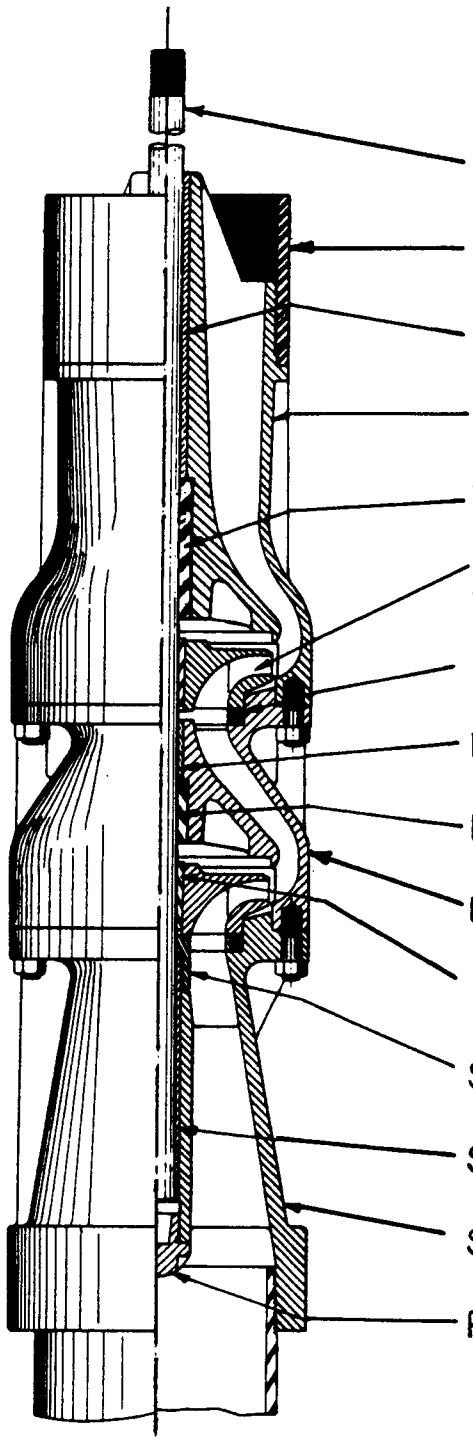
PEERLESS PUMP COLUMN

SCREWED COUPLINGS

OPEN LINE SHAFT

R-L CO

MS-1452A



STAINLESS STEEL SHAFT

COLUMN PIPE COUPLING

TOP BOWL BUSHING

TOP BOWL

TOP BOWL RUBBER BEARING

Bronze IMPELLER

LATERAL SEAL RING

BOWL BUSHING

BOWL RUBBER BEARING

BOWL

IMPELLER LOCK

SAND COLLAR

SUCTION MANIFOLD BUSHING

SUCTION MANIFOLD

PLUG

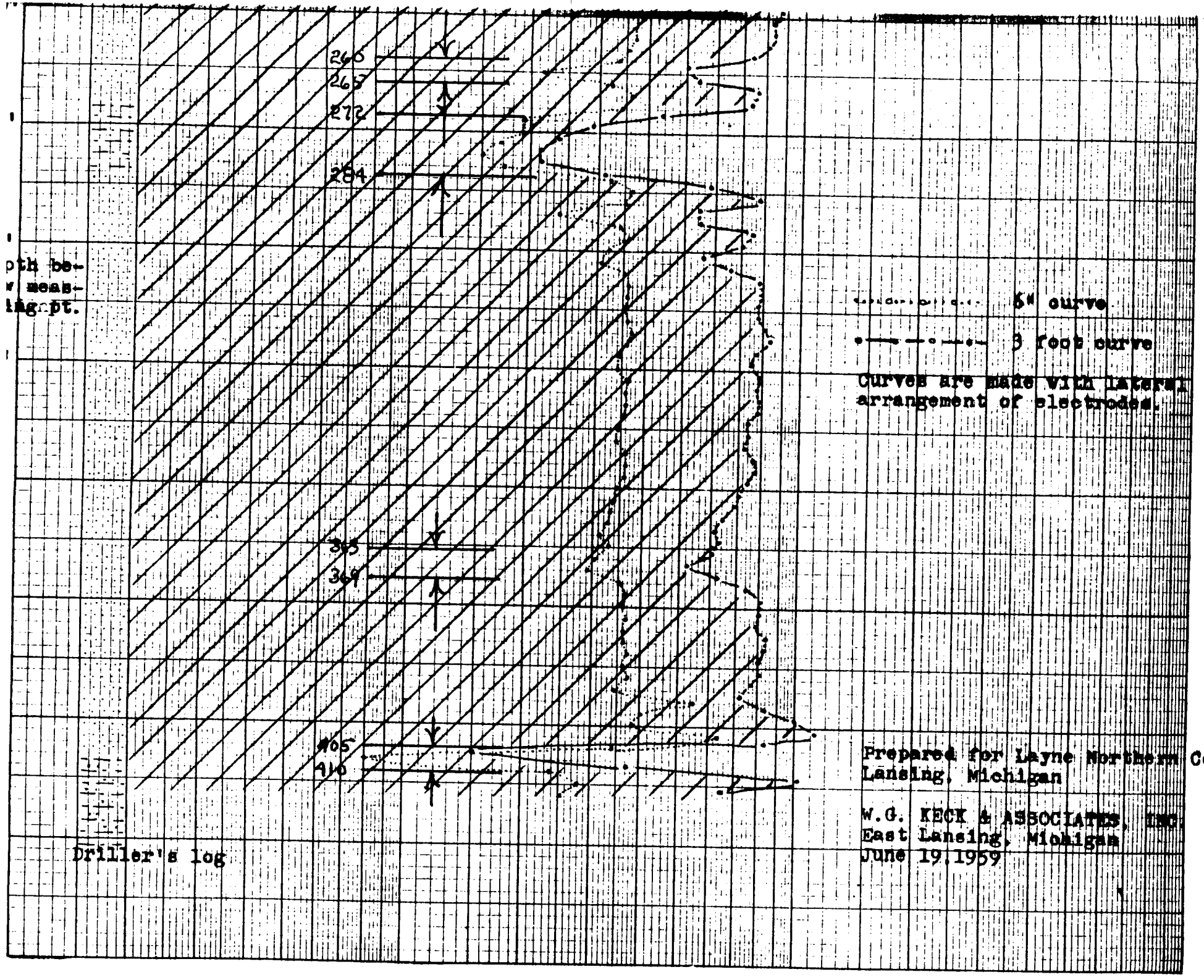
10 STAGE-TYPE 10" MA

PEERLESS PUMP BOWLS

OPEN LINE SHAFT

R-L CO

MS-1453


260
265
272
284
305
349
405
410
16" curve
3 foot curve
Curves are made with lateral arrangement of electrodes.
Prepared for Layne Northern Co
Lansing, Michigan
W.G. KECK & ASSOCIATES, INC.
East Lansing, Michigan
June 19,1959
Driller's log

2 W E L L

Location - Building #221, Rosemary at Genesee
Installed - 3-3-44
Hole #3 - Total depth - 425 ft.
Casing 82 ft. of 12" pipe
Static Water Level - 50 ft.
Pumping level - 165 ft.
Pump Data: Peerless - 10 stage bowls - type MA, all bronze, bronze impellers, 10" diameter
Motor - 60 HP, 1800 RPM, 440 volt, 3 phase
Pumping Test - 575 GPM - 350' total head
Pump Length - 200'-0" Column
6'-0" Bowls
20'-0" Suction
226'-0" Total
2'-0" Strainer

Work performed on Pump and Well:

Job	Description	Date	Contractor
F44-210	20 ft. of column added	2-23-44	Ohio Drilling
F46-138	Relocate #2 pump, bring back pump from Fisher Body #4 well	10-29-46	
F59-106	Run step drawdown test on #2 well	3- 3-59	
F60-108	Dynamite #2 well (1) 10' line shaft (2) 1½" line couplings	3-17-60	
F62-117	Pumping test #2 well	5-14-62	
F63-114	Repair #2 pump 1 bottom line shaft 21-10' lengths of line shaft 1 head shaft 22 rubber bearings 3 line shaft couplings 280 ft. of plastic air line 170 ft. of plastic air line 5-10 ft. lengths of column added	7-29-63	

9-9-64 - Layne Northern statement 297'-6" including 20'-0" suction, figures 228'-0" + 20'-0" + 50'-0" = 298'-0" including 20'-0" suction

M-9-41-KBCo.

THE OHIO DRILLING CO.

INCORPORATED

MASSILLON, OHIO

Well # 2

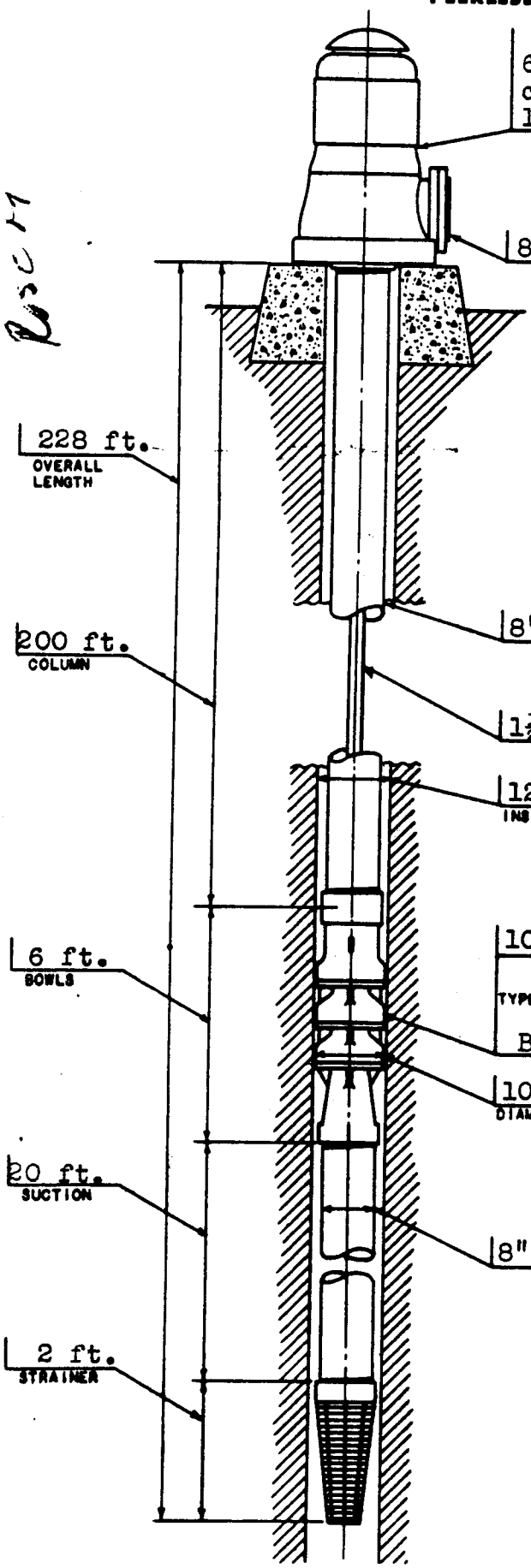
DRILLED FOR Oldsmobile Division, General Motors Corporation, Lansing, Michigan HOLE NO. 3 - 12" Well

DRILLED BY The Ohio Drilling Company Massillon, Ohio DRILLER COMPLETED March 3, 19 44

LOCATION In southwest corner of property

THICKNESS OF STRATA	STRATA	TOTAL DEPTH	HEAVED	WATER FROM SURFACE
60 ft.	Drift	60 ft.		
8 ft.	Sandrock	68 ft.		
12 ft.	Soft Shale	80 ft.		
15 ft.	Sandrock & shale	95 ft.		
90 ft.	Sandrock	185 ft.		50 ft.
5 ft.	Limeshell	190 ft.		50 ft.
90 ft.	Sandrock	280 ft.		50 ft.
7 ft.	Shale	287 ft.		50 ft.
123 ft.	Sandrock	410 ft.		50 ft.
15 ft.	Shale	425 ft.		50 ft.
	Total depth - 425 ft.			
	Well cased with 82 ft. of 12"-51 lb. steel drive pipe			
	threaded and coupled, with steel drive shoe on bottom.			
	Static Water Level - 50 ft.			
	Pumped well at 500 GPM for 10 hours at 500 GPM at pumping level			
	of 165 ft.			

PEERLESS PUMP



60 HP, 220/440 volt, 3 phase, 60 cycle, 1800 RPM, U. S. Motor on 14-A Pump Head.

Oldsmobile Division
General Motors Corp.
Lansing, Michigan

8" Std. DISCHARGE

575 G.P.M.

350 ft. TOTAL HEAD

1760 R.P.M.

65.5 H.P.REQUIRED

8"-29 lb PIPE

Pump No. 21413

$1\frac{1}{2}$"SS SHAFT

This is pump installed in No. 3 Well

12" INSIDE DIAMETER OF WELL

Length of 1/4" copper airline is 202 ft.

Pump installed May, 1944.

10 -STAGE BOWLS

TYPE MA - All Bronze

Bronze IMPELLERS

10" DIAMETER BOWLS

8"-29# SUCTION PIPE

PEERLESS PUMP DIVISION
FOOD MACHINERY CORPORATION
MASSILLON OHIO

R-L CO

MS-1430

60 H.P 220/440 Volt
3 phase, 60 cycle, 1800 R.P.M.
U.S. Motor on 14-A Pump Head.
500 G.P.M.

HOLE NO. 2-12"

60 HP, 220/440 Volt
3 phase, 60 cycle, 1800 R.P.M.,
U.S. Motor on 14-A Pump Head.
575 G.P.M.
350 ft. Total head.
1760 R.P.M.
65.5 H.P. Required.
8" Standard Discharge

12"-51 lbs. Steel Drive pipe.
70' Drift.
8"-29 lb. pipe.
Overall Length 228'.
1½" S.S. Shaft.
8' Shale.
6' Sandrock.
40' Shale and Sandrock.
12" Inside diam. of well.
22' Shale.
200' Column.
129' Sandrock.
6' Bowls
20' Suction
2' Strainer.
8 stage bowls type MA-all bronze. Bronze Impellers. 10" diam. bowls.
8"-29 lb. Suction pipe.
3' Brown Lime.
40' Lime & Shale.
102' Sand rock.
7' Shale.

HOLE NO. 3-12"

60HP, 220/440 Volt
3 phase, 60 cycle, 1800 R.P.M.
U.S. Motor on 14-A Pump Head
575 G.P.M
350 ft. Total head.
1760 R.P.M.
65.5 H.P. Required.
8" Standard Discharge.

12"-51 lbs. Steel Drive pipe.
60' Drift.
8"-29 lb. pipe.
1½" S.S. Shaft.
8' Sandrock.
12' Soft Shale.
15' Sandrock and Shale.
12" Inside diam. of well.
90' Sandrock.
5' Limeshell.
10 stage bowls type MA. all bronze. Bronze Impell'r
90' Sandrock.
8"-29 lb. Suction pipe.
7' Shale.
123' Sandrock.
15' Shale.

3 W E L L

Location - Building #222
Installed - 6-18-41
Hole #1 - Total Depth - 425 ft.
Casing 80 ft. of 14" pipe
Static Water Level - 48 ft.
Pumping Level - 189 ft.

Pump Data:

Motor - 60 HP, 1760 RPM, 440 volt, 3 phase
Pumping Tests - 530 GPM - 189 ft. level, 330' total head
Pump length - 180'-0" Column
7'-0" Bowls
20'-0" Suction
207'-0" Total
2'-0" Strainer

Work performed on Pump and Well

Job	Description	Date	Contractor
F44-210	40 ft. of column added	2-23-44	Ohio Drilling
F55-177	40 ft. of column added New 9-stage 10RKHC Layne Pump Bowl 23 new rubber bearings 20 ft. of new suction 6" pipe 30 ft. of column replaced by 35 ft.	8-30-55	Layne Northern
F59-106	Step drawdown pumping test	3-3-59	
F59-126	Pull pump, run electric log-dynamite well	5-15-59	
F63-109	Repair #3 well pump Replace motor guide bearing	5-23-63	

9-9-64 Layne Northern statement - 292'-0" with 20 ft. suction. figures 207 + 40 + 40 + 5 = 292'-0" with 20 ft. suction

F63-109 Top motor shaft metalized

227 W. EDWARDS AVENUE
INDIANAPOLIS 27, INDIANA
PHONES: 784-4597, 784-5980

LAYNE-NORTHERN CO., INC.
P. O. BOX 299 – MISHAWAKA, INDIANA
PHONE: 259-5234

2000 N. TURNER STREET
LANSING 5, MICHIGAN
PHONES: 484-0929, 484-2971

To Mr. C. M. Wygant Subject _____

_____ Order No. _____ Pump No. _____

Attached is your copy of Pump Installers Report on Layne Pump 33260.

Date 6-22-65 From Layne Northern Co. J. Stahl

10M

W. G. KECK & ASSOCIATES, INC.
CONSULTANTS IN GEOPHYSICS
BOX 107
EAST LANSING, MICHIGAN

June 19, 1959

SPECIALISTS
GROUNDWATER
INSTRUMENTATION
RESEARCH

OFFICES
OKEMOS P.O. BLDG.
TEL ED 7-1420

Mr Ervin Stahl
Layne Northern Company, Inc.
2000 Turner Street
Lansing, Michigan

Subject: Electrical log of well #3, Forge Plant, Oldsmobile Div., G.M.C., Lansing, Mich.

Layne Northern , as part of a rejuvenation program on well #3, has made an electrical log of the well bore. The log in turn has been submitted to us for analysis and interpretation.

The purpose of the electrical log is to guide the dynamiting of the well's bore so that shale zones can be avoided. By not "shooting" the shale clean out time might be reduced and the overall restoration of production may be improved. While it is true that a driller's log is available on the well it will be shown later that he was unable to detect all the shaly zones penetrated. This should not cast reflection on the driller since in the drilling operation it is very difficult to detect some of the very thin shale beds.

The electrical log is ably suited to differentiate between shale and sandstone because of the response these materials have to the flow of electrical current. Specifically each of these materials will exhibit a characteristic range of resistivity values. Sandstone will be high resistive, ranging from 500- 1500 ohm-feet and shale will be low resistive, ranging from 20-250 ohm-feet. The values quoted are for

water saturated materials containing water within the chemical range of potability. Mixtures of the materials will of course have intermediate values. It follows that by making a graph of the electrical resistivity up the bore of a well the shale and sandstone should be quite easily differentiated. Such a graph has been made on well #3 and is included at the end of this report. The resistivity, in ohm-feet, is plotted on the horizontal coordinate and the depth, below the top of the well casing, is plotted on the vertical coordinate. Additionally a columnar section, prepared from the driller's log, is included on the margin of the electrical log.

Examination of the electrical log shows the material to be predominantly sandstone except for five relatively thin shale zones. These shale zones, which we have marked with red pencil on the graph, are of course the zones to be avoided in your dynamiting operation. The depths of the shale breaks are;

132-142 feet	363-369 feet
260-265 feet	405-410 feet
272-284 feet	

Since the driller indicated the material to be strippy below 405 feet we would not recommend shooting below this level. We have not located the bottom of the casing with the electrical log because the static water level was at about 112 feet, which is below the casing. The driller reported the first rock at 67 feet and so this is most likely the depth of the bottom of the casing. There of course would be no point in shooting above the water table, in fact the driller's log indicates shale from 105-114 feet so you should not plan on working above 114 feet.

In summary we may say there is good agreement between the electrical log and drillers log. The only exceptions are the thin shale breaks from 260-265 and 363-369 feet were not detected in the drilling operation. Additionally the driller did not log the full thickness of the shale zone between 132-142 feet. Hence the electrical log has provided new, and very useful, information on the well.

Respectfully submitted,

W.G. KECK & ASSOCIATES, INC.

Charles J. Linck

Charles J. Linck

copies furn (4)

K+E SEMI-LOGARITHMIC 359-71LG
KEUFFEL & ESSER CO. MADE IN U.S.A.
3 CYCLES X 150 DIVISIONS

ELECTRICAL LOG OF PERMANENT WELL #3, 14" ROCK WELL (Bldg. #222)
for
OLDSMOBILE DIVISION- GENERAL MOTORS CORPORATION
FORGE PLANT, LANSING, MICHIGAN

Resistivity in ohm-feet

30 100 300 1000

72"

14"

Location:
1575 ft south of W. Saginaw
235 ft east of C Hathaway
Street extended.
NE¼, Sec. 18, T4N, R2W

Logged by Layne Northern Co.

Measurements are from the top of the well casing.

Top of casing is about 2 feet above general ground level.

Ingham County Health Department
P.O. Box 30161
Lansing, Michigan 48909
Phone: (517) 887-4312
Fax: (517) 887-4560

FAX COVER SHEET

FAX NUMBER TRANSMITTED TO: 810 - 229 8837

To: Lena Ciccelli
Of:
From: B. Marvin
Date: 2/15/08

DOCUMENTS	NUMBER OF PAGES* 4
reply letter	1
info	3

COMMENTS:

* NOT COUNTING COVER SHEET. IF YOU DO NOT RECEIVE ALL PAGES, PLEASE TELEPHONE US IMMEDIATELY AT ~~(517) 887-4342~~.

Dean G. Sienko, M.D., M.S., Health Officer, Medical Director

ingham county health department

Environmental Health
Telephone: (517) 887-4312

February 15, 2008

Lena Cicchelli
ARCADIS
FAX # 810-229-8837

RE Freedom of Information Act ("FOIA") Request #R-2243-08

Dear Ms. Cicchelli,

This is in response to your Freedom of Information Act (FOIA) request received in this office on February 13,2008, by fax. Your request was all and any information for:

General Motors – 920 Townsend Street
2801 West Saginaw Street
2800 West Saginaw Street
401 N Verlinden Street

To the extent the documents exist, your request is granted.

Sincerely,

Pat Marrison

Pat Marrison
Community Health Rep. III
Bureau of Environmental Health

Enclosures

cc: Ingham County Controller
Cohl, Stoker & Toskey & McGlinchey

Single-Page Report

ABANDONED WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Well ID: 33000007641

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000007641

Elevation: 860 ft
Latitude: 42.74109239
Longitude: -84.58756053

Fraction:	Section:	Town/Range:	WSSN:	Source ID/Well No:
NE¼ NE¼ NE¼	18	04N 02W		

Distance and Direction from Road Intersection: Bldg 220 GM Lansing Craft Center

Well Owner: Ron Mccarty / Gm Plant #2

Well Address:
2801 W. Saginaw
Lansing MI 48915

Owner Address:
920 Townsend / Mail Stop 489-002-008
Lansing MI 48921

Drilling Method: Unknown

Date of Well Plugging: 11/14/1997

Well Use: Type I public

Well Construction Type: Unknown

Date Well Constructed:

Casing Type: Steel - black
Diameter: 12.00 in. to 80.00 ft. depth

Note: Cutting Casing off 4 feet below grade is recommended.

Measured Well Depth: 393.00 ft.

Casing Status After Plugging: 2.00 ft. Above Grade
Reason for Abandoning Well: Public water connection
Abandonment Method: Pumped through grout pipe
Active Well Id:

Pumping Equipment Removed: Yes
Equipment Removed: Drop pipe, Other

Reference Point:
Direction: **Distance:**

Plugging Material	From(ft)	To(ft)	Quantity	Quantity Unit
Neat cement	0.00	393.00	980.00	Bags

Plugging Remarks:

Note:Plugging from well bottom up to ground surface is required

Certification: Water well drilling contractor
Registration Number: 1997
Registered Contractor: Lawrence Wright

Business Name: Layne Northern
Address: 3126 N. MLK Blvd, Lansing, MI 48906

General Remarks:
Equipment Removed: pump

WATER WELL CONTRACTOR'S CERTIFICATION:

This well was plugged under my supervision and this report is true to the best of my knowledge and belief

Signature of Registered Contractor **Date**

EQP 2044C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

7/31/2000 13:39

Single-Page Report

ABANDONED WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Well ID: 33000007640

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000007640

Elevation: 860 ft

Latitude: 42.74109239

Longitude: -84.58756053

Fraction:	Section:	Town/Range:	WSSN:	Source ID/Well No:
NE¼ NE¼ NE¼	18	04N 02W		

Distance and Direction from Road Intersection: Bldg 221 GM Lansing Craft Center

Well Owner: Ron Mccarty / Gm Plant #2

Well Address:
2801 W. Saginaw
Lansing MI 48915

Owner Address:
920 Townsend / Mail Stop 489-002-008
Lansing MI 48921

Drilling Method: Unknown

Date of Well Plugging: 11/14/1997

Well Use: Type I public

Well Construction Type: Unknown

Date Well Constructed:

Casing Type: Steel - black
Diameter: 12.00 in. to 82.00 ft. depth

Note: Cutting Casing off 4 feet below grade is recommended.

Measured Well Depth: 398.00 ft.

Casing Status After Plugging: 2.00 ft. Above Grade
Reason for Abandoning Well: Public water connection
Abandonment Method: Poured through grout pipe
Active Well Id:

Pumping Equipment Removed: Yes
Equipment Removed: Drop pipe, Other

Reference Point:
Direction: **Distance:**

Plugging Material	From(ft)	To(ft)	Quantity	Quantity Unit
Neat cement	0.00	398.00	1,163.00	Bags

Plugging Remarks:

Note:Plugging from well bottom up to ground surface is required

Certification: Water well drilling contractor
Registration Number: 1997
Registered Contractor: Lawrence Wright

Business Name: Layne Northern
Address: 3126 N. MLK Jr Blvd, Lansing, MI 48906

General Remarks:
Equipment Removed: pump

WATER WELL CONTRACTOR'S CERTIFICATION:

This well was plugged under my supervision and this report is true to the best of my knowledge and belief

Signature of Registered Contractor **Date**

EQP 2044C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

7/31/2000 13:33

Single-Page Report

ABANDONED WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Well ID: 33000007639

Tax No:	Permit No:	County: Ingham	Township: Lansing

Well ID: 33000007639

Elevation: 860 ft
Latitude: 42.74109239
Longitude: -84.58756053

Fraction:	Section:	Town/Range:	WSSN:	Source ID/Well No:
NE¼ NE¼ NE¼	18	04N 02W		

Distance and Direction from Road Intersection: Bldg 222 GM Lansing Craft Center

Well Owner: Ron Mccarty/ Gm Plant # 2

Well Address:
2801 W. Saginaw
Lansing MI 48915

Owner Address:
920 Townsend / Mail Stop 489-002-008
Lansing MI 48921

Drilling Method: Unknown

Date of Well Plugging: 11/14/1997

Well Use: Type I public

Well Construction Type: Unknown

Date Well Constructed:

Casing Type: Steel - black
Diameter: 10.00 in. to 80.00 ft. depth

Note: Cutting Casing off 4 feet below grade is recommended.

Measured Well Depth: 293.00 ft.

Casing Status After Plugging: 0.10 ft. Above Grade
Reason for Abandoning Well: Public water connection
Abandonment Method: Poured through grout pipe
Active Well Id:

Pumping Equipment Removed: Yes
Equipment Removed: Drop pipe, Other

Reference Point:
Direction: **Distance:**

Plugging Material	From(ft)	To(ft)	Quantity	Quantity Unit
Neat cement	0.00	293.00	984.00	Bags

Plugging Remarks:

Note:Plugging from well bottom up to ground surface is required

Certification: Water well drilling contractor
Registration Number: 1997
Registered Contractor: Lawrence Wright

Business Name: Layne Northern
Address: 3126 N. MLK Jr. Blvd. Lansing, MI 48906

General Remarks:
Equipment Removed: pump

WATER WELL CONTRACTOR'S CERTIFICATION:

This well was plugged under my supervision and this report is true to the best of my knowledge and belief

Signature of Registered Contractor **Date**

EQP 2044C (2/2000)

ATTENTION WELL OWNER: FILE WITH DEED

7/31/2000 13:29

P.

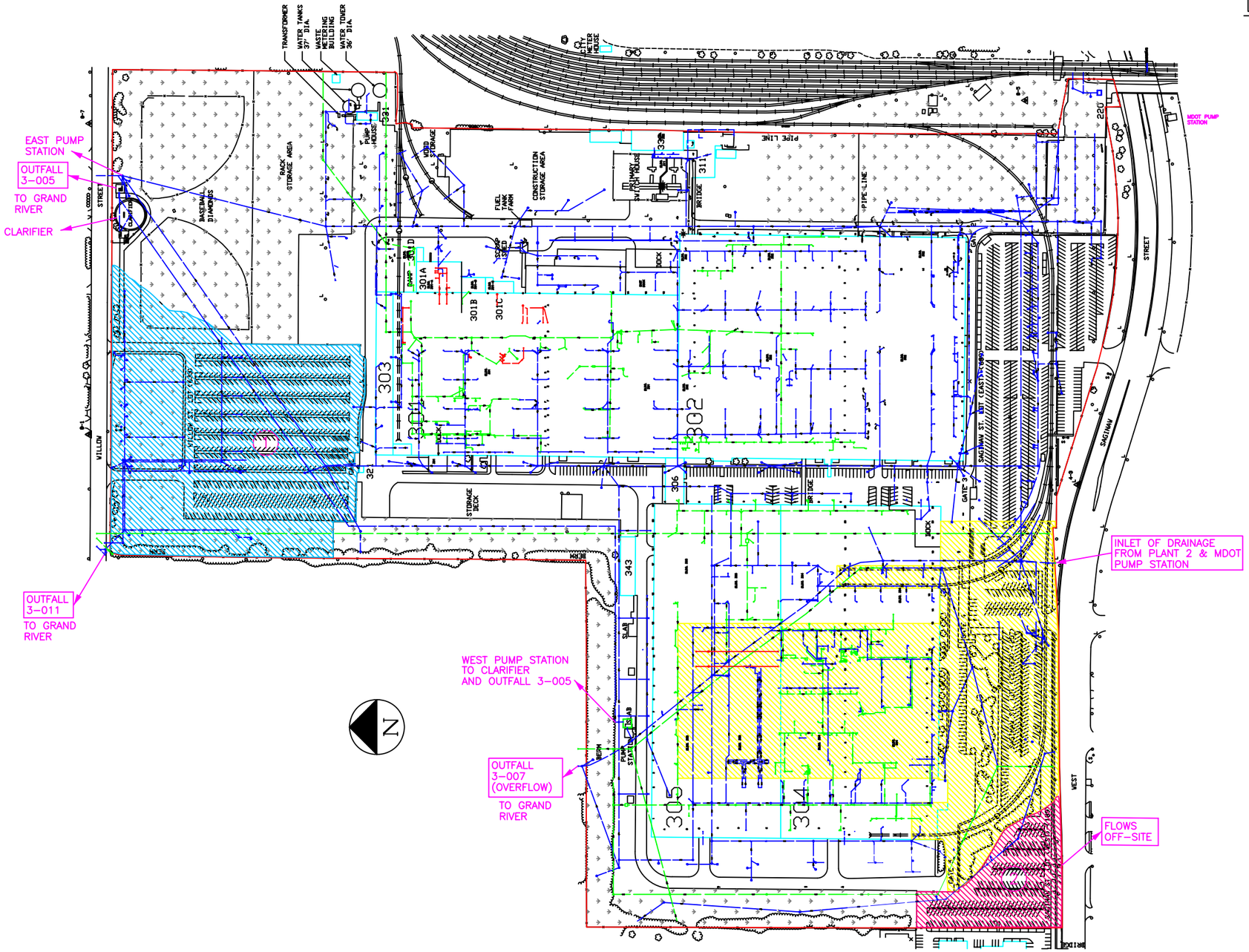
ARCADIS

Appendix F

Plants 2, 3 and 6 Storm Water Flow Maps

ARCADIS

Plant 2 Storm Water Flow Map to be provided at a later date



LEGEND

- AREA OF VEGETATION (ALL OTHER AREAS IMPERVIOUS)
- AREA COVERED UNDER EXISTING NPDES PERMIT NO. M10001554 (DRAINAGE AREA 1)
- AREA COVERED UNDER EXISTING NPDES PERMIT NO. MI0001554 (DRAINAGE AREA 2)
- AREA COVERED UNDER GENERAL STORMWATER PERMIT (DRAINAGE AREA 3)
- AREA COVERED UNDER GENERAL STORMWATER PERMIT (DRAINAGE AREA 4)
- PROPERTY LINE
- SANITARY LINE
- STORM LINE
- PROCESS LINE
- (1) NORTHWEST EMPLOYEE PARKING LOT
- (2) SOUTHWEST EMPLOYEE PARKING LOT

3131 South State Street
Ann Arbor MI 48108

DESIGNED HAM	CHECKED TJK
SCALE 1"=300'	CADD DATE 10-1-96 SMJ
PART O:/MS/0011/0860/PL/SITES.DWG	

LET.	CHANGE	BY	BAY	DATE	W.O.R.

REVISIONS

GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

LANSING METAL FABRICATION (PLANT 3) PLANT ENGINEERING

LANSING METAL FABRICATION (PLANT 3)

SHOP ORDER NO.	WORK ORDER NO.	DRAWING NUMBER
DRAWN BY	DATE	
AP'V'D BY	SCALE	

SHEET NO. OF

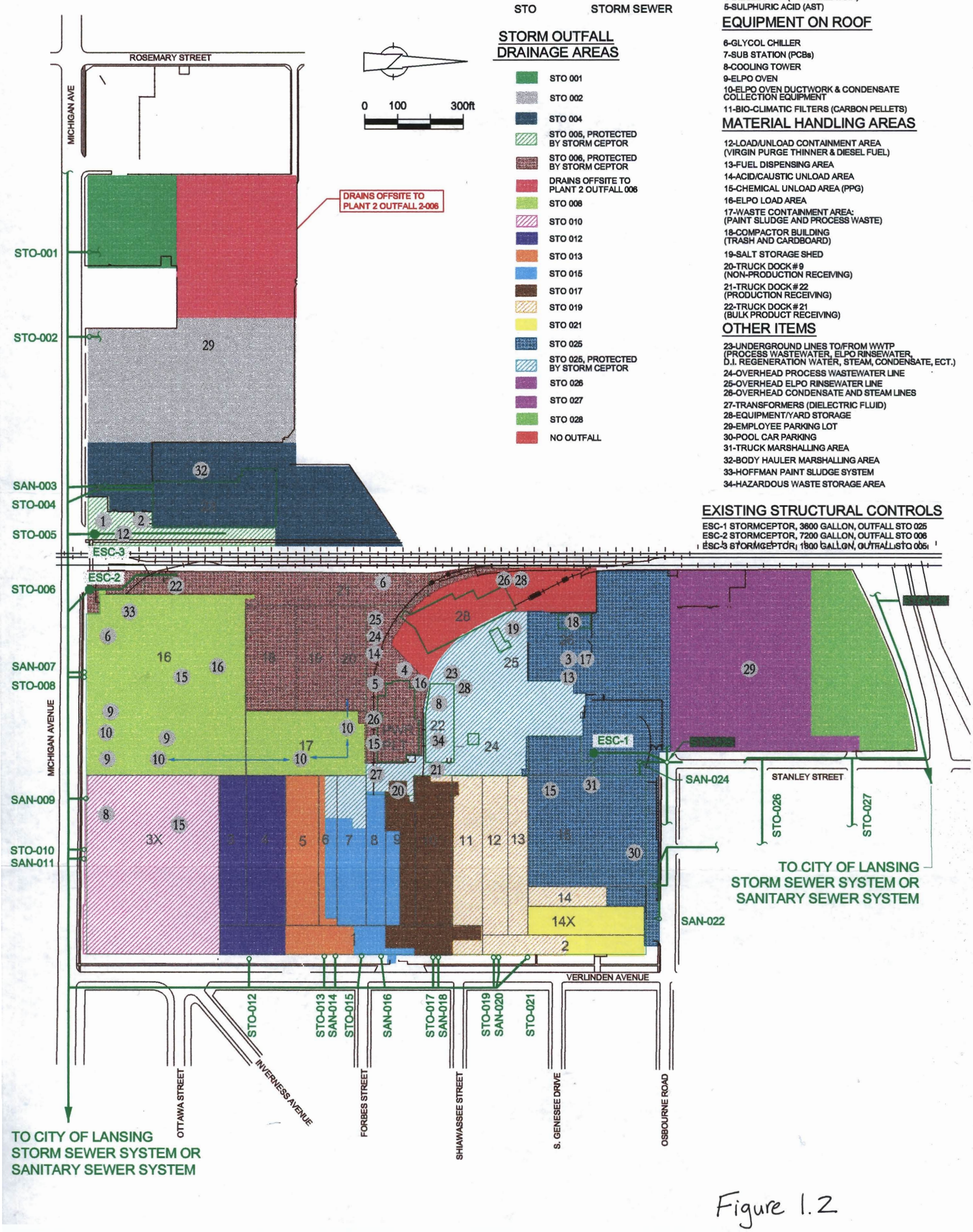

LEGEND
STORM CEPTORS
SAN SANITARY SEWER
STO STORM SEWER
STORM OUTFALL DRAINAGE AREAS
STO 001
STO 002
STO 004
STO 005, PROTECTED BY STORM CEPTOR
STO 006, PROTECTED BY STORM CEPTOR
DRAINS OFFSITE TO PLANT 2 OUTFALL 006
STO 008
STO 010
STO 012
STO 013
STO 015
STO 017
STO 019
STO 021
STO 025
STO 025, PROTECTED BY STORM CEPTOR
STO 026
STO 027
STO 028
NO OUTFALL
STORAGE TANKS
1-VIRGIN PURGE THINNER (UST)
2-DIESEL FUEL (UST)
3-UNLEADED GASOLINE AST
4-DIESEL FUEL (PORTABLE TANK)
5-SULPHURIC ACID (AST)
EQUIPMENT ON ROOF
6-GLYCOL CHILLER
7-SUB STATION (PCBs)
8-COOLING TOWER
9-ELPO OVEN
10-ELPO OVEN DUCTWORK & CONDENSATE COLLECTION EQUIPMENT
11-BIO-CLIMATIC FILTERS (CARBON PELLETS)
MATERIAL HANDLING AREAS
12-LOAD/UNLOAD CONTAINMENT AREA (VIRGIN PURGE THINNER & DIESEL FUEL)
13-FUEL DISPENSING AREA
14-ACID/CAUSTIC UNLOAD AREA
15-CHEMICAL UNLOAD AREA (PPG)
16-ELPO LOAD AREA
17-WASTE CONTAINMENT AREA: (PAINT SLUDGE AND PROCESS WASTE)
18-COMPACTOR BUILDING (TRASH AND CARDBOARD)
19-SALT STORAGE SHED
20-TRUCK DOCK #9 (NON-PRODUCTION RECEIVING)
21-TRUCK DOCK #22 (PRODUCTION RECEIVING)
22-TRUCK DOCK #21 (BULK PRODUCT RECEIVING)
OTHER ITEMS
23-UNDERGROUND LINES TO/FROM WWTP (PROCESS WASTEWATER, ELPO RINSEWATER, D.I. REGENERATION WATER, STEAM, CONDENSATE, ECT.)
24-OVERHEAD PROCESS WASTEWATER LINE
25-OVERHEAD ELPO RINSEWATER LINE
26-OVERHEAD CONDENSATE AND STEAM LINES
27-TRANSFORMERS (DIELECTRIC FLUID)
28-EQUIPMENT/YARD STORAGE
29-EMPLOYEE PARKING LOT
30-POOL CAR PARKING
31-TRUCK MARSHALLING AREA
32-BODY HAULER MARSHALLING AREA
33-HOFFMAN PAINT SLUDGE SYSTEM
34-HAZARDOUS WASTE STORAGE AREA
EXISTING STRUCTURAL CONTROLS
ESC-1 STORMCEPTOR, 3600 GALLON, OUTFALL STO 025
ESC-2 STORMCEPTOR, 7200 GALLON, OUTFALL STO 006
ESC-3 STORMCEPTOR, 1800 GALLON, OUTFALL STO 005
0 100 300ft
ROSEMARY STREET
MICHIGAN AVE
DRAINS OFFSITE TO PLANT 2 OUTFALL 2-006
STO-001
STO-002
SAN-003
STO-004
STO-005
ESC-3
ESC-2
STO-006
SAN-007
STO-008
MICHIGAN AVENUE
SAN-009
STO-010
SAN-011
ESC-1
SAN-024
STANLEY STREET
STO-026
STO-027
SAN-022
TO CITY OF LANSING STORM SEWER SYSTEM OR SANITARY SEWER SYSTEM
VERLINDEN AVENUE
STO-012
STO-013
SAN-014
STO-015
SAN-016
STO-017
SAN-018
STO-019
SAN-020
STO-021
OTTAWA STREET
INVERNESS AVENUE
FORBES STREET
SHIAWASSEE STREET
S. GENESEE DRIVE
OSBOURNE ROAD
TO CITY OF LANSING STORM SEWER SYSTEM OR SANITARY SEWER SYSTEM

Figure 1.2

ARCADIS

Appendix G

AOI and Miscellaneous Item Visual Inspection Forms and Pictures

AOI Visual Inspection Forms

ARCADIS BBL Visual Inspections

Area of Interest Visual Inspection Form

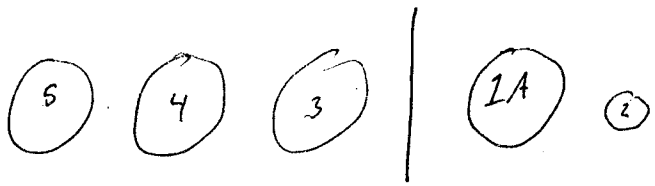
Data and Time	4/13/07 0900
Inspector	Anna H. Ben
AOI Number	2-4 + 2-67
AOI Description	AST Farm
AOI Location	
AOI Condition	Secondary containment in good condition. No evidence of cracking

Photo Log

Photo Number	Photo Description	Direction Facing
20	Views of ~~west~~ north side of AST Farm	E
21	View of south side of AST Farm	E
22	N. Side Secondary containment	N
23	S. Side Secondary containment	NE

AOI Sketch

Tank #2 : 6000-gal Unleaded gas. } South side
Tank 2A : 15,000-gal Used oil }
Tank #3 : 6000-gal Anti-freeze/coolant
Tank #4 : 6000-gal Transmission fluid/combustible liquid
Tank #5 : 6000-gal "idle"





Photograph 20: AOI 2-4 & 2-67. View of north side ASTs, facing east.



Photograph 21: AOI 2-4 & 2-67. View of south side ASTs, facing east.



Photograph 22: AOI 2-4 and 2-67. View of secondary containment of north side ASTs, facing north.



Photograph 23: AOI 2-4 & 2-67. View of secondary containment of south side ASTs, facing northeast.

Miscellaneous Item Visual Inspection Forms

ARCADIS BBL Visual Inspections

Area of Interest Visual Inspection Form

Data and Time	4/12/07 0750
Inspector	Jim H. Anna H. Ben
AOI Number	3-18
AOI Description	Drum Storage
AOI Location	302 N8-9 N7-8

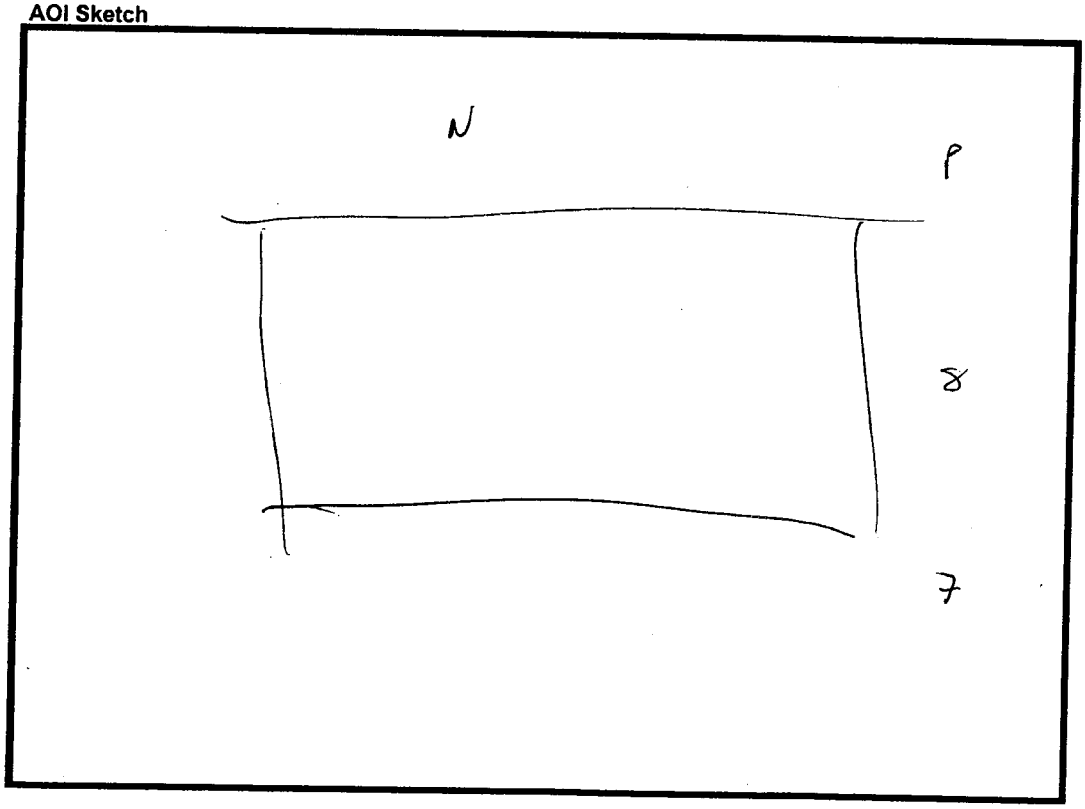
AOI Condition

- Cracks present
- Concrete repairing present

Photo Log

Photo Number	Photo Description	Direction Facing
1	Patched Concrete	S
2	Drum	W

AOI Sketch



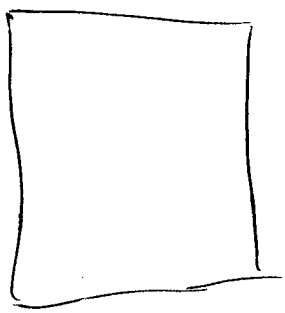
Area of Interest Visual Inspection Form

Data and Time	4/12/07 0915
Inspector	Anne H Jim H Ben
AOI Number	3-26
AOI Description	Repair area parts washer
AOI Location	302 E2
AOI Condition	Small surface type cracking No evidence of concrete markings of location

Photo Log

Photo Number	Photo Description	Direction Facing
3	General E2 Area	N
5	Cracked Concrete	

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	4/12/07 0830
Inspector	Anna H. Jim H. Ben
AOI Number	3-30
AOI Description	Paint Booth
AOI Location	~~Hood~~ J-13 302
AOI Condition	- Paint booth not present. Used as tool cri - Floor looks original - Some patched concrete

Photo Log

Photo Number	Photo Description	Direction Facing
6	Patched concrete	S
7	Entire AOI area	W

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	4/12/07 1030
Inspector	Anna H Jim H Ben
AOI Number	3-4
AOI Description	Machining Residue Storage Area
AOI Location	Outside E of 301
AOI Condition	Concrete/pavement patching in some areas; otherwise, intact. - some cracks

Photo Log

Photo Number	Photo Description	Direction Facing
8	Far away view of AOI	S
9	View of pavement of AOI	E

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	4/12/07 1035
Inspector	Anna H Jim H Ben
AOI Number	3-58
AOI Description	LADD Washer
AOI Location	304 E13 - E14
AOI Condition	Floor staining. Small amount of small cracks

Photo Log

Photo Number	Photo Description	Direction Facing
10	Bays E14 - E13	E
11	Close-up of staining and bolts for mounting	E

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	4/12/07 1040
Inspector	Anna H Jim H. Ben.
AOI Number	3-52
AOI Description	Battery Charging Area
AOI Location	F6-F7

AOI Condition

Epoxy coated floor
- Charging equipment gone
- no cracks
- no patches

Photo Log

Photo Number	Photo Description	Direction Facing
12	View of floor + S. wall	S
13	View of floor + S. wall	S

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	4/12/07 @ 1400
Inspector	Anna H Jim H Ben
AOI Number	2-10
AOI Description	~~Paint Mix Room~~ Thinner Tanks
AOI Location	206 D13
AOI Condition	Secondary containment in good condition + epoxy-coated

Photo Log

Photo Number	Photo Description	Direction Facing
14	Secondary containment	S
15	Secondary containment	S
16	View of entire room	S

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	4/12/07 @ 1410
Inspector	Anna H Jim H Ben
AOI Number	2-X
AOI Description	Paint mix Room
AOI Location	206 13D
AOI Condition	Floor in good condition, but lots of paint spilled on the floor.

Photo Log

Photo Number	Photo Description	Direction Facing
17	View of paint on floor	SE
18	Paint on floor	SW
19	view of entire room	S

AOI Sketch



Photograph 1: AOI 3-18. View of patched concrete, facing south.



Photograph 2: AOI 3-18. View of drum storage, facing west.



Photograph 6: AOI 3-30. View of patched concrete, facing south.



Photograph 7: AOI 3-30. View of entire area, facing west.



Photograph 8: AOI 3-4. View of entire area, facing south.



Photograph 9: AOI 3-4. View of pavement, facing east.



Photograph 10: AOI 3-58. View of entire area, facing east.



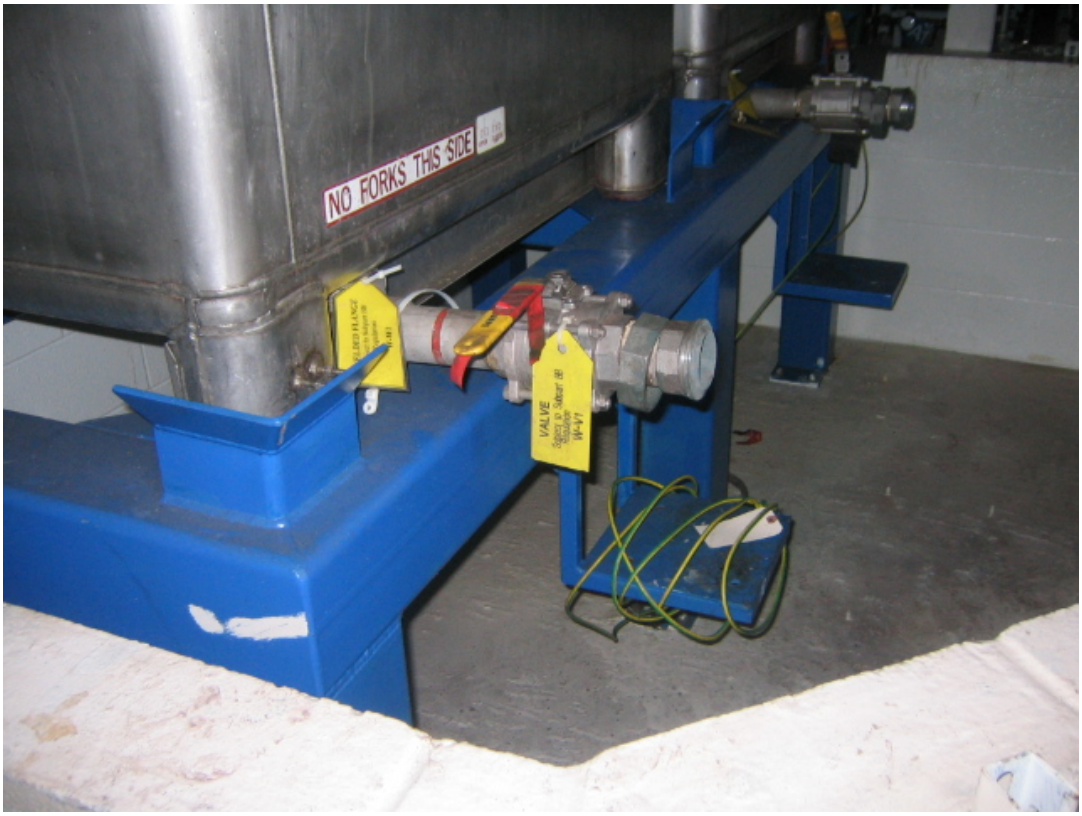
Photograph 11: AOI 3-58. View of staining and bolts for machine mounting.



Photograph 12: AOI 3-52. View of floor and south wall, facing south.



Photograph 13: AOI 3-52. View of floor and south wall, facing south.



Photograph 14: AOI 2-10. View of secondary containment, facing south.



Photograph 15: AOI 2-10. View of secondary containment, facing south.



Photograph 16: AOI 2-10. View of entire room, facing south.



Photograph 17: AOI 2-XX. View of paint on floor, facing southeast.



Photograph 18: AOI 2-XX. View of paint on floor, facing southwest.



Photograph 19: AOI 2-XX. View of entire room, facing south.



Photograph 3: AOI 3-26. View of general area, facing north.



Photograph 5: AOI 3-26. View of cracked concrete.

O’Brien & Gere Visual Inspections

Area of Interest Visual Inspection Form

Data and Time	6/5/06 11:12
Inspector	Dale Gross OBG
AOI Grouping Number	SA-1
AOI Number	26
AOI Description	Sump Pit

AOI Condition

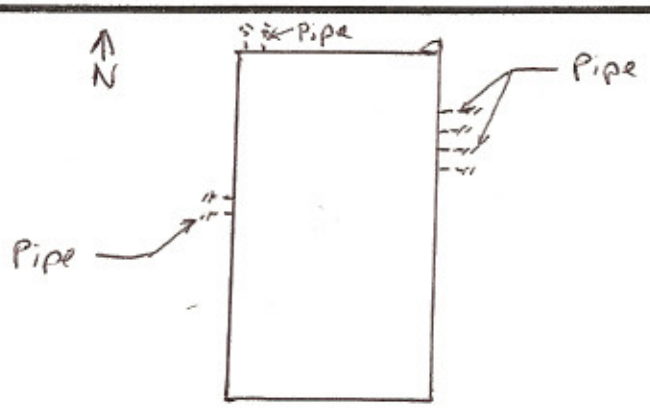
No apparent cracks in poured concrete sump. @ Damage to concrete around pipe at top of pump sump observed

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0549	Sump pit S. wall & floor	S
HPIM0550	Sump pit W. wall note pipes	W
HPIM0551	Sump pit N wall & floor	N
HPIM0552	Sump pit E wall & floor note pipes	E
HPIM0553	Pipe - Concrete not sealed around pipe	N

AOI Sketch

3'W x 6'L x 7'D



Area of Interest Visual Inspection Form

Data and Time	6/15/06 11:40
Inspector	Dale Gross OBG
AOI Grouping Number	SA-1
AOI Number	28
AOI Description	Trench

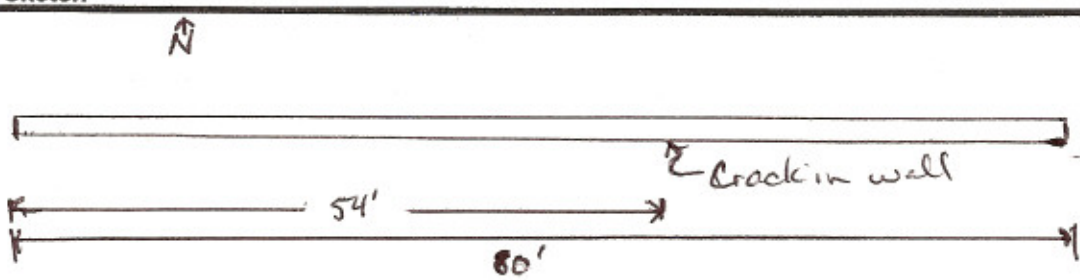
AOI Condition

One crack observed in South wall of trench, otherwise apparently intact. Noted 2 pipe openings in floor of trench. 80'L x 1'D x 1'W. Crack at 54' measuring from east end

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM 0554	Trench	West
HPIM 0555	Trench	West
HPIM 0556	Trench	West
HPIM 0557	Trench	West
HPIM 0558	Trench	West
HPIM 0559	Trench	West
HPIM 0560	Trench - Note crack in wall	West
HPIM 0561	Trench	West
HPIM 0562	Trench	West
HPIM 0563	Trench - west end	West
HPIM 0564	Crack in South sidewall of Trench	South

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time 6/15/06 13:15

Inspector Dave Gross OBG

AOI Grouping Number SA-1

AOI Number 69

AOI Description Sump - Note: actual location H/17 determine from Fig 3 BBL Site Assesment Data Rpt.

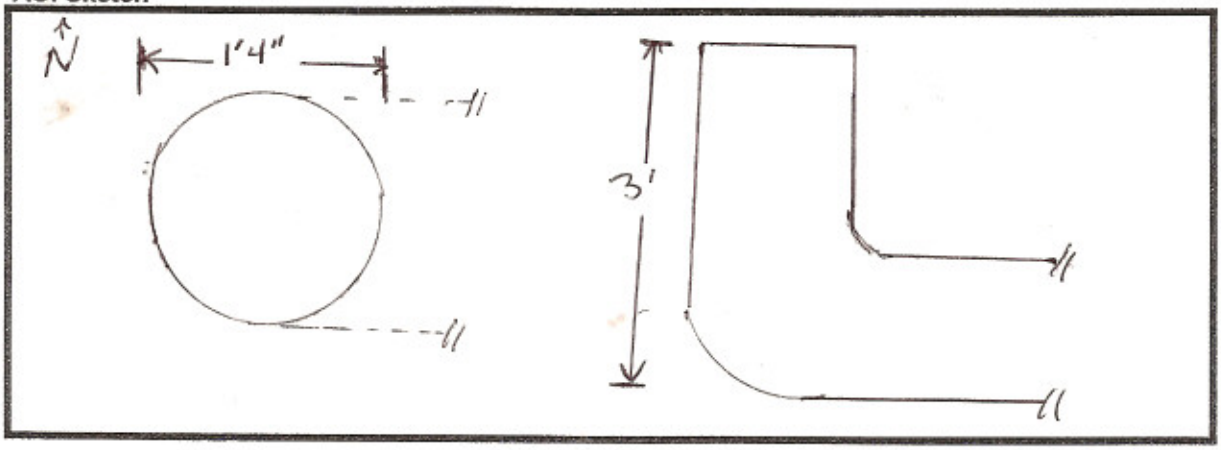
AOI Condition

Water infiltrating into sump
1'4" diam 3' deep clay tile construction, numerous cracks observed. Sump elbows to east

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0565	Sump - clay tile construction	South
HPIM0566	Sump - 90° elbow to horizontal	East
HPIM0567	Sump - 90° elbow to horizontal	East
HPIM0569	Sump - note cracks	North

AOI Sketch



Area of Interest Visual Inspection Form

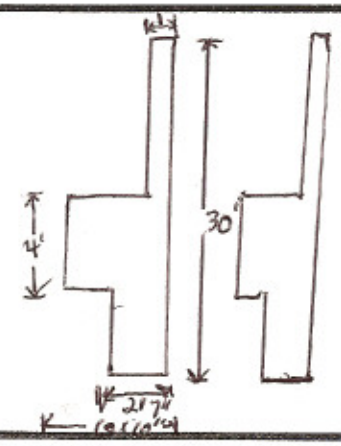
Data and Time	6/15/06 14:05
Inspector	Dave Gross OBG
AOI Grouping Number	SA-1
AOI Number	27
AOI Description	Trench - Actual 2 trenches/pits east/west
AOI Condition	No apparent cracks in poured concrete trenches

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0570	East Trench north end	South
HPIM0571	East Trench middle	East
HPIM0572	East Trench South end	South
HPIM0573	West Trench South end	South
HPIM0574	West Trench middle	East
HPIM0575	West Trench north end	South

AOI Sketch

1'5" deep x 2'7" W x 30' L
6'5" W x 4' L
1' W x



Area of Interest Visual Inspection Form

Data and Time	6/5/16 14:35
Inspector	Dale Gross ORG
AOI Grouping Number	SA-1
AOI Number	29
AOI Description	Trench

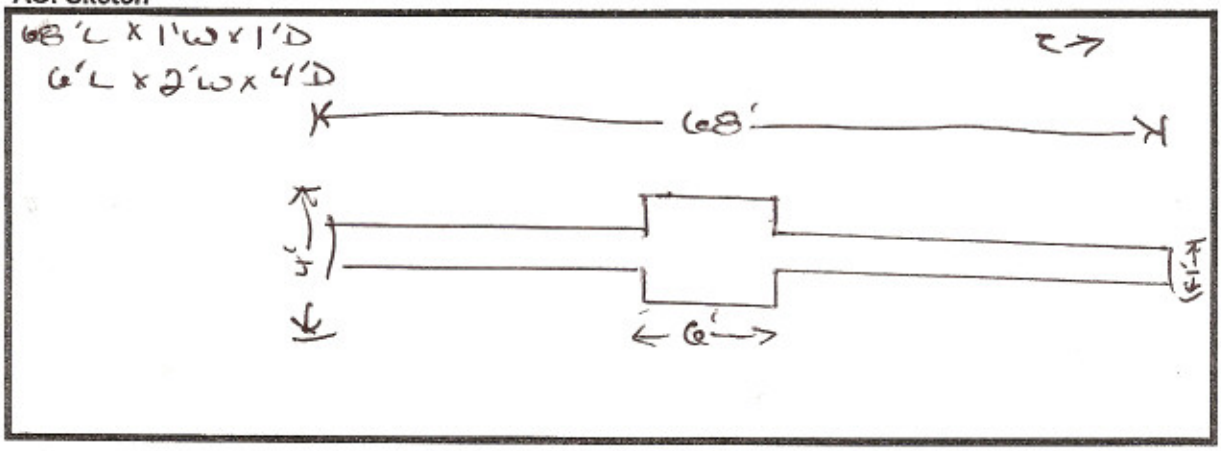
AOI Condition

Crack observed in trench 30' from North End of trench on east wall

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0576	Crack in trench east wall	East
HPIM0577	North end of trench	South
HPIM0578	Northend of trench	South
HPIM0579	Northend of trench	South
	~~North end of trench~~	
HPIM0580	Sump portion of trench - note pipe	East
HPIM0581	Sump portion of trench	West
HPIM0582	Sump portion of trench	North
HPIM0583	Sump portion of trench	South
HPIM0584	Southend of trench	South
HPIM0585	Southend of trench	South

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time 6/13/06 13:15
Inspector Dale Gross
AOI Grouping Number SA-14
AOI Number 3
AOI Description Truck dock levelers & trench

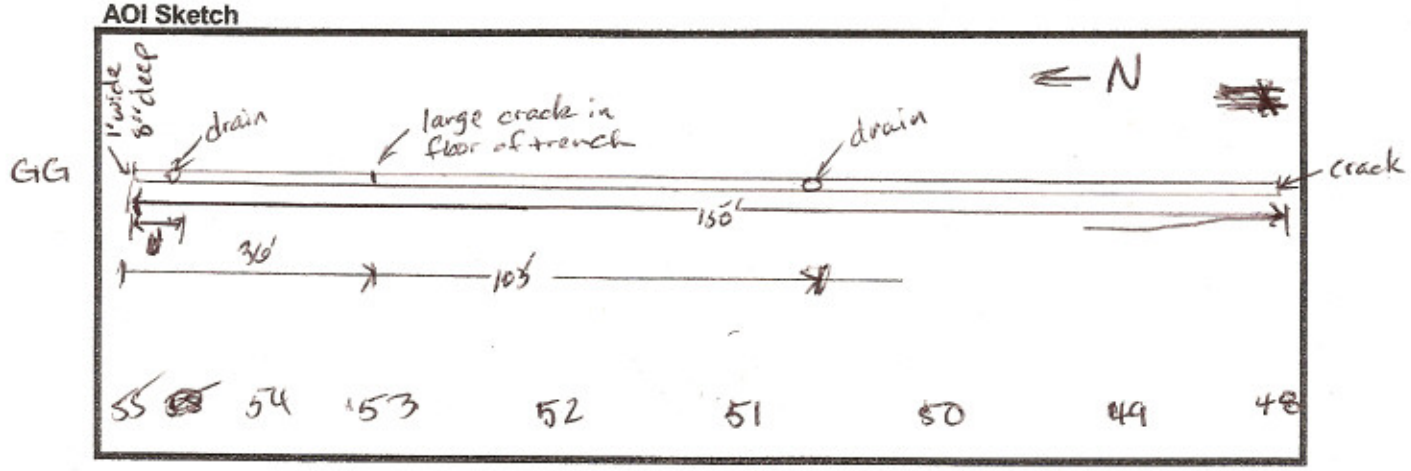
AOI Condition

Note hairline cracks at ends of trench, other wise trench appears to be in good condition except expansion crack 36' from N end. Trench drains are ~ 2.5' deep and appear to run west to connect with sanitary sewer. Concrete is oil stained

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0591	Trench drain (south)	Down
HPIM0592	Trench drain (north)	Down
HPIM0593	Southend of trench small crack at pen point	South east
HPIM0594	Northend of trench note small cracks	Northeast
HPIM0595	Expansion crack 36' from N end of trench	East
HPIM0596	General view of trench	South
HPIM0597	General view of trench	North
HPIM0598	Crack between top of trench & dockwall	East

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	06/20/06 9:30
Inspector	Dale Gross
AOI Grouping Number	SA-5
AOI Number	21
AOI Description	Truck leveler process storage tank
AOI Condition	Unable to assess, tanks beneath leveler plate

Photo Log

Photo Number	Photo Description	Direction Facing

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time 06/20/06 09:50
Inspector Dale Gross OBG
AOI Grouping Number SA-5
AOI Number ~~19~~ 20
AOI Description Truck leveler pits / trench drain

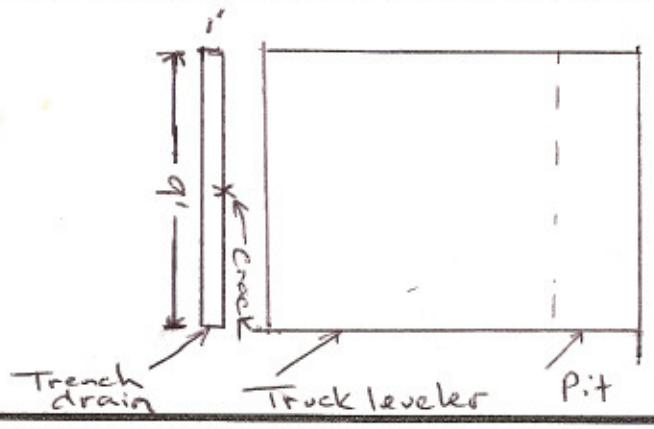
AOI Condition

Trench - Crack in ~~on~~ north wall of trench ~~drain~~
Leveler - Pit not assessed

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0607	Trench drain	~~East~~
HPIM0608	Trench drain	West
HPIM0609	Crack in north wall of trench ~~drain~~	North

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	6/20/06 10:20
Inspector	Dale Cross OBG
AOI Grouping Number	SA-5
AOI Number	~~20~~ 19
AOI Description	Truck leveler pit

AOI Condition

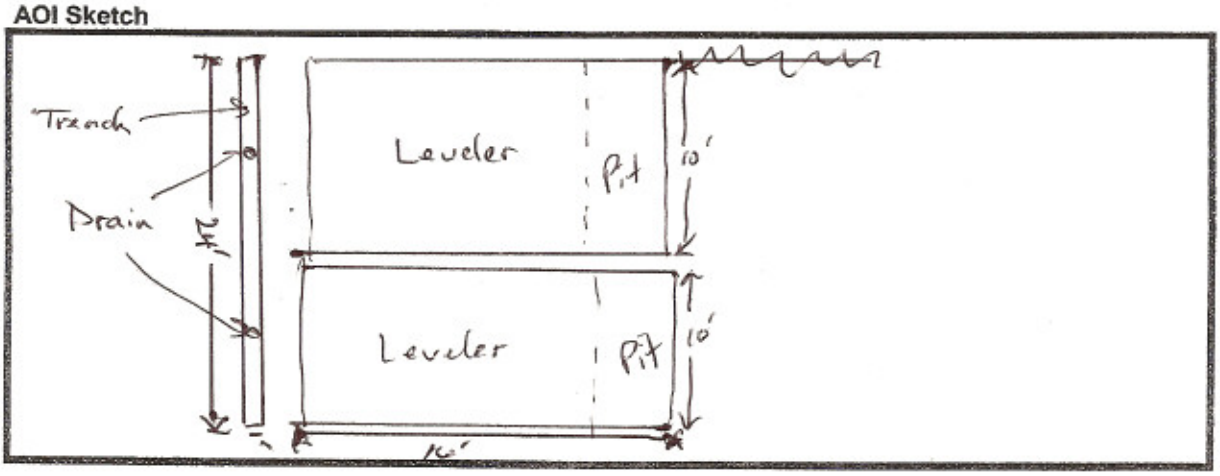
Trench - No Cracks observed 2 drains in trench

Pit not assessed

Photo Log

Photo Number	Photo Description	Direction Facing
HPIMO6610	Trench - no apparent cracks	West
	drain clogged	
HPIMO6611	Trench - no apparent cracks	East
HPIMO6612	Drain in trench	Down

AOI Sketch



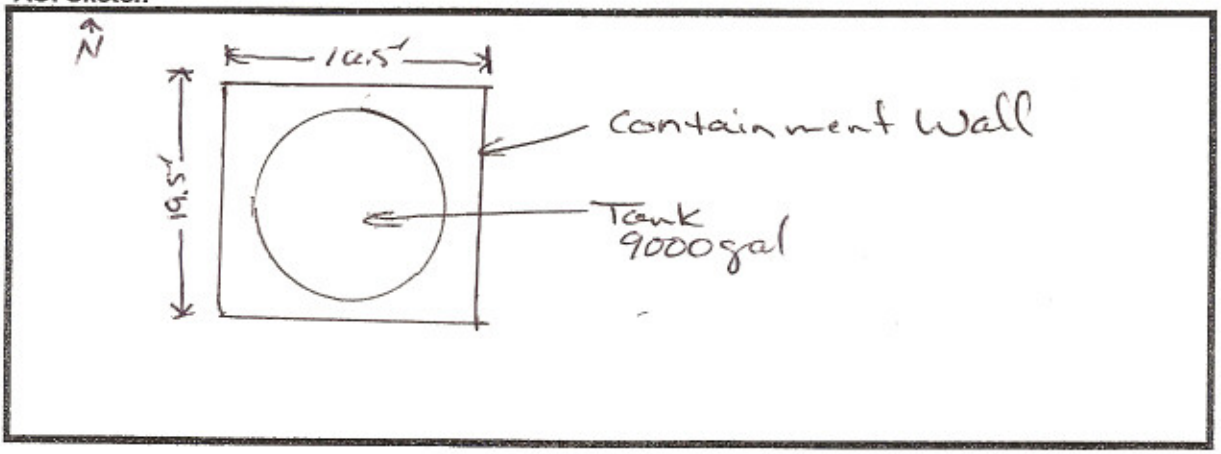
Area of Interest Visual Inspection Form

Data and Time	06/20/06 10:30
Inspector	Dale Cross OBG
AOI Grouping Number	SA-5
AOI Number	33
AOI Description	Waste thinner tank
AOI Condition	No apparent cracks observed in containment floor or walls

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0613	Exterior containment wall west end north side	Southwest
HPIM0614	Exterior containment wall middle north side	Southeast
HPIM0615	Exterior containment wall east end north side	South
HPIM0616	Exterior containment wall north end east side	West
HPIM0617	Exterior containment wall & floor south end east side	West
HPIM0618	Exterior containment wall & floor	West
HPIM0619	Interior containment	East
HPIM0620	Interior containment	South
HPIM0621	Interior containment	West

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	6/20/06 15:00
Inspector	Dale Gross OBG
AOI Grouping Number	SA-4
AOI Number	37
AOI Description	Paint Sludge Trenches

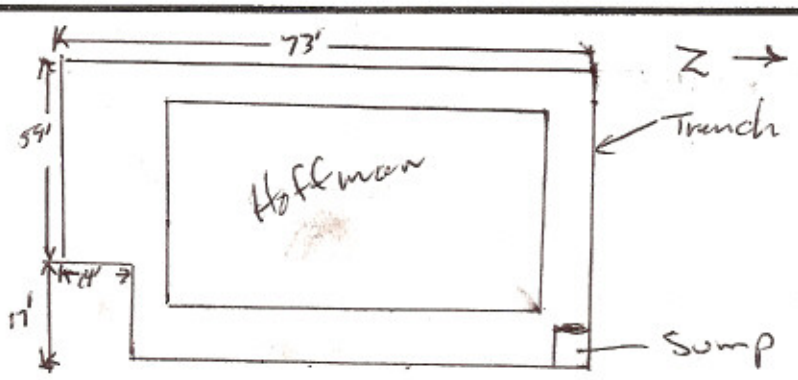
AOI Condition

Trenches – No cracks observed. Trenches gravity drain into sump. Sump contained water, unable to assess sump. Trench 0.5' to 1.5' deep draining toward sump

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0622	East trench	North
HPIM0623	South trench, north wall	North
HPIM0624	South trench	West
HPIM0625	West trench	North
HPIM0626	Sump containing water	Down

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	6/20/06 15:45
Inspector	Dale Gross OBG
AOI Grouping Number	SA-4
AOI Number	24
AOI Description	Filter pit w/ Sump

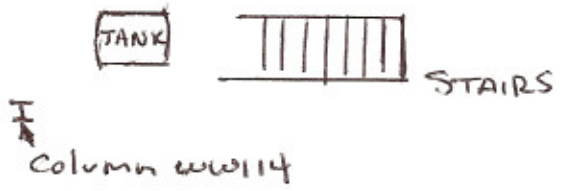
AOI Condition

No filter pit observed at location. Tank present instead

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM 0627	Tank present at location of AOI	South

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	6/20/06 16:05
Inspector	Dale Gross OBG
AOI Grouping Number	SA-16
AOI Number	43
AOI Description	Trash Compactor

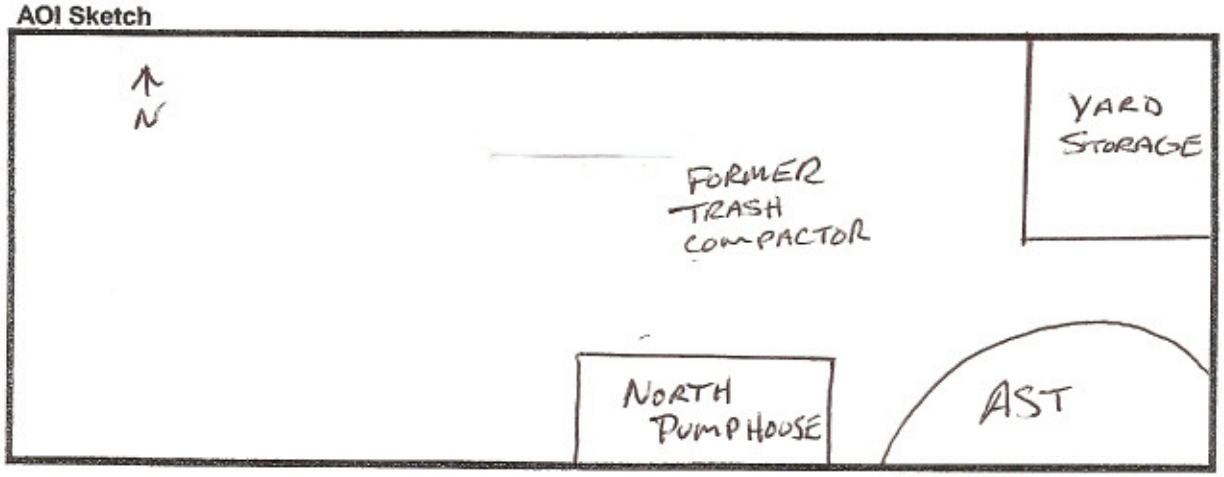
AOI Condition

Patched Asphalt pavement

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0628	Location of former trash compactor	North

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	6/20/06 16:15
Inspector	Dale Gross OBG
AOI Grouping Number	SA-160
AOI Number	174
AOI Description	2 Trash Compactors

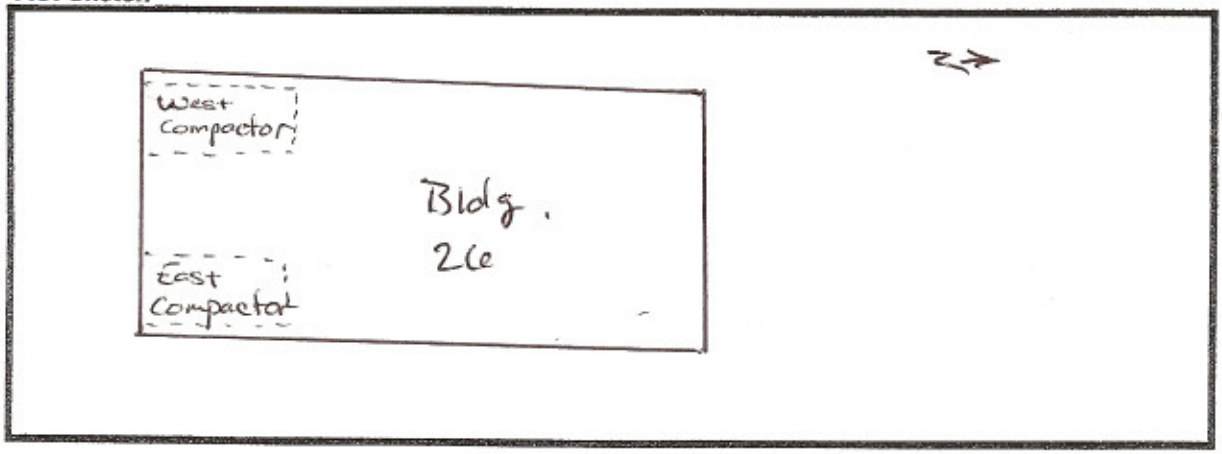
AOI Condition

* Concrete in fairly good condition Expansion crack & 1 hairline crack in pavement observed. Concrete is oil stained from hydraulics leaking on trash compactors

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0629	West compactor location note stains on concrete pavement	North
HPIM0630	East compactor location note stains on concrete pavement	South North

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	4/21/06 11:30
Inspector	Dale Gross OBG
AOI Grouping Number	SA-17
AOI Number	44
AOI Description	Weld Pit

AOI Condition

Unable to assess, covered by steel plate

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0637	Steel plate covering pit location	South

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	10/21/06 12:50
Inspector	Dale Gross OBG
AOI Grouping Number	SA-17
AOI Number	45
AOI Description	Weld Pit

AOI Condition

Concrete slab at location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0636	Concrete slab at Pit location	North

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/21/06 12:05
Inspector	Dale Gross OBG
AOI Grouping Number	SA-17
AOI Number	46
AOI Description	Drive Unit Pit

AOI Condition

Concrete Slab at Location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0637	Concrete Slab at location, column C105 in background	West

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/21/06 12:13
Inspector	Dale Gross OBG
AOI Grouping Number	SA-17
AOI Number	47
AOI Description	Solder Grind Pit
AOI Condition	Concrete Slab at location

Photo Log

Photo Number	Photo Description	Direction Facing
HPM0638	Concrete Slab at pit location	South

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/21/06 12:19
Inspector	Dale Gross OBG
AOI Grouping Number	SA-17
AOI Number	48
AOI Description	Solder Grind Pit

AOI Condition

Concrete slab at location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0639	Concrete slab at Pit location	Northwest

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	06/21/06 13:30
Inspector	Dale Gross OBG
AOI Grouping Number	SA-17
AOI Number	49
AOI Description	Torch Solder Pit
AOI Condition	Concrete slab at location with conveyor trench

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0640	Concrete slab at location	Southeast

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/24/06 13:40
Inspector	Dale Gross
AOI Grouping Number	3A-17
AOI Number	51
AOI Description	Tunnel (9' deep)

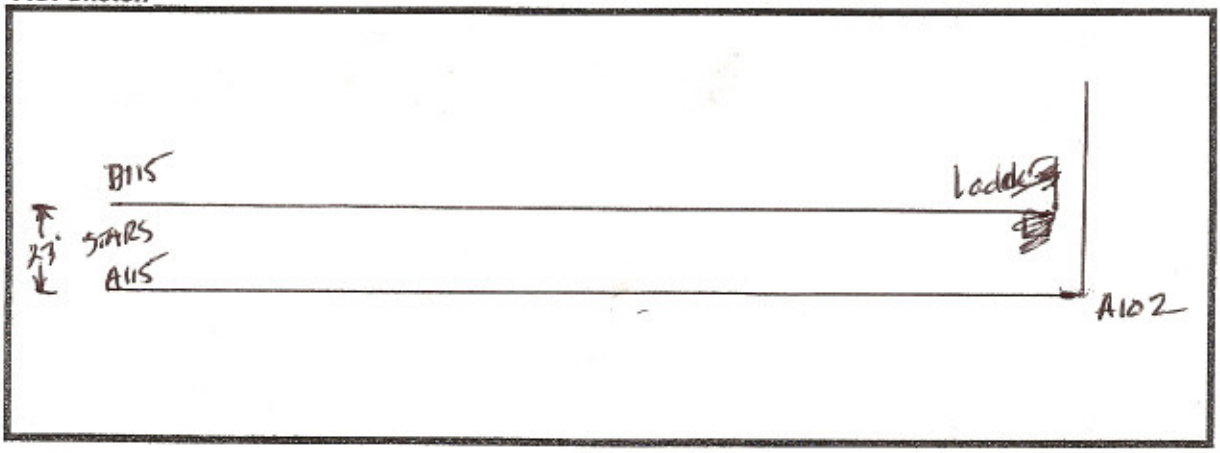
AOI Condition

No tunnel observed at location, asphalt composite block floor. Tunnel is present at ~~Hole~~ A-B115 - A-B102, then heads north. Fire protection work area note numerous cracks in walls & floor

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0641	Composite block floor at location of	South
	tunnel	
HPIM0642	General view of tunnel	East
HPIM0643	Crack in South wall of tunnel	South
HPIM0644	Crack in floor of tunnel	Down
HPIM0645	Crack in North wall of tunnel	North

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	6/21/06 14:05
Inspector	Dale Cross OBG
AOI Grouping Number	SA-17
AOI Number	SS
AOI Description	Process Pit

AOI Condition

Process pit not observed in column location. Column location actually in Bldg 1. Conveyor trench in location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0646	General view	North

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/21/06 15:24
Inspector	Dale Gross OBG
AOI Grouping Number	SA-18
AOI Number	50
AOI Description	Drive Unit Pit
AOI Condition	No pit observed at location, concrete slab

Photo Log

Photo Number	Photo Description	Direction Facing
HP1M0ce47	Concrete slab at pit location	South

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/24/060 15:30
Inspector	Dale Gloss OBG
AOI Grouping Number	SA-19
AOI Number	~~50~~ 72
AOI Description	Washer Sump

AOI Condition

Unable to assess, still contains water

Photo Log

Photo Number	Photo Description	Direction Facing

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/22/06 13:30
Inspector	Dave Gress OBG
AOI Grouping Number	SA-23
AOI Number	13
AOI Description	New Weld Pit
AOI Condition	Concrete slab & Composite Block floor ~~in area~~ at location. Equipment also present

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0654	Concrete slab & block floor at pit location	North

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/22/06 13:40
Inspector	Dale Gross OBG
AOI Grouping Number	SA-23
AOI Number	16
AOI Description	Existing Drive Unit Pit
AOI Condition	Concrete slab and composite block floor at location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0655	Concrete slab & block floor at Pit location	North

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/22/06 13:45
Inspector	Dale Gross OBG
AOI Grouping Number	SA-24
AOI Number	12
AOI Description	Solder grind booth - sanitary & storm run underneath
AOI Condition	Concrete slab at location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0605	Concrete slab at location	South

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/22/06 13:50
Inspector	Dale Gross OBG
AOI Grouping Number	SA-24
AOI Number	14
AOI Description	New advancing conveyor pit
AOI Condition	Concrete ~~slab~~ slab & composite block floor at location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0657	Concrete slab & composite block floor at location	East

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/22/06 13:58
Inspector	Dale Gross OBG
AOI Grouping Number	SA-24
AOI Number	15
AOI Description	New Drive Unit Pit
AOI Condition	Concrete slab at location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0658	Concrete slab at location	West

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/21/06 15:42
Inspector	Dale Gross OBG
AOI Grouping Number	SA-25
AOI Number	71
AOI Description	Washer Sump

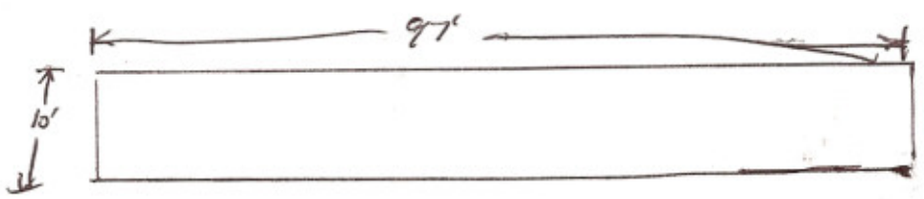
AOI Condition

Unable to totally assess because equipment in sump; Areas observed were in good condition. Did not observe any cracks ~~or~~ or spalling

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0648	West wall & floor of sump	Down
HPIM0649	South wall & floor of sump	Down

AOI Sketch



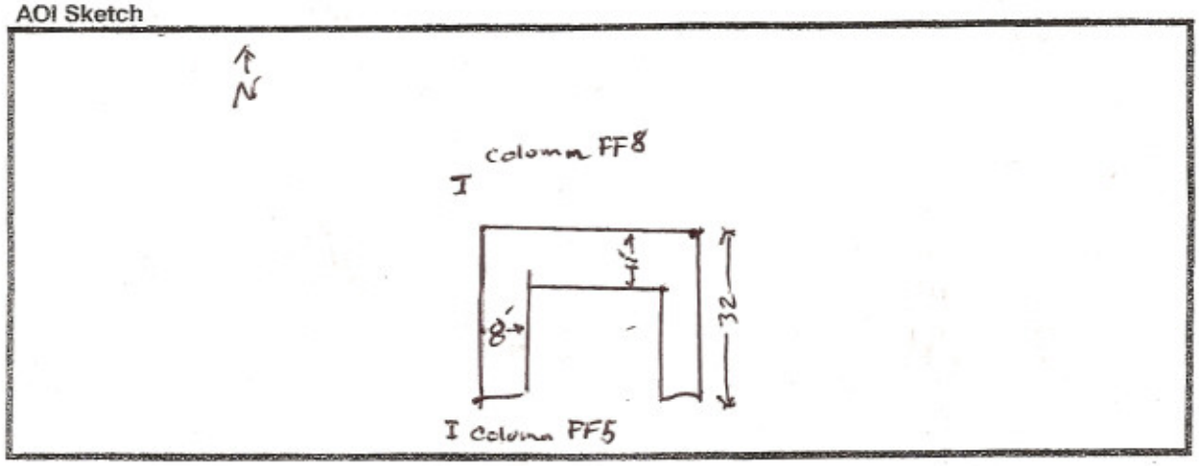
Area of Interest Visual Inspection Form

Data and Time	6/22/06 15:42
Inspector	Dale Gross
AOI Grouping Number	SA-26
AOI Number	9
AOI Description	New Transfer can pit
AOI Condition	Pit/Trench in good condition no staining/ cracks observed

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM06604	Bottom of pit/trench	west/down
HPIM06605	South wall & floor	East
HPIM06606	Floor of pit	~~North~~ South
HPIM06607	West wall & floor	North
HPIM0653	General view	West

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	6/22/06 10:06
Inspector	Dale Gross OBG
AOI Grouping Number	SA-26
AOI Number	CC3
AOI Description	Weld Pit

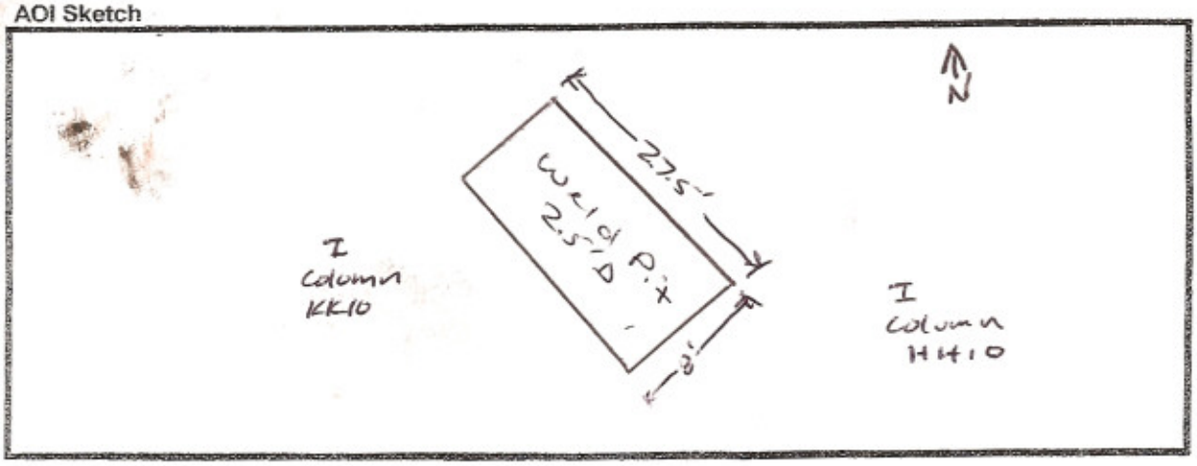
AOI Condition

Pit is in good condition. No cracks, spalling or staining observed

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0668	Northeast ~~west~~ wall of pit	North
HPIM0669	Southwest wall of pit	Northwest
HPIM0670	Floor of pit	Southeast
HPIM0671	Floor of pit	Down

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	6/23/06 13:58
Inspector	Dale Gross 089
AOI Grouping Number	SA-29
AOI Number	6
AOI Description	Industrial Waste treatment pit
AOI Condition	Unable to assess, pit contains liquid

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0078	Grating to industrial waste treatment pit	Down

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/23/06 13:30 10/19/06 09:38
Inspector	Dale Gross OBG
AOI Grouping Number	SA-30
AOI Number	56
AOI Description	Sump

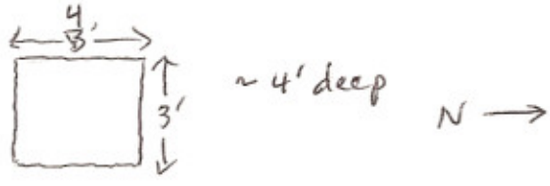
AOI Condition

~~Unable to inspect, covered with debris~~
Sump appears to be in good condition, no cracks observed, some staining

Photo Log

Photo Number	Photo Description	Direction Facing
~~HPIM0675~~	Cover of sump. Note debris	~~East~~
HPIM0813	Sump	Down

AOI Sketch



Area of Interest Visual Inspection Form

Data and Time	10/23/06 13:44
Inspector	Dale Gross OBG
AOI Grouping Number	SA-30
AOI Number	58
AOI Description	Sump

AOI Condition

Concrete slab at sump location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0676	Concrete slab at sump location	East

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/23/06 13:50
Inspector	Dale Gross ORG
AOI Grouping Number	SA-30
AOI Number	59
AOI Description	Sump

AOI Condition

Concrete slab at location of sump.
Column location given is in Bldg 79

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0777	Concrete slab at sump location	West

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	12/22/06 14:05
Inspector	Dale Gress OBG
AOI Grouping Number	SA-31
AOI Number	10
AOI Description	New weld pit
AOI Condition	Concrete slab & electrical panels at location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0059	Concrete slab & electrical panels	South

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/22/06 14:10
Inspector	Dale Gross
AOI Grouping Number	SA-31
AOI Number	11
AOI Description	Existing drive unit pit
AOI Condition	Concrete slab and car track at location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0606	Concrete slab & car track	~~South~~ North

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	09/22/06 14:16
Inspector	Dale Gross OBG
AOI Grouping Number	SA-31
AOI Number	004
AOI Description	Sump

AOI Condition

Concrete slab at sump location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM 0606	Concrete slab at sump location	South

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/22/06 14:25
Inspector	Dale Gross OBG
AOI Grouping Number	30-31
AOI Number	05
AOI Description	Sump

AOI Condition

Concrete slab at sump location

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0606Z	Concrete slab at sump location	North

AOI Sketch

Area of Interest Visual Inspection Form

Data and Time	6/22/06 14:31
Inspector	Dale Gross OBG
AOI Grouping Number	SA-31
AOI Number	0006
AOI Description	Sump

AOI Condition

Concrete slab at sump location & equipment

Photo Log

Photo Number	Photo Description	Direction Facing
HPIM0006(3	Concrete slab & equipment	West

AOI Sketch



HPIM0549



HPIM0550



HPIM0551



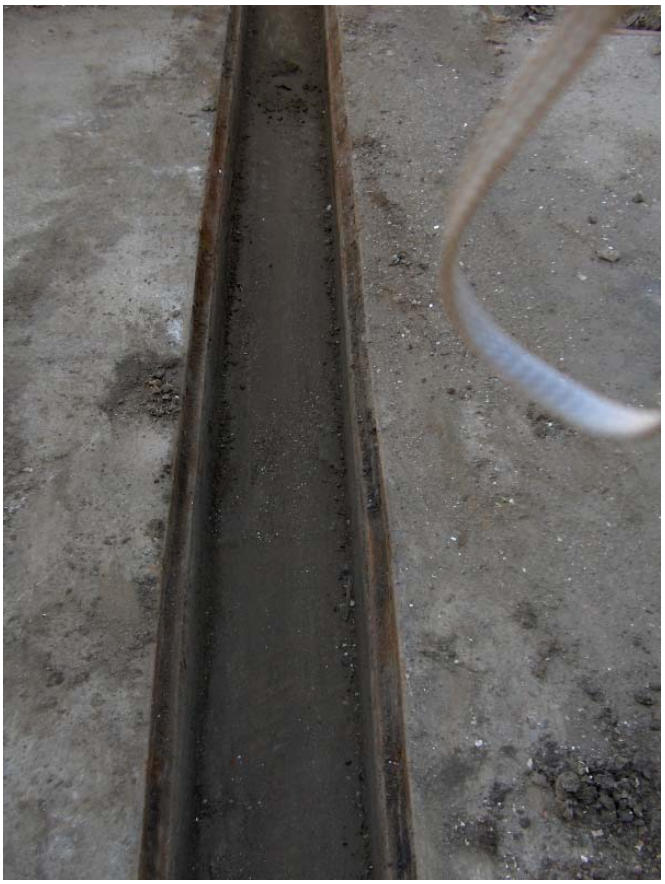
HPIM0552



HPIM0553



HPIM0554



HPIM0555



HPIM0556



HPIM0557



HPIM0558



HPIM0559



HPIM0560



HPIM0561



HPIM0562



HPIM0563



HPIM0564



HPIM0565



HPIM0566



HPIM0567



HPIM0569



HPIM0570



HPIM0571



HPIM0572



HPIM0573



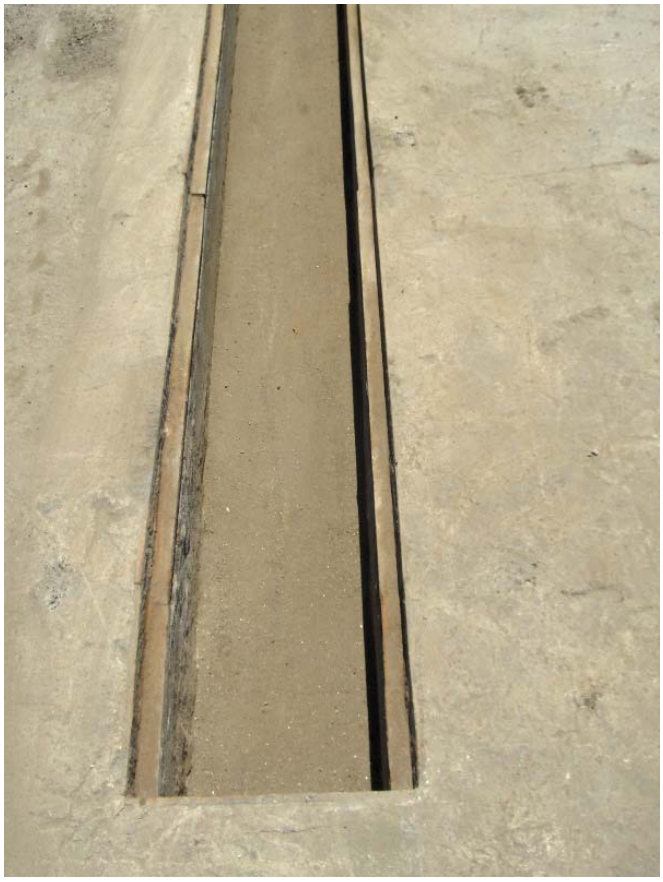
HPIM0574



HPIM0575



HPIM0576



HPIM0577



HPIM0578



HPIM0579



HPIM0580



HPIM0581



HPIM0582



HPIM0583



HPIM0584



HPIM0585



HPIM0591



HPIM0592



HPIM0593



HPIM0594



HPIM0595



HPIM0596



HPIM0597



HPIM0598



HPIM0607



HPIM0608



HPIM0609



HPIM0610



HPIM0611



HPIM0612



HPIM0613



HPIM0614



HPIM0615



HPIM0616



HPIM0617



HPIM0618



HPIM0619



HPIM0620



HPIM0621



HPIM0622



HPIM0623



HPIM0624



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HPIM0636



HPIM0637



HPIM0638



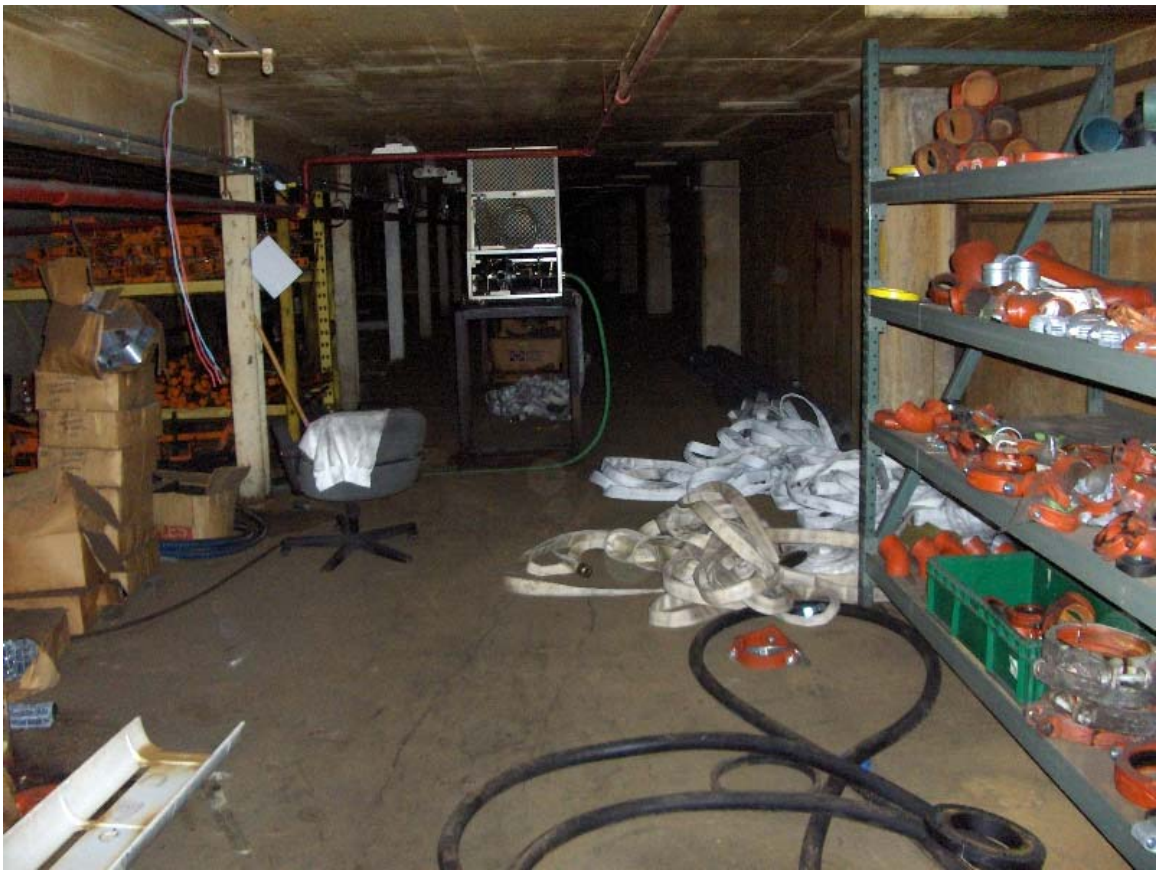
HPIM0639



HPIM0640



HPIM0641



HPIM0642



HPIM0643



HPIM0644



HPIM0645



HPIM0646



HPIM0647



HPIM0648



HPIM0649



HPIM0653



HPIM0654



HPIM0655



HPIM0656



HPIM0657



HPIM0658



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HPIM0660



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HPIM0662



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HPIM0669



HPIM0670



HPIM0671



HPIM0675



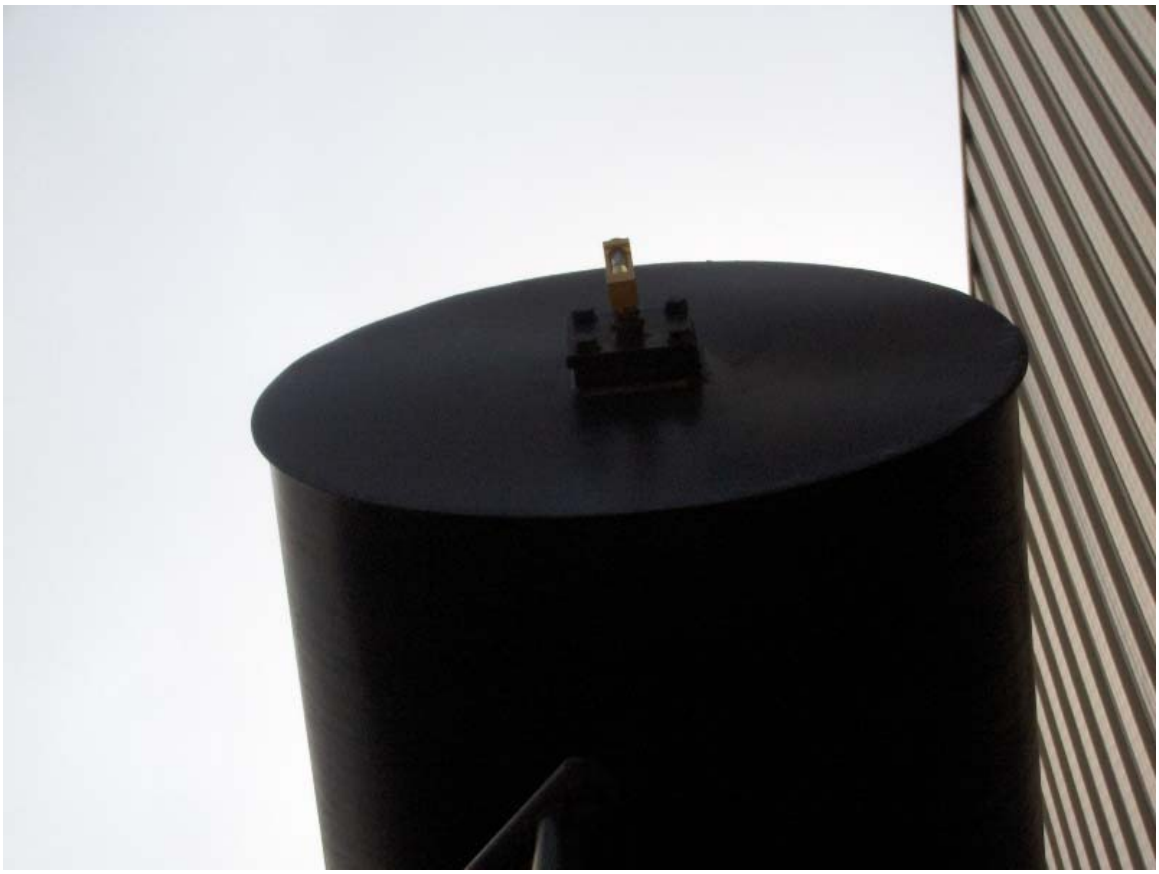
HPIM0676



HPIM0677



HPIM0678



HPIM0704

ARCADIS

Appendix H

Restrictive Covenants

ARCADIS

Plant 2 AOI 2-15
Building 225 UST Farm

111

Paula Johnson
INGHAM COUNTY
REGISTER OF DEEDS

RECORDED L-3055 P-805
111 26.00 2003-072280

2003-072280
Page: 1 of 5
08/11/2003 03:06P

RESTRICTIVE COVENANT

The below listed owner/operator has implemented a corrective action plan requiring institutional controls in the form of a restrictive covenant. The corrective action plan was developed as a result of a release from a Leaking Underground Storage Tank(s) (LUST) and was prepared pursuant to the provisions in Section 21310a(2) of Part 213. Regulated substances were discovered during the investigation and/or removal of Underground Storage Tanks (USTs). The corrective action plan cited above will be maintained on file at the STD District Office located at

10650 Bennett Drive, Morrice, MI 48857-9792 (Shiawassee District Office)

This restrictive covenant is filed with the County Register of Deeds and covers the land identified in the following as the GM Lansing Plant #2 Building 225 Tank Farm Area, and more fully described in Attachment A, attached. The restrictive covenant defines the areas addressed by the corrective action plan and the scope of any land use or resources limitations. The survey defining the areas addressed by the corrective action plan is attached. Land and resource use limitations include the following:

1. Activities and/or uses which are likely to involve the removal and/or disturbance of the existing pavement within the area addressed by this Restrictive Covenant and/or the disturbance of the impacted soils located beneath the pavement without prior development of a Soil Management Plan[a] and Health and Safety Plan[b]. Promptly following the completion of invasive activities, the pavement must be repaired or replaced with comparable pavement to prevent access and/or exposure to the underlying soil.

2. Periodic maintenance of existing pavement and low permeability surfaces to prevent infiltration of precipitation and release of volatile organic compounds to ambient air from underlying soils;

3. Construction of buildings within the area addressed by this Restrictive Covenant without the installation of a passive venting system and vapor barrier and/or the performance of indoor air monitoring which adequately demonstrates that volatile organic compounds are not migrating into the building unless the completion of a Tier 2 exposure assessment in accordance with United States Environmental Protection Agency (USEPA) and Michigan Department of Environmental Quality guidelines identifies acceptable risk or impacted soils are removed from the site prior to building construction;

4. Installation of private water supply wells, including but not limited to drinking water and industrial supply wells, within the area addressed by this Restrictive Covenant;

5. Residential development, unless site soils are remediated to levels protective of potential residential exposures, as defined by the Michigan Department of Environmental Quality; and,

6. Soil removal and disturbance activities that would involve relocation of existing soils located at depths greater than 7.5 feet below ground surface to a new location with depths less than 7.5 feet without installation of an engineered vapor barrier.

[a] **Soil Management Plan**: The soil management plan should be prepared by a Qualified Consultant or Certified Professional and must describe soil excavation, handling, storage, transport, and disposal procedures. Additionally, the soil management plan must include a description of the engineering controls and air monitoring procedures necessary at the site to ensure that receptors in the vicinity of the site are not impacted by fugitive dust, particulates, or exposures to impacted soils via dermal contact, ingestion, and inhalation.

[b] **Health and Safety Plan**: The Health and Safety Plan must be prepared by a Certified Industrial Hygienist or other qualified professional familiar with worker health and safety procedures and requirements. The level of personal protection and engineering controls, dust mitigation procedures, and perimeter monitoring necessary to prevent worker and off-site receptor exposures to dusts generated during excavation or soil disturbance activities must be specified. The Health and Safety Plan must also detail the type of personal protective clothing, respiratory protection, environmental monitoring, and/or equipment necessary to minimize potential exposures to constituents in soil via direct dermal contact, ingestion, and inhalation.

The restrictive covenant is being filed by the below listed legal titleholder:

Owner/Operator implementing the corrective action plan: General Motors Corporation

Release Date(s): May 17, 1985

County where deed is registered: Ingham

Common description of land, township/city, County: 2801 West Saginaw Street, City of Lansing, Lansing Township, Ingham County, Michigan. The subject property is a portion of tax parcel 3321-01-18-227-001.

Now Therefore (Legal Titleholder Name and Address) General Motors Corporation, 920 Townsend Street Lansing, Michigan 48921,
(hereinafter referred to as the "titleholder"), hereby imposes restriction on the property and covenants and agrees that:

1. The Titleholder shall restrict activities on the property that may interfere with corrective action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.

2. The Titleholder shall restrict activities that may result in exposure to regulated substances above levels established in the corrective action plan.

3. The Titleholder shall prevent a conveyance of title, an easement, or any other interest in the property from being consummated without adequate and complete provision for compliance with the corrective action plan and prevention of exposure to regulated substances described in item 2 above.

4. The Titleholder shall grant to the Department of Environmental Quality (Department) and its designated representatives the right to enter the property at reasonable times for the purpose of determining and monitoring compliance with the corrective action plan, including but not limited to the right to take samples, inspect the operation of the corrective action measures, and inspect records.

5. Soil shall not be removed from the property described herein, unless it is characterized to determine if it can be relocated without posing a threat to the public health, safety, welfare or environment in the new location.

6. The state may enforce the restrictions set forth in the covenant by legal action in a court of appropriate jurisdiction.

The restrictions and other requirements described in this Restrictive Covenant shall run with the land and be binding to the titleholder's successors, assigns, and lessees or their authorized agents, employees or persons acting under their direction or control. The restrictions shall apply until the Department determines that regulated substances no longer present an unacceptable risk to the public health, safety or welfare or to the environment. A copy of this Restrictive Covenant shall be provided to all heirs, successors, assigns, and transferees.

This Restrictive Covenant shall not be amended, modified or terminated except by a written instrument executed by and between the Titleholder at the time of the proposed amendment, modification, or termination, and the Department. Within five (5) days of executing an amendment, modification or termination of the Restrictive Covenant, the Titleholder shall record such amendment, modification or termination with the County Register of Deeds, previously named, and within five (5) days thereafter, the Titleholder shall provide a true copy of the recorded amendment, modification or termination to the Department.

If any provision of this Restrictive Covenant is also the subject of any laws or regulations established by any federal, state or local government, the stricter of the two standards shall prevail.

The undersigned person, if executing this Restrictive Covenant on behalf of the Titleholder, represents and certifies that they are duly authorized and have been fully empowered to execute and deliver this Restrictive Covenant.

I hereby attest to the accuracy of the statements in this document and all attachments. I further certify that the language on this form has not been modified in any way.

Legal Titleholder or Authorized Representative's Signature

JOHN K. BLANCHARD
DIRECTOR
WORLDWIDE REAL ESTATE

Print Legal Titleholder or Authorized Representative's Name

July 28 2003
Date

EXECUTION RECOMMENDED
WORLDWIDE REAL ESTATE
BY

IN WITNESS WHEREOF, the said Titleholder of the above described property has caused the Restrictive Covenant to be executed on the 28 day of July (month), 2003 (year)

Signed in the presence of:

Witness

Kathleen M. Manga

Print Witness' Name*

Witness

David G Spencer

Print Witness' Name*

* The notary shall not also serve as a witness.

The foregoing instrument was acknowledged before me this 28th day of July (month), 2003 (year)

by John K. Blanchard Director Worldwide Real Estate on behalf of

Sharon E. Boon, Notary Public

Wayne County, Michigan
(Insert County) (Insert State)

My Commission Expires: 12/17/2006

SHARON E. BOON
NOTARY PUBLIC WAYNE CO., MI
MY COMMISSION EXPIRES Dec 17, 2006

Drafted by:

Blasland Bouck + Lee, Inc.
Company Name

Amy L. Hoekzema
Print Name of Drafter

455 E. Eisenhower Pkwy Ann Arbor MI
Company Address

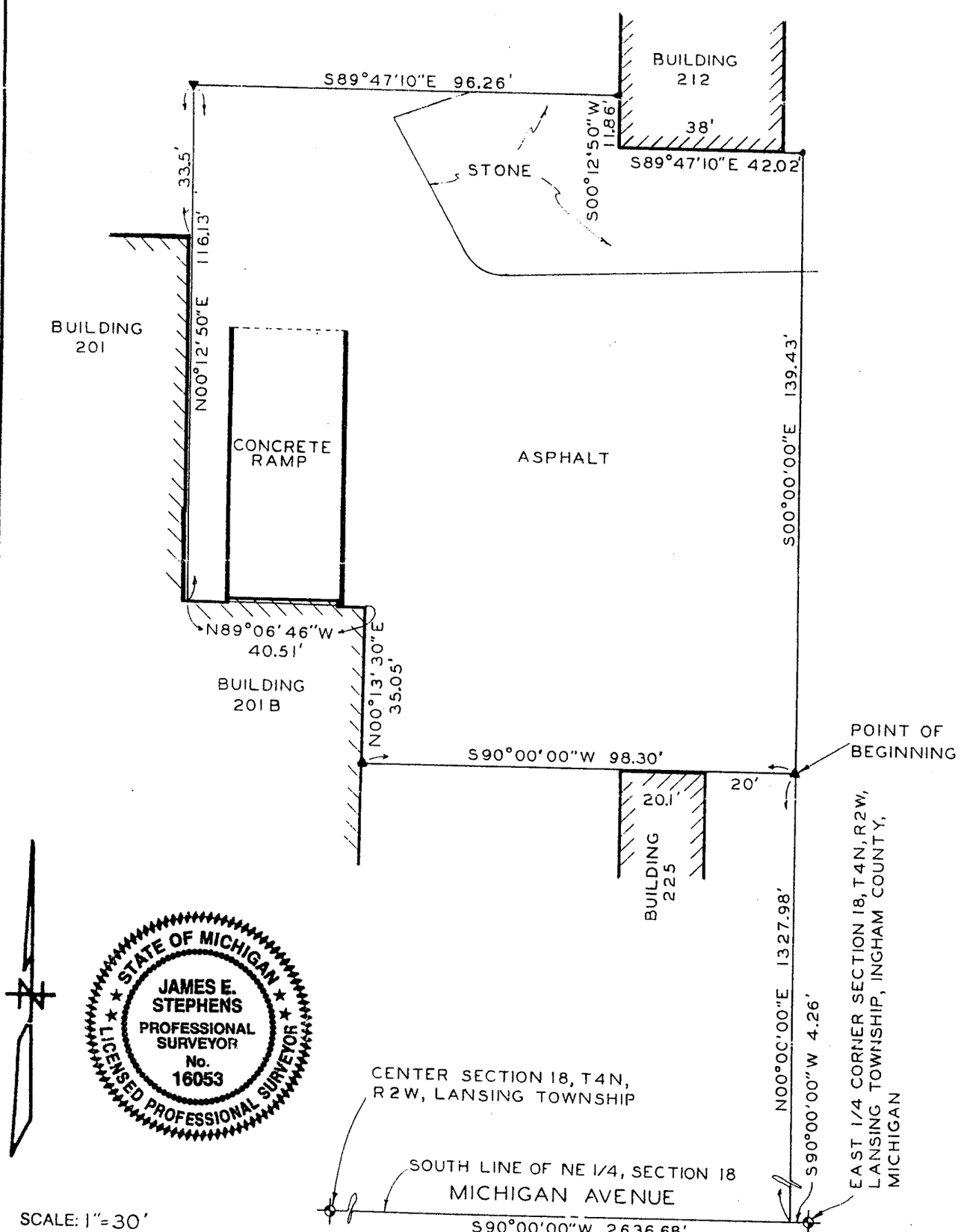
2003-072280
Page: 3 of 5
08/11/2003 03:06P

CERTIFICATE OF SURVEY

FOR General Motors Corporation
920 Townsend
Lansing, Michigan 48921

SURVEY OF PROPERTY LEGALLY DESCRIBED AS:

That part of the Northeast 1/4 of Section 18, T4N, R2W, Lansing Township, Ingham County, Michigan, commencing at the East 1/4 corner of Section 18; thence running along the South line of said Northeast 1/4 S90°00'00"W 4.26 feet; thence N00°00'00"E 1327.98 feet to the point of beginning; thence S90°00'00"W 98.30 feet; thence N00°13'30"E 35.05 feet; thence N89°06'46"W 40.51 feet; thence N00°12'50"E 116.13 feet; thence S89°47'10"E 96.26 feet; thence S00°12'50"W 11.86 feet; thence S89°47'10"E 42.02 feet; thence S00°00'00"E 139.43 feet to the point of beginning.



STATE OF MICHIGAN
JAMES E. STEPHENS
PROFESSIONAL SURVEYOR
No. 16053
LICENSED PROFESSIONAL SURVEYOR

SCALE: 1"=30'

THE UNDERSIGNED LICENSED PROFESSIONAL LAND SURVEYOR HEREBY CERTIFIES THAT A SURVEY WAS MADE UNDER HIS SUPERVISION OF THE PROPERTY SHOWN ON ANNEXED PLAT, AND THAT THE SKETCH INDICATES THE DIMENSIONS AND ENCROACHMENTS OF SAID PROPERTY.

LEGEND

- ● – IRON STAKE
- ▲ – CONCRETE NAIL
- O – MONUMENT
- X – X FENCE LINE
- ℄ – CENTER LINE
- R – RADIUS
- D – DEEDED DIMENSION
- M – MEASURED DIMENSION
- P – PLATTED

STEPHENS-KYES & ASSOCIATES, INC.
1401 EAST LANSING DRIVE, SUITE 112
EAST LANSING, MICHIGAN 48823 – PHONE (517) 351-2574

BY James E. Stephens

LICENSED PROFESSIONAL LAND SURVEYOR NO. 16053

DATE Oct. 2, 2000 DRAWING NO. L-20623

ARCADIS

Plant 2 AOI 2-16
Building 250 UST Farm

(5)

111

Paula Johnson
INGHAM COUNTY
REGISTER OF DEEDS RECORDED L-3055 P-804
111 26.00 2003-072279

2003-072279
Page: 1 of 5
08/11/2003 03:06P

RESTRICTIVE COVENANT

The below listed owner/operator has implemented a corrective action plan requiring institutional controls in the form of a restrictive covenant. The corrective action plan was developed as a result of a release from a Leaking Underground Storage Tank(s) (LUST) and was prepared pursuant to the provisions in Section 21310a(2) of Part 213. Regulated substances were discovered during the investigation and/or removal of Underground Storage Tanks (USTs). The corrective action plan cited above will be maintained on file at the STD District Office located at

10650 Bennett Drive, Morrice, MI 48857-9792 (Shiawassee District Office)

This restrictive covenant is filed with the County Register of Deeds and covers the land identified in the following as GM Lansing Plant #2 Building 250 Tank Farm Area, and more fully described in Attachment A, attached. The restrictive covenant defines the areas addressed by the corrective action plan and the scope of any land use or resources limitations. The survey defining the areas addressed by the corrective action plan is attached. Land and resource use limitations include the following:

1. Periodic maintenance of existing pavement and low permeability surfaces to prevent infiltration of precipitation. If excavation activities conducted within the area addressed by this Restrictive Covenant, the low permeability surface must be replaced where removed;

2. Installation of private water supply wells, including but not limited to drinking water and industrial supply wells, within the area addressed by this Restrictive Covenant; and

3. Residential development, unless site soils are remediated to levels protective of potential residential exposures, as defined by the Michigan Department of Environmental Quality.

The restrictive covenant is being filed by the below listed legal titleholder:

Owner/Operator implementing the corrective action plan: General Motors Corporation

Release Date(s): October 6, 1990

County where deed is registered: Ingham

Common description of land, township/city, County: 2801 West Saginaw Street, City of Lansing, Lansing Township, Ingham County, Michigan. The subject property is a portion of tax parcel 3321-01-18-227-001.

11 Amy Hodkinson

Now Therefore (Legal Titleholder Name and Address) General Motors Corporation, 920 Townsend Street Lansing, Michigan 48921,
(hereinafter referred to as the "titleholder"), hereby imposes restriction on the property and covenants and agrees that:

1. The Titleholder shall restrict activities on the property that may interfere with corrective action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.

2. The Titleholder shall restrict activities that may result in exposure to regulated substances above levels established in the corrective action plan.

3. The Titleholder shall prevent a conveyance of title, an easement, or any other interest in the property from being consummated without adequate and complete provision for compliance with the corrective action plan and prevention of exposure to regulated substances described in item 2 above.

4. The Titleholder shall grant to the Department of Environmental Quality (Department) and its designated representatives the right to enter the property at reasonable times for the purpose of determining and monitoring compliance with the corrective action plan, including but not limited to the right to take samples, inspect the operation of the corrective action measures, and inspect records.

5. Soil shall not be removed from the property described herein, unless it is characterized to determine if it can be relocated without posing a threat to the public health, safety, welfare or environment in the new location.

6. The state may enforce the restrictions set forth in the covenant by legal action in a court of appropriate jurisdiction.

The restrictions and other requirements described in this Restrictive Covenant shall run with the land and be binding to the titleholder's successors, assigns, and lessees or their authorized agents, employees or persons acting under their direction or control. The restrictions shall apply until the Department determines that regulated substances no longer present an unacceptable risk to the public health, safety or welfare or to the environment. A copy of this Restrictive Covenant shall be provided to all heirs, successors, assigns, and transferees.

This Restrictive Covenant shall not be amended, modified or terminated except by a written instrument executed by and between the Titleholder at the time of the proposed amendment, modification, or termination, and the Department. Within five (5) days of executing an amendment, modification or termination of the Restrictive Covenant, the Titleholder shall record such amendment, modification or termination with the County Register of Deeds, previously named, and within five (5) days thereafter, the Titleholder shall provide a true copy of the recorded amendment, modification or termination to the Department.

If any provision of this Restrictive Covenant is also the subject of any laws or regulations established by any federal, state or local government, the stricter of the two standards shall prevail.

The undersigned person, if executing this Restrictive Covenant on behalf of the Titleholder, represents and certifies that they are duly authorized and have been fully empowered to execute and deliver this Restrictive Covenant.



I hereby attest to the accuracy of the statements in this document and all attachments. I further certify that the language on this form has not been modified in any way.

Legal Titleholder or Authorized Representative's Signature — Date: July 28, 2003

JOHN K. BLANCHARD
DIRECTOR
WORK[illegible] OF REAL E[illegible]

Print Legal Titleholder or Authorized Representative's Name

EXECUTION RECOMMENDED
WAYNE COUNTY REAL ESTATE

IN WITNESS WHEREOF, the said Titleholder of the above described property has caused the Restrictive Covenant to be executed on the 28 day of July (month), 2003 (year)

Signed in the presence of:

Witness — Kathleen M. Manga

Kathleen M. Manga

Print Witness' Name*

Witness

David G Spencer

Print Witness' Name*

* The notary shall not also serve as a witness.

The foregoing instrument was acknowledged before me this 28th day of July (month), 2003 (year)

by John K. Blanchard, Director Wayne County Real Estate Management 08/08/03

Sharon E. Boon, Notary Public

Wayne County (Insert County), Michigan (Insert State)

My Commission Expires: 12/17/2006

SHARON E. BOON
NOTARY PUBLIC WAYNE CO., MI
MY COMMISSION EXPIRES Dec 17, 2006

Drafted by:

Bluestand, Brucker + Lee, Inc.
Company Name

Amy L. Hoeksema
Print Name of Drafter

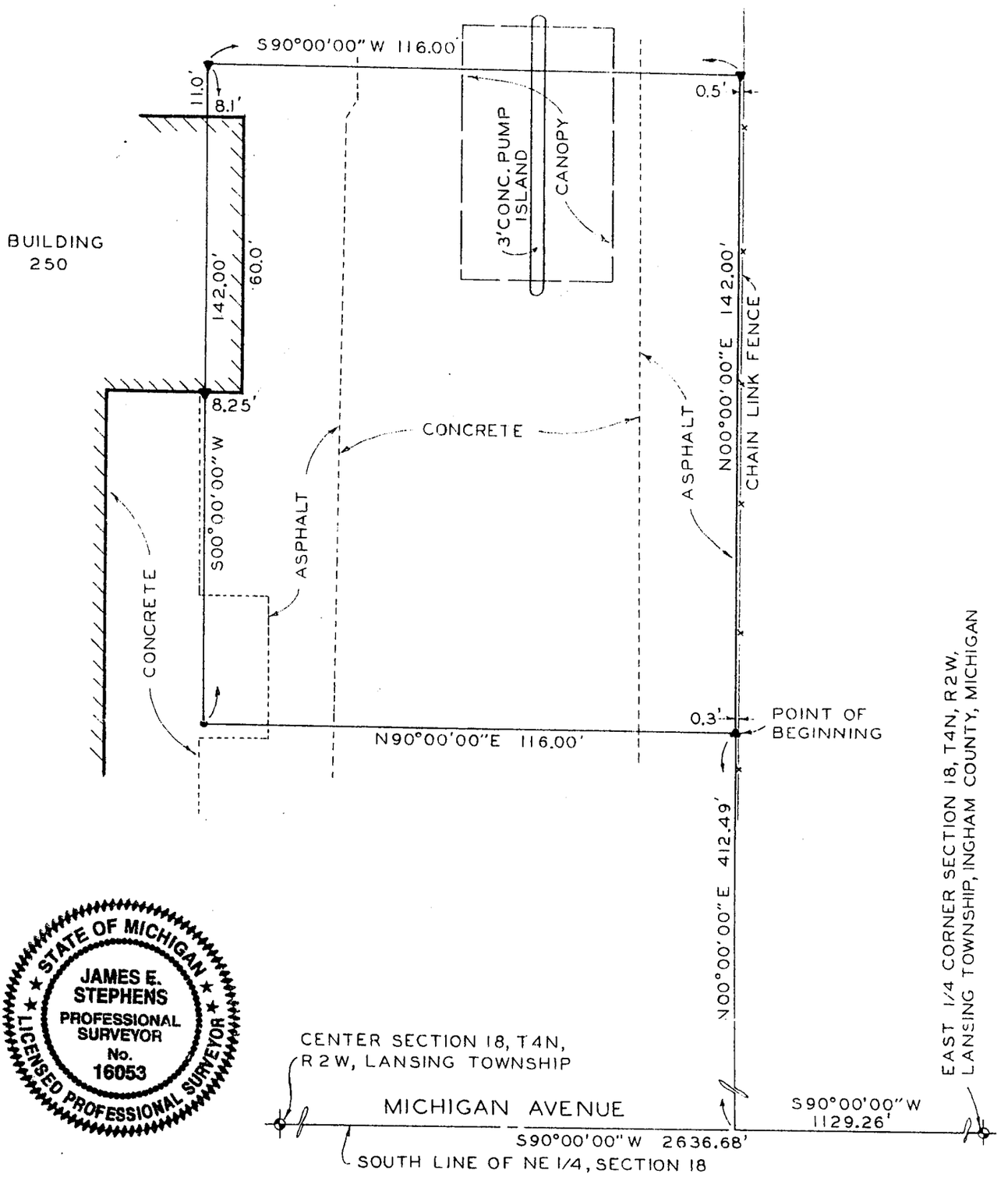
455 E. Eisenhower Pkwy, Ann Arbor, MI
Company Address

CERTIFICATE OF SURVEY

FOR General Motors Corporation
920 Townsend
Lansing, Michigan 48921

SURVEY OF PROPERTY LEGALLY DESCRIBED AS:

That part of the Northeast 1/4 of Section 18, T4N, R2W, Lansing Township, Ingham County, Michigan, commencing at the East 1/4 corner of Section 18; thence running along the South line of said Northeast 1/4 S90°00'00"W 1129.26 feet; thence N00°00'00"E 412.49 feet to the point of beginning; thence continuing N00°00'00"E 142.00 feet; thence S90°00'00"W 116.00 feet; thence S00°00'00"W 142.00 feet; thence N90°00'00"E 116.00 feet to the point of beginning.



STATE OF MICHIGAN
JAMES E. STEPHENS
PROFESSIONAL SURVEYOR
No. 16053
LICENSED PROFESSIONAL SURVEYOR

SCALE: 1"= 30'

THE UNDERSIGNED LICENSED PROFESSIONAL LAND SURVEYOR HEREBY CERTIFIES THAT A SURVEY WAS MADE UNDER HIS SUPERVISION OF THE PROPERTY SHOWN ON ANNEXED PLAT, AND THAT THE SKETCH INDICATES THE DIMENSIONS AND ENCROACHMENTS OF SAID PROPERTY.

LEGEND

- • – IRON STAKE
- ▲ – CONCRETE NAIL
- O – MONUMENT
- X – X FENCE LINE
- ℄ – CENTER LINE
- R – RADIUS
- D – DEEDED DIMENSION
- M – MEASURED DIMENSION
- P – PLATTED

STEPHENS-KYES & ASSOCIATES, INC.
1401 EAST LANSING DRIVE, SUITE 112
EAST LANSING, MICHIGAN 48823 – PHONE (517) 351-2574

BY James E. Stephens

LICENSED PROFESSIONAL LAND SURVEYOR NO. 16053

DATE Oct. 3, 2000 DRAWING NO. L-20622

ARCADIS

Plant 3 AOI 3-9
Building 301 UST Farm

(5)

111

Paula Johnson
INGHAM COUNTY
REGISTER OF DEEDS RECORDED L-3055 P-803
111 26.00 2003-072278

2003-072278
Page: 1 of 5
08/11/2003 03:06P

RESTRICTIVE COVENANT

The below listed owner/operator has implemented a corrective action plan requiring institutional controls in the form of a restrictive covenant. The corrective action plan was developed as a result of a release from a Leaking Underground Storage Tank(s) (LUST) and was prepared pursuant to the provisions in Section 21310a(2) of Part 213. Regulated substances were discovered during the investigation and/or removal of Underground Storage Tanks (USTs). The corrective action plan cited above will be maintained on file at the STD District Office located at

10650 Bennett Drive, Morrice, MI 48857-9792 (Shiawassee District Office)

This restrictive covenant is filed with the County Register of Deeds and covers the land identified in the following as GM Lansing Plant #3 Tank Farm Area, and more fully described in Attachment A, attached. The restrictive covenant defines the areas addressed by the corrective action plan and the scope of any land use or resources limitations. The survey defining the areas addressed by the corrective action plan is attached. Land and resource use limitations include the following:

1. Activities and/or uses which are likely to involve the removal and/or disturbance of the existing pavement within the area addressed by the Restrictive Covenant and/or the disturbance of the impacted soils located beneath the pavement without prior development of a Soil Management Plan[a]. Promptly following the completion of invasive activities, the pavement must be repaired or replaced with comparable pavement to prevent access and/or exposure to the underlying soil.

2. Periodic maintenance of existing pavement and low permeability surfaces to prevent infiltration of precipitation through underlying soils and leaching of constituents in underlying soils to groundwater;

3. Construction of buildings within the area addressed by this Restrictive Covenant without the installation of a passive venting system and vapor barrier and/or the performance of indoor air monitoring which adequately demonstrates that volatile organic compounds are not migrating into the building, unless impacted soils are removed from the site prior to building construction or unless completion of a Tier 2 exposure assessment in accordance with the United States Environmental Protection Agency (USEPA) and Michigan Department of Environmental Quality guidelines identifies acceptable risk;

4. Installation of private water supply wells, including but not limited to drinking water and industrial supply wells, within the area addressed by this Restrictive Covenant; and

5. Residential development, unless site soils are remediated to levels protective of potential residential exposures, as defined by the Michigan Department of Environmental Quality.

[a] **Soil Management Plan**: The soil management plan should be prepared by a Qualified Consultant or Certified Professional and must describe soil excavation, handling, storage, transport, and disposal procedures. Additionally, the soil management plan must include a description of the engineering controls and air monitoring procedures

// Amy Hoeksema

necessary at the site to ensure that receptors in the vicinity of the site are not impacted by fugitive dust, particulates, or exposures to impacted soils via dermal contact, ingestion, and inhalation.

The restrictive covenant is being filed by the below listed legal titleholder:

Owner/Operator implementing the corrective action plan: General Motors Corporation

Release Date(s): May 17, 1985

County where deed is registered: Ingham

Common description of land, township/city, County: 2800 West Saginaw Street, City of Lansing, Lansing Township, Ingham County, Michigan. The subject property is a portion of tax parcel 3321-01-07-426-001.

Now Therefore (Legal Titleholder Name and Address) General Motors Corporation, 920 Townsend Street, Lansing, Michigan 48921,
(hereinafter referred to as the "titleholder"), hereby imposes restriction on the property and covenants and agrees that:

1. The Titleholder shall restrict activities on the property that may interfere with corrective action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.

2. The Titleholder shall restrict activities that may result in exposure to regulated substances above levels established in the corrective action plan.

3. The Titleholder shall prevent a conveyance of title, an easement, or any other interest in the property from being consummated without adequate and complete provision for compliance with the corrective action plan and prevention of exposure to regulated substances described in item 2 above.

4. The Titleholder shall grant to the Department of Environmental Quality (Department) and its designated representatives the right to enter the property at reasonable times for the purpose of determining and monitoring compliance with the corrective action plan, including but not limited to the right to take samples, inspect the operation of the corrective action measures, and inspect records.

5. Soil shall not be removed from the property described herein, unless it is characterized to determine if it can be relocated without posing a threat to the public health, safety, welfare or environment in the new location.

6. The state may enforce the restrictions set forth in the covenant by legal action in a court of appropriate jurisdiction.

The restrictions and other requirements described in this Restrictive Covenant shall run with the land and be binding to the titleholder's successors, assigns, and lessees or their authorized agents, employees or persons acting under their direction or control. The restrictions shall apply until the Department determines that regulated substances no longer present an unacceptable risk to the public health, safety or welfare or to the environment. A copy of this Restrictive Covenant shall be provided to all heirs, successors, assigns, and transferees.

This Restrictive Covenant shall not be amended, modified or terminated except by a written instrument executed by and between the Titleholder at the time of the proposed amendment, modification, or termination, and the Department. Within five (5) days of executing an amendment, modification or termination of the Restrictive Covenant, the Titleholder shall record such amendment, modification or termination with the County Register of Deeds, previously named, and within five (5) days thereafter, the Titleholder shall provide a true copy of the recorded amendment, modification or termination to the Department.

If any provision of this Restrictive Covenant is also the subject of any laws or regulations established by any federal, state or local government, the stricter of the two standards shall prevail.

The undersigned person, if executing this Restrictive Covenant on behalf of the Titleholder, represents and certifies that they are duly authorized and have been fully empowered to execute and deliver this Restrictive Covenant.



I hereby attest to the accuracy of the statements in this document and all attachments. I further certify that the language on this form has not been modified in any way.

Legal Titleholder or Authorized Representative's Signature

JOHN K. BLANCHARD
DIRECTOR
WORLDWIDE REAL ESTATE

Print Legal Titleholder or Authorized Representative's Name

July 28, 2003
Date

EXECUTION RECOMMENDED
WORLDWIDE REAL ESTATE
BY

IN WITNESS WHEREOF, the said Titleholder of the above described property has caused the Restrictive Covenant to be executed on the 28 day of July (month), 2003 (year)

Signed in the presence of:

Witness

Kathleen M. Manga

Print Witness' Name*

Witness

DAVID G. SPENCER
Print Witness' Name*

* The notary shall not also serve as a witness.

The foregoing instrument was acknowledged before me this 28th day of July (month), 2003 (year)

by John K. Blanchard, Director, Worldwide Real Estate authorized 08/08/03

Sharon E. Boon, Notary Public

Wayne County, Michigan
(Insert County) (Insert State)

My Commission Expires: 12/17/2006

SHARON E. BOON
NOTARY PUBLIC WAYNE CO., MI
MY COMMISSION EXPIRES Dec 17, 2006

Drafted by:

Blanchard, Boucke & Lee Inc.
Company Name

Amy L. Hoeksema
Print Name of Drafter

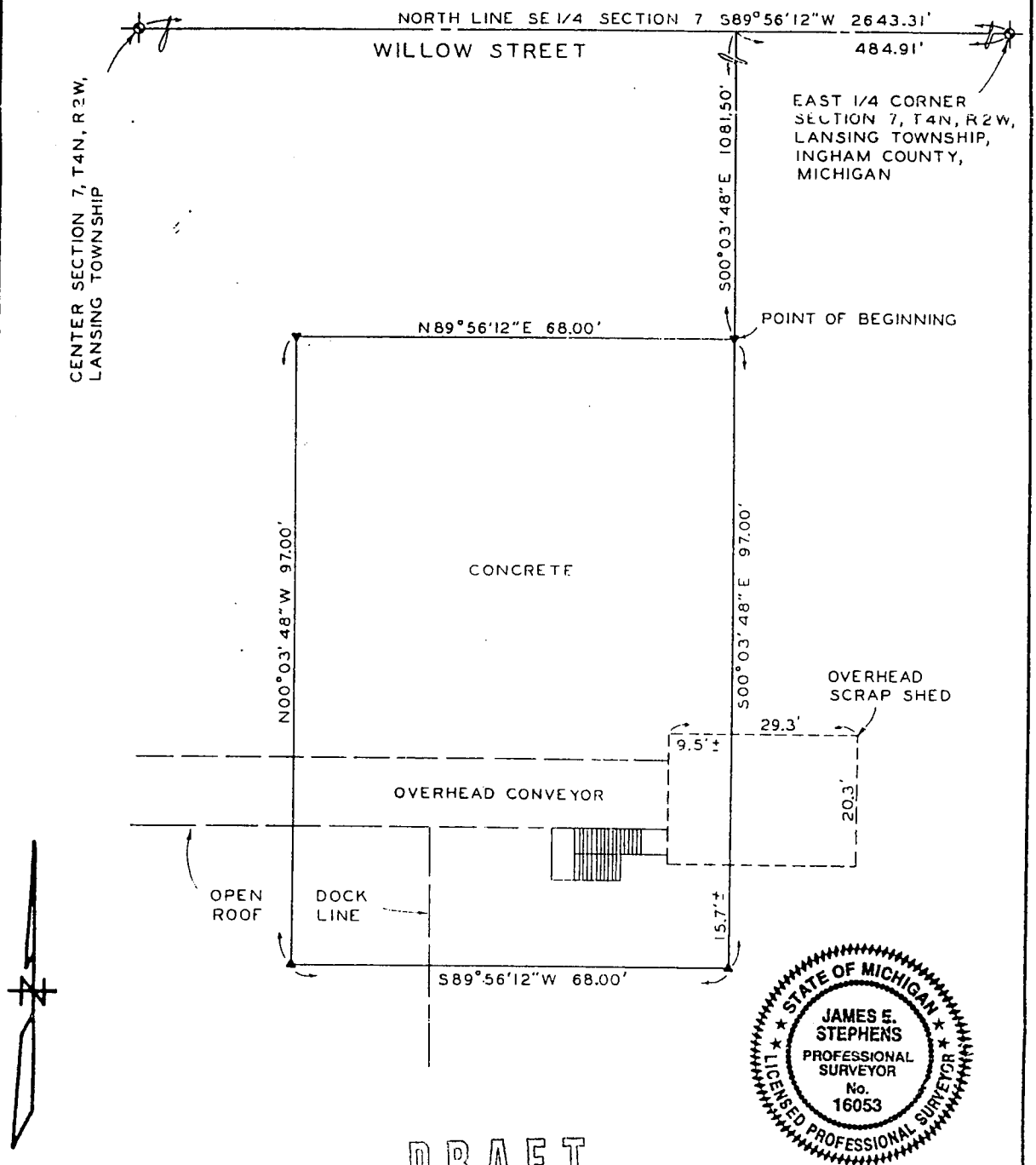
455 E. Eisenhower Pkwy. Ann Arbor, MI
Company Address

CERTIFICATE OF SURVEY

FOR General Motors
920 Townsend
Lansing, Michigan 48921

SURVEY OF PROPERTY LEGALLY DESCRIBED AS

That part of the Southeast 1/4 of Section 7, T4N, R2W, Lansing Township, Ingham County, Michigan, commencing at the East 1/4 corner of Section 7; thence running along the North line of said Southeast 1/4 S89°56'12"W 484.91 feet; thence S00°03'48"E 1081.50 feet to the point of beginning; thence continuing S00°03'48"E 97.00 feet; thence S89°56'12"W 68.00 feet; thence N00°03'48"W 97.00 feet; thence N89°56'12"E 68.00 feet to the point of beginning.



DRAFT

SCALE: 1"=20'

THE UNDERSIGNED LICENSED PROFESSIONAL LAND SURVEYOR HEREBY CERTIFIES THAT A SURVEY WAS MADE UNDER HIS SUPERVISION OF THE PROPERTY SHOWN ON ANNEXED PLAT, AND THAT THE SKETCH INDICATES THE DIMENSIONS AND ENCROACHMENTS OF SAID PROPERTY.

LEGEND

- ● – IRON STAKE
- O – MONUMENT
- X – X FENCE LINE
- ℄ – CENTER LINE
- R – RADIUS
- D – DEEDED DIMENSION
- M – MEASURED DIMENSION
- P – PLATTED
- ▲ – CONCRETE NAIL

STEPHENS-KYES & ASSOCIATES, INC.
1401 EAST LANSING DRIVE, SUITE 172
EAST LANSING, MICHIGAN 48823 – PHONE (517) 351-2574

BY James E. Stephens

LICENSED PROFESSIONAL LAND SURVEYOR NO. 16053

DATE Oct. 6, 2000 DRAWING NO. L-20624

ARCADIS

Plant 6 AOI 6-16
Tanks 5 and 6

RESTRICTIVE COVENANT

General Motors Corporation of 920 Townsend, Lansing, Michigan 48921 (hereinafter "Owner") has implemented a corrective action plan requiring institutional controls in the form of a Restrictive Covenant. The corrective action plan was developed as a result of releases from leaking underground storage tanks and was prepared pursuant to the provisions in Section 21310a(2) of NREPA. Regulated substances were discovered during the investigation and/or removal of underground storage tanks.

This Restrictive Covenant is being filed with the Ingham County Register of Deeds and covers lands commonly known as General Motors Corporation, Body Plant, Lansing, Michigan and more fully described in Exhibit A attached (the "Property"). The Restrictive Covenant defines the areas addressed by the corrective action plan and the scope of any land use or resources limitations. A drawing defining those portions of the Property addressed by the corrective action plan and this Restrictive Covenant ("Impacted Areas") is attached as Exhibit B. Land and resource use limitations include the following:

The following preventative maintenance, monitoring and other activities shall be performed:

a. Maintenance of current low permeable surfaces that cover Impacted Areas or provision of the installation of alternative low permeability surfaces if replacement of existing surfaces becomes necessary.

b. Development of procedures for performing intrusive work in Impacted Areas to ensure the health and safety of workers, and the protection of the public and the environment.

Now therefore Owner hereby imposes restriction on the Property and Impacted Areas and covenants and agrees that:

1. The Owner shall restrict activities on the Property that may interfere with correction action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.

2. The Owner shall restrict activities that may result in exposure to regulated substances above levels established in the corrective action plan.

3. The Owner shall prevent a conveyance of title, an easement, or any other interest in the Property from being consummated without adequate and complete provision for compliance with the corrective action plan and prevention of exposure to regulated substances described in Item 2 above.

4. The Owner shall grant to the Department of Environmental Quality ("Department") and its designated representatives the right to enter the Property at reasonable times for the purposes of determining and monitoring compliance with the corrective action plan, including but not limited to the right to take samples, inspect the operation of the corrective action measures, and inspect records.

5. Soil shall not be removed from the Impacted Areas unless it is characterized to determine it can be relocated without posing a threat to the public health, safety, welfare or environment in the new location.

6. The state may enforce the restrictions set forth in the covenant by legal action in a court of appropriate jurisdiction.

The restrictions and other requirements described in this Restrictive Covenant shall run with the land and be binding on the Owner's successors, assigns, and lessees or their authorized agents, employees, or persons acting under their direction or control. The restrictions shall apply until the Department determines that regulated substances no longer present an unacceptable risk to the public health, safety, or welfare, or to the environment. A copy of this Restrictive Covenant shall be provided to all heirs, successors, assigns, and transferees.

This Restrictive Covenant shall not be amended, modified, or terminated except by a written instrument executed by and between the Owner at the time of the proposed amendment, modification, or termination, and the Department. Within five (5) days of executing an amendment, modification, or termination of the Restrictive Covenant, the Owner shall record such amendment, modification, or termination with the Ingham County Register of Deeds, and within five (5) days after receipt by Owner of the recorded document, Owner shall provide a true copy of the recorded amendment, modification, or termination to the Department.

If any provision of this Restrictive Covenant is also the subject of any laws or regulations established by any federal, state, or local government, the stricter of the two standards shall prevail.

The undersigned person executing this Restrictive Covenant on behalf of the Owner represents and certifies that they are duly authorized and have been fully empowered to execute and deliver this Restrictive Covenant.

We hereby attest to the accuracy of the statements in this document and all attachments.

In witness whereof, the said Owner of the described Property has caused this Restrictive Covenant to be executed on this ___ day of _____, 1996.

Witnesses:

_____

_____

Owners:

General Motors Corporation

By: _____

Its: _____

State of Michigan)
)
County of)

The foregoing instrument was acknowledged before me this ___ day of October 1996 by _____ _____, _____ of General Motors Corporation, a _____ corporation, on behalf of the corporation.

_____

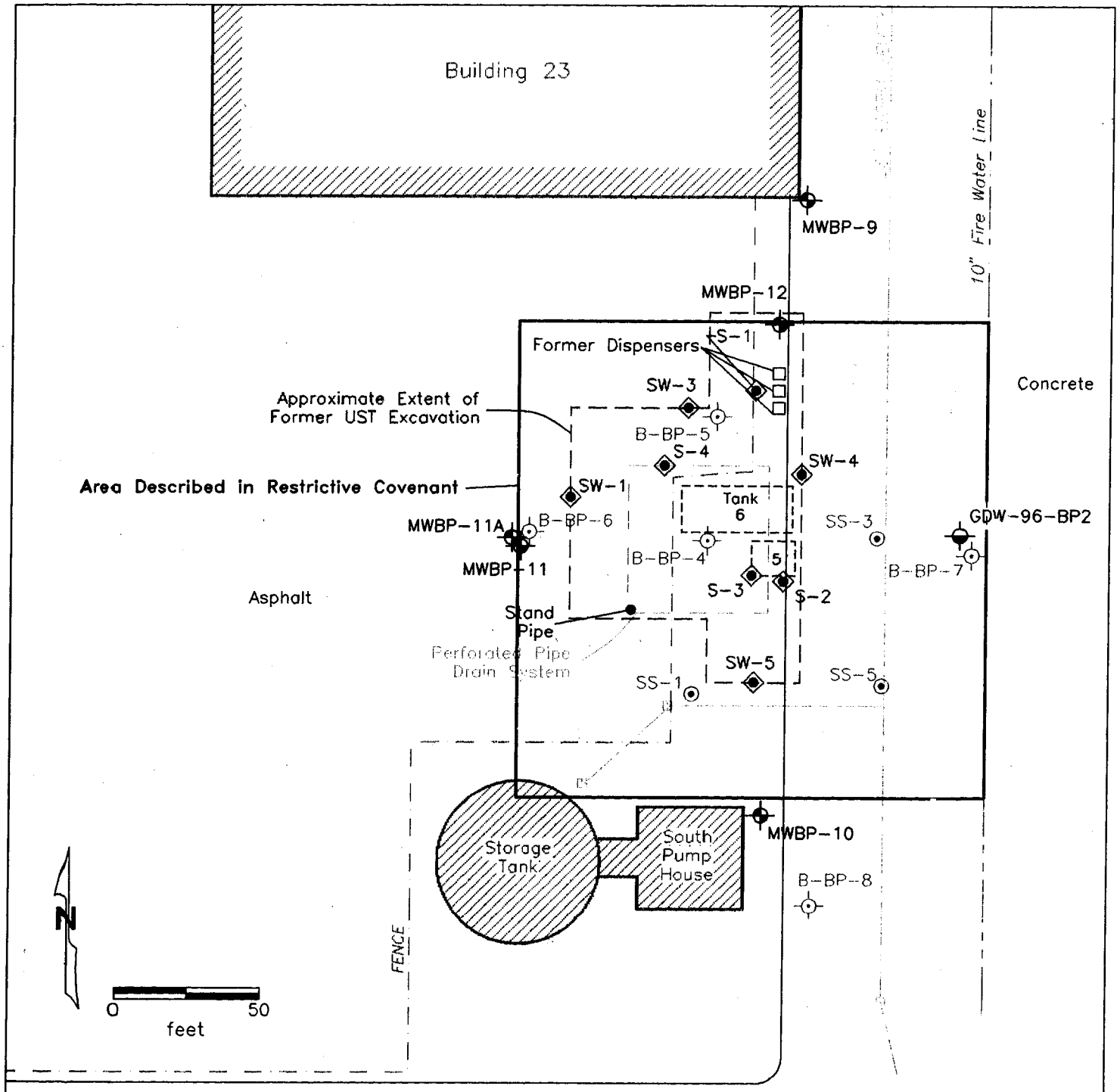
Notary Public, _____ County, MI
My Commission expires: _____

Prepared by:

Return to:

J:\X0\4696039D.003

Exhibit B



- Soil Sample Location
- Soil Boring Location
- Monitoring Well Location
- Temporary Well Location
- Hand Auger Boring Location
- Catch Basin Location

Area Described in Restrictive Covenant

Body Plant USTs 5 & 6,
General Motors Corporation
Lansing Automotive Division

City of Lansing,
Ingham County, Michigan

Environmental Science & Engineering, Inc.

DVL 08/18/95 4696-039-0003
Revised JCF 09/25/96 GMLB5ARC
Adapted from URS Consultants, Inc. drawing 35349, 8/2/94.

ARCADIS

Plant 6 AOI 6-17
Tanks 1 Through 4

RESTRICTIVE COVENANT

General Motors Corporation of 920 Townsend, Lansing, Michigan 48921 (hereinafter "Owner") has implemented a corrective action plan requiring institutional controls in the form of a Restrictive Covenant. The corrective action plan was developed as a result of releases from leaking underground storage tanks and was prepared pursuant to the provisions in Section 21310a(2) of NREPA. Regulated substances were discovered during the investigation and/or removal of underground storage tanks.

This Restrictive Covenant is being filed with the Ingham County Register of Deeds and covers lands commonly known as General Motors Corporation, Body Plant, Lansing, Michigan and more fully described in Exhibit A attached (the "Property"). The Restrictive Covenant defines the areas addressed by the corrective action plan and the scope of any land use or resources limitations. A drawing defining those portions of the Property addressed by the corrective action plan and this Restrictive Covenant ("Impacted Areas") is attached as Exhibit B. Land and resource use limitations include the following:

The following preventative maintenance, monitoring and other activities shall be performed:

a. Maintenance of current low permeable surfaces that cover Impacted Areas or provision of the installation of alternative low permeability surfaces if replacement of existing surfaces becomes necessary.

b. Development of procedures for performing intrusive work in Impacted Areas to ensure the health and safety of workers, and the protection of the public and the environment.

Now therefore Owner hereby imposes restriction on the Property and Impacted Areas and covenants and agrees that:

1. The Owner shall restrict activities on the Property that may interfere with correction action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.

2. The Owner shall restrict activities that may result in exposure to regulated substances above levels established in the corrective action plan.

3. The Owner shall prevent a conveyance of title, an easement, or any other interest in the Property from being consummated without adequate and complete provision for compliance with the corrective action plan and prevention of exposure to regulated substances described in Item 2 above.

4. The Owner shall grant to the Department of Environmental Quality ("Department") and its designated representatives the right to enter the Property at reasonable times for the purposes of determining and monitoring compliance with the corrective action plan, including but not limited to the right to take samples, inspect the operation of the corrective action measures, and inspect records.

5. Soil shall not be removed from the Impacted Areas unless it is characterized to determine it can be relocated without posing a threat to the public health, safety, welfare or environment in the new location.

6. The state may enforce the restrictions set forth in the covenant by legal action in a court of appropriate jurisdiction.

RESTRICTIVE COVENANT
- Continued -

The restrictions and other requirements described in this Restrictive Covenant shall run with the land and be binding on the Owner's successors, assigns, and lessees or their authorized agents, employees, or persons acting under their direction or control. The restrictions shall apply until the Department determines that regulated substances no longer present an unacceptable risk to the public health, safety, or welfare, or to the environment. A copy of this Restrictive Covenant shall be provided to all heirs, successors, assigns, and transferees.

This Restrictive Covenant shall not be amended, modified, or terminated except by a written instrument executed by and between the Owner at the time of the proposed amendment, modification, or termination, and the Department. Within five (5) days of executing an amendment, modification, or termination of the Restrictive Covenant, the Owner shall record such amendment, modification, or termination with the Ingham County Register of Deeds, and within five (5) days after receipt by Owner of the recorded document, Owner shall provide a true copy of the recorded amendment, modification, or termination to the Department.

If any provision of this Restrictive Covenant is also the subject of any laws or regulations established by any federal, state, or local government, the stricter of the two standards shall prevail.

The undersigned person executing this Restrictive Covenant on behalf of the Owner represents and certifies that they are duly authorized and have been fully empowered to execute and deliver this Restrictive Covenant.

We hereby attest to the accuracy of the statements in this document and all attachments.

In witness whereof, the said Owner of the described Property has caused this Restrictive Covenant to be executed on this _____ day of _____, 1996.

Witnesses:

_____

_____

Owners:

General Motors Corporation

By: _____

Its: _____

State of Michigan)
)
County of)

The foregoing instrument was acknowledged before me this _____ day of October 1996 by _____, _____ of General Motors Corporation, a _____corporation, on behalf of the corporation.

_____

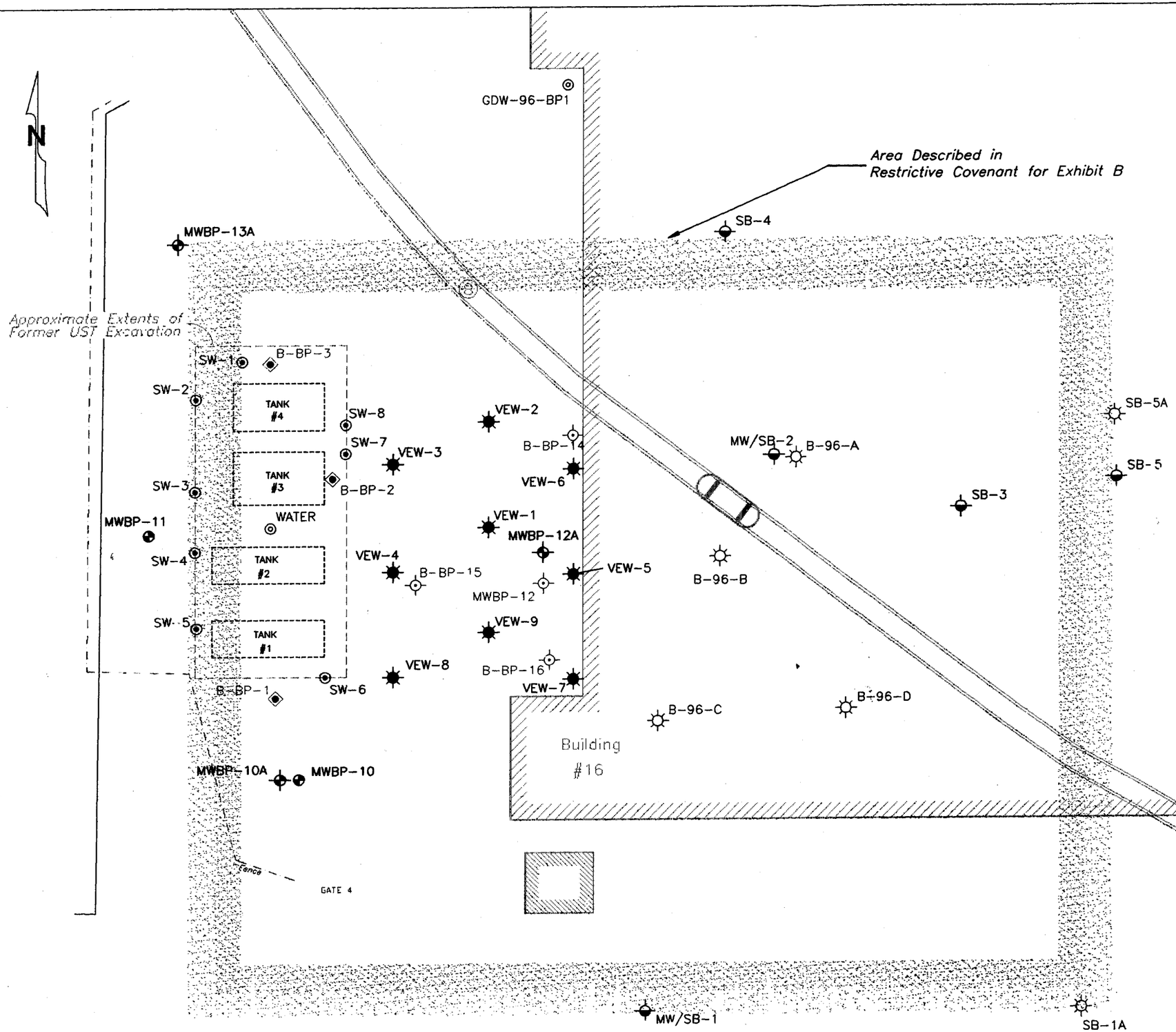
Notary Public, _____ County, MI
My Commission expires:

Prepared by:

Return to:

Area Descibed in Restrictive Covenant

Body Plant, USTs 1–4
General Motors Corporation–
Lansing Facility
City of Lansing,
Ingham County, Michigan



- Soil Boring Location (ESE–1996)
- Vapor Extraction Well Location (ESE–1995)
- Soil Boring Location (ABB)
- Soil Boring Location (URS)
- Soil Boring Location (SME–1995)
- Monitoring Well Location (ABB)
- Monitoring Well Location (URS)
- Soil Sample Location (ABB–1991)
- Groundwater Sampling Location

Approximate Scale

0 20 40
feet

Note: The Location and Scale of Features Inside of Building #16 are Approximate.

Environmental Science & Engineering, Inc.

JCF 09/25/95 4696-039-0003
Revised JCF 10/31/96 GMLBPEB

Adapted from URS Consultants drawing, 8/2/94 and SME drawing, 1/30/96.

ARCADIS

Plant 6 AOI 6-91
Dock 9 Hydraulic Oil Release

309

Paula Johnson
INGHAM COUNTY
REGISTER OF DEEDS
KURT CUNNINGHAM

RECORDED L-2888 P-557
309 19.00 2001-012375

2001-012375
Page: 1 of 6
03/23/2001 09:05A

NOTICE OF APPROVED ENVIRONMENTAL REMEDIATION

MDEQ Reference No.: NAER-ERD-01-003

This Notice of Approved Environmental Remediation (Notice) describes the environmental cleanup category and the land use restrictions approved by the Michigan Department of Environmental Quality (MDEQ) for the General Motors Corporation (GM) property located in the City of Lansing, County of Ingham, (the "Property").

Property Tax ID Number of Property: 3301-17-101-023

This Notice was filed by GM and recorded with the Ingham County Register of Deeds to protect public health, safety or welfare, or the environment.

On February 23, 2001 * (Date changed per MDEQ request) ~~2, 1996~~ the MDEQ approved GM's Remedial Action Plan (RAP) to address environmental conditions at the Property that are regulated under Part 201 of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended, MCL 324.20101 et seq.

Refer to Attachment A for the legal description of the Property and a survey of the area subject to Industrial land use restrictions.

The RAP is based on the Industrial land use criteria specified in Section 20120a(1)(d) of Part 201 of the NREPA. Therefore, use of the Property described in Attachment A is restricted to Industrial land use or use that is consistent with the assumptions and basis for the cleanup criteria established under Section 20120a(1)(d) of Part 201 of NREPA. Cleanup criteria and associated land use descriptions are located in the Government Documents section of the State of Michigan Library.

Refer to Attachment B for a description of the Industrial land use category.

As used herein, the term "owner" shall mean at any given time the then current titleholder of the Property.

The owner acknowledges that:

1. The owner or person transferring the interest of the Property shall provide a copy of this Notice to all future owners, heirs, successors, lessees, assigns or transferees.

2. All restrictions contained in this Notice shall be binding upon all future owners, successors, lessees or assigns and their authorized agents, employees, or persons acting under their direction and control.

3. All restrictions contained in this Notice shall run with the Property until the MDEQ or its successor approves modifications or rescission of this Notice.

= Kurt Cunningham 2663 Eaton Rapids Rd. 48911

The owner also acknowledges that:

1. Surface and subsurface soils on the Property contained within the restricted area described in Attachment A shall be managed following the requirements of Section 20120c of Part 201 of NREPA and other applicable state and federal laws.

2. The pavement over the restricted area, which acts as a cover and exposure barrier, must be maintained to prevent the migration of hydraulic oil, fumes or mist to the surface soil, and to prevent uncontrolled exposure to hazardous substances in the soil.

3. The restricted area described in Attachment A will be delineated in underground drawings and reviewed prior to conducting subsurface work to protect subsurface workers from exposure to hazardous substances in the soil.

The undersigned person executing this Notice is the Owner, or has the express written permission of the Owner, and represents and certifies that he or she is duly authorized and has been empowered to execute and deliver this Notice.

IN WITNESS WHEREOF, the said Owner of the above-described Property has caused this Notice to be executed on this 30 day of DECEMBER, 2000.

Conrad P. Schwartz

Conrad P. Schwartz
General Motors Corporation
MC 482-B38-C96
200 Renaissance Center
Detroit, Michigan 48265

2001-012375
Page: 2 of 6
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Signed in the presence of:

Witness Susan K Zuk (Signature)

Susan K Zuk (Print or type name)

Witness Kathleen M. Manga (Signature)

KATHLEEN M. MANGA (Print or type name)

STATE OF MICHIGAN
COUNTY OF WAYNE

The foregoing instrument was acknowledged before me this 30th day of December, 2000 by Conrad P. Schwartz of General Motors Corporation, a Delaware corporation, on behalf of the corporation.

Notary Public Sharon E. Boon (Signature)

SHARON E. BOON
Notary Public, Wayne County, MI
My Commission Expires 12/17/2002
(Print or type name)

Commissioned in Wayne County, Michigan

My Commission Expires: 12/17/2002

Prepared by KURT D. BLIZZARD (Type name)

ST. ENVIRONMENTAL PROJECT ENGINEER (Title)

920 TOWNSEND ST.
M.S. 489-070-035
LANSING, MI 48921
(Address)

ATTACHMENT A

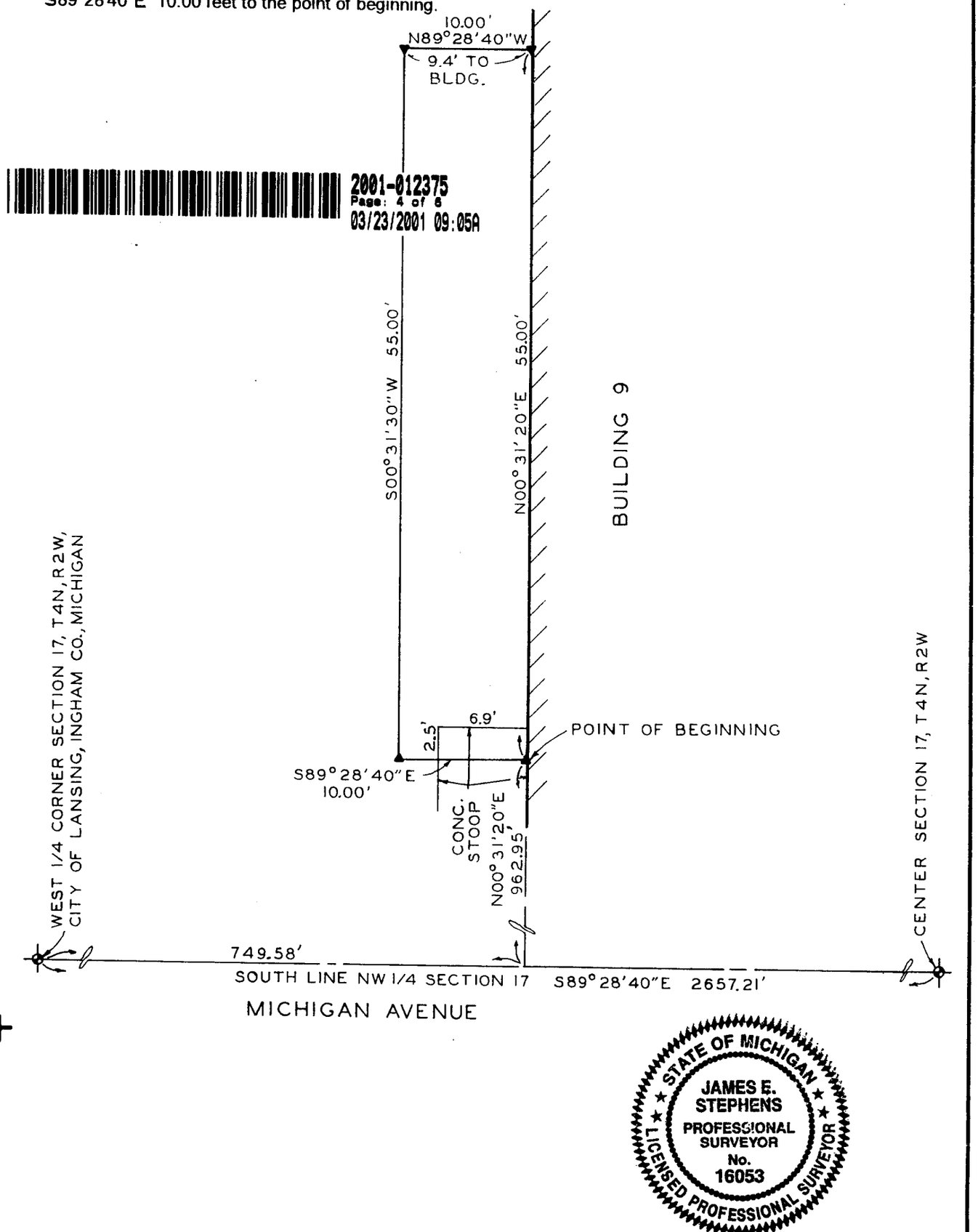
2001-012375
Page: 3 of 6
03/23/2001 09:05A

CERTIFICATE OF SURVEY

FOR General Motors Corporation
920 Townsend
Lansing, Michigan 48921

SURVEY OF PROPERTY LEGALLY DESCRIBED AS:

That part of the Northwest 1/4 of Section 17, T4N, R2W, City of Lansing, Ingham County, Michigan, commencing at the West 1/4 corner of Section 17; thence running along the South line of said Northwest 1/4 S89°28'40"E 749.58 feet; thence perpendicular to said South line N00°31'20"E 962.95 feet to the point of beginning; thence continuing N00°31'20"E 55.00 feet; thence N89°28'40"W 10.00 feet; thence S00°31'20"W 55.00 feet; thence S89°28'40"E 10.00 feet to the point of beginning.



STATE OF MICHIGAN
JAMES E. STEPHENS
PROFESSIONAL SURVEYOR
No. 16053
LICENSED PROFESSIONAL SURVEYOR

SCALE: 1" = 10'

THE UNDERSIGNED LICENSED PROFESSIONAL LAND SURVEYOR HEREBY CERTIFIES THAT A SURVEY WAS MADE UNDER HIS SUPERVISION OF THE PROPERTY SHOWN ON ANNEXED PLAT, AND THAT THE SKETCH INDICATES THE DIMENSIONS AND ENCROACHMENTS OF SAID PROPERTY.

LEGEND

- ● – IRON STAKE
- ▲ – CONCRETE NAIL
- O – MONUMENT
- X – X FENCE LINE
- ℄ – CENTER LINE
- R – RADIUS
- D – DEEDED DIMENSION
- M – MEASURED DIMENSION
- P – PLATTED

STEPHENS-KYES & ASSOCIATES, INC.
1401 EAST LANSING DRIVE, SUITE 112
EAST LANSING, MICHIGAN 48823 – PHONE (517) 351-2574

BY James E. Stephens

LICENSED PROFESSIONAL LAND SURVEYOR NO. 16053

DATE Aug. 4, 2000 DRAWING NO. L-20582

ATTACHMENT B

2001-012375
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03/23/2001 09:05A

Industrial Land Use Category. Industrial land use must be defined in the following two ways:

1. The primary activity at the property is and will continue to be industrial in nature (e.g., manufacturing, utilities, industrial research and development, petroleum bulk storage) and access is and will continue to be reliably restricted consistent with its use (e.g., by fences, security personnel, or both). Inactive or abandoned properties can be included in this category if the use was and/or will be industrial, as described above and access is controlled as necessary to assure unacceptable exposures do not occur. The industrial category does not include farms, gasoline service stations, or other commercial establishments where children may commonly be present.

2. The current zoning of the property is industrial, the zoning is anticipated to be industrial (see below), or the RAP includes documentation that the current industrial use is a legal non-conforming use. This may include different zoning designations, depending on the community, such as "light industrial" or "heavy industrial." Documentation of zoning must be provided in the form of a map or current property record card that shows the zoning status of the facility and all adjacent properties. If the RAP is based on anticipated zoning changes, discussion of this issue must indicate haw and when the zoning changes are to be accomplished. The RAP must identify (preferably on a map) the nearest current residential land uses and nearest parcels which are zoned for residential use. Any nonconforming land uses in the vicinity of the facility must be identified in the RAP (e.g., residential use on a parcel zoned "transitional industrial").

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ARCADIS

Appendix I

Miscellaneous Items

TABEL I-1
GM LANSING PLANT 2
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [(A)]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
2-18	Oil Interceptors	Located on edge of Building 250. Collects oil from housekeeping trenches before discharge to the storm sewer.	Building 250 Whole Building	Drawing Review	37 and 38	<5	Used Oil	Currently Operating
2-19	Flammable Spill Sump	Located on edge of Building 250	Building 250 North Side of Building	Drawing Review	37	<5	Flammable Liquids	Currently Operating
2-20	Paint Shop Spray Booth	Painting Operations	Building 206 D16-17	Drawing Review	OFF-1	<5	Paint	Prior to 3/2006
2-21	Sub-Basement with Sump	Flooded with inches of sludge…	Building 206 C14-15	Drawing Review	206.1025-AO1	<10	Paint Sludge	3/2006
2-22	Paint Shop Sump	Connected to a 2" process waste line which leads to industrial wastewater pre-treatment facility	Building 206 B14	Drawing Review	206.7018-A01	<10	Paint Shop :Liquid Wastes	3/2006
2-24	Body Shop Area Trenches and Sumps	CMM Trenches and Sumps (2)--Type B	Building 206 D5	Drawing Review	BS-400-BCAB-02	<10	Body Shop Area Liquid Wastes	3/2006
		Trenches and Sumps--Type B	Building 206B E6 and E8	Drawing Review	241.1011-A02			
		2 Sumps--Type B	Building 206 B6-7	Drawing Review	PA-500-GCAB-07			
		2 Sumps--Type B	Building 206 B6 and C7	Drawing Review	206.8000-A03			
		3 Type C Sumps	Buildings 206, 206C and 241 A3-5 and D2	Drawing Review	BS-400-GCAB-02			
2-25	Paint Shop Conveyor Transfer Pit	7 feet deep	Building 206 B5-7	Drawing Review	PA-500-GCAB-06	7	Paint Sludges	3/2006
2-26	Quench Oil Operations	Quench Oil Pits	Building 206C B8 and C8	Drawing Review	23	<10	Quench Oil	Prior to 3/2006
		Quench Oil Tank	Building 206 B4	Drawing Review	MF.804			
		Tank, Unknown	Building 206 A4	Drawing Review	206.4001-A01			
		Water Quench Pit	Building 206 B3-4	Drawing Review	206.4001-A01			
		Quench Oil Settling Tanks	Building 206 C3-4	Drawing Review	206.4001-A01			
		Type B sumps	Building 206 C4-5	Drawing Review	PA-500-GCAB-07			
2-27	Paint Shop Sumps and Trenches	Three Sumps are 3'x3'x3' each	Buildings 206 and 237 B1-3	Drawing Review	PA-500-GCAB-05	3	Paint Shop Liquid Wastes	3/2006
2-28	Body Wash System Drain Deck, Sumps and Trenching	Three Type B sumps and associated trenches.	Buildings 206, 206C, 237 and 241 A1, B1, D1 and E1	Drawing Review	BS-400-BCAB-01	<5	Body Wash System Liquids	3/2006
2-29	Compound Tank	Drawing Compound	Building 207 B11	Drawing Review	207.4001-A02	<15	Drawing Compound	Prior to 3/2006
2-30	Oil Storage AST and Oil Separator	10" oily waste line runs to separator. Water discharged to 12" sanitary sewer line. Salvage line flows via 6" pipe to oil storage tank.	Building 207 A10-11	Drawing Review	207.8000-A01	<15	Used Oil	Prior to 3/2006
2-31	Press Pit Operations	Two 3'x3' oil containment sumps under hydraulic presses	Building 207 A4-7	Drawing Review	207.4020-A01, 207.4022-A01	<15	Used Hydraulic Oil	Prior to 3/2006
		Press pit sumps		Drawing Review	207.4000-A01			
2-32	Oil Containment Sumps and Trench	2 oil containment sumps, 3'x3'	Building 207 B7-8	Drawing Review	207.4019-A01	3	Used Oil	Prior to 3/2006
2-33	Oily Waste Sumps	2 oily waste line manhole sumps	Building 207 A5	Drawing Review	207.4000-A01	<10	Oily Waste	Prior to 3/2006
2-34	Press Pits	2 Press Pits	Building 207 B5-6	Drawing Review	207.8004-A01	<15	Used Hydraulic Oil	Prior to 3/2006
2-35	Tramp Oil Trenches and Sumps	6" deep trenches	Building 207 B1-4	Drawing Review	207.4011-A01	<4	Used Tramp Oil	Prior to 3/2006
		3' deep sumps		Drawing Review	207.4011-A01			
2-36	Oil Separator and Sump	10" oily waste line runs to separator.	North Side of Building 231	Drawing Review	MF.804	<10	Used Oil	Prior to 3/2006

TABEL I-1
GM LANSING PLANT 2
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [(A)]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
2-37	Press Pits	Concrete press pits.	Building 242 C2-5	Drawing Review	242.4003-A1	<15	Used Hydraulic Oil	Prior to 3/2006
		One sump associated with presses.	Building 242 B2	Drawing Review	242.4003-A1			
2-38	Scrap Steel Operations Pits	Scrap Steel Pits, 8' Deep	Building 242 A3-5	Drawing Review	242.4019-A2	<15	Scrap Steel and Oily Waste	Prior to 3/2006
		Scrap Pit oily waste sump	Building 242 B2	Drawing Review	242.4019-A2			
2-39	Fuel Oil Pump House and Tank Farm	Eight oil storage tanks, 10.5' in diameter. Trenching associated with tanks. Three truck unloading stations associated with tanks	Building 223	Drawing Review	223.7002-AO1	<15	Fuel Oil	Prior to 1983
2-40	Exhaust Manifold Area Sumps and Trenching	Seven sumps. Three are 2'x2'x2'. Four are 1'x1'x1'	Building 238 A1-8	Drawing Review	238.1004-A1-A4	<2	Exhaust Manifold Area Liquid Wastes	Prior to 3/2006
		6" wide and 15" deep	Building 238 A1-2	Drawing Review	238.1004-A1			
2-41	COE Drive Pit and Sumps	COE Drive Pit	Buildings 202 and 238 A6-11	Drawing Review	202.4001.A01	<5	Used Oil and Waste Grease	Prior to 3/2006
		2 Type B Sumps		Drawing Review	202.4001-AO1			
2-42	Fluid Fill Operations	Gasoline and Fluid Fill Area--includes a used oil discharge pump with a fire containment pit, a waste gas discharge pump with a separation tank, a gas fill pit, and three sumps.	Building 202 C4-10	Drawing Review	201.7000-AO1, TR-600-GCAB-13	<10	Gasoline, Used Gasoline, and Used Oil	3/2006
2-43	Gas Tank Leak Test Drain Deck	10'x10' gas tank leak test drain deck with Type B sump and trenching	Building 202 D12	Drawing Review	202.7003-AO2	<5	Used Gasoline	Prior to 3/2006
2-44	C.O.E. Pits	One Type B sumps & trenching associated with pits	Building 201 C5	Drawing Review	202.4001-AO1	<5	Used Oil and Waste Grease	Prior to 3/2006
2-45	C.O.E. Pits	One Type B sumps & trenching associated with pits	Building 201 B1 and C1	Drawing Review	202.4001-AO1	<5	Used Oil and Waste Grease	Prior to 3/2006
2-46	Soluble Oil Sump	N/A	Building 201 C11	Drawing Review	25	<5	Used Soluble Oil	Prior to 3/2006
2-47	Building 204 Basement Sumps and Trenching	Sumps and trenching	Building 204 Whole Building	Drawing Review	204.1501-AO2	<20	Oily Water	3/2006
2-48	Paint Spray Booth and Sumps	Sumps connected to waste treatment line.	Building 205 C10-12	Drawing Review	205B.1009-AO4	<10	Paint and Waste Paint	3/2006
2-49	Trenches and Hammer Pits	Associated with Press Operations	Building 207 A2-11	Drawing Review	207.0000-A01	<10	Unknown	Prior to 3/2006
2-50	Toe-in Sump	Type B Sump	Building 203 C2	Drawing Review	203.1005-AO1	<15	Used Oil and Waste Grease	3/2006
2-51	Sumps	Type B Roll Test Sump	Building 203 C4	Drawing Review	203.1005-AO1	<10	Used Oil and Waste Grease	3/2006
		Type B Sump, Final Line Sump	Building 203 C5	Drawing Review	203.1005-AO1			
2-53	E-Coat System Drain Deck	4 Type B sumps and trenching (1' wide)	Building 206 C1-7	Drawing Review	PA-500-GCAB-06, 206.1014-A02	<5	E-Coat System Liquid Wastes	3/2006
2-54	2 Slag Pits	Adjacent to ajax furnaces	Building 208A B3 and B7	Drawing Review	208A.9004-ACL	<5	Slag	3/2006
2-55	PCB Storage Deck	10'x12' with one 1' deep sump in the center	Building 208A D1	Drawing Review	208A.9004-ACL	1	PCBs	3/2006
2-56	Pits	2 Pits, 6' by 10'	Building 204 B4	Drawing Review	4383 Sheet 3	<10	Unknown	Prior to 3/2006
2-57	Tunnel	N/A	Building 204 F-G/4-8	Drawing Review	4383 Sheet 3	<15	Process Waste	3/2006
2-58	Storm, Sanitary, and Process ("Oily Waste") Sewers	Throughout Facility	Throughout Facility	Drawing Review	Taken from electronic drawing	<30	Storm Water, Sanitary Waste Water, Process Waste Water	3/2006
2-59	Press Pits	8' 4" deep, 21' by 35' and 67' by 25'	Building 201 D3, E3, F3, D-F/21-22, and K-M/21-22	Drawing Review	4383 Sheet 3	9	Used Hydraulic Oil	Prior to 3/2006
2-60	Take-Up Pit and Sumps	Take-up Pit, 9' wide, 7' deep, 2 Sumps on either end are 2.5 wide, 2' deep	Buildings 203, 205 and 209 D and C	Drawing Review	209.1003-AO1, 209.1093-A01	9	Used Hydraulic Oil	3/2006

TABEL I-1
GM LANSING PLANT 2
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [(A)]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
2-61	Paint Room and Stripping Tank	N/A	Building 226 D	Drawing Review	201.105-AO1	<10	Paint and Waste Solvents	3/2006
2-62	Body Area Sumps	9 Sumps	Buildings 206, 206C and 241 A3-5 and D2	Drawing Review	BS-400-GCAB-02	<5	Liquid Wastes	Prior to 3/2006
2-63	Process Waste Sump	1 Sump, 3 by 3 by 5	Building 205B B12	Drawing Review	PR-600.0K.002-ME	5	Process Waste	Prior to 3/2006
2-64	Paint Repair Area Sump	1 sump, 3 by 3 by 6.5	Building 205B B3	Drawing Review	205B.7006-AO1	7	Paint Repair Area Liquid Wastes	Prior to 3/2006
2-65	Phosphate Storage Tank Pit	11' deep with epoxy waterproof coating.	Buildings 206 and 237 B1-3 and C1	Drawing Review	206.1014-A01	11	Phosphates	3/2006
2-66	Current Flammable Waste Storage Building	Building Transferred from AOI 2-5 to 2-66	Outside NE corner of 242	Drawing Review	N/A	0	Flammable Wastes	Currently Operating
2-67	New Product AST Farm	Stores new oil	East of 201B	Drawing Review	N/A	0	Gasoline, Diesel, and Oil	3/2006

ROSEMARY ST.

ROSEMARY ST.

ROSEMARY ST.

WEST MICHIGAN AVE.

WEST MICHIGAN AVE.

IONIA ST.

SAGINAW STREET

ID 2-18

ID 2-19

ID 2-61

ID 2-62

ID 2-53

ID 2-24

ID 2-28

ID 2-27 & 2-65

AOI 2-20

AOI 2-21

ID 2-22

ID 2-25

ID 2-26

ID 2-29

ID 2-30

ID 2-60

ID 2-51

ID 2-64

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ID 2-54 & 2-55

ID 2-56

ID 2-42

ID 2-37

ID 2-46

ID 2-59

ID 2-59

ID 2-44

ID 2-40

ID 2-45

ID 2-66

ID 2-67

ID 2-39

COOLING TOWER

251

250

252

240

236

241

206

B

C

237

205B

205

209

203

222

204D

207

235

204

202

238

201

201B

208A

208

242

239

229

LEGEND:

ID 2-18 AREA OF INTEREST (AOI)

229 BUILDING NUMBER

APPROXIMATE PROPERTY BOUNDARY

BUILDING LINE

COLUMN LINE

RAILROAD

NOTE:

BASE MAP SUPPLIED BY GM, FROM A FIGURE TITLED "LANSING CAR ASSEMBLY BODY PLANT MASTER UNDERGROUND UTILITY DRAWING", FILE NO. PLT6MASTER-UNDERGROUND-UTILITIES.DWG.

0 200'

GRAPHIC SCALE

GENERAL MOTORS CORPORATION
LANSING, MICHIGAN
PLANTS 2, 3, AND 6
CURRENT CONDITIONS REPORT

PLANT 2 MISCELLANEOUS ITEMS

ARCADIS

FIGURE
I-1

CITY:BRIGHTON DIV/GROUP:85 DB:ADF LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
J:\2008\B0064479\000\003\DWG\64479B04.dwg LAYOUT: I-1SAVED: 7/24/2008 2:43 PM BY: FOX, AARON
---PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/24/2008 2:43 PM BY: FOX, AARON

XREFS:
64430X01
64479X03
64479X02
Plt. 2 Master-Utility-UG

IMAGES:

PROJECTNAME: ---

TABLE I-2
GM LANSING PLANT 3
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [(A)]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
3-12	Sump for Rod Operations	Sump (1'x1'x1')	Building 302A D14	Drawing Review	302A.449-A2	1	Rod Operations Liquid Wastes	Prior to 2006
3-13	Henry Filter Pits and Trenching	Coolant Trench and Sump, 1' 2" wide sluice trench	Building 302A C14	Drawing Review	302A.449-A1A	<15	Used Hydraulic Oil	Prior to 2006
		Coolant Trenching	Building 302A E14 and F14	Drawing Review	302A.446-A4			
		Henry Filter Pits and Trenching	Building 302A A-R/12-15	Drawing Review	Multiple Drawings			
3-14	Oiler Deck with Trench and Sump	2'x2'x3' sump connected to 27'x1' trench	Building 302A B12	Drawing Review	302A.442-A1	3	Used Oil	Prior to 2006
3-15	Oil Sump for Crank Shaft Operations	N/A	Building 302A K12	Drawing Review	302A.438-A3	<15	Used Oil	Prior to 2006
3-16	Former Sumps	Two 2'x2'x2' sumps	Building 302A D-E/12-13	Drawing Review	302A.410-A4	2	Unknown Liquid Wastes	Prior to 2006
3-17	Broach Machine Filter Pit	9' by 20' by 9' pit	Building 302A A13	Drawing Review	302A.401-A3	9	Used Oil	Prior to 2006
3-18	Drum Storage	One empty storage area, one full storage area. Full area has 5 storage racks and one biocide storage rack	Building 302 N8-9	Drawing Review	302.1-9	0	Empty and Full Drums (Unknown Contents)	11/2006
3-19	Rack Wash Booth, Trenching and Sump	Pumps discharge to oily waste line	Building 302 C4	Drawing Review	302.0184-A1; 302-1-8	3	Rack Wash Booth Liquid Wastes	11/2006
3-20	Chip Conveyor	2' deep conveyor	Building 302 G7	Drawing Review	302.431-A1; 302-1-11	2	Used Oil, Metal Chips	Prior to 11/2006
3-21	Coolant Clarifier, Collecting Tank Trenches and Pits, and Drain Deck and Sumps	4,200-gallon coolant collection tank; 1,900-gallon coolant collecting tank; drain-trench system; filtration system pit and flotation clarifier system pit	Building 302 H-N/6-9	Drawing Review	302.424-A7; 302-1-10	<15	Used Coolant	Prior to 11/2006
		Drain Deck with Sumps, Six sumps, 1' diameter and 3' deep. Four 16" deep trenches.	Building 302 J-K/9	Drawing Review	302.445-A1			
		Sumps for Belco Washer, 2 sumps	Building 302 H-J/7	Drawing Review	302.431-A1			
		2 ' diameter and 3' deep sumps	Building 302 M-N/7-8	Drawing Review	302.444-A1A; 302-1-9; 302-1-10			
		Pit and associated 4'x4'x4' sump	Building 302 K9-10	Drawing Review	302.4166-A1-A2			
3-22	Former Trainwell Sumps	2' diameter sumps and associated trenching	Building 302 A1	Drawing Review	302.0121-A1; 302-1-4	<5	Used Grease and Oil	Prior to 2006
3-23	Tramp Oil Decks with 2 Sumps	2 sumps	Building 302 M11	Drawing Review	302.4201-A7, 302.4206-A1; 302-1-14	<5	Tramp Oil	Prior to 11/2006
3-24	Former Knuckle Area Drain Deck Trenching and Sump	1' deep trench ending in a 3.5' deep sump	Building 302 B-D/3	Drawing Review	302.4203-A1,A2; 302-1-4	5	Used Oil	Prior to 2006
3-25	Cooling and Quench Water Pits	Ten pits, 63'x15'x8'	Building 302 K5-7	Drawing Review	302.4200-A1	8	Coolant Quench Water	Prior to 2006

TABLE I-2
GM LANSING PLANT 3
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [(A)]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
3-26	Repair Area Parts Washer	N/A	Building 302 E2	Drawing Review	302.090-A2; 302-1-3	<5	Solvents	11/2006
3-27	Filter Pit and Sump	55'x10.5'x19' Pit with associated sump	Building 302 E-F/5-7	Drawing Review	302.4188-A1; 302-1-7	<25	Unknown Liquid Wastes	Prior to 2006
3-28	Washer Trenching and Sump	6" wide trench with a 9' 4" x 4' 10" sump pit	Building 302 A10 and B10	Drawing Review	302.066-A4; 302-1-16	<5	Washer Area Liquid Wastes	Prior to 11/2006
		Drain Deck Trenching and Sump for Double Polishers	Building 302 A11 and B11	Drawing Review	302.066-A4; 302-1-16			
3-29	Former Trainwell Trench and Sumps	9" wide trench connected to 3' 4" wide and 1.5' deep sump	Building 302 A-B/9-12	Drawing Review	302.066-A1,A2; 302-1-16	2	Used Grease and Oil	Prior to 2006
3-30	Paint Booth	Spray paint booth and paint storage cabinets	Building 301 J13	Drawing Review	301.136-A1; 301-1-0-D	0	Waste Paint	Prior to 11/2006
3-31	Truck Repair Wash Booth Sump	3' deep sump with 2' diameter cover	Building 301 B5	Drawing Review	301.143-A3; 301-1-0-D	3	Truck Repair Area Wash Booth Liquid Wastes	Prior to 11/2006
3-32	Oil Interceptor Grease Trap for Truck Dock	500-gallon oil interceptor and grease trap	Building 301 A13	Drawing Review	301.153-A12; 301-1-0-D	<10	Used Oil and Grease	11/2006
3-33	Die Wash Booth and Sump	N/A	Building 305 D10	Drawing Review	305-1-30	<5	Die Wash Booth Area Liquid Wastes	11/2006
3-34	Steam Clean Booth Sump Pit	N/A	Building 305 B9	Drawing Review	305-1-23	<5	Steam Clean Booth Area Liquid Waste	Prior to 2006
3-35	IMF Washer Sumps and Trenches	10" deep trenching with associated 3'x3'x4' deep sump	Building 301 D8-9	Drawing Review	301-1-0-D	5	Unknown	Prior to 2006
3-36	2 sumps	N/A	Building 301 F14	Drawing Review	301-1-0-D	<5	Unknown	Prior to 2006
3-37	Bumper Oil Booth Drainage Trench and Sump	31' long and 3' wide trench with associated 1.5' diameter dry sump	Building 301 E4	Drawing Review	301.4112-A1; 301-1-0-D	2	Used Oil	Prior to 2006
3-38	IMF Washer Sumps and Trenches	92' x 15' area with associated 4' deep sump	Building 301 H10-12	Drawing Review	301.4119-A1; 301-1-0-D	4	Unknown	Prior to 2006
3-39	IMF Drain Deck Gon Washer Trench and Sump	6" wide trench, approximately 13' long	East of A14 Building 301 A14	Drawing Review	301.4118-A1; 301-1-0-D	<10	Unknown	Prior to 2006

TABLE I-2
GM LANSING PLANT 3
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [A]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
3-40	Press Pit Operations	Crescent Extruding Fixture Sump - 1' 8" diameter sump, 3' deep	Building 301 C15	Drawing Review	301.4126-A1	<25	Used Hydraulic Oil	11/2006
		Oil Settling Tank	Building 301 D8-9	Drawing Review	301.4132-A1			
		Press Pit Sump	Building 301 F14	Drawing Review				
		Press pit and associated sump	Building 301 B14	Drawing Review	301.492-A1			
		One press pit and associated 2' deep sump	Building 301 A15-16	Drawing Review	301.456-A25			
		2 Press Pits	Building 301 A9-13	Drawing Review	301.457-A1; 301-1-0-D			
		Clearing Presses Sump (1'x1'x1')	Building 301 A6	Drawing Review	301.4131-A1			
		Press Pits Oil Trenches (3' deep)	Building 301 A1-5	Drawing Review	301.4141-A53,A58			
		Press Pit and Trenches	Building 301 B9-12	Drawing Review	301.4141-A30			
		Bumper Line Press Pits	Building 301 A10-13	Drawing Review	301.4102-A2,A1, 301.4137-A3			
		Danly Press Pits and Trap Oil Gondola	Building 301 A11-13	Drawing Review	301.4115-A2, 301.758-A1			
		Press Pits Oil Trenches	Building 301 A-B/9-12	Drawing Review	301.4141-A21			
		Press Pit Trench and Sump (2'x2'x2')	Building 301 B8	Drawing Review	301.4142-A2			
3-41	Oil Sump in Truck Dock	N/A	Building 304 F20	Drawing Review	304.184-A1	<10	Used Oil	Prior to 2006
3-42	Bin Cleaning Drain Deck Sumps	Two sumps	Building 304 B16	Drawing Review	304.159-A1	<5	Bin Cleaning Area Liquid Wastes	Prior to 2006
3-43	Heil Compactor, Hydraulic Oil Containment and Sump	N/A	Building 304 A21	Drawing Review	305.111-A2	<5	Used Hydraulic Oil	Prior to 11/2006
3-44	Steam Cleaning Booth Sump	3' deep sump; 8" drain pipe connects sump to an oil collection pit	Building 305 B9	Drawing Review	305.709-A1, 305.414-A1	3	Steam Cleansing Area Liquid Wastes	11/2006
3-45	Housekeeping Sump	3'x 3'x3' sump	Building 305 A21	Drawing Review	305.425-A1	3	Unknown	Prior to 2006
3-46	Carden Washer Sump and Trenches	1.5'x3'x2'4" sump	Building 305 A3	Drawing Review	305.014-A2	3	Carden Washer Area Liquid Wastes	Prior to 2006
3-47	RWC Welder Pit and Sump	2'x2'x2' sump	Building 305 C18	Drawing Review	305.025-A1	2	RWC Welder Area Liquid Wastes	Prior to 11/2006
3-48	Blanking Line and Shear Equipment Sump and Trenches	2'x2'x1.5' deep sump; trenching between 2 and 4 inch deep	Building 305 A1	Drawing Review	305.027-A1	2	Used Hydraulic Oil	Prior to 2006

TABLE I-2
GM LANSING PLANT 3
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [(A)]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
3-49	Cooling Water Tower Chemical Feed Area	Containers that store sodium hypochlorite, spectrus NX 114, Continuum AEC 231, Corr shield MD400, Inhibitor A28101; Trenching and sumps associated with operations.	Building 305 A1 and B1	Site Walkthrough	N/A	<10	Cooling Water Chemicals	11/2006
3-50	Copper Buffing Operations	Dry dust collectors and wash and rinse tanks	Building 301 F4-6	Drawing Review	301.0121-A1A; 301-1-0-D	<10	Copper Buffing Agents	Prior to 11/2006

TABLE I-2
GM LANSING PLANT 3
MISC. ITEMS

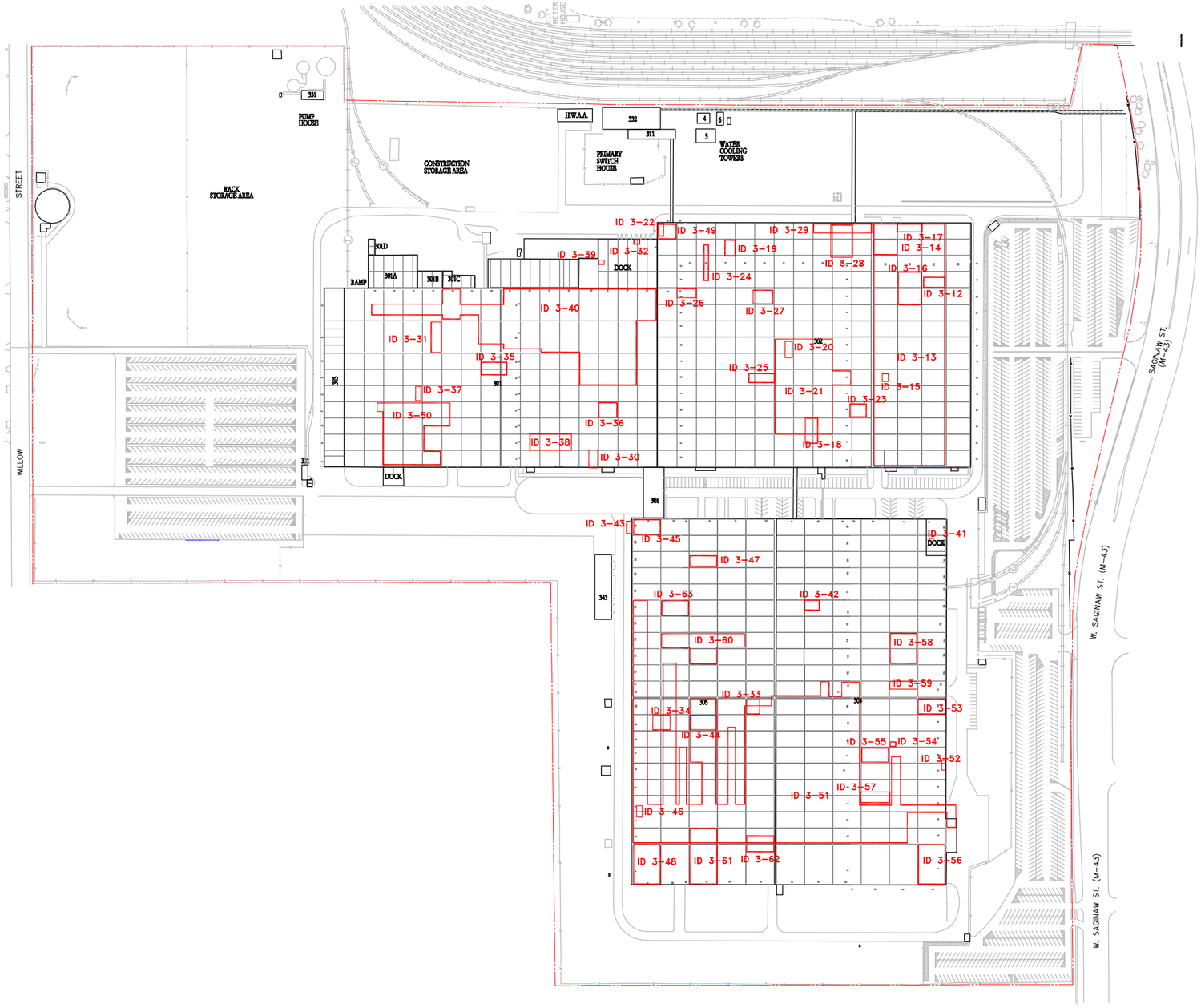
CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [(A)]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
3-51	Basement of 304 and 305 Press Pit Operations	Danly Press Utility Trench	Building 304 B1-3	Drawing Review	304.434-A2	<25	Used Hydraulic Oil	11/2006
		Press Pits Sump (12" deep)	Building 304 B6 and C6	Drawing Review	304.165-A1			
		Four Danly Surge Tanks (16" diameter)	Building 304 C5-9	Drawing Review	304.158-A3, 304.001-A25-26			
		Scrap Pit	Building 304 F4	Drawing Review	304.479-A1			
		Blanker Pits and Sumps (Eight 2'x2'x2' deep sumps; Six 1'x1'x1' deep sumps)	Building 304 A-E/2-3	Drawing Review	304.043-A5			
		Auxiliary Waste Sump	Building 304 B8	Drawing Review	304.712-A2			
		Oil Spill Trench Under 240 Press Line	Building 304 B4-8	Drawing Review	304.484-A1			
		Press Pit, Trenching and Sump	Building 304 E2 and E3	Drawing Review	304.466-A2			
		Panel Die Tag Out Line Oil Trench and Sump	Building 304 E4-7	Drawing Review	304.454-A7			
		Press Pits, Sumps and Trenches	Building 304 D-E/2-3	Drawing Review	304.410-A1, 304.402-A1, 304.403-A1, 304.405-A1, 304.411-A1, 304.412-A1, 304.414-A1, 304.426-A1			
		E Press Line Sumps and Trenches	Building 305 E4-10	Drawing Review	305.088-A2-3			
		Press Pit and Sump	Building 305 A8-10	Drawing Review	305.721-A3			
		Press Pit	Building 305 A6-8	Drawing Review	305.721-A3			
		Hood Press Line Oil Trench and Sumps	Building 305 A-B/9-13	Drawing Review	305.413-A1-3			
		Danly Press Pit, Trenching and Sump	Building 305 A2 and A3	Drawing Review	305.415-A16			
		Shock Tower Press Sumps and Trenching	Building 305 A4-6	Drawing Review	305.418-A2			
		Fender Press Line Trench and Sumps	Building 305 D3-9	Drawing Review	305.419-A12			
		Clearing Toggle Press Sump	Building 305 A16	Drawing Review	305.421-A1			
		Try Out Press and Sump and Trench	Building 305 A13-15	Drawing Review	305.426-A1			
		Syncromatic Press Line Sumps and Trenches	Building 305 A6-12	Drawing Review	305.428-A4-6			
		Bumper Reinforcement Press Line Sumps and Trenches	Building 305 C-D/3-8	Drawing Review	305.407-A6-9			
		Rersion Presses Sumps and Trenches	Building 305 A-B/1-3	Drawing Review	305.410-A12 ,14, 21			

TABLE I-2
GM LANSING PLANT 3
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [(A)]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
3-52	Battery Charging Area	Batteries and Chargers	Building 304 F6 and F7	Drawing Review	304 Die Room	0	Batteries	11/2006
3-53	Oilers Crib	Oilers Crib - Consists of one recycle oil tank, an oil reclaim filter unit surrounded by a trench area, and associated sump	Building 304 F10	Drawing Review	304-1-36, 304.0156-A1	<5	Used Oil	11/2006
3-54	Sump	Sump pit with sump pump, unknown use	Building 304 E8	Drawing Review	304-1-29, 304.719-A1	<5	Unknown	Prior to 2006
3-55	Die Cleaning Booth	Sump/Sump Pit	Building 304 D7	Drawing Review	304.054-A1, 304.0114-A1, 304.719-A1	<5	Die Cleaning Area Liquid Wastes	11/2006
3-56	Foundation for Niagra Press	Niagra Press Sump	Building 304 F1	Drawing Review	304.435-A1	<10	Used Hydraulic Oil	Prior to 2006
3-57	Die Room Hydraulic Spotting Press Sump	Press Pit Sump	Building 304 D4-5	Drawing Review	304.090-A3	10	Used Hydraulic Oil	Prior to 2006
3-58	LADD Washer	Trench and Sump	Building 304 E13 and E14	Drawing Review	304.448-A1	<5	LADD Washer Area Liquid Wastes	11/2006
3-59	Broach Pit Sump	3' deep sump	Building 304 E11	Drawing Review	304.470-A1	3	Used Oil and Metals Chips	11/2006
3-60	Press Operations	Trenching and Sumps	Building 305 B-D/14 and C13	Drawing Review	305.114-A5-9, 11	<10	Used Hydraulic Oil	Prior to 11/2006
		Press Drainage Trench	Building 305 C13	Drawing Review	305.030-A4			
3-61	Automatic Feed Line	Automatic Feed Line Press Sumps and Trenches	Building 305 C1 and C2	Drawing Review	305.020-A1	<10	Unknown	11/2006
3-62	Press Feed Line	Press Feed Line Sump (3' Deep)	Building 305 E1 and E2	Drawing Review	305.405-A2	<5	Used Hydraulic Oil	11/2006
3-63	Hemming Press Operations	Hemming Press Sumps and Trenches	Building 305 B16	Drawing Review	305.017-A2	<10	Used Hydraulic Oil	11/2006



LEGEND:

- ID 3-1 — AREA OF INTEREST (AOI)
- 301 — BUILDING NUMBER
- APPROXIMATE PROPERTY BOUNDARY
- BUILDING LINE
- COLUMN LINE
- RAILROAD

NOTE:

BASE MAP INFORMATION BASED ON INFORMATION PROVIDED BY URS CONSULTANTS, INC. FROM MAPS ENTITLED "ANALYTES DETECTED IN GROUNDWATER – 4/94 (ug/L)", DATED APRIL, 1994, AND "SOIL BORING LOCATIONS, GM LAD PLANT NO. 3, BLDG. NO. 301C" (UNDATED); BY EDI ENGINEERING & SCIENCE FROM MAPS ENTITLED "TOTAL CHROMIUM CONCENTRATION HORIZ. EXTENT OF CHROMIUM IMPACT" DATED APRIL, 1990, "BORING AND CROSS–SECTION LOCATION MAP", DATED JUNE, 1989, "SOIL BORING LOCATIONS INSIDE OF THE PLANT", DATED JUNE, 1989, "LOCATION OF FRENCH DRAIN", DATED JUNE, 1989, AND "SOIL SAMPLING LOCATIONS", DATED JUNE, 1989, AND BY ENVIRONMENTAL SERVICES DIVISION FROM FIGURE ENTITLED "STORAGE TANK #12" DATED JUNE, 1990.

0 300'
GRAPHIC SCALE

GENERAL MOTORS CORPORATION
LANSING, MICHIGAN
PLANTS 2, 3, AND 6
CURRENT CONDITIONS REPORT

PLANT 3 MISCELLANEOUS ITEMS

ARCADIS

FIGURE
I-2

CITY:BRIGHTON DIV/GROUP:85 DB:ADF LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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Plt. 3 UnderGround-All

TABLE I-3
GM LANSING PLANT 6
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [A]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
6-22	New Transfer Can Pit	16'x16'x2'	Building 17 FF7	Drawing Review	5894 sheet 3	2	Used Grease and Oil	2005
6-23	New Weld Pit	20'x20'x4'	Building 16 OO103	Drawing Review	5894 sheet 3	4	Metals	2005
6-24	Existing Drive Unit Pit	7' deep	Building 16 NN106	Drawing Review	5894 sheet 3	7	Used Grease and Oil	2005
6-25	Solder Grind Booth	Sanitary and storm line run underneath	Building 16 SS-XX/101	Drawing Review	5894 sheet 3	<15	Metals	2005
6-26	New Weld Pit	20'x20'x4'	Building 16 AAA103	Drawing Review	5894 sheet 3	4	Metals	2005
6-27	New Advancing Conveyor Pit	N/A	Building 16 XX-ZZ/101	Drawing Review	5894 sheet 3	<5	Used Grease and Oil	2005
6-28	New Drive Unit Pit	4' deep	Building 16 WWW101	Drawing Review	5894 sheet 3	4	Used Grease and Oil	2005
6-29	Existing Drive Unit Pit	7' deep	Building 16 YY103	Drawing Review	5894 sheet 3	7	Used Grease and Oil	2005
6-35	Filter Pit with Sump	15'x40'x11'; associated with former painting operations	Building 16 WX114 and WX115	Drawing Review	5363 20	11	Paint Operations Filter Cake	2005
6-36	Sump Pit	N/A	Building 23 F17	Drawing Review	3736 sheet 2	<5	Unknown	2005
6-37	Trench	N/A	Building 23 A-B/10-13	Drawing Review	3736 sheet 2	<5	Unknown	2005
6-38	Trench	N/A	Building 23 B-F/17-18	Drawing Review	3736 sheet 11	<5	Unknown	2005
6-39	Trench	N/A	Building 23 G-H/15-19	Drawing Review	3736 sheet 11	<5	Unknown	2005
6-45	Paint Sludge Trenches	N/A	Building 16 ZZ11	Drawing Review	Unknown	<5	Paint Sludge	2005
6-50	Weld Pit	18'x20'x4'	Building 16 E-F/101/103	Drawing Review	5894-2	4	Metals	2005
6-51	Weld Pit	18'x20'x4'	Building 3X D106	Drawing Review	5894-2	4	Metals	2005
6-52	Drive Unit Pit	12'x8'x7'	Building 3X C104	Drawing Review	9410A-3	7	Used Grease and Oil	2005
6-53	Solder Grind Pit	N/A	Building 3X G107	Drawing Review	9410A-3	<10	Metals	2005
6-54	Solder Grind Pit	N/A	Building 3X E108	Drawing Review	Unknown	<10	Metals	2005
6-55	Torch Solder Pit	35'x20'x2.5'	Building 3X E-G/101-103	Drawing Review	Unknown	2.5	Metals	2005
6-56	Drive Unit Pit	8'x12'x7'	Building 3X N103	Drawing Review	9410A-C1	7	Used Grease and Oil	2005
6-57	Tunnel	9' deep	Building 3X A101-105	Drawing Review	9410B-M-1	9	Process Waste	2005
6-58	Pit	7' deep	Building 10 U36 and V36	Drawing Review	Unknown	7	Unknown	2005
6-61	Process Pit	N/A	Building 3X B-C/8-10	Drawing Review	Unknown	<10	Unknown	2005
6-62	Sump	N/A	Building 20 W23	Drawing Review	Unknown	<5	Unknown	1993
6-64	Sump	N/A	Building 20 WWW21	Drawing Review	Unknown	<5	Unknown	1993

TABLE I-3
GM LANSING PLANT 6
MISC. ITEMS

CURRENT CONDITIONS REPORT
GENERAL MOTORS CORPORATION
LANSING, MICHIGAN

ID #	Title	Description/Components	Location Building # Column/Bay	AOI Source	Reference Drawing ID [(A)]	AOI Depth Below Grade (Feet)	Materials Handled	Approximate Date AOI Ceased Operations
6-65	Sump	N/A	Building 20 UU18	Drawing Review	Unknown	<5	Unknown	1993
6-67	Sump	N/A	Building 14 EE23	Drawing Review	Unknown	<5	Unknown	2005
6-69	Weld Pit	N/A	Building 17 HH9-10	Drawing Review	Unknown	<10	Metals	2005
6-70	Sump	N/A	Building 16 GG102	Drawing Review	Unknown	<5	Unknown	2005
6-71	Sump	N/A	Building 16 GG110	Drawing Review	Unknown	<5	Unknown	2005
6-72	Sump	N/A	Building 16 PP110	Drawing Review	Unknown	<5	Unknown	2005
6-73	Sump	Associated with former painting operations.	Building 16 BBB117	Drawing Review	Unknown	<5	Paint and Thinner	2005
6-74	Sump	Associated with former painting operations.	Building 16 CCC117	Drawing Review	Unknown	<5	Paint and Thinner	2005
6-75	Sump	Associated with the repairing and loading of trucks that were formerly used to haul automobile bodies from the	Building 23 F17	Drawing Review	Unknown	<5	Used Automotive Fluids	2005
6-76	Washer Sump	N/A	Building 4 AA8	Drawing Review	Unknown	<5	Wash Water	2005
6-77	Washer Sump	N/A	Building 4 R11	Drawing Review	Unknown	<5	Wash Water	2005
6-79	Gasoline AST	Stored gasoline with Secondary Containment	West of Building 15	Drawing Review	Unknown	0	Gasoline	2005
6-80	Sump	N/A	West of Building 15	Drawing Review	Unknown	<5	Unknown	2005

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64481X02
64481X03
64481X05


WOODBRIDGE STREET
WORDEN AVENUE
WORDEN AVENUE
WORDEN AVENUE

ARCADIS

Appendix J

Boring Logs

GM Lansing Plant 2
Boring Log Master List

Location Name	Have Boring Log
B-1	Yes
B1-B	Yes
B1-E	Yes
B1-I	Yes
B1-N	Yes
B-2	Yes
B2501	Yes
B25010	Yes
B25011	Yes
B25012	Yes
B25013	Yes
B25014	Yes
B25015	Yes
B25016	Yes
B25017	Yes
B25018	Yes
B2502	Yes
B2503	Yes
B2504	Yes
B2505	Yes
B2506	Yes
B2507	Yes
B2508	Yes
B2509	Yes
B2-B	Yes
B2-E	Yes
B2-H	Yes
B2-L	Yes
B-3	Yes
B3-B	Yes
B3-F	Yes
B3-H	Yes
B3-J	Yes
B-4	Yes
B4-B	Yes
B4-D	Yes
B4-H	Yes
B4-J	Yes
B-5	Yes
B5-A	Yes
B5-E	Yes
B5-K	Yes
B5-M	Yes
B-6	Yes
B6-B	Yes
B6-H	Yes
B6-K	Yes
B6-M	Yes
B-7	No

GM Lansing Plant 2
Boring Log Master List

Location Name	Have Boring Log
B-96-1	No
B-96-3	No
MW-1	Yes
MW-2	Yes
MW-3	Yes
MW-8	No
N SUMP	NA - Sump
OW-1	Yes
OW-2	Yes
OW-3	Yes
OW-4	Yes
OW-5	Yes
S SUMP	NA - Sump Sample
S250E	NA - Excavation Side-Wall Sample
S250N	NA - Excavation Side-Wall Sample
S250S	NA - Excavation Side-Wall Sample
S250W	NA - Excavation Side-Wall Sample
TP-1	NA - Test Pit
TP-2	NA - Test Pit
TP-3	NA - Test Pit
TP-4	NA - Test Pit
TP-5	NA - Test Pit
TP-6	NA - Test Pit
VEW-1	Yes
W-250	NA - Excavation Water Sample

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. B1/OW1
SHEET NO. 1 OF 2

PROJECT NAME BOC REATTA
LOCATION LANSING, MI
CONTRACTOR T&T DRILLING CO
DRILLING METHOD HSA 4.25"

PROJECT NO. 1650.06
INSTALLATION 5/29/90
SURFACE ELEV. 863.4
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL		RECOVERY		HNU(ppm)			
NO.	TYPE	N	IN		DEPTH		
A	SS	21	22	0		Black and brown, sandy FILL, (cinders?), little clay, pieces of wood, moist (FILL)	
B	SS	16	8	0		Brown, sandy CLAY, plastic (CL)	
C	SS	10	24	0	5	Brown and gray mottled silty, sandy CLAY, slightly plastic, (CL)	
D	SS	14	22	0		Grading to same with little fine gravel and less mottling at 10 feet to trace fine gravel at 12.5 feet. More plastic, moist at 12.5 feet with less sand.	
E	SS	21	24	0	10		
F	SS	16	24	0		Same as above (SAA). Brown CLAY (CL)	
G	SS	21	20	0	15	Moisture in tip of split barrel at 15 feet SAA with trace fine gravel at 17 feet, moist.	
H	SS	15	22	0		SAA with wet clayey SILT (ML-CL) at 18 to 18.5 feet. Then back into clay.	
I	SS	23	24	7.2	20	Silty, sandy CLAY at 22.5 feet (not saturated) (CL)	

GENERAL NOTES

DATE STARTED 29 MAY 90
DATE COMPLETED 29 MAY 90
RIG MOBILE B-57
CREW CHIEF GARY T
LOGGED JAV CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 23.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. B1/OW1
SHEET NO. 2 OF 2

PROJECT NAME BOC REATTA
LOCATION LANSING, MI
CONTRACTOR T&T DRILLING CO
DRILLING METHOD HSA 4.25"

PROJECT NO. 1650.06
INSTALLATION 5/29/90
SURFACE ELEV.
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL		RECOVERY		HNU(ppm)	DEPTH		
NO.	TYPE	N	IN				
J	SS	9	15	0		Brown medium SAND, saturated 23 to 24.8 feet(SP)	
					25	2 inches clay in tip of barrel	
K	SS	16	22	0		Brown medium SAND, saturated, 25.5 to 27 feet (SP)	
L	SS	6	18	0		Silty clay in tip 27 to 27.5 feet	
					30	Return to brown medium SAND at 28 feet (SP) Grading to silty sand at 30 feet, saturated	
M	SS	12	10	0		Brown medium SAND, saturated (SP) Drilling resistance increased at 36.5 feet	
					35		
N	SS	30	24	0		Stiff brown silty CLAY with trace fine gravel, moist, not saturated, plasticity varies (CL)	
					40	T.D.= 40 feet **NOTES:** Hole filled from bottom up through augers with bentonite slurry. New boring redrilled approximately five feet to the south to a depth of 35 feet to set well. Well seal and neat cement grout placed with tremie pipe through the augers from bottom up. PID readings from the split barrel sampler. All PID jar samples read 0 above background.	
					45		

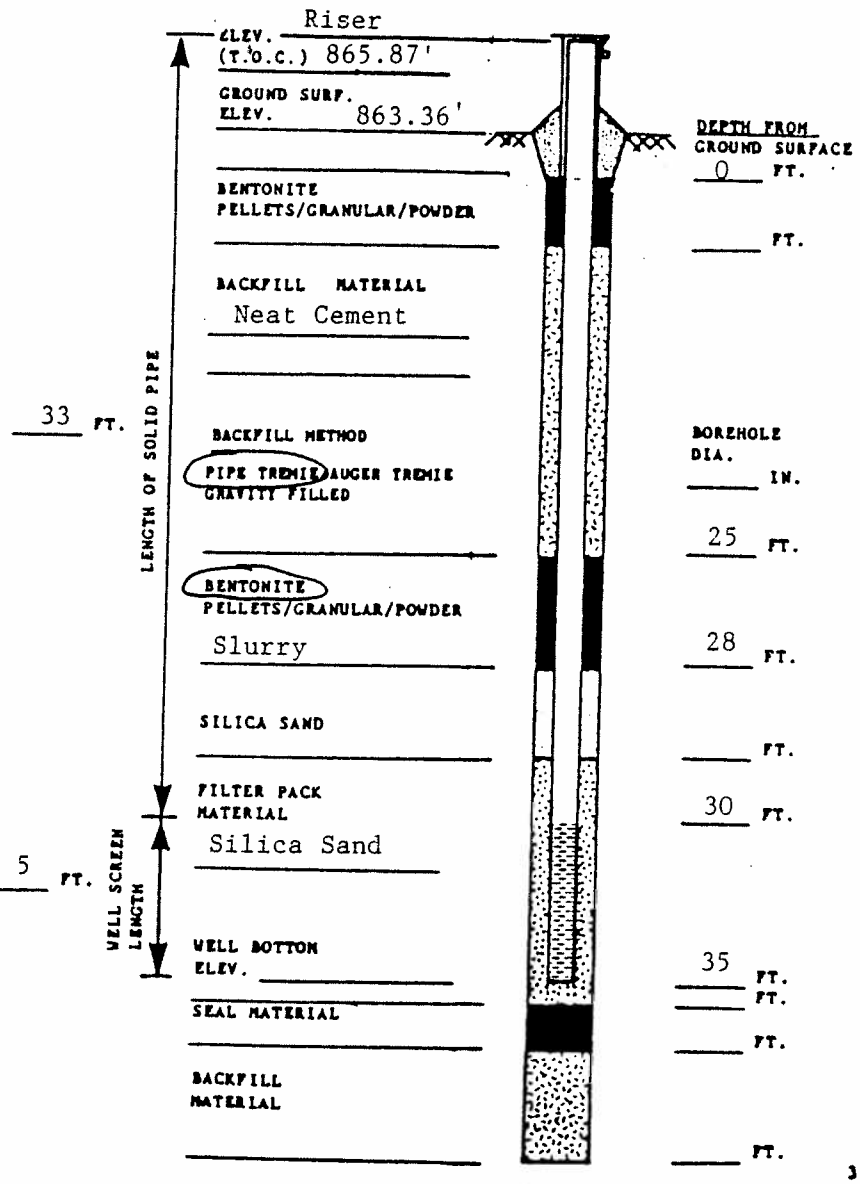
RMT INC

Well Diagram
F-17 (R 11-85)

PROJECT NAME: BOC - Reatta NO. 1650.06

WELL NO. OW - 1

DATE INSTALLED 5-29-90



1) CASING DETAILS

A) TYPE OF PIPE:

PVC, STAINLESS, TEFLON, (OTHER) Galvanized

PIPE SCHEDULE

B) TYPE OF PIPE JOINTS;

(COUPLINGS), THREADED (W/TAPE?), OTHER

C) WAS SOLVENT USED? YES OR (NO)

D) TYPE OF WELL SCREEN:

PVC (STAINLESS) TEFLON, OTHER

E) WELL SCREEN SLOT SIZE .010 - inch

F) PIPE DIA: ID IN. 2 OD IN.

G) INSTALLED PROTECTOR PIPE W/LOCK? (YES) OR NO

PROTECTOR PIPE DIA. 4 IN. Stick Up

2) WELL DEVELOPMENT

A) METHOD

BAILING, PUMPING, SURGING (COMPRESSED AIR)

OTHER

(NOTE ADDITIONAL COMMENTS BELOW)

B) TIME SPENT FOR DEVELOPMENT? 30 Min.

C) APPROXIMATE WATER VOLUME: REMOVED 30 Gal.

ADDED

D) WATER CLARITY BEFORE DEVELOPMENT?

CLEAR, TURBID (OPAQUE)

E) WATER CLARITY AFTER DEVELOPMENT?

CLEAR, SLIGHTLY TURBID, (TURBID), OPAQUE

F) ODOR? YES OR (NO)

3) WATER LEVEL SUMMARY

A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT?

22.85 FT. OR DRY on 6-4-90

B) OTHER MEASUREMENTS (T.O.C.):

DATE/TIME FT.

DATE/TIME FT.

DATE/TIME FT.

ADDITIONAL COMMENTS: Well placed in separate borehole approximately five feet to south of initial borehole.

LOG OF TEST BORING

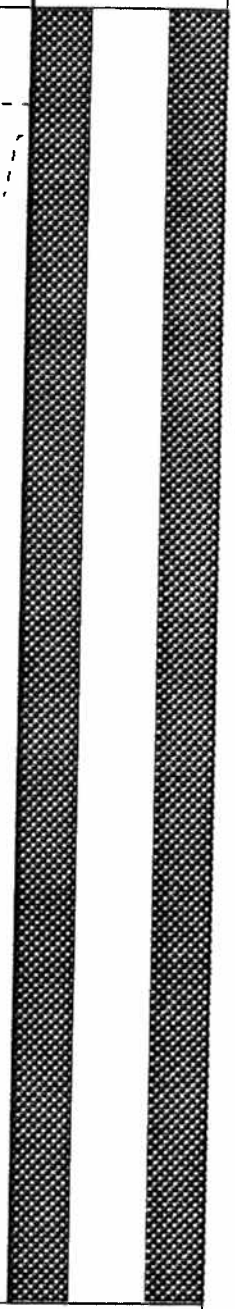
F-203 (R 01-87)

BORING NO. B2/OW2
SHEET NO. 1 OF 2

PROJECT NAME BOC REATTA
LOCATION LANSING, MI
CONTRACTOR T&T DRILLING CO
DRILLING METHOD HSA 4.25"

PROJECT NO. 1650.06
INSTALLATION 5/30/90
SURFACE ELEV. 862.6
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL NO.	TYPE	RECOVERY N	IN	HNU(ppm)	DEPTH		
						18 inches Concrete	
A	SS	10	22	0		Black and brown sandy FILL, (cinders?), to 2 feet.	
						Brown and gray silty, sandy CLAY, moist, plastic (CL)	
B	SS	13	24	0	5		
C	SS	12	24	0		Same as above (SAA), less moist and plastic at 6.5 feet (CL)	
D	SS	8	24	0	10	SAA, trace fine gravel (CL)	
E	SS	7	22	0			
						Gray, silty CLAY, moist, poor, ribbon (CL)	
F	SS	23	7	0	15	SAA, trace fine gravel	
G	SS	12	24	0			
						SAA with less silt	
H	SS	10	22	0			



GENERAL NOTES

DATE STARTED 30 MAY 90
DATE COMPLETED 30 MAY 90
RIG MOBILE B-57
CREW CHIEF GARY T
LOGGED JAV CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 21.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

PROJECT NAME BOC REATTA
LOCATION LANSING, MI
CONTRACTOR T&T DRILLING CO
DRILLING METHOD HSA 4.25"

BORING NO. B2/OW2
SHEET NO. 2 OF 2
PROJECT NO. 1650.06
INSTALLATION 5/30/90
SURFACE ELEV.
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL NO.	TYPE	RECOVERY N	IN	HNU(ppm)	DEPTH		
I	SS	9	4	0		Brown medium SAND, saturated (SP)	
						SAA	
J	SS	8	22	0	25	Sandy, clayey SILT (ML-CL) Grading to SILT by 29 feet, saturated (ML)	
K	SS	6	22	0			
					30		
L	SS	23	24	0		Soft sandy SILT, saturated (ML)	
						Stiff SILT, moist, not saturated, slight clay content (ML)	
					35	T.D.=35 feet with split barrel T.D.=34 feet with auger **NOTE:** Seal and cement grout placed through augers from bottom up with tremie pipe	
					40		

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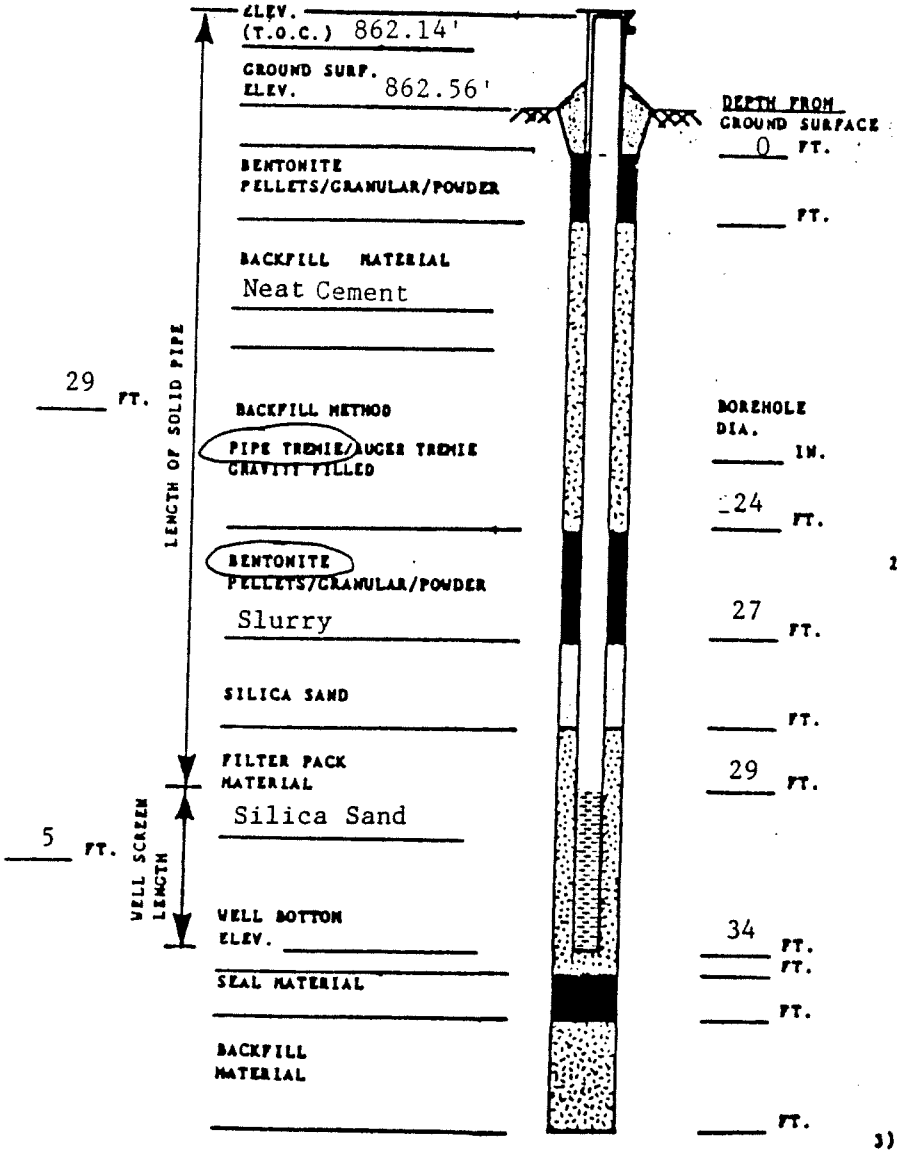
Well Diagram
F-17 (8 11-85)

PROJECT NAME: BOC - Reatta NO. 1650.06

WELL NO. OW - 2

DATE INSTALLED 5-30-90

Flush Mount



1) CASING DETAILS

A) TYPE OF PIPE:

PVC, STAINLESS, TEFLON, (OTHER) Galvanized

PIPE SCHEDULE

B) TYPE OF PIPE JOINTS;

(COUPLINGS), THREADED (W/TAPE?), OTHER

C) WAS SOLVENT USED? YES OR (NO)

D) TYPE OF WELL SCREEN:

PVC, (STAINLESS), TEFLON, OTHER

E) WELL SCREEN SLOT SIZE .010 - inch

F) PIPE DIA: ID IN. 2 OD IN.

G) INSTALLED PROTECTOR PIPE W/LOCK? (YES) OR NO

PROTECTOR PIPE DIA. 8 IN. Flush Mount

2) WELL DEVELOPMENT

A) METHOD

(BAILING), PUMPING, SURGING, COMPRESSED AIR

OTHER

(NOTE ADDITIONAL COMMENTS BELOW)

B) TIME SPENT FOR DEVELOPMENT? 35 Min.

C) APPROXIMATE WATER VOLUME: REMOVED 9 Gal.

ADDED

D) WATER CLARITY BEFORE DEVELOPMENT?

CLEAR, TURBID, (OPAQUE)

E) WATER CLARITY AFTER DEVELOPMENT?

(CLEAR to SLIGHTLY TURBID), TURBID, OPAQUE

F) ODOR? YES OR (NO)

3) WATER LEVEL SUMMARY

A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT?

32 FT. OR DRY and rising

B) OTHER MEASUREMENTS (T.O.C.):

DATE/TIME F

DATE/TIME F

DATE/TIME F

ADDITIONAL COMMENTS:

LOG OF TEST BORING

F-203 (R 01-87)

PROJECT NAME: BOC REATTA
LOCATION: LANSING, MI
CONTRACTOR: T&T DRILLING CO
DRILLING METHOD: HSA 4.25"

BORING NO.: B3/OW3
SHEET NO.: 1 OF 2
PROJECT NO.: 1650.06
INSTALLATION: 5/31/90
SURFACE ELEV.: 865.7
BOREHOLE DIA.: 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL		RECOVERY		HNU(ppm)			
NO.	TYPE	N	IN		DEPTH		
A	SS	9	22	0		Dark brown sandy, organic topsoil with roots to 2.2 feet.	
B	SS	14	10	0		Silty, red, brown and gray mottled CLAY at 2.2 feet (CL)	
C	SS	19	22	0	5	Same as above (SAA), CLAY (CL)	
D	SS	21	24	0		SAA, CLAY, plastic, fair ribbon, trace fine gravel (CL)	
E	SS	18	24	0	10	SAA with trace fine gravel to coarse gravel	
F	SS	7	24	0	▽	1-2 inches medium to light tan SAND at approx. 12 feet, then gray clayey SILT, moist (ML) Grades to soft saturated silty CLAY at 13.5 feet (CL)	
G	SS	10	24	0	15	Little coarse sand in tip at 15 feet	
H	SS	9	24	0		Gray CLAY, plastic, good ribbon, moist, (not saturated), 15.5 to 17.5 feet (CL) Grading to silty CLAY by 20 feet (CL)	

GENERAL NOTES

DATE STARTED: 31 MAY 90
DATE COMPLETED: 31 MAY 90
RIG: MOBILE B-57
CREW CHIEF: GARY T
LOGGED: JAV CHECKED:

WATER LEVEL OBSERVATIONS

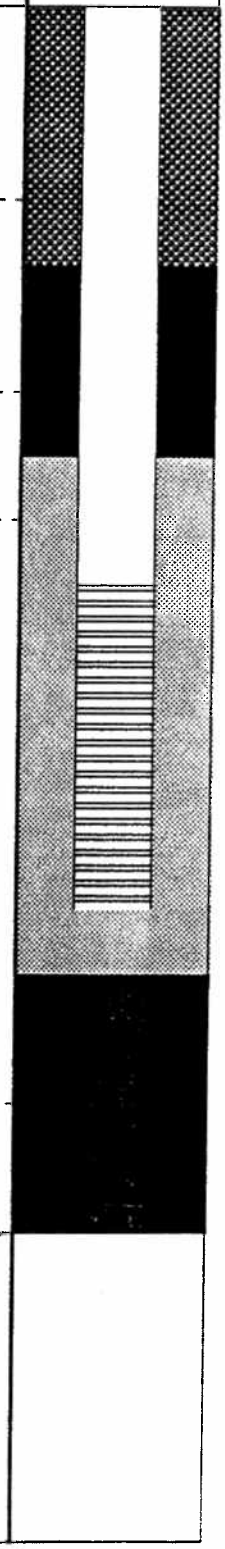
WHILE DRILLING ▽: 13.5 and 29.0
AT COMPLETION ▼:
AFTER DRILLING
CAVE-IN: DATE/TIME: DEPTH:
WATER: DATE/TIME: DEPTH:

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. B3/OW3
SHEET NO. 2 OF 2
PROJECT NAME BOC REATTA
PROJECT NO. 1650.06
LOCATION LANSING, MI
INSTALLATION 5/31/90
CONTRACTOR T&T DRILLING CO
SURFACE ELEV.
DRILLING METHOD HSA 4.25"
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL NO.	TYPE	RECOVERY N	IN	HNU(ppm)	DEPTH		
I	SS	32	2	0		SAA (poor recovery - cobble?), questionable representation of sample	
J	SS	12	24	0		Moist, very plastic CLAY 23 - 25 feet (CL)	
					25		
K	SS	11	22	0		Medium brown SAND with trace fine gravel at 27.5 feet, moist, not saturated (SP)	
L	SS	7	24	0		Sandy, clayey SILT, 28 - 29 feet (ML-CL) Sandy saturated SILT 29 - 29.5 feet (ML) Return to ML-CL with less moisture at 29.5 feet Drilled like soft silt	
					30		
M	SS	8	24	0		Moist to saturated SILT with variable clay content (ML) Silty clay at 35 feet in tip	
					35	Drilled to similar resistance of previous boring B-1 and B-2 till at 37 feet	
N	SS	18	24	0		Clayey SILT to silty CLAY to 38.7 feet, moist (ML-CL)	
						Clay SILT, dense, dry, trace fine gravel at 38.7 to 39 feet (ML-CL)	
					40	**NOTE:** TD with split barrel to 39 feet TD with auger to 37 feet Seal and grout placed through augers from bottom up with tremie pipe	



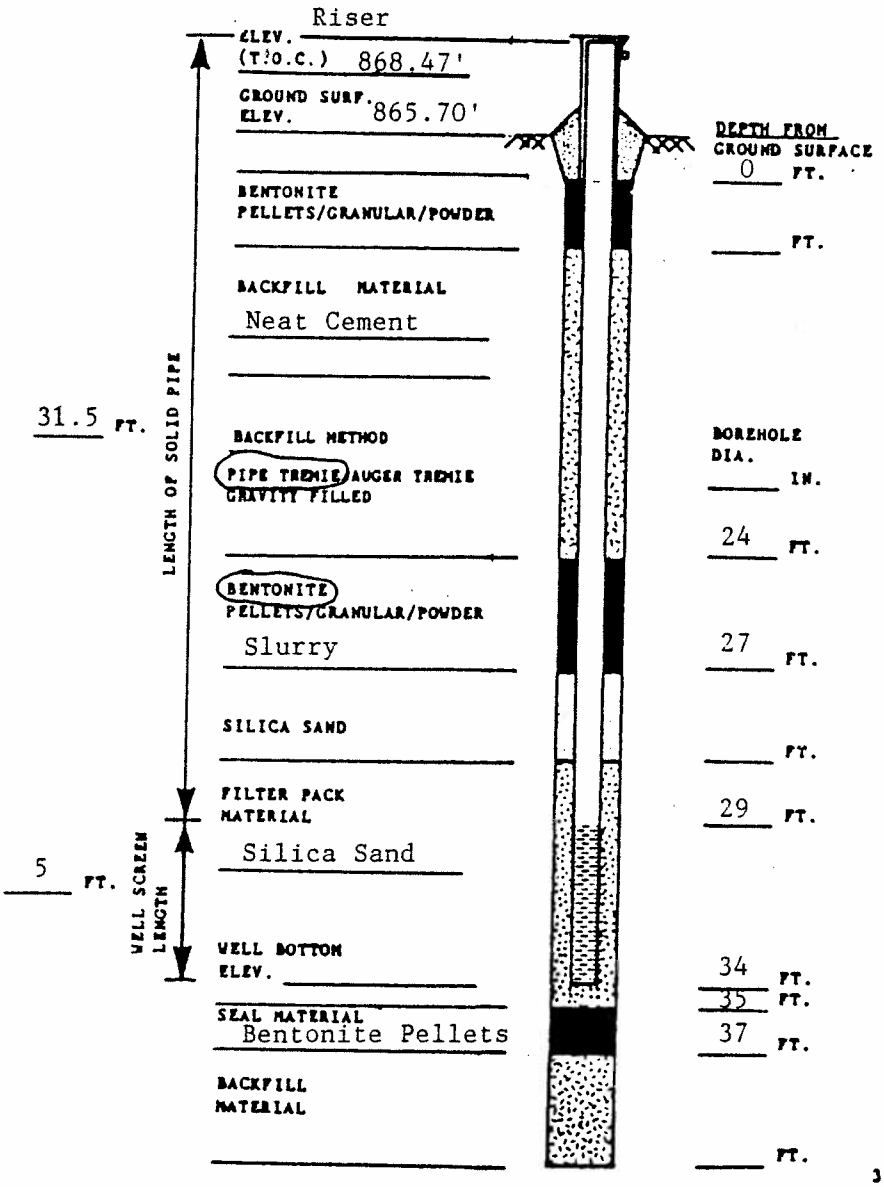
RMT

Well Diagram
F-17 (8 11-85)

PROJECT NAME: BOC - Reatta NO. 1650.06

WELL NO. OW - 3

DATE INSTALLED 5-31-90



1) CASING DETAILS

A) TYPE OF PIPE:

PVC, STAINLESS, TEFLON, (OTHER) Galvanized

PIPE SCHEDULE

B) TYPE OF PIPE JOINTS;

(COUPLINGS), THREADED (W/TAPE?), OTHER

C) WAS SOLVENT USED? YES OR (NO)

D) TYPE OF WELL SCREEN:

PVC, (STAINLESS), TEFLON, OTHER

E) WELL SCREEN SLOT SIZE .010 - inch

F) PIPE DIA: ID IN. 2 OD IN.

G) INSTALLED PROTECTOR PIPE W/LOCK? (YES) OR NO

PROTECTOR PIPE DIA. 4 IN. Stick Up

2) WELL DEVELOPMENT

A) METHOD

(BAILING), PUMPING, SURGING (COMPRESSED AIR)

OTHER

(NOTE ADDITIONAL COMMENTS BELOW)

B) TIME SPENT FOR DEVELOPMENT? 45 Min.

C) APPROXIMATE WATER VOLUME: REMOVED 15 Gal.

ADDED

D) WATER CLARITY BEFORE DEVELOPMENT?

CLEAR, TURBID, (OPAQUE)

E) WATER CLARITY AFTER DEVELOPMENT?

(CLEAR), SLIGHTLY TURBID, TURBID, OPAQUE

F) ODOR? YES OR (NO)

3) WATER LEVEL SUMMARY

A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT?

37 FT. OR DRY and rising

B) OTHER MEASUREMENTS (T.O.C.):

DATE/TIME FT

DATE/TIME FT

DATE/TIME FT

ADDITIONAL COMMENTS:

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. B4
SHEET NO. 1 OF 2
PROJECT NAME BOC REATTA
PROJECT NO. 1650.06
LOCATION LANSING, MI
INSTALLATION 5/31/90
CONTRACTOR T&T DRILLING CO
SURFACE ELEV. 862.3
DRILLING METHOD HSA 4.25"
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	TYPE	RECOVERY N	IN	HNU(ppm)	DEPTH	
A	SS	6	22	0		Brown and black sandy FILL with cinders, little fine gravel (FILL)
B	SS	4	16	1.4		
					5	Same as above (SAA)
C	SS	9	24	.1	▽	Refusal (concrete?) at 5 feet bgs, relocated south five feet and redrill (FILL)
						Brown SAND, saturated at 6 feet (possible backfill for storm line?), (SW)
D	SS	16	24	.1		SAA w/1-2mm clayey sand lenses (SW)
					10	
E	SS	6	24	0		Gray silty CLAY, trace fine gravel, moist, 10.5 - 12.5 feet (CL)
						Grading to stiff clayey SILT with less moisture, trace fine gravel (ML)
F	SS	14	24	0		
					15	
G	SS	12	24	0		SAA, clayey SILT, trace fine gravel (ML)
H	SS	8	24	0		SAA

GENERAL NOTES

DATE STARTED 31 MAY 90
DATE COMPLETED 31 MAY 90
RIG MOBILE B-57
CREW CHIEF GARY T
LOGGED JAV CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 6.0 and 26.5
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. B4
SHEET NO. 2 OF 2
PROJECT NAME BOC REATTA
PROJECT NO. 1650.06
LOCATION LANSING, MI
INSTALLATION 5/31/90
CONTRACTOR T&T DRILLING CO
SURFACE ELEV.
DRILLING METHOD HSA 4.25"
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL NO.	TYPE	RECOVERY N	IN	HNU(ppm)	DEPTH		
I	SS	15	24	0		CLAY 20.5 - 21.5 feet then one inch sand lense followed by silty CLAY with sand lense (1 inch) at 22.3 feet (CL)	
J	SS	9	24	0		SAA with sandy, silty lense at 24 feet (CL)	
					25	Grading to clayey silt by 25 feet (ML)	
K	SS	9	24	0		Fine sandy SILT, saturated (ML)	
L	SS	5	24	.1		SAA	
					30		
M	SS	13	24	.1		SAA	
						Clayey SILT, moist, not saturated, stiff, trace fine gravel (ML)	
					35	T.D. = 35 feet Backfill hole with slurry grout from bottom up through augers with tremie pipe	
					40		

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. B5/OW4
SHEET NO. 1 OF 2
PROJECT NAME BOC REATTA
PROJECT NO. 1650.06
LOCATION LANSING, MI
INSTALLATION 6/1/90
CONTRACTOR T&T DRILLING CO
SURFACE ELEV. 868.6
DRILLING METHOD HSA 4.25"
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL NO.	TYPE	RECOVERY N	IN	HNU(ppm)	DEPTH		
						Railroad ballast FILL to 2 feet (FILL) (no split spoon)	
A	SS	5	22	2.4		Brown and black sandy FILL and cinders to 4 feet	
					5	Gray and brown mottled CLAY to 5 feet, trace fine gravel (CL)	
B	SS	8	22	2.2		Same as above (SAA) (CL)	
C	SS	4	17	3.4			
					10	SAA with 2-inch clayey silty saturated SAND lens at 9 feet (SM-SC)	
D	SS	8	22	3.0		SAA (CL)	
E	SS	12	22	2.0		Sandy, clayey SILT, moist with saturated zones where higher percent of sand occurs (ML)	
					15		
F	SS	15	12	2.1		SAA, saturated (ML)	
G	SS	8	18	1.5			
					20	SAA, moist, but not draining (ML) Grades to silty CLAY with trace fine gravel, moist, plastic, good ribbon (CL)	
H	SS	13	12	.6			

GENERAL NOTES

DATE STARTED 1 JUN 90
DATE COMPLETED 1 JUN 90
RIG MOBILE B-57
CREW CHIEF GARY T
LOGGED JAV CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 9.0 and approx. 31.
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. B5/OW4
SHEET NO. 2 OF 2

PROJECT NAME BOC REATTA
PROJECT NO. 1650.06
LOCATION LANSING, MI
INSTALLATION 6/1/90
CONTRACTOR T&T DRILLING CO
SURFACE ELEV.
DRILLING METHOD HSA 4.25"
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL		RECOVERY		HNU(ppm)	DEPTH		
NO.	TYPE	N	IN				
I	SS	18	18	2.1		SAA only stiffer, less moist (CL)	
J	SS	20	18	3	25	SAA to 27.2 feet (CL)	
K	SS	33	20	2.5		Brown medium SAND (dry in tip) (SP)	
						CLAY (CL)	
					30	Brown, medium SAND, dry (SP)	
L	SS	6	24	2		Gray, fine sandy SILT, saturated, soft, loose, percent sand varies (ML)	
					35		
M	SS	41	24	2.8			
						Clayey SILT to silty CLAY at 39.7 feet. (ML-CL)	
					40	Cobble in first split spoon, resampled	
						T.D. = 40 feet with split spoon T.D. = 39 feet with augers **NOTE:** Seal and grout placed through augers from bottom up with tremie pipe	
					45		

RMT

Well Diagram
F-17 (8 11-85)

PROJECT NAME: BOC - Reatta NO. 1650.06

WELL NO. OW - 4

DATE INSTALLED 6-1-90

Flush Mount

ELEV. (T.O.C.) 868.40'

GROUND SURF. ELEV. 868.58'

BENTONITE PELLETS/GRANULAR/POWDER

BACKFILL MATERIAL: Neat Cement

34 FT. — LENGTH OF SOLID PIPE

BACKFILL METHOD: PIPE TREMIE / AUGER TREMIE / GRAVITY FILLED

BENTONITE PELLETS/GRANULAR/POWDER: Slurry

SILICA SAND

FILTER PACK MATERIAL: Silica Sand

5 FT. — WELL SCREEN LENGTH

WELL BOTTOM ELEV.

SEAL MATERIAL

BACKFILL MATERIAL

DEPTH FROM GROUND SURFACE	
0	FT.
	FT.
BOREHOLE DIA.	IN.
29	FT.
32	FT.
	FT.
34	FT.
39	FT.
	FT.
	FT.
	FT.

1) CASING DETAILS

A) TYPE OF PIPE:

PVC, STAINLESS, TEFLON, (OTHER) Galvanized

PIPE SCHEDULE

B) TYPE OF PIPE JOINTS;

(COUPLINGS), THREADED (W/TAPE?), OTHER

C) WAS SOLVENT USED? YES OR (NO)

D) TYPE OF WELL SCREEN:

PVC, (STAINLESS), TEFLON, OTHER

E) WELL SCREEN SLOT SIZE .010 - inch

F) PIPE DIA: ID IN. 2 OD IN.

G) INSTALLED PROTECTOR PIPE W/LOCK? (YES) OR NO

PROTECTOR PIPE DIA. 8 IN. Flush Mount

2) WELL DEVELOPMENT

A) METHOD

(BAILING), PUMPING, SURGING, COMPRESSED AIR

OTHER

(NOTE ADDITIONAL COMMENTS BELOW)

B) TIME SPENT FOR DEVELOPMENT? 125 Min.

C) APPROXIMATE WATER VOLUME: REMOVED 4.5 Gal.

ADDED

D) WATER CLARITY BEFORE DEVELOPMENT?

CLEAR, TURBID, (OPAQUE)

E) WATER CLARITY AFTER DEVELOPMENT?

(CLEAR), SLIGHTLY TURBID, TURBID, OPAQUE

F) ODOR? YES OR (NO)

3) WATER LEVEL SUMMARY

A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT?

39 FT. OR DRY and rising

B) OTHER MEASUREMENTS (T.O.C.):

DATE/TIME FT.

DATE/TIME FT.

DATE/TIME FT.

ADDITIONAL COMMENTS:

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. B6
SHEET NO. 1 OF 2

PROJECT NAME BOC REATTA
PROJECT NO. 1650.06
LOCATION LANSING, MI
INSTALLATION 6/1/90
CONTRACTOR T&T DRILLING CO
SURFACE ELEV. 866.1
DRILLING METHOD HSA 4.25"
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	TYPE	RECOVERY N	IN	HNU(ppm)	DEPTH	
						Concrete to 8 inches
A	SS	15	16	3.6		Light brown, sandy FILL to 2.1 feet, then dark brown sandy fill with cinders (FILL)
						Brown clayey SAND, wet 2 inch lens at 4 feet
B	SS	7	2	4*	▽	
					5	
C	SS	10	22	3.6		Brown and gray mottled silty CLAY, moist (CL) Grading to dry clayey SILT by 6.5 feet (ML)
D	SS	38	9	3.8		
						Same as above (SAA), still mottled (ML)
					10	
E	SS	30	19	.4		
						SAA, no mottling, moist, brown piece woven plastic in sample (ML)
F	SS	16	11	1.2		
						Brown-gray clayey SILT to silty CLAY, moist, trace fine gravel, (ML-CL)
					15	
G	SS	15	24	2		
						SAA, more plastic cloth (ML-CL)
H	SS	13	24	.6		SAA (ML-CL)

GENERAL NOTES

DATE STARTED 1 JUN 90
DATE COMPLETED 4 JUN 90
RIG MOBILE B-57
CREW CHIEF GARY T
LOGGED JAV CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 4.0 and 25.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. B6
SHEET NO. 2 OF 2
PROJECT NAME BOC REATTA
PROJECT NO. 1650.06
LOCATION LANSING, MI
INSTALLATION 6/1/90
CONTRACTOR T&T DRILLING CO
SURFACE ELEV.
DRILLING METHOD HSA 4.25"
BOREHOLE DIA. 8 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL NO.	TYPE	RECOVERY N	IN	HNU(ppm)	DEPTH		
I	SS	25	24	.2		Medium SAND, saturated at 20.5 feet to 20.8 feet then back into moist clayey SILT (ML)	
J	SS	25	24	.2		Gray CLAY, moist, good ribbon (CL)	
K	SS	20	22	.3	25	Sandy silt in tip at 25 feet, saturated with little clay to 26.5 feet, saturated, loose	
L	SS	19	21	.5		Sandy gravel, saturated, at 26.5 feet (3 inches) Back into clayey SILT with trace fine gravel, moist (ML)	
M	SS	36	24	1.7	30	Stiff clayey SILT to silty CLAY from 30 to 35 feet, (drill resistance) with trace fine gravel, moist, not saturated, stiff at 33 feet, less stiff at 35 feet (ML-CL)	
					35	T.D. = 35 feet **NOTE:** Slurry grout hole from bottom up with bentonite gel through the augers with tremie pipe. Hole plug in top seven feet. *Indicates insufficient sample for jar PID reading. Reading from split spoon utilized.	
					40		

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. OW-5

PROJECT:	GM-Lansing, Plant #2, Area 2
CLIENT:	GM-LAD
BORING CONTRACTOR:	Geo-Tek Inc.
SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION	862
DATE STARTED:	10/5/93
DATE FINISHED:	10/6/93
DRILLER:	Peter Buell
GEOLOGIST:	Michael Kovacs (EM)
REVIEWED BY:	David Frazier (URS)

GROUND WATER:

DATE	TIME	LEV	TYPE
10/6/93		30'	static

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	SS		
DIA.	4-1/4"	2"		
WT.				
FALL				

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								Concrete		soil very wet,
		S-1	SS	3	3	brown/		SAND		standing water
				3	7	dk grey		SANDY CLAY, trace Gravel	Fill	noted approx. 2'
										from hole
5										Hnu(1-3')=ND
		S-2	SS	2	2	dk grey		CLAY, trace Gravel	CL	
				2	2					Hnu(3-5')=ND
10										
		S-3	SS	2	3	grey		SILTY CLAY, trace Gravel	CL	moist
				4	6					Hnu(10-12')=ND
15										
		S-4	SS	6	8	grey		CLAY, trace Gravel	CL	dry, reddish
				9	8					staining @ 16'
										Hnu(15-17')=ND
20										
		S-5	SS	5	8	grey		same as S-4	CL	moist
				9	12					Hnu(20-22')=ND
25										
		S-6	SS	6	9	grey		SANDY SILT	ML	moist
				6	7					Hnu(25-27')=ND
30										
		S-7	SS			grey/		CLAYEY SILT, trace fine Sand	ML	very wet
						brown				Hnu(30-32')=ND
35										
		S-8	SS	11	13	grey/		. . . grade: some Sand	ML	very wet
				13	16	brown				Hnu(35-37')=ND
40										
		S-9	SS	8	15	grey/				very wet
42				15	19	brown		SILT, trace Sand	ML	Hnu(40-42')=ND

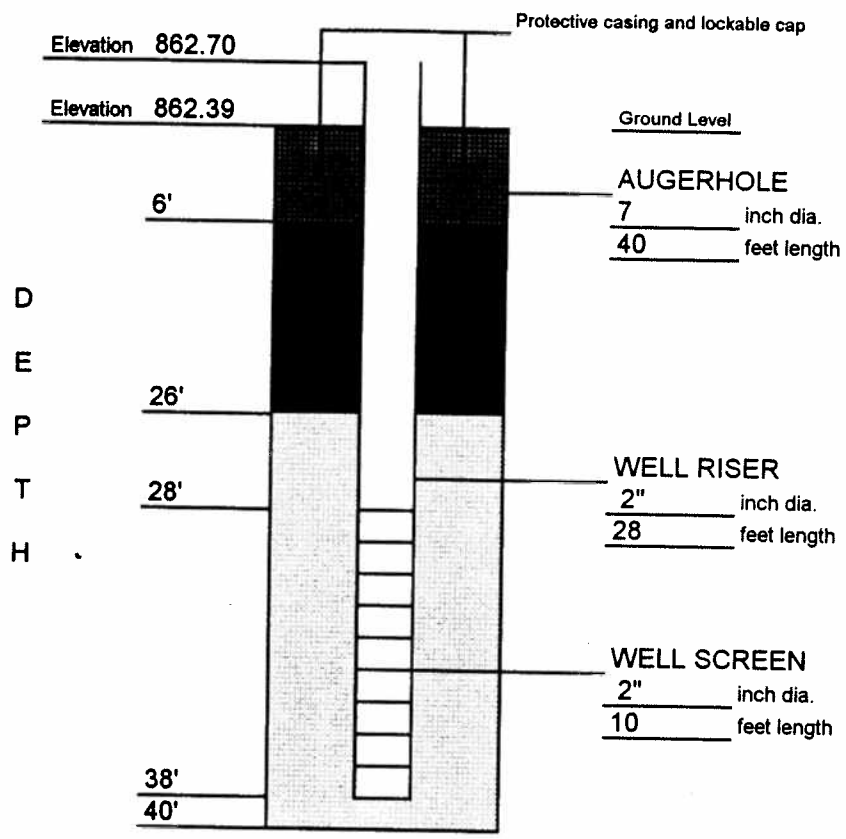
COMMENTS ND = non detect

PROJECT NO. E1-93-110

DRILLING SUMMARY
Geologist: Mike Kovacs
Drilling Company: Geo-Tek Inc.
Driller: Peter Buell
Date: 10/5/93

GEOLOGIC LOG

depth(ft.)	lithology
1-5'	SAND FILL
5-22'	SILTY CLAY AND CLAY
22-42'	SANDY AND CLAYEY SILT



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*SEAL MATERIAL*
Surface: Cast Iron	Type: Slotted PVC	Seal #1 Type: Bentonite Chips Setting: 26-28'
Monitor: 2" PVC	Slot Size: .010	Seal #2 Type: Cement Grout Setting: 0-26'

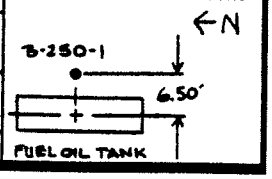
FILTER MATERIAL	*ROCK DRILLING*	*LEGEND*
Type: Global Filter Pack m/c Sand	Drilled Interval: none	Cement Grout
Setting: 26-40'	Core Diameter: None	Bentonite Seal
	Reamed Diameter: N/A	Silica Sandpack

Client: GM-LAD	Project: Plant #2, Area 2	Project No.: E1-93-110
URS Consultants Inc.	**Monitoring Well Constuction Details**	**Well Number:** OW-5

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-20	PROJECT NAME: GM BOC BUILDING 260		BORING/WELL DESIGNATION: SB-260-1	BORING/WELL LOCATION:
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER		BOREHOLE SIZE: 10 IN.	BOREHOLE DEPTH: 50 FT.
DATE STARTED: 8/2/90	DATE COMPLETED: 8/2/90	GROUND ELEV.: NA FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.
RIG: D-120	DRILLER: G. PARKER	HELPER: A. GRAY	LOGGED BY: C. KIELTY	



DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT - with gravel fill					- BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
	SAND (fill) - brown, medium grained, moist, loose, trace fine gravel	3-5'	SS/LAB	3-4-5-4	BG		
5							
	SANDY CLAY - brown-gray, fine sand, moist, firm, plastic, some silt, some fine gravel	8-10'	SS/LAB	5-7-8-10	BG		
10							
	SAND - brown, fine-medium grained, wet, trace clay, trace fine gravel	13-15'	SS/LAB	6-8-9-11	BG		
15							
	SILTY CLAY - gray, moist, plastic, firm, trace fine gravel	18-20'	SS	5-7-10-11	NA		
20							
		23-25'	SS	3-6-7-11	NA		
25							
		28-30'	SS	6-7-10-14	NA		
30							
		33-35'	SS	15-15-15-80	NA		
35	SAND - light brown, fine-medium						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND
* - DUPLICATE LAB SAMPLE ALSO TAKEN AT THIS INTERVAL

PROJECT NO.: 5698-20	PROJECT NAME: GM BOC BUILDING 250	BORING/WELL NUMBER: SB-250-1	BOREHOLE DEPTH: 50 FT.

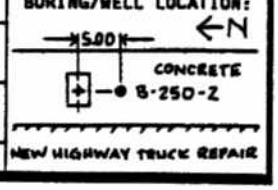
DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
35	SAND - light brown, fine-medium grained, dry, very dense						
		38-40'	SS	5-9-9-12	NA		
40	SILTY CLAY - gray, moist, plastic, firm, trace fine gravel						
		43-45'	SS	4-6-8-9	NA		
45	SAND - light brown-gray, fine grained, dry, very firm						
		48-50'	SS	6-13-30-35	NA		
50	END OF BORING AT 50 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT SPOON SAMPLE
LAB - LABORATORY SAMPLE

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-20	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: SB-250-2	BORING/WELL LOCATION:
DRILLING CONTRACTOR: E. T. S.		DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 10 IN.	BOREHOLE DEPTH: 15 FT.
DATE STARTED: 8/2/90	DATE COMPLETED: 8/2/90	GROUND ELEV.: NA FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.
RIG: D-120	DRILLER: G. PARKER	HELPER: A. GRAY	LOGGED BY: C. KIELTY	



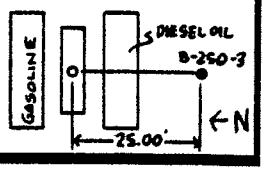
DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	CONCRETE					- BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
	FILL SAND						
2.5	SAND - brown, medium grained, moist, loose, trace fine gravel	3-5'	SS/LAB *	1-4-7-7	BG		
5							
7.5	SANDY CLAY - brown, moist, firm, plastic, some fine gravel	8-10'	SS/LAB	3-6-8-9	BG		
10							
12.5	SILTY CLAY - gray-brown, moist, very stiff, plastic, trace fine gravel, trace fine sand	13-15'	SS/LAB	7-17-19-24	BG		
15	END OF BORING AT 15 FEET						
17.5							

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND
* - DUPLICATE LAB SAMPLE ALSO TAKEN AT THIS INTERVAL

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-20	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: SB-250-3	BORING/WELL LOCATION:
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 10 IN.	BOREHOLE DEPTH: 15 FT.	
DATE STARTED: 8/2/90	DATE COMPLETED: 8/2/90	GROUND ELEV.: NA FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.
RIG: D-120	DRILLER: G. PARKER	HELPER: A. GRAY	LOGGED BY: C. KIELTY	



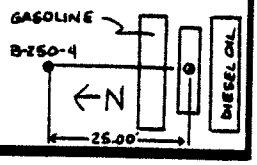
DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER	COMMENTS	WELL DATA
0					(ppm)		
	ASPHALT - with gravel fill					- BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
	FILL SAND						
2.5							
	SAND - brown, medium grained, moist, loose, trace fine gravel	3-5'	SS	5-5-5-5	BG		
5							
			GRAB LAB		BG	- SAMPLE GRABBED FROM AUGER CUTTINGS	
7.5							
	SANDY CLAY - brown, moist, firm, plastic, trace fine gravel, trace silt	8-10'	SS/LAB	7-5-7-9	2		
10							
12.5							
	SILTY CLAY - gray-brown, moist, firm plastic, some fine gravel	13-15'	SS/LAB	4-5-8-16	1		
15							
	END OF BORING AT 15 FEET						
17.5							

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-20	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: SB-250-4	BORING/WELL LOCATION:
DRILLING CONTRACTOR: E. T. S.		DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 10 IN.	BOREHOLE DEPTH: 15 FT.
DATE STARTED: 8/2/90	DATE COMPLETED: 8/2/90	GROUND ELEV.: NA FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.
RIG: D-120	DRILLER: G. PARKER	HELPER: A. GRAY	LOGGED BY: C. KIELTY	



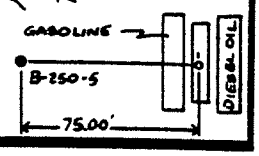
DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT - with gravel fill					- BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
	FILL SAND						
2.5	SANDY CLAY - gray-brown, moist, stiff, plastic, some silt, some fine gravel	3-5'	SS/LAB	3-6-9-12	BG		
5							
7.5	SANDY CLAY - brown, moist, stiff, plastic, some silt, some fine gravel	8-10'	SS/LAB	5-8-11-13	2		
10							
12.5	SILTY CLAY - gray-brown, moist, firm plastic, some fine gravel	13-15'	SS/LAB	4-5-8-11	BG		
15	END OF BORING AT 15 FEET						
17.5							

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-20	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: SB-250-5	BORING/WELL LOCATION:
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER		BOREHOLE SIZE: 10 IN.	BOREHOLE DEPTH: 15 FT.
DATE STARTED: 8/2/90	DATE COMPLETED: 8/2/90	GROUND ELEV.: NA FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.
RIG: D-120	DRILLER: G. PARKER	HELPER: A. GRAY	LOGGED BY: C. KIELTY	



DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT - with gravel fill					- BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
	FILL SAND						
2.5	SANDY CLAY - gray-brown, dry-moist, firm, plastic, some fine sand, some fine gravel	3-5'	SS/LAB	1-2-5-8	BG		
5							
7.5		8-10'	SS/LAB	5-8-11-13	BG		
10							
12.5	SILT - gray, wet, trace clay	13-15'	SS/LAB	5-10-13-12	BG		
15	END OF BORING AT 15 FEET						
17.5							

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-6	BORING/WELL LOCATION: SEE FIGURE 2-1
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER		BOREHOLE SIZE: 8 IN. / BOREHOLE DEPTH: 15 FT.	
DATE STARTED: 04/17/91	DATE COMPLETED: 04/17/91	GROUND ELEV.: 875.65 FT.	MEASURING POINT ELEV: NA FT. / WELL DEPTH: N/A FT.	
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT					BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE	
	CLAY - brown, plastic, moist, stiff, some sand, some fine gravel, trace silt	1-2.5'	SS	3-4-6	BG		
2.5	CLAY - brown, plastic, very stiff-stiff, moist, some silt and sand, with gray silt seem layers	3-5'	SS	5-7-11-15	BG		
5		5.5-7.5'	SS	4-5-7-11	BG		
7.5		8-10'	SS/LAB	3-6-8-10	80-90	ODOR PRESENT	
10	CLAY - brown, plastic, stiff, moist, some silt, sand and fine gravel, thin silt and sand layers	10.5-12.5	SS	4-6-5-7	50-60		
12.5	SILTY CLAY - gray, very plastic, stiff moist, some sand and fine gravel	13-15'	SS	3-5-6-7	BG		
15	END OF BORING AT 15 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250	BORING/WELL DESIGNATION: B-250-7	BORING/WELL LOCATION:
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 15 FT.
DATE STARTED: 04/17/91	DATE COMPLETED: 04/17/91	GROUND ELEV.: 876.05 FT.	MEASURING POINT ELEV: NA FT.
WELL DEPTH: N/A FT.			
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY

SEE FIGURE 2-1

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER	COMMENTS	WELL DATA
0					(ppm)		
	ASPHALT						
	SANDY CLAY - brown, plastic, stiff, moist-dry, some fine gravel	.5-2.5'	SS	3-5-5-7	BG	BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE	
2.5							
		3-5'	SS	4-4-4-10	BG		
5							
	SANDY CLAY - light brown, slightly plastic, very stiff, moist, some silt, with light gray silt and sand layers	5.5-7.5'	SS	6-7-9-13	2		
7.5							
		8-10'	SS/LAB	6-8-10-12	80-90	ODOR PRESENT	
10							
	SANDY CLAY - light brown, slightly plastic, very stiff, moist, some silt, with vertical gray streak in sample	10.5-12.5	SS	3-5-8-13	80-100		
12.5							
	SILTY CLAY - gray, plastic, very stiff dry-moist, some sand and fine gravel	13-15'	SS	3-6-11-20	1-2		
15							
	END OF BORING AT 15 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-8	BORING/WELL LOCATION: SEE FIGURE 2-1
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER		BOREHOLE SIZE: 8 IN. / BOREHOLE DEPTH: 15 FT.	
DATE STARTED: 04/18/91	DATE COMPLETED: 04/18/91	GROUND ELEV.: 876.27 FT.	MEASURING POINT ELEV: NA FT. / WELL DEPTH: N/A FT.	
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT						
	CLAYEY SAND - brown, medium grained, loose, some fine gravel	.5-2.5'	SS	5-5-4-3	BG	BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE	
2.5	SANDY CLAY - brown, fine-medium grained, slightly plastic soft, moist, some fine gravel, some gray silt and fine sand layers, trace silt	3-5'	SS	2-2-2-4	BG		
5		5.5-7.5'	SS	2-3-5-11	BG		
7.5	SANDY CLAY - brown, plastic, stiff, dry-moist, trace-some fine gravel, some gray silt and fine sand layers	8-10'	SS	3-6-9-12	10-20	SLIGHT ODOR PRESENT	
10		10.5-12.5	SS/LAB	3-5-8-12	15-25		
12.5		13-15'	SS	3-6-9-10	1-2		
15	END OF BORING AT 15 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-9	BORING/WELL LOCATION: SEE FIGURE 2-1
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER		BOREHOLE SIZE: 8 IN. / BOREHOLE DEPTH: 15 FT.	
DATE STARTED: 04/18/91	DATE COMPLETED: 04/18/91	GROUND ELEV.: 876.06 FT. / MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.	
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT						
	SILTY SAND - dark brown, medium grained, moist, trace clay, some fine gravel	.5-2.5'	SS	5-6-4-4	BG	BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE	
2.5	SANDY CLAY - brown, fine-medium grained, slightly plastic stiff, moist, some fine gravel, trace silt	3-5'	SS	3-3-6-8	BG		
5	SANDY CLAY - brown-gray, slightly plastic, very stiff, dry-moist, some gray silt, trace fine gravel, with fine silt layers	5.5-7.5'	SS	6-11-11-15	BG		
7.5		8-10'	SS/LAB	4-8-8-11	30-40	SLIGHT ODOR PRESENT	
10	SANDY CLAY -brown, plastic, stiff, moist, some silt and fine gravel	10.5-12.5	SS	3-6-8-12	30-35	SLIGHT ODOR PRESENT	
12.5	SILTY CLAY - gray-brown, very plastic, very stiff, moist, trace gravel, with sand layer at the base of sampler	13-15'	SS	4-9-17-25	1-2		
15	END OF BORING AT 15 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-10	BORING/WELL LOCATION: SEE FIGURE 2-1
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 15 FT.	
DATE STARTED: 04/18/91	DATE COMPLETED: 04/18/91	GROUND ELEV.: 875.94 FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER	COMMENTS	WELL DATA
0					(ppm)		
	ASPHALT						
	SANDY CLAY - brown, plastic, very stiff, moist, some fine gravel	.5-2.5'	SS	7-8-8-13	BG	BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
2.5							
	CLAYEY SAND - brown, fine-medium grained, loose, some fine gravel, trace silt	3-5'	SS	4-4-6-11	BG		
5							
	SANDY CLAY - brown, slightly plastic, very stiff, moist-dry, trace silt, some fine gravel, gray vertical streaks of sand and silt possible fractures in clay	5.5-7.5'	SS	6-9-10-12	BG		
7.5							
		8-10'	SS/LAB	6-9-11-11	BG		
10							
	SANDY CLAY - brown, plastic, stiff, moist, some fine gravel, with gray silt and fine sand layers, trace silt	10.5-12.5	SS	7-7-7-9	BG		
12.5							
		13-15'	SS	7-8-11-8	BG		
	SILTY CLAY - gray, plastic, stiff, moist, some fine sand, trace fine gravel						
15	END OF BORING AT 15 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-11	BORING/WELL LOCATION: SEE FIGURE 2-1
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER		BOREHOLE SIZE: 8 IN. / BOREHOLE DEPTH: 15 FT.	
DATE STARTED: 04/18/91	DATE COMPLETED: 04/18/91	GROUND ELEV.: 876.30 FT. / MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.	
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT					BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
	SAND FILL						
	SANDY CLAY - brown, plastic, stiff, moist, trace silt and fine gravel	.5-2.5'	SS	3-4-5-7	BG		
2.5							
	CLAYEY SAND - brown, firm, moist, trace silt and fine gravel	3-5'	SS	3-4-7-10	BG		
5							
	SANDY CLAY - brown, plastic, stiff, moist, some silt, trace fine gravel	5.5-7.5'	SS	4-6-8-10	BG		
7.5							
		8-10'	SS/LAB	5-5-6-8	BG		
10							
		10.5-12.5	SS	6-6-6-8	BG		
12.5	SILTY CLAY - gray, very plastic, stiff, moist, some fine sand, trace fine gravel						
		13-15'	SS	6-6-4-6	BG		
15	END OF BORING AT 15 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-12	BORING/WELL LOCATION: SEE FIGURE 2-1
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 16 FT.	
DATE STARTED: 04/19/91	DATE COMPLETED: 04/19/91	GROUND ELEV.: 876.57 FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	CONCRETE					BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
	SAND FILL - brown						
	CLAYEY SAND - dark brown, loose, moist, some silt and fine gravel	.5-2.5'	SS	3-3-4-5	BG		
2.5							
5		4-6'	SS/LAB	3-3-3-5	BG		
7.5							
	SANDY CLAY - brown, plastic, very stiff, moist, trace mottled gray silt and gravel	9-11'	SS	6-9-12-14	BG		
10							
12.5							
	SANDY CLAY - brown, plastic, very stiff, dry-moist, some silt, trace gravel	14-16'	SS/LAB	9-3-27-32	BG		
15							
	END OF BORING 16 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-13	BORING/WELL LOCATION: SEE FIGURE 2-1
DRILLING CONTRACTOR: E. T. S.		DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 16 FT.
DATE STARTED: 04/19/91	DATE COMPLETED: 04/19/91	GROUND ELEV.: 876.67 FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER	COMMENTS	WELL DATA
0	CONCRETE				(ppm)		
	SAND FILL - brown, medium-coarse grained, loose, moist, trace fine gravel	.5-2.5'	SS	3-3-3-3	BG	BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
2.5							
	CLAYEY SAND - dark brown, loose, moist, some silt and fine gravel	4-6'	SS/LAB	3-3-3-5	BG		
5							
7.5							
	SANDY CLAY - brown, plastic, very stiff, moist, some mottled gray silt and gravel	9-11'	SS	4-8-12-16	BG		
10							
12.5							
	SANDY CLAY - brown, plastic, very stiff, moist, trace gray mottled silt and fine gravel	14-16'	SS/LAB	5-7-11-14	BG		
15	SILTY CLAY - gray, plastic, very stiff, moist, some fine sand, trace fine gravel						
	END OF BORING AT 16 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: MW-250-14	BORING/WELL LOCATION: SEE FIGURE 2-2
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 21 FT.	
DATE STARTED: 04/19/91	DATE COMPLETED: 04/19/91	GROUND ELEV.: 875.27 FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: 18 FT.
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT					FLUSH MOUNT STEEL PROTECTIVE COVERS SET IN CONCRETE	
	SANDY CLAY - dark brown, slightly plastic, stiff, dry-moist, some fine gravel	.5-2.5'	SS	4-4-6-7	BG		
2.5						DRY BENTONITE	
5	SANDY CLAY - brown, slightly plastic, very stiff, dry-moist, trace-some silt, trace fine gravel	5-7'	SS	10-12-14-18	BG	2-INCH, SCHEDULE-40, FLUSH THREADED, PVC WELL CASING	
7.5						HOLE PLUG	
10	SILTY CLAY - light brown, slightly plastic, dense, dry, trace fine sand and fine gravel	10-12'	SS	24-28-16-21	BG		
12.5						SAND FILTER PACK	
15	SAND - brown, fine-medium grained, wet, some fine gravel	15-17'	SS	10-21-23-31	BG	2-INCH, 0.010-SLOT, PVC WELL SCREEN	
17.5							

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM (CONT'D)

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250	BORING/WELL NUMBER: MW-250-14	BOREHOLE DEPTH: 20 FT.

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER	COMMENTS	WELL DATA
17.5							
	SILTY CLAY - gray, very plastic, stiff, moist, some fine-medium grained sand	18-20'	SS	7-8-5-7	BG	NATIVE CLAY	
20	END OF BORING AT 20 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-15	BORING/WELL LOCATION: SEE FIGURE 2-2
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER		BOREHOLE SIZE: 8 IN. / BOREHOLE DEPTH: 21 FT.	
DATE STARTED: 04/18/91	DATE COMPLETED: 04/18/91	GROUND ELEV.: 875.15 FT.	MEASURING POINT ELEV: NA FT. / WELL DEPTH: N/A FT.	
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT					BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
	CLAYEY SAND - brown-dark brown, fine-medium grained, loose, moist, some fine gravel	.5-2.5'	SS	3-5-5-4	BG		
2.5							
5	SANDY CLAY - brown, plastic, stiff, moist, some fine gravel; trace silt	5-7'	SS	3-5-6-9	BG		
7.5							
10	CLAY/SILTY CLAY - brown-brown gray, plastic very stiff, dry-moist, trace fine gravel	10-12'	SS	6-9-10-13	BG		
12.5							
	INTERBEDDED CLAY AND SAND - brown, wet, with fine to medium sand layers						
15							
	SANDY CLAY - gray, very plastic, stiff most, some silt	15-17'	SS/LAB	4-6-4-7	BG		
17.5							

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250	BORING/WELL NUMBER: B-250-15	BOREHOLE DEPTH: 21 FT.

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER	COMMENTS	WELL DATA
17.5	SANDY CLAY - gray, very plastic, stiff, moist, some silt	17-19'	SS	4-6-4-7	BG		
20		19-21'	SS	6-3-6-9	BG		
	END OF BORING AT 21 FEET.						
22.5							

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250	BORING/WELL DESIGNATION: B-250-16	BORING/WELL LOCATION:
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 15 FT.
DATE STARTED: 04/17/91	DATE COMPLETED: 04/17/91	GROUND ELEV.: 875.58 FT.	MEASURING POINT ELEV: NA FT.
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY

SEE FIGURE 2-1

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT						
	SANDY CLAY - brown, plastic, stiff, moist-dry, some fine gravel, trace silt	.5-2.5'	SS	2-4-6-8	BG	BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
2.5							
	SANDY CLAY - brown, plastic, very stiff, dry, some fine gravel, some silt and sand layers	3-5'	SS	4-7-9-11	BG		
5							
		5.5-7.5'	SS	3-5-7-8	BG		
7.5							
		8-10'	SS/LAB	5-5-8-9	BG		
10							
	CLAY - brown, plastic, firm, moist, some silt, sand and fine gravel, thin silt and sand layers	10.5-12.5	SS	2-3-5-8	BG		
12.5							
	SILTY CLAY - gray, very plastic, moist, trace-some sand, some fine gravel	13-15'	SS	3-5-5-7	BG		
15							
	END OF BORING AT 15 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-17	BORING/WELL LOCATION: SEE FIGURE 2-1
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER		BOREHOLE SIZE: 8 IN. / BOREHOLE DEPTH: 15 FT.	
DATE STARTED: 04/18/91	DATE COMPLETED: 04/18/91	GROUND ELEV.: 875.65 FT.	MEASURING POINT ELEV: NA FT. / WELL DEPTH: N/A FT.	
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT						
	SAND FILL					BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
	SANDY CLAY - brown, plastic, stiff, moist, trace silt, some fine gravel	.5-2.5'	SS	5-4-5-7	BG		
2.5		3-5'	SS	4-5-7-10	BG		
5	SANDY CLAY - brown, slightly plastic, very stiff, dry-moist, trace silt, some fine gravel, with gray silt and sand layers	5.5-7.5'	SS	5-8-9-16	BG		
7.5	SANDY CLAY - brown, plastic, moist, stiff, trace-some silt, trace fine gravel	8-10'	SS/LAB	4-6-8-12	BG		
10		10.5-12.5	SS	3-7-7-12	BG		
12.5		13-15'	SS	4-7-7-18	BG		
15	END OF BORING AT 15 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-21	PROJECT NAME: GM BOC BUILDING 250		BORING/WELL DESIGNATION: B-250-18	BORING/WELL LOCATION:
DRILLING CONTRACTOR: E. T. S.	DRILLING METHOD: HOLLOW STEM AUGER	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 15 FT.	SEE FIGURE 2-1
DATE STARTED: 04/18/91	DATE COMPLETED: 04/18/91	GROUND ELEV.: 875.79 FT.	MEASURING POINT ELEV: NA FT.	WELL DEPTH: N/A FT.
RIG: D-50	DRILLER: J. CHRIS	HELPER: A. GRAY	LOGGED BY: C. KIELTY	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	ASPHALT						
	CLAYEY SAND - dark brown, fine-medium grained, firm, some silt and fine gravel	.5-2.5'	SS	6-6-6-6	BG	BORING HOLE FILLED TO SURFACE WITH DRY BENTONITE AND SOIL CUTTINGS	
2.5	SILTY SAND - gray-brown, fine grained, moist						
	SANDY CLAY - brown, plastic, stiff, moist, trace-some silt, some fine gravel	3-5'	SS	3-5-6-7	BG		
5		5.5-7.5'	SS	2-6-6-9	BG		
7.5	SANDY CLAY - brown, plastic, moist, very stiff, trace fine gravel, with some gray silt and sand layers	8-10'	SS/LAB	3-7-11-14	BG		
10		10.5-12.5	SS	10-12-12-14	BG		
12.5	SANDY CLAY - brown, very plastic, very stiff, moist-wet, wet sand lenses, some fine gravel	13-15'	SS	3-12-12-14	BG		
15	END OF BORING AT 15 FEET						

NOTES: NA - NOT AVAILABLE
N/A - NOT APPLICABLE
SS - SPLIT-SPOON
LAB - LABORATORY SAMPLE
BG - BACKGROUND

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO. MW-1

PROJECT:	GM Lansing - Building #250
CLIENT:	Lansing Automotive Division
BORING CONTRACTOR:	Geo-Tek Inc.
SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION:	876.43
DATE STARTED:	10/4/93
DATE FINISHED:	10/4/93
DRILLER:	Peter Buel
GEOLOGIST:	Michael Kovacs (EM)
REVIEWED BY:	David Frazier (URS)

GROUND WATER:

DATE	TIME	LEV	TYPE
10/21		f0.84	Below top of riser
11/3		11.08	Below top of riser

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
									10" Concrete		
		S-1	SS	3	7		Brown	medium dense	Sand Fill	Fill	HNu = ND
				7	13						
5											
		S-2	SS	8	10		Brown/ light grey	very stiff	SILTY CLAY, some Gravel	CL	mottled HNu = ND
				12	13						
10											
		S-3	SS	4	5		Brown	stiff	... trace Gravel	CL	moist HNu = ND
				7	9						
15											
		S-4	SS								HNu = ND
20											
		S-5	SS	6	9		Grey	stiff			
				13	22				SAND, well sorted	SP	HNu = ND
25									End of Boring 22.0'		
30											
35											
38											

COMMENTS HNu readings from head space analysis. ND = non-detect.

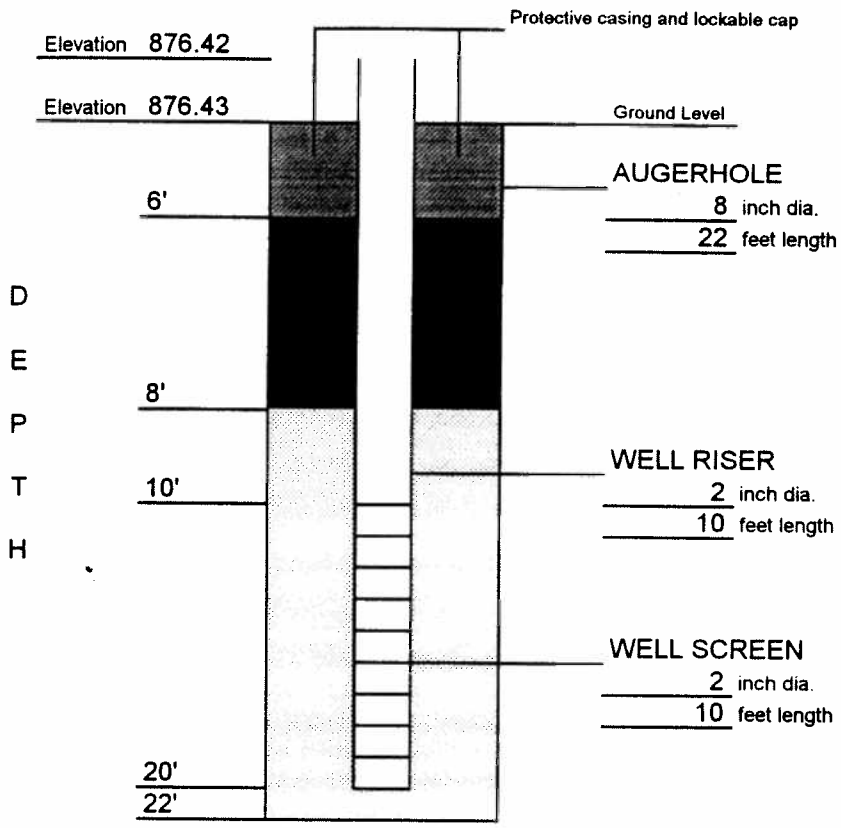
PROJECT NO. E1-93-110

BORING NO. MW-1

DRILLING SUMMARY
Geologist: Mike Kovacs
Drilling Company: Geo-Tek Inc.
Driller: Peter Buel
Date: 10/4/93

GEOLOGIC LOG

depth(ft.)	lithology
0-5'	Sand Fill
5-21'	Silty Clay
21-22'	Sand



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*SEAL MATERIAL*
Surface: Cast Iron	Type: Machine Slot PVC	Seal #1 Type: Bentonite Chips Setting: 6-8'
Monitor: Sch. 40 PVC	Slot Size: .010	Seal #2 Type: Cement Grout Setting: 0-6'

FILTER MATERIAL	*ROCK CORING*	*LEGEND*
Type: Global Filter Pack m/c Sand	Cored Interval: None	Cement/Bentonite Grout
Setting: 8-20'	Core Diameter: None	Bentonite Seal
	Reamed Diameter: None	Silica Sandpack

Client: Lansing Automotive	Project: GM/LAD - SAP1	Project No.: 35349
URS Consultants Inc.	**Monitoring Well Constuction Details**	**Well Number:** MW-1

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO. MW-2

PROJECT:	GM Lansing - Building #250
CLIENT:	Lansing Automotive Division
BORING CONTRACTOR:	Geo-Tek Inc.
SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION:	876.63
DATE STARTED:	10/5/93
DATE FINISHED:	10/5/93
DRILLER:	Peter Buel
GEOLOGIST:	Michael Kovacs (EM)
REVIEWED BY:	David Frazier (URS)

GROUND WATER:

DATE	TIME	LEV	TYPE
10/21		11.55	Below top of riser
11/3		12.00	Below top of riser
11/17		12.90	Below top of ris

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
									Asphalt		
		S-1	SS	2	3		Dark grey/ brown	stiff	SILTY CLAY, some Gravel	Fill	Hnu=ND
				4	4						
5											
		S-2	SS	3	7			very stiff	CLAY, some Gravel	CL	mottled Hnu = ND
				9	13						
10							Brown				
		S-3	SS	3	5						
				6	8			medium stiff	same as above		Hnu = ND
15											
		S-4	SS	2	3		Grey	medium stiff	SILTY CLAY, some Gravel	CL	Hnu = ND
				4	7						
20											
		S-5	SS	7	20						reddish tinge
				24	18		Grey	dense	SAND, some Gravel	SW	HNu = ND
									End of Boring 22.0'		
25											
30											
35											
38											

COMMENTS HNu readings from head space analysis. ND = non-detect.

PROJECT NO. E1-93-110

BORING NO. MW-2

DRILLING SUMMARY

Geologist: Mike Kovacs

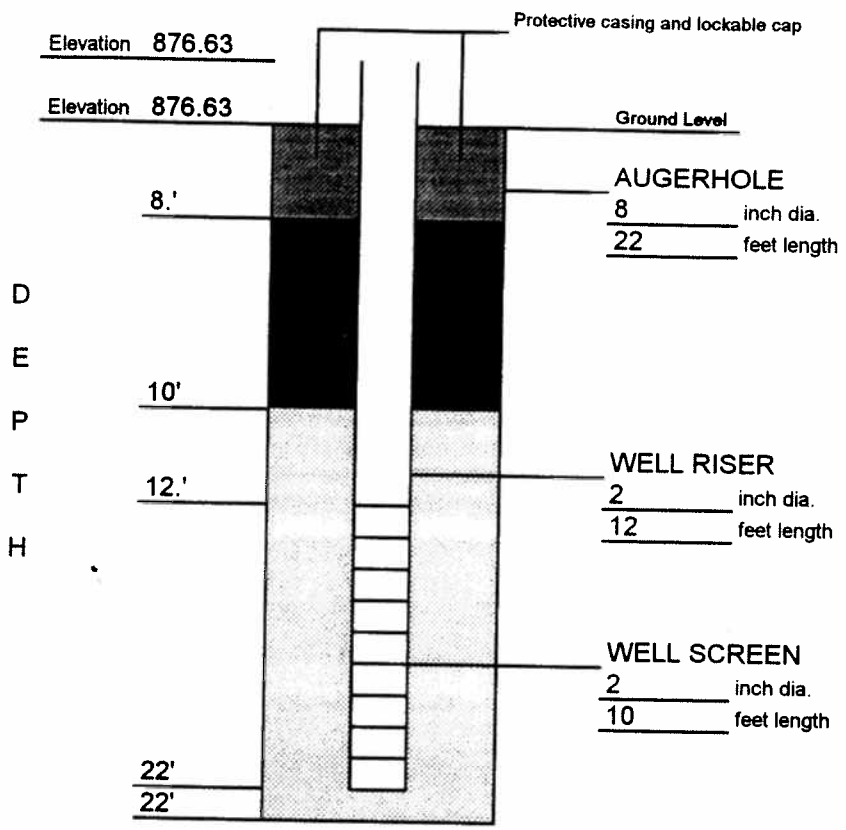
Drilling Company: Geo Tek, Inc.

Driller: Peter Buell

Date: 10/5/93

GEOLOGIC LOG

depth(ft.)	lithology
0-5'	Sand Fill
5-15'	Gravely Clay
15-21'	Silty Clay
21-22'	Gravely Sand



WELL DESIGN

CASING MATERIAL

Surface: Cast Iron

Monitor: Sch. 40 PVC

SCREEN MATERIAL

Type: Machine Slot PVC

Slot Size: .010

SEAL MATERIAL

Seal #1 Type: Bentonite Chips
Setting: 8-10'

Seal #2 Type: Cement Grout
Setting: 0-8'

FILTER MATERIAL

Type: Global Filter Pack m/c Sand

Setting: 10-22'

ROCK CORING

Cored Interval: None

Core Diameter: None

Reamed Diameter: None

LEGEND

Cement/Bentonite Grout

Bentonite Seal

Silica Sandpack

Client: GM-LAD	Project: SAP 1	Project No.: 35349
URS Consultants Inc.	**Monitoring Well Constuction Details**	**Well Number: MW-2**

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO. MW-3

PROJECT:	GM Lansing - Building #250
CLIENT:	Lansing Automotive Division
BORING CONTRACTOR:	Geo-Tek Inc.
SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION:	877.04
DATE STARTED:	10/4/93
DATE FINISHED:	10/4/93
DRILLER:	Peter Buel
GEOLOGIST:	Michael Kovacs (EM)
REVIEWED BY:	David Frazier (URS)

GROUND WATER:

DATE	TIME	LEV	TYPE
10/21		11.12	Below top of riser
11/3		11.47	Below top of riser
11/17		12.30	Below top of ris

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
								Asphalt		
		S-1	SS	6 6		Brown	stiff	SANDY SILT, some Gravel	Fill	HNu = 8ppm
				10 10						
5										
		S-2	SS	2 3		Grey	medium stiff	CLAY, some Gravel	Fill	HNu = 40ppm drilled through concrete at 6'
				2						
10										
		S-3	SS	7 11		Brown	very stiff	SANDY CLAY, some concrete fragments	Fill	HNu = ND
				13 15						
15										
		S-4	SS	3 10		Grey	very stiff	interbedded SILTY CLAY and SAND	CL	HNu = 3.5 ppm
				19 21						
20										
		S-5	SS	4 8		Grey	very stiff	SILTY CLAY, some Sand, trace Gravel	CL	
				16 16				SAND, well sorted	SP	HNu = ND
								End of Boring 22.0'		
25										
30										
35										
38										

COMMENTS HNu readings from head space analysis. ND = non-detect.

PROJECT NO. E1-93-110

BORING NO. MW-3

DRILLING SUMMARY

Geologist: Mike Kovacs

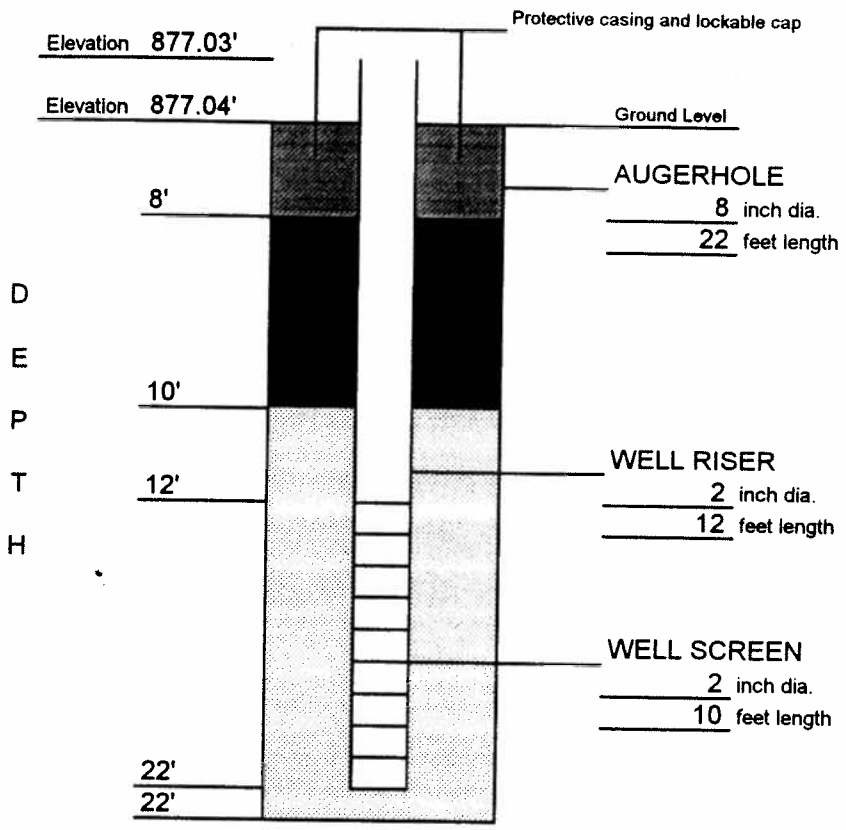
Drilling Company: Geo-Tek Inc.

Driller: Peter Buel

Date: 10/4/93

GEOLOGIC LOG

depth(ft.)	lithology
0-12'	Sand/Clay Fill
12-21'	Silty Clay
21-22'	Sand



WELL DESIGN

CASING MATERIAL

Surface: Cast Iron

Monitor: Sch. 40 PVC

SCREEN MATERIAL

Type: Machine Slot PVC

Slot Size: .010

SEAL MATERIAL

Seal #1 Type: Bentonite Chips
Setting: 8-10'

Seal #2 Type: Cement Grout
Setting: 0-8'

FILTER MATERIAL

Type: Global Filter Pack m/c Sand

Setting: 10-22'

ROCK CORING

Cored Interval: None

Core Diameter: None

Reamed Diameter: None

LEGEND

Cement/Bentonite Grout

Bentonite Seal

Silica Sandpack

Client: Lansing Automotive	Project: GM/LAD - SAP1	Project No.: 35349
URS Consultants Inc.	**Monitoring Well Constuction Details**	**Well Number:** MW-3

Log of Well VEW-1

Plant #2 Building #225

Lansing, Michigan

Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *8*
Date Started: *1/17/95* **Date Completed:** *1/17/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *7*	**Ground Elevation (ft.):**

Completion Information

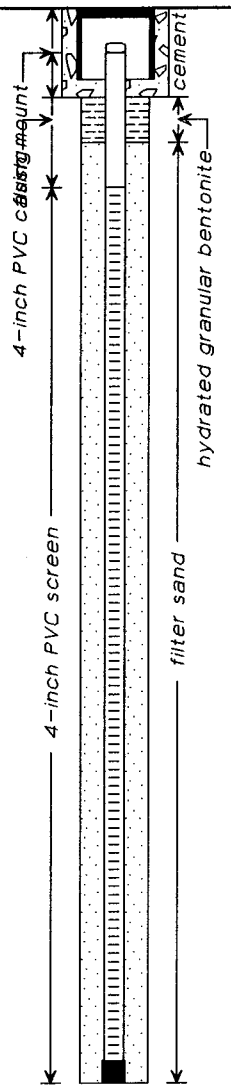
Screened Interval (ft. bgl): *2-12*	**Filter Pack Interval (ft. bgl):** *1.5-12*
Screen Length (ft.): *10*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *1.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-1.5*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #2 Building #225

Log of Well VEW-1

Depth (feet bgl)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0	**Asphalt**					
	Sand with some gravel, moist, gray, 10YR5/1	SM				
2						
4						
	Clay gray, 10YR5/1, moist, plastic, plastic	CL				
6						
	Sand gray, medium grained, wet, some clay, some gravel	SP				
8	Saturated					
	Clay trace sand, wet, soft, plastic	CL				
10						
12	End of Boring					
14						
16						



Log of Well SB-1/VOW-1

Plant #2 Building #225
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *8*
Date Started: *1/16/95* **Date Completed:** *1/16/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/2*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/2*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #2 Building #225

Log of Well SB-1/VOW-1

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	PID or FID (ppm) Values	PID or FID (ppm) Profile	Soil/Rock Description and Comments	USCS Classification	Lithologic Log	Well Construction	Elevation (ft.)
0					**Asphalt**			flush mount, cement	
2	5 5 4 6 3	80%	98		**Sand** with some gravel, moist, gray, 10YR5/1	SM		4-inch PVC casing	
4	3 6 6 8	60%	101		**Clay** gray, 10YR5/1, moist, plastic	CL		hydrated granular bentonite	
6	4 8 10 10	60%	35		**Sand** gray, medium grained, wet, some clay, some gravel Saturated	SP		filter sand	
8	10 10 7 5	70%	0		**Clay** trace sand, wet, soft, plastic	CL		4-inch PVC screen	
10	5 5 5 5	70%	0						
12					End of Boring				
14									
16									

Environmental Science & Engineering, Inc.

Log of Well VOW-2

Plant #2 Building #225
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	Drilling Method: *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	Borehole Diameter (in.): *8*
Date Started: *1/16/95* Date Completed: *1/16/95*	Total Depth Drilled (ft.): *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	Ground Elevation (ft.):

Completion Information

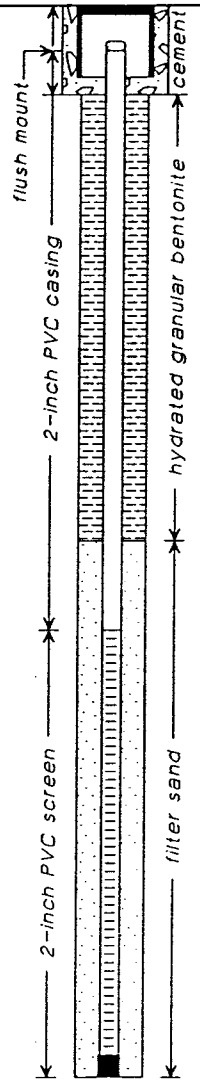
Screened Interval (ft. bgl): *7-12*	Filter Pack Interval (ft. bgl): *6-12*
Screen Length (ft.): *5*	Filter Pack Type: *Filter Sand*
Bottom Cap Length (ft.): *0.25*	Upper Seal Interval (ft. bgl): *0-1*
Screen Type: *PVC*	Upper Seal Type: *Cement*
Screen Slot Size/Dia. (in.): *0.010/2*	Lower Seal Interval (ft. bgl):
Total Casing (ft.): *6.5*	Lower Seal Type:
Casing Type/Dia. (in.): *PVC/2*	Grout Interval (ft. bgl): *1-6*
Top of Casing Elevation (ft.):	Grout Type: *Hydrated Granular Bentonite*
Survey Datum:	Protective Casing Type: *Flush Mount*

Explanation & Comments

Plant #2 Building #225

Log of Well VOW-2

Depth (feet bgl)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0	**Asphalt**					
	Sand with some gravel, moist, gray, 10YR5/1	SM				
2						
4						
	Clay gray, 10YR5/1, moist, plastic, plastic	CL				
6						
	Sand gray, medium grained, wet, some clay, some gravel	SP				
8	Saturated					
	Clay trace sand, wet, soft, plastic	CL				
10						
12	End of Boring					
14						
16						



GM Lansing Plant 3
Boring Log Master List

Location Name	Have Boring Log
9	Yes
10	Yes
11	Yes
12	Yes
13	Yes
14	Yes
15	Yes
16	Yes
17	Yes
18	Yes
19	Yes
20	Yes
21	Yes
22	Yes
23	Yes
24	Yes
25	Yes
26	Yes
27	Yes
28	Yes
29	Yes
30	Yes
31	Yes
32	Yes
33	Yes
34	Yes
35	Yes
36	Yes
37	Yes
39	Yes
40	Yes
41	Yes
42	Yes
43	Yes
45	Yes
46	Yes
48	Yes
49	Yes
50	Yes
51	Yes
52	Yes
53	Yes
54	Yes
55	Yes
56	Yes
57	Yes
58	Yes
59	Yes
60	Yes

GM Lansing Plant 3
Boring Log Master List

Location Name	Have Boring Log
61	Yes
62	Yes
63	Yes
64	Yes
65	Yes
66	Yes
68	Yes
69	Yes
70	Yes
71	Yes
72	Yes
73	No
74	Yes
B-96-P3	No
CH-10-G	No
CH-13	No
CH-14	No
CH-15	Yes
CH-1-G	No
CH-2-B	No
CH-2-G	No
CH-3-B	No
CH-3-G	No
CH-5	No
CH-6	No
CH-7	No
CH-8-B	Yes
CH-8-G	Yes
CH-9-B	No
CH-9-G	No
Composite Waste Sample	NA
CS-1	No
CS-2	No
CS-3	No
CS-4	No
CS-5	No
CS-6	No
CS-7	No
CS-8	No
CS-9	No
French Drain	NA
G1	No
G10	No
G11	No
G12	No
G2	No
G3	No
G4	No
G5	No

GM Lansing Plant 3
Boring Log Master List

Location Name	Have Boring Log
G6	No
G7	No
G8	No
G9	No
H1	No
H2	No
H3	No
H4	No
H5	No
H6	No
H7	No
I1	No
I10	No
I11	No
I2	No
I3	No
I4	No
I5	No
I6	No
I7	No
I8	No
I9	No
MW-02-01	Yes
MW-02-02	Yes
MW-02-03	Yes
MW-02-04	Yes
MW-04-01	Yes
MW-04-02	Yes
MW-04-03	Yes
MW-04-04	Yes
MW-19	Yes
MW-21	Yes
MW-22	Yes
MW-23	Yes
MW-24	Yes
MW-88-1	Yes
MW-91-1	Yes
MW-91-2	Yes
MW-91-3	Yes
MW-91-4	Yes
MW-91-5	Yes
MW-91-6	Yes
MW-93-1	Yes
MW-93-2	Yes
MW-93-3	Yes
QAQC-Equipment Blank	NA
QAQC-Field Blank	NA
QAQC-Rinse Blank	NA
QAQC-Trip Blank	NA

GM Lansing Plant 3
Boring Log Master List

Location Name	Have Boring Log
SB#1	Yes
SB#2	Yes
SB#3	Yes
SB#4	Yes
SB#5	Yes
SB#6	Yes
SB#7	Yes
SB#8	Yes
SB1	Yes
SB10	Yes
SB11	Yes
SB12	Yes
SB13	Yes
SB14	Yes
SB15	Yes
SB16	Yes
SB17	Yes
SB18	Yes
SB19	No
SB2	Yes
SB20	Yes
SB21	No
SB22	No
SB23	No
SB24	No
SB25	Yes
SB26	Yes
SB27	Yes
SB3	Yes
SB4	Yes
SB5	Yes
SB6	Yes
SB7	Yes
SB8	Yes
SB9	Yes
SS1	No
SS10	No
SS11	No
SS12	No
SS13	No
SS14	No
SS15	No
SS19	No
SS2	No
SS20	No
SS21	No
SS3	No
SS4	No
SS5	No

GM Lansing Plant 3
Boring Log Master List

Location Name	Have Boring Log
SS6	No
SS7	No
SS8	No
SS9	No
TW-11	No
TW-12	No
TW-18	No
TW-23	Yes
TW-30	Yes
TW-32	Yes
TW-42	Yes
TW-50	Yes
TW-9	Yes
VEW1	Yes

EDI Engineering & Science

Page:_____ of_____
Well/Boring No. #9
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1.0 - 25.0		Cement / Bentonite Grout
0.0 - 1.0		Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/13/88 Finished: 7/13/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 22.5' Ft. Below Ground
Measure On: 7/13/88 - 4:00p.m.

Location
Outside, NE of Bldg. 301 in storage area

Remarks (include here, other data available)

Blow Counts 18" / 12" / 6"
Remarks Sample Interval

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	6"	12"	18"
1.0	0-1.0	Cement (cored)	1-2.5	2	3	4
0.5	1.0-1.5	Medium to coarse SAND, dark brown, small gravel	3.5-5	2	4	6
2.3	1.5-3.8	Very sandy CLAY dark brown, with lenses of gray silt and light brown sand,	6-7.5	7	5	6
		occasional small gravel	8.5-10	4	4	6
5.2	3.8-9.0	Medium to coarse SAND, reddish brown, wet	11-12.5	7	6	6
5.8	9.0-14.8	Very sandy CLAY to sandy CLAY, dark brown to gray with brown sand lenses,	13.5-15	5	7	8
		occasional medium gravel	16-17.5	17	38	66
6.2	14.8-21	Medium to coarse SAND, brown, small gravel, compact brown clay lenses	18.5-20	25	31	21
1.4	21-22.4	Sandy CLAY, dark brown, occasional gravel	21-22.5	7	11	28
2.6	22.4-25	Very fine SAND and SILT, reddish brown, "flaky layers", occasional small gravel	23.5-25	14	23	29

EDI Engineering & Science

Page:____ of____
Well/Boring No. #10
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth To	Material/Method
0.2 - 25.0	Cement / Bentonite Grout
0 - 0.2	Top Soil

Development N.A.

Screen
Manufacturer: None
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	None	To
		To

Date
Started: 7/7/88 Finished: 7/7/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No water encountered

Location
Outside NW corner building 301

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
0.3	0-0.3	Topsoil	1-2.5	8	11	9
3.2	0.3-3.5	Fine SAND, brown with dry clay lenses, small gravel	3.5-5	4	7	8
1.0	3.5-4.5	CLAY, gray, some sand and gravel, moist	6-7.5	10	8	12
9.3	4.5-13.8	Clayey SAND to sand, reddish to light brown, with clay and silt layers, small pebbles	8.5-10	7	10	10
2.2	13.8-16	Stiff CLAY, brown, some fine sand, occasional gravel, moist	11-12.5	6	10	14
3.0	16-19	Very sandy CLAY, fine to medium sand, light brown, moist	13.5-15	5	6	8
2.5	19-21.5	Silty CLAY, gray, moist, soft	16-17.5	3	3	4
3.5	21.5-25	Fine to medium SAND, light brown to blonde, soft, dry	18.5-20	2	3	4
			21-22.5	9	11	14
			23.5-25	14	18	22

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Page:____ of____
Well/Boring No. #11
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.8 - 25.0		Cement / Bentonite Grout
0-0.8		Cement Core

Development N.A.

Screen
Manufacturer: None
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/7/88 Finished: 7/8/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 10.5' Ft. Below ground
Measure On: 7/8/88

Location
Outside west side of building 301

Remarks (include here, other data available) Background boring water sample collected out of bore hole

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	Blow Counts 12"	Blow Counts 18"
0.8	0-0.8	Cement (cored)	1-2.5	3	4	7
0.7	0.8-1.5	Medium brown SAND	3.5-5	7	4	3
3.0	1.5-4.5	CLAY and medium SAND, dark brown, moist	6-7.5	3	4	3
1.5	4.5-6	Silty, medium SAND, gray, moist, sticky	8.5-10	2	3	6
0.5	6-6.5	Medium to coarse SAND, brown gravelly, moist	11-12.5	4	5	7
2.5	6.5-9	CLAY and SAND, gray and brown, some small gravel	13.5-15	6	8	11
2.2	9.0-11.2	CLAY, blue-gray, very stiff, some organic matter	16-17.5	5	8	18
5.3	11.2-16.5	Medium-fine sandy CLAY stiff, brown with gray silt lenses, moist	18.5-20	3	4	6
2	16.5-18.5	Medium-coarse SAND, brown, with some silt, clay and small gravel, damp to moist	21-22.5	6	8	9
6.5	18.5-25	Sandy CLAY gray, stiff, moist, occasional gravel	23.5-25	6	8	10

EDI Engineering & Science

Page:_____ of_____
Well/Boring No. # 12
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.8 - 25.0		Cement / Bentonite Grout
0 - 0.8		Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/13/88 Finished: 7/13/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 8.3' Ft. Below surface
Measure On: At EOB
7/13/88

Location
Outside west side of building 301

Remarks (include here, other data available) Background boring

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
0.8	0-0.8	Cement (cored)	1-2.5	3	4	7
0.7	0.8-1.5	Fine silty SAND, reddish brown	3.5-5	5	9	9
3.5	1.5-5	Sandy CLAY, reddish brown, mixed with small gravel, stiff, sand layers, wet	6-7.5	10	10	10
6	5.0-11.0	Medium SAND, with silt and clay, brown, occasional gravel, wet	8.5-10	15	21	21
5.5	11-16.5	Very sandy CLAY, gray, occasional gravel	11-12.5	9	10	15
2.9	16.5-19.4	Slightly, sandy CLAY, gray, occasional gravel, occasional medium gray and brown	13.5-15	4	5	8
		sand lenses	16-17.5	3	3	5
5.6	19.4-25	Fine to medium SAND, brown, reddish brown, dry	18.5-20	3	7	14
			21-22.5	12	15	17
			23.5-25	8	11	14

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Well/Boring No. #13
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: M. Jones

Drilling Method(s) **Depth**
Auger / Split Spoon 50'

Grouting/Seal

Depth	To	Material/Method
0-50'		Cement / Bentonite Grout

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/26/88 Finished: 7/26/88

Elevation
Casing: N.A.
Ground:
Ref. Pt.:

Water Level none Ft. Below
Measure On:

Location

Remarks (include here, other data available) No water sample at sand layer ±11-13' due to no water in annulus after 40 minute standby, also no cave-in.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1	0-1	Cement (core)	1-2.5	7	18	18
3	1-4	Very fine to fine clayey SAND, some silt and gravel, tan to brown	3.5-5	4	3	3
2.5	4-6.5	Very fine to fine SAND, some silt and clay, occasional gravel, gray to dark brown	6-7.5	7	4	4
0.2	6.5-6.7	Very silty CLAY grayish brown, soft	8.5-10	7	10	9
4.5	6.7-11.2	Very fine to fine silty SAND, light to grayish brown, some gravel, silt lenses, damp to wet	11-12.5	7	10	15
1.8	11.2-13	Fine SAND, light brown, occasional gravel, damp to wet	13.5-15	7	8	10
0.7	13-13.7	SILT, light brown, with some fine sand, dry	16-17.5	6	5	10
7.8	13.7-21.5	Very sandy CLAY, dark gray, some gravel, dry	18.5-20	5	8	10
8.2	21.5-29.7	Very fine to fine SAND, with clay and silt, brown to gray, dry	21-22.5	7	10	13
3.3	29.7-33	Sandy CLAY, gray	23.5-25	7	7	9
10	33-43	SILT with some very fine sand, light gray	28.5-30	20	13	8
0.5	43-43.5	Fine SAND, white to very light brown, occasional fine gravel	33.5-35	8	13	15
0.5	43.5-44	Sandy CLAY, gray, with gravel	38.5-40	16	24	33
4	44-48	Sandy SILT, with some clay and gravel, gray	43.5-45	9	19	20
2	48-50	Silty, very fine SAND, brown to dark gray	48.5-50	16	20	29

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Well/Boring No. #14
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D-25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger/Split Spoon 17.5'

Grouting/Seal

Depth	To	Material/Method
0-17.5		Cement / Bentonite Grout

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/26/88 Finished: 7/26/88

Elevation
Casing: N.A.
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1	0-1	Cement (core)	1-2.5	7	15	15
2.5	1-3.5	Medium SAND, dark brown, some clay, medium gravel	3.5-5	2	4	8
2.5	3.5-6	Very sandy CLAY, gray silt lenses, some gravel	6-7.5	5	11	12
2.8	6-8.8	Silty sandy CLAY, light brown, stiff, medium, occasional gravel	8.5-10	23	36	35
2.7	8.8-11.5	Medium SAND, brown, some clay, occasional small gravel	11-12.5	7	12	17
6	11.5-17.5	Sandy CLAY, dark brown, stiff, occasional small gravel, strong ammonia odor - EOB	13.5-15	6	8	12
			16-17.5	8	22	13

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Well/Boring No. #15
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.5 - 25		Cement / Bentonite Grout
0 - 0.5		Cement Plug

Development

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: Finished:

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level N.A. Ft. Below
Measure On:

Location
Inside building 301 - near old nickel plating line

Remarks (include here, other data available) Dry hole

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1.0	0-1.0	Cement (cored)	1-2.5	10	14	16
0.8	1-1.8	Medium-coarse SAND, brown, some gravel	3.5-5	5	5	6
4.2	1.8-6.0	SAND mixed with some clay, dark brown, small-medium gravel, very black organic	6-7.5	6	7	11
		layer at 2.3 - 2.5'	8.5-10	20	18	21
8.0	6.0-14.0	Sandy CLAY, light brown to brown, occasional small gravel	11-12.5	9	15	16
7.2	14-21.2	Silty, sandy CLAY, gray, occasional small gravel	13.5-15	6	11	10
1.2	21.2-22.4	Medium to fine SAND, brown, moist	16-17.5	5	6	8
2.6	22.4-25	Fine SAND, blonde, dry, silty brown sand lenses	18.5-20	4	4	5
			21-22.5	5	6	16
			23.5-25	19	20	25

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Well/Boring No. # 16
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: D. Greene

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1	-25'	Cement / Bentonite Grout
0	- 1	Cement Plug

Development

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 8/12/88 Finished: 8/12/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level N.A. Ft. Below
Measure On:

Location

Remarks (include here, other data available)

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1.0	0-1.0	Concrete (cored)	1-2.5	11	6	10
12.5	1-13.5	Sandy CLAY, sand lenses 6.5', 9.0', 9.5', 12.5', dry to 11', then wet, (brown)	3.5-5	4	7	7
1.0	13.5-14.5	SAND and GRAVEL, wet	6-7.5	6	8	11
8.0	14.5-22.5	Silty, sandy, CLAY, gray, wet	8.5-10	9	11	15
2.5	22.5-25	Fine SAND, blonde	11-12.5	13	20	34
			13.5-15	13	16	23
			16-17.5	17	17	17
			18.5-20	6	8	10
			21-22.5	6	10	18
			23.5-25	19	29	30

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Well/Boring No. #17
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1	-25'	Cement / Bentonite Grout
0 - 1.0'		Cement Core

Development

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/28/88 Finished: 7/28/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level N.A. Ft. Below
Measure On:

Location

Remarks (include here, other data available) At E.O.B. - augers were pulled. Some water seeping into hole at approximately 10' - very slowly. Was not enough to collect sample.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	Blow Counts 12"	Blow Counts 18"
1.0	0-1.0	Cement (core)	1-2.5	3	3	4
10	1-11.0	Medium to coarse SAND, light brown to brown, occasional small to medium gravel, moist	3.5-5	2	2	3
5.5	11-16.5	Silty, sandy CLAY, gray, occasional gravel	6-7.5	1	1	1
3.3	16.5-19.8	Fine to medium clayey SAND, blonde to brown, occasional gravel, soft dry	8.5-10	6	9	7
2.7	19.8-22.5	Clayey SAND, brown to dark brown streaks, occasional gravel, moist at 21', sand	11-12.5	6	8	9
		lenses from 22.3 - 22.5	13.5-15	5	6	8
2.5	22.5-25	Coarse SAND, brown, some pea gravel, dry	16-17.5	4	6	7
			18.5-20	13	22	24
		Organic - sewerish odor	21-22.5	10	5	5
			23.5-25	13	17	20

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Well/Boring No. #18
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.7	25	Cement / Bentonite Grout
0.1	0.7	Cement Core
0	0.1	Black Top Core

Development

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
N.A. To
To

Date
Started: 7/11/88 Finished: 7/11/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 20.5' Ft. Below surface
Measure On: 7/11/88 At E.O.B.

Location
Outside, north of bldg. 301 in access road

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"	Remarks
0.1	0-0.1	Asphalt (core)	1-2.5	3	5	4	
0.6	0.1-0.7	Cement core	3.5-5	7	7	4	
2.8	0.7-3.5	GRAVEL and SAND fill	6-7.5	5	5	7	
4	3.5-7.5	Very sandy CLAY, brown, occasional medium-large gravel	8.5-10	7	18	16	
2	7.5-9.5	Medium SAND, brown, occasional gravel with clay lenses, damp	11-12.5	6	10	10	
1.7	9.5-11.2	Sandy CLAY, occasional gravel, brown ,wet	13.5-15	4	4	6	
3.8	11.2-15	Medium to coarse silty SAND with occasional gravel, slightly clayey, wet, gray, soft	16-17.5	4	6	7	
4.2	15-19.2	Silty CLAY, gray, stiff, occasional medium gravel	18.5-20	3	8	10	
2.3	19.2-21.5	Medium SAND, reddish brown, occasional gravel	21-22.5	5	7	7	
3.5	21.5-25	Layered CLAY, SILT, and SAND, gray, occasional gravel, wet	23.5-25	5	7	7	

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Well/Boring No. #19
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0	25	Cement / Bentonite Grout

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/27/88 Finished: 7/27/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level +22 Ft. Below surface
Measure On:

Location
Inside, NE corner near bldg. 301

Remarks (include here, other data available)
Had cave in at 22 - moist clayey sand.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	6"	12"	18"
				Blow Counts		
				Remarks		
0.8	0-0.8	Cement (core)	1-2.5	5	9	10
5.6	0.8-6.4	Medium to fine clayey SAND, brown to gray, occasional small gravel, dry	3.5-5	3	3	4
2.8	6.4-9.2	Silty CLAY, with some sand and gravel, brown to black streaks	6-7.5	2	6	8
2.3	9.2-11.5	Medium SAND, with some clay, occasional gravel, brown, moist	8.5-10	5	8	9
8.2	11.5-19.7	Sandy CLAY, brown to gray, slightly silty, occasional small gravel, stiff,	11-12.5	7	10	10
		brown sand lenses	13.5-15	3	6	7
4	19.7-23.7	Clayey medium SAND, light to dark brown, dry	16-17.5	3	6	7
0.8	23.7-24.5	Sandy CLAY, medium, brown, moist	18.5-20	4	5	9
0.5	24.5-25	Fine SAND, white blonde, dry	21-22.5	21	28	10
			23.5-25	5	18	42

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Well/Boring No. #20
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.8	25	Cement / Bentonite Grout
0.2	0.8	Cement Plug
0.0	0.2	Wood Blocks

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/8/88 Finished: 7/8/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No water encountered

Location
Inside, NE corner near bldg. 301

Remarks (include here, other data available)
PH test on soils
ph = 6

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
0.2	0-0.2	Wood block floor (core)	1-2.5	5	6	9
0.8	0.2-1.0	Cement (core)	3.5-5	5	7	10
5.5	1.0-6.5	Medium to fine SAND with some clay to 4', brown, occasional gravel, soft	6-7.5	12	10	14
2.0	6.5-8.5	Sandy CLAY, (fine sand) brown, occasional gravel	8.5-10	12	10	6
5.5	8.5-14	Medium SAND, brown, occasional gravel, loose, damp with silty sand lenses	11-12.5	7	15	8
3	14-17	Very silty CLAY, gray, occasional gravel, stiff, smooth	13.5-15	7	7	10
8	17-25	Fine to medium SAND, light brown, dry, after 22.0' clay lenses	16-17.5	3	7	8
			18.5-20	4	10	19
			21-22.5	13	13	15
			23.5-25	10	15	16

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Well/Boring No. #21
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1.0	25	Cement / Bentonite Grout
0.2	1	Cement (core)
0	0.2	Wood block (core)

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/22/88 Finished: 7/22/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No water encountered

Location
Inside, NE corner near bldg. 301

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1	0-1.0	3" wood floor, 9" cement (core)	1-2.5	4	5	6
3	1-4	CLAY, black, stiff	3.5-5	4	6	9
4.5	4-8.5	CLAY, dark greenish gray, discolored, occasional small gravel	6-7.5	5	11	14
1.3	8.5-9.8	Clayey SAND, greenish brown, occasional medium gravel	8.5-10	6	13	10
14.2	9.8-24	Silty, sandy CLAY, greenish gray to brown, occasional small gravel, stiff, soft	11-12.5	14	17	17
1	24-25	Fine to medium SAND, reddish brown to blonde, soft	13.5-15	13	14	16
			16-17.5	6	9	11
			18.5-20	8	11	13
			21-22.5	5	6	8
			23.5-25	10	27	38

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Well/Boring No. #22
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0	25	Cement / Bentonite Grout

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/21/88 Finished: 7/21/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No water encountered

Location
Inside E side of bldg. 301

Remarks (include here, other data available)
ph testing of soils

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	Blow Counts 12"	Blow Counts 18"
0.2	0-0.2	Wood block floor (core)	1-2.5	4	4	6
0.8	0.2-1	Cement (core)	3.5-5	4	4	6
5	1-6	Sandy CLAY, dark brown to black streaks, some small to medium gravel	6-7.5	7	10	20
3	6-9	Silty fine to medium SAND, light gray to white lenses, small gravel, odor	8.5-10	10	12	12
14	9-23	Silty, sandy CLAY, brown-gray, occasional small gravel, soft	11-12.5	6	11	11
2	23-25	Fine to medium SAND, dark brown, slightly silty, occasional small gravel, dry	13.5-15	4	6	8
			16-17.5	5	9	11
			18.5-20	5	8	11
			21-22.5	5	6	6
			23.5-25	13	21	24

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Well/Boring No. #23
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1 - 25'		Cement / Bentonite Grout
0 - 1		Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/14/88 Finished: 7/15/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location
Outside E. wall of Bldg. 301 B

Remarks (include here, other data available) Because of large rock, augers were being pushed out of plumb. New hole cored 1 1/2' NE of first hole. Water sample collected at 15'

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1	0-1.0	Cement (cored)	1-2.5	4	9	10
0.5	1-1.5	Medium to coarse SAND and GRAVEL, brown	3.5-5	17	34	*
13.5	1.5-15	Medium to coarse SAND, brown, with interbeds of sandy clay, occasional small	6-7.5	6	4	6
		gravel, moist to wet	8.5-10	5	6	8
6.2	15-21.2	Very sandy CLAY, gray, occasional gravel	11-12.5	5	6	14
3.8	21.2-25	Medium SAND, reddish brown, mixed with medium to large gravel with gray clay	13.5-15	3	3	5
		lenses, wet to moist	16-17.5	6	6	8
			18.5-20	4	9	27
			21-22.5	38	38	25
			23.5-25	5	5	4

* Drove a rock

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Well/Boring No. #24
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.6 - 25		Cement / Bentonite Grout
0 - 0.6		Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/12/88 Finished: 7/12/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No water encountered

Location
Outside Copper & Nickel Recovery Areas

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
0.6	0-0.6	Cement (cored)	1-2.5	2	4	7
0.4	0.6-1	Medium - coarse SAND and GRAVEL, reddish brown	3.5-5	8	12	17
3.5	1.0-4.5	Sandy CLAY, brown, fine blonde sand lenses, occasional gravel	6-7.5	6	7	8
3	4.5-7.5	Medium - coarse SAND, brown, sandy clay lenses, occasional medium gravel	8.5-10	5	8	8
11.3	7.5-18.8	Silty CLAY, gray, slightly sandy, occasional gravel	11-12.5	4	5	8
2.2	18.8-21	Fine SAND, brown, soft, gray silt lenses, very compact, dry	13.5-15	4	5	9
4	21-25	Fine silty CLAY, gray, sticky, moist, occasional gravel, soft sand lenses	16-17.5	4	5	6
			18.5-20	11	28	31
			21-22.5	25	18	9
			23.5-25	4	3	3

EDI Engineering & Science

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Well/Boring No. #25
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1	25	Cement / Bentonite Grout
0.2	1	Cement Core
0	0.2	Asphalt - broken up

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/12/88 Finished: 7/12/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No water encountered

Location Outside NE corner - outside Copper Recovery Area

Remarks (include here, other data available)

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
0.2	0-0.2	Asphalt (cored)	1-2.5	2	4	6
0.8	0.2-1	Cement (cored)	3.5-5	9	17	10
0.4	1-1.4	Coarse SAND, dark brown, small gravel	6-7.5	10	7	7
3.6	1.4-5	Sandy CLAY, gray/brown, small gravel, moist	8.5-10	5	7	8
8.8	5-13.8	Medium to coarse SAND, brown to dark brown, occasional small to medium gravel,	11-12.5	4	5	7
		damp, clay lenses	13.5-15	5	7	10
1.2	13.8-15	Sandy CLAY, gray, small to medium gravel, stiff	16-17.5	25	40	49
1.8	15-16.8	Medium to coarse SAND, black to reddish brown, stiff	18.5-20	10	6	6
4.4	16.8-21.2	Very silty fine to medium SAND, gray, occasional medium gravel, moist, clay lenses	21-22.5	4	5	7
2.3	21.2-23.5	Silty CLAY, gray, moist, stiff	23.5-25	6	11	18
1.5	23.5-25	Silty fine SAND, gray to reddish brown, soft, fine, dry				

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Well/Boring No. #26
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1	25	Cement / Bentonite Grout
0.2	1	Cement Core
0	0.2	Wood Block Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/14/88 Finished: 7/14/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No meassurable water encountered

Location
Inside E. wall of Bldg. 301

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"	Remarks
1	0-1	Core (wood and cement)	1-2.5	4	5	7	
5	1-6	Clayey medium to coarse SAND, discolored yellow/brown, some gravel	3.5-5	5	3	7	
15.8	6-21.8	Silty CLAY, yellowish brown to gray, occasional gravel, occasional sand lenses,	6-7.5	5	6	7	
		moist clay at 13 - 15	8.5-10	7	10	13	
3.2	21.8-25	Sandy CLAY, gray, occasional small gravel, damp	11-12.5	6	5	8	
			13.5-15	3	3	4	
			16-17.5	3	4	8	
			18.5-20	4	5	7	
			21-22.5	3	4	13	
			23.5-25	12	13	9	

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Well/Boring No. #27
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.8 - 25		Cement / Bentonite Grout
0 - 0.8		Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/21/88 Finished: 7/21/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location
Inside E. wall of Bldg. 301

Remarks (include here, other data available) North of steam booth

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	Blow Counts 12"	Blow Counts 18"
0.8	0-0.8	Cement (core)	1-2.5	5	6	10
4.2	0.8-5	Medium SAND, brown, clay lenses, occasional medium gravel	3.5-5	5	7	13
4	5-9	Very sandy CLAY, light brown, occasional small to medium gravel	6-7.5	6	8	11
4.8	9-13.8	Silty SAND, light brown, occasional gravel, sandy clay lenses, very moist	8.5-10	6	7	14
8	13.8-21.8	Sandy, silty CLAY, gray, occasional small gravel, dry except 17 - 17.2 - very	11-12.5	8	12	16
		coarse wet sand	13.5-15	4	6	7
3.2	21.8-25	Very fine silty SAND, light brown, silt lenses, stiff	16-17.5	5	9	8
			18.5-20	5	8	10
			21-22.5	6	15	21
			23.5-25	30	55	69

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Well/Boring No. #28
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Acker 45

Supervisor: M. Jones

Drilling Method(s) **Depth**
Auger / Split Spoon 50'

Grouting/Seal

Depth	To	Material/Method
0	50	Cement / Bentonite Grout

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/25/88 Finished: 7/25/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks (include here, other data available) Dry Hole

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	Blow Counts 12"	Blow Counts 18"
1	0-1	Core (Asphalt and Cement)	1-2.5	4	8	10
5	1-6	Fine SAND, yellowish brown, some silt and very fine sand	3.5-5	7	11	12
1	6-7	Very silty CLAY, yellowish brown, with some fine sand	6-7.5	4	5	8
4	7-11	Very sandy SILT, yellowish brown, with some clay, occasional gravel	8.5-10	12	13	14
9.5	11-20.5	Very silty, sandy CLAY, yellowish brown to gray, occasional gravel, soft	11-12.5	4	5	8
3.3	20.5-23.8	Very fine SAND, brown, with yellow sand seams, occasional gravel, very hard, dry	13.5-15	2	5	7
10.2	23.8-34	Very sandy CLAY, gray, with silt and gravel	16-17.5	3	5	5
9	34-43	SILT, gray, with some fine sand	18.5-20	2	4	4
7	43-50	Very fine SAND, very light brown to blonde, some silt, occasional gravel	21-22.5	27	55	57
			23.5-25	12	12	10
			28.5-30	8	11	13
			33.5-35	11	16	22
			38.5-40	13	16	21
			43.5-45	14	16	18
			48.5-50	18	21	26

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Well/Boring No. #29
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1 - 25		Cement / Bentonite Grout
0 - 1		Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/20/88 Finished: 7/20/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No measurable water encountered

Location Center Bldg. 301

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1	0-1	Cement (core)	1-2.5	4	4	6
5	1-6	Medium to coarse SAND, dirty black to brown, some gravel, oil odor	3.5-5	3	3	5
2.5	6-8.5	Sandy CLAY, brown, some gravel, moist	6-7.5	6	6	22
2.5	8.5-11	Medium SAND, light brown, brown clay lenses, occasional gravel	8.5-10	13	16	20
10.2	11-21.2	Silty CLAY, gray/brown, stiff, occasional gravel	11-12.5	7	11	16
3.8	21.2-25	Silty medium to fine SAND, gray and brown streaks, clay lenses, very moist at 24'	13.5-15	4	8	10
			16-17.5	7	9	13
			18.5-20	6	8	10
			21-22.5	23	16	11
			23.5-25	4	3	7
		Waited 20 minutes, no water in hole				

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Well/Boring No. #30
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.8 - 25		Cement / Bentonite Grout
0 - 0.8		Cement Plug

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/25/88 Finished: 7/25/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 16.1 Ft. Belowsurface
Measure On:

Location Inside NE 1/4 of Bldg. 301

Remarks (include here, other data available)
Caved in at 16.3'

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
0.8	0-0.8	Cement Plug	1-2.5	5	6	8
5.7	0.8-6.5	Fine to medium SAND, brown	3.5-5	7	6	8
0.7	6.5-7.2	Sandy CLAY, brown, moist	6-7.5	8	17	8
3.8	7.2-11	Medium SAND, dark brown/gray, lenses of gray/black clay, moist	8.5-10	2	2	3
10.2	11-21.2	Silty, sandy CLAY, brown/gray, occasional small gravel, with sand lenses, moist, stiff	11-12.5	5	12	12
2.3	21.2-23.5	Silty fine SAND, brown/gray, very compact	13.5-15	4	6	8
1.4	23.5-24.9	Very sandy CLAY, gray, very moist	16-17.5	5	9	12
0.1	24.9-25	Fine SAND, blonde, dry	18.5-20	4	9	11
			21-22.5	9	28	26
			23.5-25	12	6	10

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Well/Boring No. #31
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: D. Greene

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1 - 25		Cement / Bentonite Grout

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 8/12/88 Finished: 8/12//88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No measurable water

Location

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1	0-1	Cement (core)	1-2.5	7	9	8
7	1-8.5	Medium SAND, reddish brown, dry	3.5-5	4	4	5
4	8.5-12.5	Sandy CLAY, brown	6-7.5	1	1	1
10	12.5-22.5	Silty CLAY grading to a sandy CLAY, (moist from 21.7-22), brown to gray,	8.5-10	2	2	5
		dry, occasional gravel	11-12.5	10	10	12
2.5	22.5-25	Fine SAND, blonde, dry	13.5-15	7	8	9
			16-17.5	4	6	7
			18.5-20	3	5	6
			21-22.5	24	29	35
			23.5-25	18	23	30

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Well/Boring No. #32
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 10.5'

Grouting/Seal

Depth	To	Material/Method
1 - 10.5		Cement / Bentonite Grout
0 - 1		Cement (core)

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/22/88 Finished: 7/22/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location South side of acid copper plating line

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	Blow Counts 12"	Blow Counts 18"
1	0-1	Wood, cement (core)	1-2.5	2	1	2
5	1-6	Coarse SAND, dark brown to black, greasy/oily, moist	3.5-5	1	1	1
4.5	6-10.5	Very coarse SAND, black/gray, some small gravel, very wet, oily odor	6-7.5	2	2	5
			8.5-10	2	1	2
		At 10.5', the lead auger was thrown off by object (pit, wall, rebar???), attempted				
		to collect split spoon, bent spoon, (100 blows = 1")				
		Grouted hole				

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Well/Boring No. #33
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.8	25	Cement / Bentonite Grout
0	0.8	Cement (core)

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/20/88 Finished: 7/20/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No water encountered

Location Bldg. 301 W. side of old acid copper plater

Remarks (include here, other data available)

Blow Counts 18"
Remarks 12"
6"
Sample Interval

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	6"	12"	18"
0.8	0-0.8	Cement, wood (core)	1-2.5	6	10	14
6	0.8-6.8	Medium SAND, light brown, brown clay lenses	3.5-5	6	12	12
12.7	6.8-19.5	Sandy to very sandy CLAY, gray/brown, occasional small gravel, stiff	6-7.5	14	18	21
5.5	19.5-25	Fine to medium SAND, light brown/brown, streaks of gray silt, occasional gravel,	8.5-10	9	16	23
		dry, soft	11-12.5	6	7	9
			13.5-15	5	6	10
			16-17.5	5	8	12
			18.5-20	4	7	10
			21-22.5	5	10	18
			23.5-25	20	25	29

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Well/Boring No. #34
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1	25	Cement / Bentonite Grout
0.2	1	Cement (core)
0	0.3	Wood Block

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: Finished:

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No water encountered

Location Inside Bldg. 301, on N. side of old acid copper plating area

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval / Blow Counts 6"	12"	18"
1	0-1	Wood, cement (cored)	1-2.5	5	8	14
0.8	1-1.8	Medium SAND, dark brown, slightly oily odor, moist	3.5-5	6	8	12
9.7	1.8-11.5	Sandy CLAY, brittle, occasional gravel, occasional light brown dry sand lenses	6-7.5	9	12	16
10.3	11.5-21.8	Silty CLAY, gray, moist, soft	8.5-10	7	6	9
3.2	21.8-25	Fine SAND, blonde, soft	11-12.5	4	4	6
			13.5-15	4	5	7
			16-17.5	5	7	9
			18.5-20	3	6	9
			21-22.5	9	18	23
			23.5-25	10	10	10

EDI Engineering & Science

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Well/Boring No. #35
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1 - 25		Cement / Bentonite Grout
0.2 - 1		Cement (core)
0 - 0.2		Wood Block Floor

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/19/88 Finished: 7/19/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No water encountered

Location Inside NW corner of Bldg. 301

Remarks (include here, other data available)

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	Blow Counts 12"	Blow Counts 18"
1	0-1	Wood, cement core	1-2.5	4	3	4
10	1-11	Fine to medium SAND (fill), light brown, dry	3.5-5	2	-	-
1.5	11-12.5	Sandy CLAY, brown, some gravel, moist	6-7.5	1	1	2
1	12.5-13.5	SAND and GRAVEL, (small to medium gravel), some clay, moist	8.5-10	1	1	2
10.5	13.5-24	Sandy CLAY to CLAY, gray, occasional gravel, very stiff (soft 22-24), moist	11-12.5	3	5	15
1	24-25	Fine to medium SAND, brown, dry	13.5-15	8	8	10
			16-17.5	4	10	7
			18.5-20	6	9	12
			21-22.5	6	6	5
			23.5-25	10	19	31

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Well/Boring No. #36
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1 - 25		Cement / Bentonite Grout
0.2 - 1		Cement (core)
0 - 0.2		Wood Block Floor

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: Finished:

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No measurable amount of water encountered

Location NW 1/4 of center of Bldg. 301

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1	0-1.0	Cement, wood (core)	1-2.5	5	6	8
9	1-10	Very sandy CLAY, reddish brown, slightly stiff, occasional gravel	3.5-5	7	10	19
4.2	10-14.2	Medium SAND, brown, slightly clayey, compact	6-7.5	6	15	15
4.8	14.2-19	CLAY, gray, slightly sandy, occasional gravel, stiff	8.5-10	11	13	15
0.8	19-19.8	Fine to medium silty SAND, gray, very moist	11-12.5	10	15	23
1.2	19.8-21	Sandy CLAY, gray, occasional wet sand seam	13.5-15	10	12	14
4	21-25	Fine SAND, light brown, occasional dry gray silt lense, dry	16-17.5	6	9	10
			18.5-20	4	3	5
			21-22.5	25	45	60
			23.5-25	30	38	37

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Well/Boring No. #37
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.8	25	Cement / Bentonite Grout
0	0.8	Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/28/88 Finished: 7/28/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location Inside Bldg. 301, SW of old Nickel Plating Area

Remarks (include here, other data available)
Very moist layers of sand from 11-16, however dry hole at end of boring

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
0.8	0-0.8	Cement (core)	1-2.5	5	7	9
0.7	0.8-1.5	Medium SAND, brown, small to medium gravel	3.5-5	6	8	12
9.5	1.5-11	Very sandy CLAY, dark brown with black and white streaks, small to large gravel	6-7.5	8	10	14
5.1	11-16.1	Medium to fine SAND, brown, occasional gravel, occasional sandy clay lenses, moist	8.5-10	24	27	14
5.1	16.1-21.2	Slightly silty, CLAY, gray, occasional gravel	11-12.5	26	22	11
3.8	21.2-25	Very silty, fine SAND, light to dark brown, occasional gravel, dry	13.5-15	8	11	13
			16-17.5	6	8	9
			18.5-20	4	6	8
			21-22.5	21	27	38
			23.5-25	14	17	10

EDI Engineering & Science

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Well/Boring No. #39
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: D. Greene

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1 - 25		Cement / Bentonite Grout
0 - 1		Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 8/11/88 Finished: 8/11/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"	Remarks
1	0-1	Cement (core)	1-2.5	6	6	7	
1	1-2	Medium SAND, brown, dry	3.5-5	3	4	7	
12.5	2-14.5	Silty, sandy CLAY, brown, occasional gravel after 10', wet lense from 14-14.5	6-7.5	10	11	14	
7.5	14.5-22	Silty, CLAY, gray	8.5-10	7	12	11	
3	22-25	Silty SAND and silty CLAY interbeds, brown	11-12.5	21	23	21	
			13.5-15	10	12	14	
			16-17.5	6	6	11	
			18.5-20	9	8	10	
			21-22.5	4	20	28	
			23.5-25	12	25	12	

EDI Engineering & Science

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Well/Boring No. #40
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1 - 25		Cement / Bentonite Grout
0 - 1		Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 7/27/88 Finished: 7/27/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On: No measurable water

Location Inside E 1/4 wall of Bldg. 301
E of old Acid Copper Plating area

Remarks (include here, other data available)

Blow Counts 18"
Remarks 12"
6"
Sample Interval

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	18"	12"	6"
1	0-1	Cement (core)	1-2.5	2	2	3
2.5	1-3.5	Medium SAND, fill, brown	3.5-5	2	1	2
8.3	3.5-11.8	Medium to coarse SAND, dark to light brown, occasional small gravel, slightly clayey	6-7.5	12	14	14
8	11.8-19.8	Silty CLAY, gray, some sand, small gravel, stiff to very stiff (soft from 17.5-19.8)	8.5-10	9	9	10
1.2	19.8-21	Silty, clayey, medium to fine SAND, reddish brown, occasional gravel	11-12.5	3	6	7
4	21-25	Fine SAND, light brown to blonde, soft, dry	13.5-15	3	5	6
			16-17.5	5	6	8
			18.5-20	3	4	8
			21-22.5	18	23	29
			23.5-25	14	17	21

EDI Engineering & Science

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Well/Boring No. #41
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 50.0'

Grouting/Seal

Depth	To	Material/Method
1.0-50.0		Cement / Bentonite Grout
0-1.0		Cement Plug

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 9/16/88 Finished: 9/16/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location
East of South line, Bldg. 301 C

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1.0	0.0-1.0	Cement (core)	1.0-2.5	4	9	10
2.9	1.0-3.9	Medium to coarse SAND, brown, mixed with small to medium gravel	3.5-5.0	5	8	10
2.5	3.9-6.4	Sandy CLAY, brown, occasional gravel	6.0-7.5	8	7	9
0.5	6.4-6.9	Medium to fine SAND, brown, moist	8.5-10.0	8	9	12
1.7	6.9-8.6	Sandy CLAY, brown, occasional small gravel, moist	11.0-12.5	4	6	3
2.6	8.6-11.2	Medium to fine SAND, brown, occasional small gravel, wet	13.5-15.0	5	9	13
1.8	11.2-13.0	Sandy CLAY, brown to gray, occasional gravel, moist	16.0-17.5	14	25	37
3.3	13.0-16.3	Silty to slightly sandy CLAY, gray, occasional gravel, stiff	18.5-20.0	16	37	58
3.3	16.3-19.6	Fine SAND, light brown, soft, dry	21.0-22.5	25	37	41
2.2	19.6-21.8	Very fine, silty SAND, brown	23.5-25.0	7	7	7
0.5	21.8-22.3	Medium SAND, brown, mixed with small to medium gravel, loose	28.5-30.0	16	22	29
0.7	22.3-23.0	Silty SAND, brown, occasional gravel	33.5-35.0	16	29	31
1.9	23.0-24.9	Very sandy CLAY, brown, occasional small gravel, moist	38.5-40.0	16	23	33
1.1	24.9-26.0	Sandy to slightly silty CLAY, gray, occasional small gravel	43.5-45.0	24	31	32
7.0	26.0-33.0	Fine SAND, light brown to light gray, occasional small gravel, dry, loose	48.5-50.0	21	26	26
10.8	33.0-43.8	Very fine SAND, very silty, gray, occasional layer of fine brown sand				
6.2	43.8-50.0	Medium SAND, brown to gray, mixed with small to medium gravel, moist				

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Well/Boring No. #42
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 50.0'

Grouting/Seal

Depth	To	Material/Method
1.0-50.0		Cement / Bentonite Grout
0.0-1.0		Cement Core

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 9/15/88 Finished: 9/15/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location East of Bldg 301 - A

Remarks (include here, other data available)
Water sample taken at 10' pH = 7.2

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	6"	12"	18"
				Blow Counts		
				Remarks		
1.0	0.0-1.0	Cement (core)	1.0-2.5	6	10	10
2.8	1.0-3.8	Coarse SAND, brown, mixed with medium gravel, moist	3.5-5.0	6	6	5
1.7	3.8-5.5	Slightly sandy CLAY, light brown, lenses of gray silt, moist	6.0-7.5	1	1	2
4.0	5.5-9.5	Coarse SAND, brown, wet	8.5-10.0	4	5	5
1.7	9.5-11.2	Sandy CLAY, brown, moist	11.0-12.5	3	4	5
5.7	11.2-16.9	Very sandy CLAY, gray, occasional small to medium gravel, moist	13.5-15.0	3	4	6
3.1	16.9-20.0	Medium to fine SAND, red/brown, moist	16.0-17.5	9	10	9
2.4	20.0-22.4	Sandy CLAY, brown/red, mixed with small to medium gravel, stiff	18.5-20.0	10	17	28
5.6	22.4-28.0	Very sandy CLAY, gray, occasional small gravel, moist	21.0-22.5	40	43	54
0.7	28.8-28.7	Sandy CLAY, red brown, some medium gravel	23.5-25.0	5	5	6
0.8	28.7-29.5	Fine silty SAND, light gray, dry, loose	28.5-30.0	16	15	18
2.5	29.5-32.0	Silty CLAY, some fine sand, gray, moist	33.5-35.0	25	37	50
12.4	32.0-44.4	Very fine silty SAND, light gray, dry	38.5-40.0	50	37	50
1.6	44.4-46.0	Very silty CLAY, gray to brown, stiff	43.5-45.0	40	60	83
4.0	46.0-50.0	Medium silty SAND, gray, occasional gravel, slight clay binder, moist	48.5-50.0	33	33	30

EDI Engineering & Science

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Well/Boring No. #43
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 0.0-50.0

Grouting/Seal

Depth	To	Material/Method
0.0-50.0		Cement / Bentonite Grout

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 9/14/88 Finished: 9/14/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level None Ft. Below
Measure On:

Location East of NE (or Bldg. 301)

Remarks (include here, other data available)

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	Blow Counts 12"	Blow Counts 18"	Remarks
0.4	0.0-0.4	Topsoil, medium to fine SAND, dark brown, clay binder, organic	1.0-2.5	5	7	8	
4.2	0.4-4.6	Very sandy CLAY, dark brown with red/brown streaks, occasional small gravel	3.5-5.0	7	7	9	
1.4	4.6-6.0	Sandy CLAY, light brown with red streaks, dry	6.0-7.5	7	10	12	
2.0	6.0-8.0	Sandy CLAY, medium brown, mixed with small gravel	8.5-10.0	6	7	8	
1.2	8.0-9.2	Medium to fine SAND, brown, clay binder, occasional small gravel, moist	11.0-12.5	5	5	6	
0.3	9.2-9.5	Coarse SAND, black, small bits of coal (?), wet	13.5-15.0	4	4	6	
0.5	9.5-10.0	Medium to fine SAND, light brown	16.0-17.5	6	7	9	
4.3	10.0-14.3	Very sandy CLAY, brown, some small gravel, moist	18.5-20.0	12	20	27	
2.0	14.3-16.3	Slightly sandy, silty CLAY, gray, occasional small to medium gravel	21.0-22.5	6	7	8	
2.4	16.3-18.7	Medium to fine SAND, brown, clay binder, occasional small gravel	23.5-25.0	14	14	17	
2.3	18.7-21.0	Medium to fine SAND, light brown, loose, dry	28.5-30.0	18	30	43	
2.0	21.0-23.0	Very sandy CLAY, brown, small to medium gravel, moist	33.5-35.0	22	24	39	
0.8	23.0-23.8	Fine SAND, light brown, loose, dry	38.5-40.0	20	33	37	
2.2	23.8-26.0	Medium to coarse SAND, brown, small pebbly gravel, moist	43.5-45.0	17	20	23	
3.0	26.0-29.0	Medium to fine SAND, brown, occasional small gravel	48.5-50.0	17	23	26	
13.0	29.0-42.0	Fine SAND, light gray, dry, loose, moist at 34', dry at 39.5'					
8.0	42.0-50.0	Medium to coarse SAND, dark brown/gray, slight clay binder, occasional small to medium gravel, moist					

EDI Engineering & Science

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Well/Boring No. #45
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1 - 25		Cement / Bentonite Grout
0 - 1		Wood, Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 8/10/88 Finished: 8/10/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location Inside N wall, Bldg. 301

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"	Remarks
1	0-1	Wood, cement (core)	1-2.5	3	3	4	
2.8	1-3.8	Medium SAND, fill, brown, (fill-potentially)	3.5-5	5	6	10	
6.2	3.8-10	Very sandy CLAY, brown, occasional gravel	6-7.5	9	12	15	
3.8	10-13.8	Medium to fine SAND, occasional fine gravel, moist,very sandy clay lenses	8.5-10	8	14	22	
7.8	13.8-21.6	Alternating sandy CLAY to silty CLAY, light brown/gray, occasional small to	11-12.5	9	10	12	
		medium gravel	13.5-15	5	8	12	
3.1	21.6-24.7	Silty, fine SAND, occasional gravel, dry, very compact	16-17.5	5	9	12	
0.3	24.7-25	Sandy CLAY, dark brown to black, mixed with small gravel	18.5-20	6	8	12	
			21-22.5	16	42	55	
			23.5-25	25	35	31	

EDI Engineering & Science

Page:____ of____
Well/Boring No. #46
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: CME - 55

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 50'

Grouting/Seal

Depth	To	Material/Method
0	50	Cement / Bentonite Grout

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 8/12/88 Finished: 8/12/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location N. of Bldg. 301, Approx. 200' north of B #9

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	Blow Counts 12"	Blow Counts 18"
3.8	0-3.8	CLAY and medium SAND	1-2.5	7	5	4
3.2	3.8-7	Medium SAND, brown, slightly clayey, small gravel	3.5-5	4	5	5
10.5	7-17.5	Alternating sandy CLAY and silty CLAY, gray to brown, occasional small gravel,	6-7.5	6	9	8
		silt and coarse sand, interbeds, moist	8.5-10	5	7	9
3.9	17.5-21.4	Medium to fine SAND, reddish brown, some small gravel, hard and dry to 18.5,	11-12.5	4	5	6
		becoming moist and soft	13.5-15	4	9	16
0.6	21.4-22	Very silty SAND, gray, slightly clayey, occasional medium gravel, very moist	16-17.5	26	29	30
7	22-29	Fine SAND, tan to brown, dry, loose to stiff	18.5-20	4	5	6
10	29-39	Very coarse SAND, mixed with small to medium gravel, loose, dry	21-22.5	4	14	22
4	39-43	Fine SAND, light gray, slightly silty, loose, dry	23.5-25	14	22	28
5	43-48	Medium to fine SAND and GRAVEL, dark brown, moist, some silty clay	28.5-30	20	25	25
2	48-50	Sandy CLAY, some silt, small to large gravel, stiff	33.5-35	15	22	25
			38.5-40	14	19	25
			43.5-45	51	37	37
			48.5-50	20	22	23

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Well/Boring No. #48
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: D. Greene

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
1 - 25		Cement Bentonite Grout
0 - 1		Cement (core)

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 8/11/88 Finished: 8/11/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks (include here, other data available)

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
1	0-1	Cement (core)	1-2.5	10	10	13
0.5	1-1.5	Coarse SAND, brown	3.5-5	5	9	12
9.7	1.5-11.2	Sandy CLAY, brown, occasional silty gravel, with occasional coarse sand lense	6-7.5	16	16	16
13.8	11.2-25	Silty CLAY, brown to gray, occasional coarse sand lense	8.5-10	5	7	7
			11-12.5	7	7	8
			13.5-15	5	7	9
			16-17.5	5	7	10
			18.5-20	4	6	10
			21-22.5	4	8	10
			23.5-25	9	8	6

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Well/Boring No. #49
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: CME - 55

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 50'

Grouting/Seal

Depth	To	Material/Method
0	50	Cement / Bentonite Grout

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 8/11/88 Finished: 8/11/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location Outside, N of Bldg. 301

Remarks (include here, other data available)
At 37.5', - Hit rock - moved rig over and drilled down to 37.5 to recontinue sampling

Blow Counts 18" / 12" / 6"
Remarks

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	18"	12"	6"
4	0-4	SAND, brown to black, slightly clayey, some small to medium gravel	1-2.5	7	5	3
2.1	4-6.1	Slightly sandy CLAY, brown, occasional small to medium gravel, gray silt lenses	3.5-5	8	12	15
6.1	6.1-12.2	Fine to medium SAND, brown, loose, damp, minor clay lenses	6-7.5	8	9	10
2.1	12.2-14.3	Sandy, silty CLAY, brown/gray, very moist	8.5-10	5	4	6
9.2	14.3-23.5	Medium to fine SAND, reddish-light brown, occasional very small gravel, minor	11-12.5	4	5	7
		moist silty sand lenses	13.5-15	3	6	7
1.3	23.5-24.8	GRAVEL, brown, small to large, mixed with coarse sand	16-17.5	5	10	18
10.2	24.8-35	Fine SAND, blonde to light gray, silty, occasional gravel, loose, dry	18.5-20	18	27	40
2	35-37	Sandy GRAVEL, medium sand	21-22.5	5	6	8
7.4	37-44.4	Silty fine SAND, gray, small gravel	23.5-25	20	22	20
5	44.4-44.9	Slightly silty GRAVEL, medium gravel	28.5-30	12	20	30
5.1	44.9-50	Silty fine SAND, gray, slightly silty/clayey, loose	33.5-35	19	25	38
			38.5-40	57	83	100
			43.5-45	15	17	25
			48.5-50	18	34	45

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Well/Boring No. #50
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: Dietrich D - 25

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 25'

Grouting/Seal

Depth	To	Material/Method
0.8	25	Cement Bentonite Grout
0	0.8	Wood, Cement Core

Development N.A.

Screen
Manufacturer: N.A.
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N.A.	To
		To

Date
Started: 8/10/88 Finished: 8/10/88

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 13.6 Ft. Belowsurface
Measure On:

Location Inside, NW corner of Bldg. 301

Remarks (include here, other data available)

Blow Counts 18" / 12" / 6"
Remarks
Sample Interval

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	18"	12"	6"
0.8	0-0.8	Wood, cement (core)	1-2.5	8	10	15
0.7	0.8-1.5	Medium SAND, fill, brown	3.5-5	4	2	3
2	1.5-3.5	Clayey SAND, gray/brown, occasional gravel	6-7.5	4	5	8
2.7	3.5-6.2	Medium to coarse SAND, dark brown, mixed with small to medium gravel, very loose	8.5-10	12	12	13
5.3	6.2-11.5	Very sandy CLAY, light brown, some very small gravel	11-12.5	4	8	8
4.5	11.5-16	Medium to fine SAND, clayey, occasional gravel, wet	13.5-15	7	10	12
7.9	16-23.9	Sandy CLAY to silty CLAY, gray, occasionlal small gravel	16-17.5	6	7	9
1.1	23.9-25	Silty, medium to fine SAND, gray/brown	18.5-20	4	7	9
			21-22.5	4	6	6
			23.5-25	5	6	9

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Page: 1 of 1
Well/Boring No. SB-51
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 30.5'
or 8" OD HSA

Grouting/Seal
Depth To Material/Method
30.5-1
Bent/Cement Grout w/ Tremie Rod
1-0 Concrete Cap

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Date
Started: 3/30/89 Finished: 3/30/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 28.5' Ft. Below grade
Measure On: Measured immediately
After 2 mins. - 26.3'
After 4 mins. - 25.5'
After 30 mins. - 23.1'

Location See attached sketch

Remarks

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts 24" / 18" / 12" / 6" — Sample Depth				
0.8	0.8	CONCRETE, with re-bar	8.5-10.5	5	4	6	9
1.2	2	SAND, brown, fine, little silt	18.5-20.5	7	6	8	14
5	7	CLAY, brown, silty, some fine sand, little coarse to medium sand, trace fine gravel	20.5-30.5	10	12	9	10
1	8	CLAY, gravish brown, silty, some fine sand, little coarse to medium sand, trace coarse to fine gravel, slightly moist, fill					
4	12	CLAY, brown, mottled, brown to gray, silty, some fine sand, little coarse to medium sand, trace coarse to fine gravel, slightly moist					
4	16	CLAY, brown, silty, trace coarse to fine sand, trace coarse to fine gravel, slightly moist					
3.2	19.2	CLAY, brown, sandy, moist, with seams sand, wet					
7.8	27	CLAY, brownish gray, silty, some fine sand, little coarse to medium sand, trace coarse to fine gravel, slightly moist					
2.5	29.5	SAND, brown, fine, some silt, wet					
1+	30.5+	SILT, gray, some very fine sand, wet					
		EOB - 30.5'					

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Page: 1 of 2
Well/Boring No. SB-52
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 80.5'
or 8" OD HSA

Grouting/Seal
Depth To Material/Method
80.5-1
Bent/Cement Grout w/ Tremie Rod
1-0 Concrete Cap

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Date
Started: 3/31/89 Finished: 3/31/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 72' Ft. Below grade
Measure On: 3/31/89 with fiberglass tape.

Location See attached sketch

Remarks Drove a stone (sample interval 48.5-50.5') recovery at 8" only (1) 2 50 ml soil sample could be taken

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"
1	1	CONCRETE, reinforced	8.5-10.5	9	9	17	22
2	3	CLAY, brown, sandy, slightly moist	18.5-20.5	6	9	12	26
2	5	CLAY, brown, silty, trace coarse to fine sand, slightly moist	28.5-30.5	34	56	52	-
4.5	9.5	CLAY, brown, silty, little coarse to fine sand, trace coarse to fine gravel, slightly moist,	38.5-40.5	27	53	88	-
		with seams of sand, wet	48.5-50.5	71	100/4"	-	-
2.5	12	CLAY, brownish gray, silty, little coarse to fine sand, trace coarse to fine gravel, slightly moist	58.5-60.5	26	50	54	-
8.3	20.3	CLAY, brownish gray, silty and brown silty in alternating layers (6"), slightly moist, with					
		seams fine sand, wet					
5.7	26	SAND, brown, fine, some silt, dry					
9	35	SILT, gray, trace very fine sand, trace clay, moist at 29.5'					
7	42	SILT and CLAY, gray, little coarse to fine sand, little coarse to fine gravel, dry with					
		layers (1" to 1'), brown, fine sand, dry					
9	51	SAND and SILT, gray, fine, little coarse to medium sand, little coarse to fine gravel, dry					
17	68	SILT, gray, little clay, trace coarse to fine sand, trace coarse to fine gracel, dry, with					
		small layers very fine sand, dry					

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Page: 2 of 2
Well/Boring No. SB-52
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 80.5'
or 8" OD HSA

Grouting/Seal
Depth To Material/Method
80.5-1
Bent/Cement Grout w/ Tremie Rod
1-0 Concrete Cap

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Date
Started: 3/31/89 Finished: 3/31/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 72' Ft. Below grade
Measure On: 3/31/89

Location See attached sketch

Remarks No water could be measured at 70' depth. The formation was too silty for the water to enter the augers quickly.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"
4	72	SILT, gray, some very fine sand, trace clay, trace of coal, wet	68.5-70.5	35	53	65	-
8.5+	80.5+	SAND, brown, fine, wet, with layers gray silty clay (6")	78.5-80.5	12	21	39	55
		EOB - 80'					

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Page: 1 of 1
Well/Boring No. SB-53
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: CME 550
Crew Chief: Jim Gryska
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 60.5'
or 8" OD HSA

Grouting/Seal

Depth	To	Material/Method
60.5	0'	Bent./Cement

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 4/6/89 Finished: 4/7/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level ~5.5' Ft. Below grade
Measure On: 40.7' measured on 4/7/89
After augers sat for ~9 hours.

Location See attached sketch

Remarks At 58.5' spoon sample was wet. We waited 10 mins., then lowered tape to detect water. Found only mud, no real significant amount of water.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"	
17	17	CLAY, brown, sandy, some silt, little coarse to medium sand, little coarse to fine gravel,	8.5-10.5	3	6	5	-	
		moist, with seams of fine sand, wet	18.5-20.5	20	47	66	-	
2.5	19.5	SILT, brown, some fine sand, moist	28.5-30.5	9	14	18	-	
3.5	23	CLAY, brownish gray, silty, some coarse to fine sand, little coarse to fine gravel,	38.5-40.5	15	18	19	-	
		occasional cobble, dry	48.5-50.5	4	4	5	-	
11	35	SAND, brown, fine, some silt, trace clay lenses, dry	58.5-60.5	7	11	19	-	
		SAND, brown, fine, little silt, trace coarse to medium sand, trace coarse to fine gravel, dry						
13.5	48.5	SILT and CLAY, gray, some medium gravel, moist (transition unknown)						
11.5	60.5+	SILT, very fine, gray, wet						
		EOB - 60.5'						

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Page: 1 of 1
Well/Boring No. SB-54
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 70.5'
or 8" OD HSA

Grouting/Seal

Depth	To	Material/Method
70.5	-1'	Bent./Cement grout with Tremie Rod
1-0'		Concrete Cap

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 4/5/89 Finished: 4/5/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 6.2' Ft. Below grade
Measure On: See remark below.

Location See attached sketch

Remarks 7-8' - this interval does have a lot of water but we should be able to seal it off. The augers have seal the 1' layer off with cuttings by 15'.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts 24" / 18" / 12" / 6" Sample Depth				
1	1	CONCRETE	8.5-10.5	7	6	15	12
0.4	1.4	SAND, brown, silty	18.5-20.5	29	30	20	12
5.6	7	CLAY, brown, silty, some coarse to fine sand, little coarse to fine gravel, moist	28.5-30.5	15	25	28	33
1	8	SAND, brown, fine to coarse, little silt, wet	38.5-40.5	16	29	33	36
3.5	11.5	CLAY, brown, sandy, some coarse to medium sand, little coarse to fine gravel, moist,	48.5-50.5	20	22	28	29
		with seams of fine sand, wet	58.5-60.5	34	76	100	-
9.5	21	CLAY, brownish gray, sandy, some coarse to medium sand, little coarse to fine gravel, moist,	68.5-70.5	16	32	33	90
		with layers of brown silty clay					
15	36	SAND, light brown, very fine, some silt, trace coarse to medium sand, trace coarse to fine					
		gravel, dry					
6	42	SILT, brownish gray, trace clay, trace very fine sand, dry					
14	56	CLAY, brownish gray, sandy, some coarse to medium sand, little coarse to fine gravel,					
		occasional cobble, moist, with seams sand, wet (pieces of coal)					
8	64	CLAY, brownish gray, some silt, little coarse to fine sand, little coarse to fine gravel, dry,					
		very compact (pieces of coal)					
6.5+	70.5+	SHALE, dark gray to black, very weathered					
		EOB - 70.5'					

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Page: 1 of 1
Well/Boring No. SB-55
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 70.5'
or 8" OD HSA

Grouting/Seal

Depth	To	Material/Method
70.5	-1'	Bent./Cement grout with Tremie Rod
1-0'		Concrete Cap

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 4/6/89 Finished: 4/7/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 68.5' Ft. Below grade
Measure On: Measured immediately
After 5 mins. - 67.1 After 10 mins. - 65.9

Location See attached sketch

Remarks Measured top of sanitary sewer line at 13' below grade.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts 24" / 18" / 12" / 6" Sample Depth				
1	1	CONCRETE	8.5-10.5	5	6	5	6
4	5	CLAY, brown, sandy, some silt, little coarse of medium sand, little coarse to fine gravel,	18.5-20.5	23	17	26	-
		slightly moist	23.5-25.5	7	15	23	27
3	8	SAND, brown, fine, little coarse to fine gravel	28.5-30.5	17	15	25	35
8	16	CLAY, brownish gray, silty, little coarse to fine sand, little coarse to fine gravel, slightly moist	38.5-40.5	16	16	17	25
8.5	24.5	CLAY, brown, some silt, little fine to medium sand, trace coarse sand, trace coarse to	48.5-50.5	19	26	36	45
		fine gravel, moist	58.5-60.5	12	15	19	20
5.5	26	SAND, brown, very fine, some silt, dry	68.5-70.5	15	41	35	-
10	36	SAND, brown, very fine, silt, dry					
1	37	SILT, brownish gray, dry					
11	48	CLAY, brownish gray, sandy, some silt, little coarse to medium sand, little coarse to fine					
		gravel, dry					
8	56	SAND, brown, fine, little silt, dry					
9	67	SILT and CLAY, brownish gray, moist					
5+	70.5+	CLAY, gray, sandy, some silt, wet, pieces of sandstone					
		EOB - 70.5'					

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Page: 1 of 1
Well/Boring No. SB-56
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 80.5'
or 8" OD HSA

Grouting/Seal

Depth	To	Material/Method
80.5	-1'	Bent./Cement grout with Tremie Rod
1-0'		Concrete Cap

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 4/5/89 Finished: 4/6/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 62.5' Ft. Below grade
Measure On: Measured immediately after sandstone was encountered

Location See attached sketch

Remarks Sample interval at 28.5-30.5' looks like a good representative sample of the fill used to lay the sewer lines. Soil sample at 58.5-60.5' was wet, however, too impermeable to allow the water to readily enter the augers.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"
1	1	CONCRETE	8.5-10.5	4	4	3	4
15.5	16.5	CLAY, brown, sandy, some silt, little coarse ot medium sand, little coarse to fine gravel, moist	18.5-20.5	1	2	3	3
10.5	27	SAND, brown, fine, little silt, dry, with layers (6") coarse to fine sand	23.5-25.5	18	28	40	-
9	36	SAND, brown, coarse to fine, some fine gravel, little coarse gravel, dry	28.5-30.5	37	64	75	-
11	47	CLAY, brownish gray, sandy, some silt, some coarse to medium sand, some coarse to	38.5-40.5	27	37	41	-
		fine gravel	48.5-50.5	25	39	43	-
11	58	SAND, brown, fine, trace lenses of clay, little silt, dry	58.5-60.5	10	15	21	29
4	62	SILT, brownish gray, some fine sand, little clay, wet	68.5-70.5	16	24	23	36
14	76	CLAY and SILT, brownish gray with layers of brown clay and silt, moist	78.5-80.5	24	46	65	-
4.5+	80.5+	SAND, brown, fine to coarse, wet, with pieces of brown sandstone (weathered sandstone)					
		EOB - 80.5'					

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Page: 1 of 1
Well/Boring No. SB-57
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: CME 550
Crew Chief: Jim Gryska
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 70.5'
or 8" OD HSA

Grouting/Seal

Depth	To	Material/Method
70.5-0'		Bent./Cement grout with Tremie Rod

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 4/7/89 Finished: 4/10/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level no Ft. Below grade
Measure On: Measured after 70' sample
After 30 minutes - 64'

Location See attached sketch

Remarks Bent. split spoon samples at 48.5-50.5'

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"	
0.3	0.3	TOPSOIL, moist	8.5-10.5	3	4	6	-	
6.7	7	CLAY, brown, silty, some fine sand, moist	18.5-20.5	10	12	16	-	
6	13	CLAY, brownish gray, silty, some fine sand, trace coarse to medium sand, trace	23.5-25.5	6	10	17	-	
		fine gravel, moist	28.5-30.5	17	29	32	-	
9.5	22.5	SAND, brown, fine, some silt, dry	38.5-40.5	12	16	13	-	
3.5	26.0	CLAY, brown, silty, some coarse to fine sand, little coarse to fine gravel, moist, seams of	48.5-50.5	24	71	30	-	
		sand, dry	58.5-60.5	11	16	10	-	
9	35	SAND, brown, very fine, some silt, dry	68.5-70.5	8	14	15	-	
22	57	CLAY, brownish gray, sandy, some silt, little coarse to medium sand, little coarse to fine						
		gravel, occasional cobble, dry						
13.5+	70.5+	SILT and CLAY, brownish gray, moist, with seams of fine sand, wet						
		EOB - 70.5'						

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Well/Boring No. SB-58
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 60'
or 8" OD HSA

Grouting/Seal
Depth To Material/Method
60-0' Bent./Cement grout with Tremie Rod

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Date
Started: 4/4/89 Finished: 4/4/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 55.6' Ft. Below grade
Measure On: Measured immediately
After 20 mins. - 55.3'/After 30 mins. - 54.7'

Location See attached sketch

Remarks
The water enters the augers very slowly due to the silty nature of the formation. If given enough time, the water level may come up as high as ~50'.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"
0.3	0.3	TOPSOIL	8-10	2	3	2	3
0.5	0.8	SAND, brown, fine	18-20	18	16	24	25
4.2	5	CLAY, brown, some silt, trace coarse to fine sand, moist	23-25	9	14	19	32
7	12	CLAY, brown, mottled, gray, silty, some fine sand, with seams of sand, wet	28-30	11	18	24	34
11.4	23.4	CLAY, brown, silty, some coarse to fine sand, some coarse to fine gravel, moist,	38-40	31	43	40	-
		with layers (6") brown silt, moist	48-50	9	13	32	56
13.1	36.5	SAND, brown, fine, little medium sand, trace coarse sand, trace coarse to fine gravel,	58-60	15	28	34	-
		slightly moist, with layers (6"-1') brown silt					
8.5	45	SILT, gray, some clay, some fine sand, little coarse to medium sand, little coarse to					
		fine gravel, slightly moist					
4	49	CLAY, gray, silty, some coarse to fine sand, some coarse to fine gravel, moist					
5	54	SILT, grayish brown, little clay, trace fine sand, wet					
6+	60+	SILT and very fine sand, grayish brown, wet (trace black fine sand-coal)					
		EOB - 60'					

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Page: 1 of 1
Well/Boring No. SB-59
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 60.5'
or 8" OD HSA

Grouting/Seal
Depth To Material/Method
60.5-0' Bent./Cement grout with Tremie Rod

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Date
Started: 4/3/89 Finished: 4/4/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 56' Ft. Below grade
Measure On: 4/2/89 Fiberglass Tape

Location See attached sketch

Remarks

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"
8	8	CLAY, brown, silty, some coarse to fine sand, very moist	8.5-10.5	4	3	3	2
8	16	CLAY, brownish gray, silty, some fine sand, trace coarse to medium sand, moist, with	18.5-20.5	3	3	3	8
		layers fine sand, some clay, very moist	23.5-25.5	7	10	11	13
8.7	24.7	SAND, brown, fine, trace coarse to medium sand, moist	28.5-30.5	8	13	22	37
5.6	30.3	CLAY, brown, silty, little fine sand, trace coarse to medium sand, trace coarse to fine	38.5-40.5	29	50	58	-
		gravel, slightly moist	48.5-50.5	38	79	64	-
0.7	31	SAND, brown, very fine, little silt, dry	58.5-60.5	18	25	51	-
19	50	SILT, gray, some clay, some fine sand, little coarse to medium sand, little coarse to					
		fine gravel, slightly moist					
6	56	SILT, gray, some clay, some fine sand, little coarse to medium sand, little coarse to fine					
		gravel, slightly moist, with seams of sand, wet					
3	59	SAND, brown, fine, some silt, wet					
1.5+	60.5+	SILT, gray, moist, with layers (6") brown fine sand, wet					
		EOB - 60.5'					

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Page: 1 of 1
Well/Boring No. SB-60
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 51'
or 8" OD HSA

Grouting/Seal
Depth To Material/Method
51-0' Bent./Cement grout pumped through Tremie Rod inside augers.

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Date
Started: 3/28/89 Finished: 3/29/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 48.7' Ft. Below grade
Measure On: Measured immediately
After 5 mins. - 36.4' After 20 mins. - 34.2'

Location See attached sketch

Remarks
Water sample was obtained by S.S. bailer.
Bailer was lowered directly down augers.
No temp. well was used.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"
0.3	0.3	TOPSOIL	9-11	4	5	8	11
2.7	3	SAND, brown, fine, some coarse to medium sand, little fine gravel	19-21	10	24	28	32
4	7	SAND, brown, fine, some coarse to medium sand, little fine gravel, wet	29-31	21	26	34	42
10.5	17.5	CLAY, brown, silty, little coarse to fine sand, little fine gravel, slightly moist	39-41	14	18	28	32
8.5	26	SAND, brown, fine, dry	49-51	11	16	18	22
4	30	SAND, brown, coarse to fine, little coarse to fine gravel					
5	35	SAND, light brown, fine, some coarse to medium sand, trace coarse to fine gravel					
7	42	SILT, brown, trace very fine sand, with gray clay lenses					
9+	51+	SILT and CLAY, brown, trace fine sand, wet					
		EOB - 51'					

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Page: 1 of 1
Well/Boring No. SB-61
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE 1/4 1/4 1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: Acker
Crew Chief: Mike Hefferan
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 70.5'
or 8" OD HSA

Grouting/Seal
Depth To Material/Method
70.5-0' Bent./Cement grout
Tremie Rod through augers

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Date
Started: 3/29/89 Finished: 3/30/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 65.3' Ft. Below grade
Measure On: See remark below
After 10 mins. - 64.4'

Location See attached sketch

Remarks After 3 attempts we were unable to recover the 18.5-20.5' sample interval - drove a stone.
Initial water level measured immediately after the 70'; sample water came up from the bottom of the augers rapidly after sample was taken.

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"
0.4	0.4	TOPSOIL, moist	8.5-10.5	4	6	6	7
4.6	5	CLAY, gray, silty, trace coarse to fine sand, trace coarse to fine gravel, moist	18.5-20.5	1	2	2	2
21	26	CLAY, brown, silty, little coarse to fine sand, trace fine gravel, trace organics,	23.5-25.5	4	5	5	7
		slightly moist (fill), with seams of medium to fine sand, wet	28.5-30.5	21	37	51	53
1	27	CLAY, grayish brown, sandy, some coarse to medium sand, little coarse to fine gravel, moist	38.5-40.5	9	11	11	13
3	30	SAND, brown, fine, 1" layers coarse to fine sand, some fine gravel, dry	48.5-50.5	12	16	19	21
1.5	31.5	SAND, brown, fine, small layers (2") coarse to fine sand, some fine gravel, wet	58.5-60.5	15	21	21	25
10.5	42	SILT, gray, clayey, seams of very fine sand, moist	68.5-70.5	21	100/3"	-	-
13	55	SILT, brown, moist, with gray clay lenses, trace fine sand					
10	65	SAND, grayish brown, fine, some silt, moist					
3.5	68.5	SILT and SAND, brown, wet					
0.5+	69+	SANDSTONE, brown					
		EOB - 70.5'					

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Well/Boring No. SB #62
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: 45 CME

Supervisor: C. Cotton

Drilling Method(s) **Depth**
3 1/4" ID HSA 40.5

Grouting/Seal

Depth	To	Material/Method
0.0	40.5	Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 2/24/89 Finished: 2/24/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks Samples taken at 10.0' intervals.

8.5-10.5	1:22	
18.5-20.5	1:40	No odor
28.5-30.0	2:05	detected
38.5-40.5	2:45	

Special sample taken: 7.5-8.5 at 1:15 pm

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Remarks			
1.0	0.0-1	Sand, medium, clayey, some small and medium gravel	7	8	9	14
6.5	1.0-7.5	Sand, medium fine, brown, moist	8	9	9	12
1.0	7.5-8.5	Sand, medium, black, very moist, soft, clay binder, no odor	29	40	51	-
8.5	8.5-17	Clay, very sandy, brown, very stiff, occasional small to medium gravel	26	30	41	52
		stone and coal bits				
2.0	17-19	Clay, gray, sandy, stiff, occasional small stone, slightly silty				
4.0	19-23	Clay, dark gray, very silty, very stiff				
2.4	23-25.4	Clay, gray to brown, sandy to very sandy				
1.6	25.4-27	Sand, light brown, medium fine to fine, loose, dry				
2.0	27-29	Clay, gray, moist, silty, stiff				
0.3	29-29.3	Sand, medium red/orange, mixed with small gravel				
0.5	29.3-29.8	Sand, gray, very fine, very silty, dry				
2.2	29.8-32	Silt, gray, dry				
8.5	32-40.5	Sand, very fine, gray/brown, very silty, dry				

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Well/Boring No. SB #63
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng, Inc
Address: Livonia, MI

Equipment: CME 55 - Dick

Supervisor: C. Cotton

Drilling Method(s) **Depth**
3 1/4" ID HSA

Grouting/Seal
Depth To Material/Method

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
N/A To
To

Date
Started: 2/23/89 Finished: 2/23/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location

Remarks Samples taken at 10.0' intervals.
8.5-10.5 48.5-50.5
18.5-20.5 58.5-60.5
28.5-30.5
38.5-40.5

Remarks

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION
	0.0-5	Sand and Gravel, brown, loose, dry
	5-8	Sand, slight clay binder, some small and medium gravel
	8-15	Clay, very sandy, dark brown, seams of fine light sand, occasional small and medium gravel stone
	15-21	Clay, silty, dark gray/brown, occsasional layer of sandy clay, stiff, occasional small gravel
	21-24	Sand, light brown, very fine, loose, dry
	24-26	Clay, loose and crumbly, occasional small stones, dark brown/gray
	26-35	Silt, gray, dry, layered with very silty sand, light brown, dry, occasional layer of silty dry clay
	35-45	Silt and silty Sand, light to medium gray, very fine, dry
	45-57	Silty sand fine, light brown to gray/brown, occasional small stone, occasional lense of silty dry clay
	57-60.5	Clay, gray, silty, stiff, slightly moist

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Well/Boring No. SB #64
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: CME 55

Supervisor: C. Cotton

Drilling Method(s) **Depth**
3 1/4" ID HSA 40.5

Grouting/Seal

Depth	To	Material/Method
0.0	40.5	Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 1/3/89 Finished: 1/3/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks Ammonia odor throughout hole.

Remarks

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION				
	0.0-6.5	Sand, medium fine, some small to medium, gray, brown, moist	5	7	8	
	6.5-12	Sand and Gravel, brown, slight clay binder, moist, becoming more clayey with depth	9	7	6	
	12-19.2	Clay, gray, sandy, some silt, mixed with small to medium gravel stone, moist	5	5	4	
	19.2-20	Sand, brown, meidum fine, some discoloration(yellow/green), moist	9	14	16	
	20-23	Clay, gray, slightly silty, sandy, dry, occasional very small gravel	6	8	10	12
	23-24.4	Sand, medium fine, very yellow green discoloration, moist	9	18	23	20
	24.4-28	Silty Sand, very fine, light gray, lenses of silty clay, dry	12	17	18	
	28-30	Silt, gray, slightly sandy, wet	23	40	41	
	30-39.8	Sand, very fine, light gray, slightly silty, dry, loose	20	29	25	
	39.8-40.5	Sand, very fine, gray, occasional small gravel, clay binder, moist	18	16	27	33

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Well/Boring No. SB #65
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: CME 55

Supervisor: C. Cotton

Drilling Method(s) **Depth**
4" Solid Stem auger 15.0'

Grouting/Seal

Depth	To	Material/Method
0.0-15.0'		Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 2/27/89 Finished: 2/28/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks No odor detected

Remarks

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION				
	0.0-0.4	Sand, medium fine, most, occasional gravel	3	4	5	
	4.0-4.3	Gravel	5	4	4	
	4.3-6.5	Clay, sandy, moist, brown, some gravel	3	4	5	
	6.5-8	Sand, silty, moist, occasional gravel, clay binder	6	12	14	22
	8.0-	Abandoned hole due to steel pipe - see sketch for new offset position	6	7	9	9
	0.0-6	Sand, medium fine, moist, brown, occasional gravel				
	6-9.5	Clay, sandy, moist, stiff, greenish brown - oxidation				
	9.5-15	Clay, brown, slightly sandy and silty, stiff				

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Well/Boring No. SB #66
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: CME 55

Supervisor: C. Cotton

Drilling Method(s) **Depth**
4" Solid Stem auger 25.0'

Grouting/Seal

Depth	To	Material/Method
0.0-25.0'		Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 2/27/89 Finished: 2/27/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks No odor detected

Remarks

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION						
	0.0-7.2	Sand, medium to medium fine, occasional small to large gravel stone	0.5-2	6	8	10		
	7.2-8.5	Clay, brown, sandy, occasional stone	2-3.5	12	14	14		
	8.5-9.5	Sand, medium fine, brown, clay binder, stiff to brittle	3.5-5	11	12	18		
	9.5-12	Clay, gray brown, silty, very stiff	8.5-10	17	18	10	11	
	12-16	Clay, very sandy, brown	13.5-15	5	7	10		
	16-19.5	Clay, gray, slightly sandy, silty, very moist	18.5-20.5	4	12	42	68	
	19.5-20.3	Sand, very fine, very silty, light brown, dry	23.5-25	7	8	10		
	20.3-23.8	Clay, sandy, brown						
	23.8-25	Clay, gray, very sandy, soft						

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Well/Boring No. SB #67
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: CME 55

Supervisor: C. Cotton

Drilling Method(s) **Depth**
4" Solid Stem auger 20.5'

Grouting/Seal

Depth	To	Material/Method
0.0-20.5'		Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 3/2/89 Finished: 3/2/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks No odor detected

Remarks

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION				
	0.0-1.1	Wood block floor over concrete	7	7	13	
	1.1-4.5	Clay, sandy, brown and gray, swirled, moist, occasional small gravel	3	4	7	
	4.5-14.2	Sand, medium, clay binder, some small and medium gravel, brown,	10	15	19	14
		sand seams, wet at 8.5'	3	6	8	
	14.2-20.5	Clay, gray, silty and sandy, occasional very small gravel, moist, soft,	9	9	10	9
		becoming more stiff and more silty (less sandy) at 20'				

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Page: _____ of _____
Well/Boring No. SB #68
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: CME 55

Supervisor: C. Cotton

Drilling Method(s) **Depth**
3 1/4" HSA 40.5'

Grouting/Seal

Depth	To	Material/Method
0.0-40.5'		Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 3/2/89 Finished: 3/2/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below .
Measure On:

Location See Sketch

Remarks Elevation is ~2.5' below floor elevation.

Remarks

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION				
	0.0-1	Clay, sandy, brown, moist, some small gravel	8	12	12	
	1-6	Sand and Gravel, medium brown, loose	9	14	6	
	6-8	Sand, clay binder, some small gravel, seams of medium loose sand	4	5	4	
	8-14.5	Clay, sandy, silty, gray, occasional small gravel, moist, soft, becoming brown	3	4	6	7
	14.5-24	Sand, light brown with yellow hue, very fine, silty, loose to medium at 21'	6	9	19	
	24-30.4	Clay, gray, silty, soft, moist, occasional very small gravel	9	14	13	13
	30.4-36	Sand, light gray, fine, loose, dry	22	12	11	
	36-40.5	Sand, very fine, brown, clay binder, moist	8	10	14	24
			9	16	10	
			22	27	26	24

EDI Engineering & Science

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Well/Boring No. SB #69
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: CME 55

Supervisor: C. Cotton

Drilling Method(s) **Depth**
3 1/4" HSA 60.5'

Grouting/Seal
Depth To Material/Method
0.0-60.5' Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
N/A To
To

Date
Started: 3/2/89 Finished: 3/2/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks Elevation is ~5' below floor elevation.
Ammonia odor detected in wet layer at bottom of hole -
also noticed as augers were being pulled.

Remarks

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION				
	0.0-0.5	Sand, medium, and gravel, dry, yellow/brown	3	3	5	
	0.5-9	Clay, sandy, some small gravel, moist, gray/brown	5	8	10	
	9-13	Clay, gray, silty, slight sandy, some small gravel stiff	2	3	4	
	13-14.8	Clay, brown, sandy, stiff	4	5	7	7
	14.8-30.4	Sand, medium fine to fine, slightly yellow/light brown, dry, (possible fill for sewer)	7	26	40	
	30.4-33.8	Sand, fine, gray/brown, silty	12	17	25	41
	33.8-34	Silt, dark gray, moist, clay binder	4	26	28	
	34-34.6	Sand, fine, light gray, very silty, dry, loose	16	26	30	40
	34.6-37	Sand, medium to coarse, gray, some very small gravel, dry loose	38	100 ~ 4"		
	37-38.8	Clay, dark gray, possible layers of shale, moist, stiff, silty	9	12	14	16
	38.8-41.5	Clay, brown, sandy, moist, seams of fine brown sand, occasional small gravel stone, becoming gray	26	50	65	
	41.5-48	Sand, fine, gray, slightly silty, moist	29	50	41	60
	48-57	Silt, gray, dry, clay binder, some coal or shale pieces, layers of very fine gray/brown sand (2-3")	30	43	65	
		dry, loose	44	44	43	44
	57-60.5	Sand, medium fine, clay binder, gray/brown, occasional small gravel, moist to wet at 60.3'				
		Ammonia odor at last spoon				

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Well/Boring No. SB #70
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: 45 CME

Supervisor: C. Cotton

Drilling Method(s) **Depth**
3 1/4" ID HSA 40.5'

Grouting/Seal

Depth	To	Material/Method
0.0-40.5'		Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 2/24/89 Finished: 2/24/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks Sample taken at 10" intervals

8.5-10.5	10:10	Chemical odor
18.5-20.5	10:46	Chemical odor
28.5-30.5	11:09	Odor like rat poison
38.5-40.5	11:30	Slight odor

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Remarks			
0.5	0.0-0.5	Concrete (partially broken up)	5	7	8	9
2.0	0.5-2.5	Sand, clayey, medium, greenish brown, medium and large gravel stone	13	21	29	37
14.0	2.5-16.5	Clay, sandy, dark greenish brown, occasional stone, moist, silty	27	33	35	35
18.5	16.5-35	Sand, light brown, yellow/green tint, fine, silty, occasional lense of silty dry clay	17	27	33	31
5.5	35-40.5	Silt, gray, moist, some layers of fine light brown sand				

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Well/Boring No. SB #71
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: 45 CME

Supervisor: C. Cotton

Drilling Method(s) **Depth**
3 1/4" ID HSA 40.5'

Grouting/Seal

Depth	To	Material/Method
0.0	40.5'	Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 3/1/89 Finished: 3/1/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks Slight ammonia odor noted in yellow/brown sand layer (19-27'). Odor more evident while pulling augers.

Remarks

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION					
	0.0-1	Wood block over concrete	7	8	9		
	1-7	Clay, brown, sandy, occasional stone, dry, hard	8	12	16		
	7-8	Clay, silty, red/brown, stiff, moist	10	16	16		
	8-12	Sand, clay, binder, layers of sand, medium, mixed with gravel, green/brown, very moist	15	22	18	13	
	12-18.8	Clay, gray, silty, slightly sandy, moist, becoming stiff	5	7	9		
	18.8-27.5	Sand, medium fine, green and yellow/brown, dry, loose, occasional stone	7	8	19	31	
	27.5-30.3	Clay, silty, gray, very soft, moist	9	9	12		
	30.3-40.2	Sand, brown, silty, slight ammonia odor, becoming gray and very fine, very silty, dry	27	60 for 3"			
	40.2-40.5	Clay, gray, silty, dry, stiff	10	23	22	23	
			29	32	30	27	

EDI Engineering & Science

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Well/Boring No. SB #72
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: 55 CME

Supervisor: C. Cotton

Drilling Method(s) **Depth**
3 1/4" HSA 60'

Grouting/Seal
Depth To Material/Method
0.0-60' Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
N/A To
To

Date
Started: 2/28/89 Finished: 2/28/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks 5 /12 hours down on time due to coring hole in concrete
Samples taken at 10' intervals
* Extra sample taken at 23.5-25.0 due to odor and color of silt lense
* Ammonia odor was detected while augers were being pulled*

Remarks

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION				
	0.0-1.3	Wood block over concrete	4	9	11	
	1.3-2.5	Clay, slightly sandy, black with greenish tint, trace of gravel	3	5	5	
	2.5-4	Clay, gray to green, very sandy, occasional gravel stone	3	8	12	
	4-7.5	Clay, gray, silty, some sand - oxidized yellow/green color	16	17	24	17
	7.5-14	Clay, very sandy, discolored yellow green with brown base, some small gravel, very moist	5	6	5	
	14-19.5	Clay, gray, some sand, silty, occasional stone, moist to wet, soft	6	9	11	13
	19.5-23	Clay, gray, very stiff, silty, slightly moist	5	14	20	
	23-24.4	Clay, brown, very sandy, soft, moist, yellow discolored	3	4	10	35
	24.4-24.8	Silt, dry, yellow, odor, sweet, chemical, piece of coal in silt layer of spoon	20	24	28	
	24.8-30.2	Clay, very sandy, moist to wet, soft, some small to medium gravel	23	25	18	35
	30.2-38.8	Sand, very fine, very silty, dry, gray	20	25	27	
	38.8-40	Clay, very silty, slightly sandy, gray, dry	55	85	115	
	40-49.8	Sand, fine, silty, some medium gravel in layers, clay lenses, brown	55	27	55	71
	49.8-50	Sandstone and sand, gray brown	27	55	71	
	50-60	Silt, gray, silty, sandy, very fine, occasionsal 2-6" seam of silty clay from 55-60'	20	35	50	62

EDI Engineering & Science

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Well/Boring No. SB #74
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Soils & Material Eng. Inc
Address: Livonia, MI

Equipment: 55 CME

Supervisor: C. Cotton

Drilling Method(s) **Depth**
4" HSA 15'

Grouting/Seal
Depth To Material/Method
0.0-15' Backfill

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
N/A To
To

Date
Started: 3/2/89 Finished: 3/2/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level N/A Ft. Below
Measure On:

Location See Sketch

Remarks Very strong ammonia cleanser odor in area, ammonia odor very evident in soil also
Fuel oil odor encountered at ~8': see note in lof
VOA taken at 8.5-10.5'

Remarks

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION				
	0.0-1	Wood block over cement	5	5	12	
	1-1.5	Sand, light brown, medium fine, loose, dry, some small and medium gravel	9	12	15	
	1.5-2	Sand, very fine, silty, clay binder, occasional small gravel	6	10	14	
	2-6	Clay, gray and brown marbled, sandy and silty, stiff, occasional small gravel	6	7	7	13
	6-12.5	Clay, very, sandy, light brown, some very small gravel, dry	4	8	9	
		*Spoon at 8.5-10.5' was wet sandy clay, saturated with a bright yellow/green, thin oily liquid, oily smell				
	12.5-15	Clay, gray, occasional small stones, moist, soft, only trace of yellow/green discoloration				

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Environmental Services Division

Well/Boring No.: Ch-8
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
	Lansing	1/4 1/4 1/4			

Contractor Stearns
Address: 6875 Industrial Park
Dutton, MI
Equipment: CME - 550
Crew Chief:
WW Supervisor: Darryl Krause

Drilling Method(s) **Depth**
4" ID HSA 70'

Grouting/Seal
Depth/To Material/Method
Granular Bent. Slurry
Baroid mud test used.

Development Bailed dry

Screen
Manufacturer: Johnson
Material: Stainless Steel
Model:
Slot/Gauze: #7 Dia.: 2" ID
Length: 3'
Depth Set: 69' To: 66'

Casing
Dia. Type Depth Set
2" ID Galv. To 66'
To +2'

Date
Started: 2/14/90 Finished:

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 65' Ft. Below surface
Measure On:

Location

Remarks Water sample was taken with a teflon bailer and then field filtered through a 0.4 micron filter

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"
6		Silt, some sand, very fine, occasional medium gravel, brown	8.5-10	4	5	4
1	6	Gravel, coarse	18.5-20	3	3	3
	7	Silt, some sand, very fine, brown	28.5-30	6	11	14
0.3	8-8.3	Gravel, coarse	38.5-40	15	17	23
4	8.5	Sand, medium, and Silt, occasional Gravel, coarse, brown				
0.5	12.5	Gravel, coarse				
3.5	13	Sand, medium, and Silt, fine gravel, brown				
2	16.5	Clay, silty, trace fine gravel, brown				
8.5	18.5	Clay, silty, trace coarse sand, trace fine gravel, brown, slight yellowish color above spoon, moist				
	27	Sand, very fine with lenses of silty clay, brown, mottled, gray				
	33	Sand, very fine, light brown				

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Environmental Services Division

Page: 2 of 2
Well/Boring No.: Ch-8
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
	Lansing	1/4 1/4 1/4			

Contractor Stearns
Address: 6875 Industrial Park
Dutton, MI
Equipment: CME - 550
Crew Chief:
WW Supervisor: Darryl Krause

Drilling Method(s) **Depth**
4" ID HSA 68.5
Spooned to 70'

Grouting/Seal
Depth/To Material/Method
Granular Bent. Slurry
Baroid mud test used.

Development Bailed dry

Screen
Manufacturer: Johnson
Material: Stainless Steel
Model:
Slot/Gauze: #7 Dia.: 2" ID
Length: 3'
Depth Set: 69' To: 66'

Casing
Dia. Type Depth Set
2" ID Galv. To 66'
To +2'

Date
Started: 2/14/90 Finished:

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 65' Ft. Below surface
Measure On:

Location

Remarks Water sample was taken with a teflon bailer and then field filtered through a 0.4 filter

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	18"	12"	6"
1	42.5	Sand, very fine, some silt, coarse gravel, light brown	48.5-50	12	22	26
5	43.5	Sand, very fine, some silt, light brown	58.5-60	15	32	44
8	48.5	Sand, very fine, and Silt, trace gravel, light brown	68.5-70	5	7	10
	56.5	Sand, very fine, lenses of clay, light brown				
	68.5	Sand, very fine, lenses of clay, light brown, wet				
		Set Temp. Well				

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: Chrome Pit - CR-9-D
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
	Lansing	1/4 1/4 1/4			

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy.
Dutton, MI
Equipment: CME 45C
Crew Chief: Roger Christianson
WW Supervisor: Mike Jones

Drilling Method(s) **Depth**
4 1/4" ID HSA 17'
Split Spoon 19'

Grouting/Seal
Depth/To Material/Method
19' Bent. Grout at 9.6 lbs/gal

Development

Screen
Manufacturer:
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
To
To

Date
Started: 2/21/90 Finished:

Elevation
Casing: N/A
Ground: ~12.5 from Cr 8 & Cr 12
Ref. Pt.: grade (not top of floor)

Water Level Ft. Below
Measure On:

Location

Remarks Select 7-9' spoon interval to intersect sample depths used at Cr 8 & Cr 12. Water (from earlier drilling and grouting) caused run-off and water into pit; noticeable erosion, north sidewall. BOC hose also possible source. Hit water seam ~4' to 6.5'; cave-in continues around augers to dia. of 2 1/2', and beginning to undermine rig's hyd. jacks. Call office. Since cave in has not stopped, end boring and grout.

Thickness (feet)	Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts 18"	18"	12"	6"
			Sample Depth			
	~1-2	Fill, sand, very fine to medium and silty, brown, rock and gravel	7-9	3	4	4 5
	6.5	Sand, fine, gravish brown, wet ~4-6.5' (see remarks)	17-19	9	14	17 21
	8	Clay, silty, occasional coarse gravel and rock, gray, dense, dry				
	17	Clay, very sandy, some silt, damp, gray				
		Silt, with fine sand and clay and occasional gravel, gray, dry				
		EOB				
		Hand Auger - to set shallow 2" Mon. well located ~6'W of Cr-9-D				

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Page: 1 of 1
Well/Boring No.: MW Cr-9
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor WWES
Address: 5555 Glenwood Hills Pkwy
Grand Rapids
Equipment: Hand Auger
Crew Chief:
WW Supervisor: Jim Wise

Drilling Method(s) **Depth**
Hand Auger 3'
Drove screen to 4.5'

Grouting/Seal
Depth/To Material/Method
0-4.5' Benseal-slurry from top

Development Bailed dry

Screen
Manufacturer: Johnson
Material: Stainless Steel
Model: CWW
Slot/Gauze: 7 Dia.: 2"
Length: 5'
Depth Set: +0.5 To: 4.5'

Casing
Dia. Type Depth Set
None To
To

Date
Started: 2/22/90 Finished: 2/22/90

Elevation
Casing:
Ground: ~12.5 from ground surface
Ref. Pt.:

Water Level 2' 9" Ft. Below grade
Measure On: 2/22/90

Location 6'W Ch-9-D

Remarks Hand auger down to 4' hit stiff clay. Water from 2-4'. Set temp. well and sample screen set from grade to 4.5' sample filtered in field.

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts 18" 12" 6" Sample Depth
	0-1	Sand, backfill with occasional gravel, brown	
	1-2	Sand, medium to fine, with clay and occasional gravel, brown	
	2-4	Sand, fine, with some clay, occasional gravel, wet, brown	
	4-4.5	Clay, with some fine sand, and occasional gravel, brown, dry	
		EOB	

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Environmental Services Division

Page: 2 of 2
Well/Boring No.: Ch-15
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
	Lansing	1/4 1/4 1/4			

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy.
Dutton, MI
Equipment: CME 550
Crew Chief:
WW Supervisor: Darryl Krause

Drilling Method(s) **Depth**
HSA 78.5'
Spooned to 80'

Grouting/Seal

Depth/To	Material/Method
80'-surface	Granular, Bent. Slurry

Development Bailed augers dry

Screen
Manufacturer:
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
		To
		To

Date
Started: 2/13/90 Finished: 2/14/90

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 67' Ft. Below surface
Measure On:

Location

Remarks

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts 18" 12" 6" Sample Depth
1	53	Gravel, coarse	
2	54	Silt, some sand, very fine, gray	
1	56	Gravel, coarse	
11	57	Silt, some sand, very fine, gray	
7	68	Silt, very fine, very stiff, trace clay, gray	
3	75	Silt, very fine, very stiff, trace clay, coarse gravel (to 76') gray	
1	78.5	Sand, coarse, gravel, coarse	
	79.5	Bedrock	

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Well/Boring No.: Ch-15
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
	Lansing	1/4 1/4 1/4			

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy, Dutton, MI
Equipment: CME 550
Crew Chief:
WW Supervisor: Darryl Krause

Drilling Method(s) **Depth**
HSA 78.5'
Spooned to 80'

Grouting/Seal
Depth/To Material/Method
80'-surface Granular, Bent, Slurry
Baroid mud balance to test density

Development Bailed augers dry

Screen
Manufacturer:
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
To
To

Date
Started: 2/13/90 Finished: 2/14/90

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 67' Ft. Below surface
Measure On:

Location

Remarks No water was found until bedrock. Augers were left in hole overnight. ~15' of water accumulated overnight. Augers were bailed dry using a teflon bailer and then a water sample was taken. Sample was field filtered.

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	18"	12"	6"
11.5		Sand, fine to medium, trace silt, occasional gravel, light brown	8.5-10	2	5	4
4	11.5	Sand, fine, some silt, coarse gravel, light brown	18.5-20	3	10	10
4.5	15.5	Clay, trace silt, brown	28.5-30	6	11	12
4	20	Clay, silty, some coarse sand, occasional gravel, gray	38.5-40	7	14	20
4.5	24	Sand, fine, brown	48.5-50	11	23	27
6.5	28.5	Sand, very fine, lenses of silty clay, gray, mottled white	58.5-60	17	33	35
2.5	35	Clay, silty, some sand, fine, gray	68.5-70	10	16	20
7.5	37.5	Sand, very fine, gray	78.5-80	17	39	100/5"
3.5	45	Gravel, coarse, some sand, very fine				
4.5	48.5	Silt, trace coarse sand, brown, mottled, gray				

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW-19
Client: BOC Lansing
Project No.: 21666.01
Date:
Started: 8/13/91 Finished: 8/13/91

"Drift Well"

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor: Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 75
Crew Chief: Duane
WW Supervisor: Don Johnson

Drilling Method(s)	Depth
4 1/4" ID HSA	0.0-68.0'

Grouting/Seal Depth/To	Material/Method
See reverse	

Water Level 60' Ft. Below GD

Location

Remarks: 30 ppm in cuttings at 4.0'

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	OVM/PID (ppm) 6"	12"	18"	24"	Response	Background
0.9	0.9	CONCRETE							
1.6	2.5	SAND, brown, fine to coarse and gravel fine to coarse, wet							
2	4.5	SAND, brown, fine to coarse and gravel, fine to coarse, dry							
2.5	7.0	CLAY, brown, sandy	8'-10'	2	3	3	4	0	0
8	15	CLAY, gray, sandy and soft with some fine gravel	18'-20'	17	22	30	19	0	0
5	20	CLAY, browns and grays, very dry and silty with some fine to medium							
		gravel and crushed stone, firm							
6	26	CLAY, gray, sandy and some fine gravel, dry-soft	28'-30'	4	11	9	8	0	0
3	29	SILT, gray, damp to wet							
0.2	29.2	SAND, gray, fine to coarse, dry							
7.8	37	SILT, gray, dry and some fine to very fine sands	38'-40'	11	15	19	23	0	0
9	46	SAND, gray, very fine to fine and trace of silts, dry							
12.5	58.5	CLAYEY, gray sands, and trace of gray silts with occasional fine	48'-50'	10	13	22	25	0	0
		gravel, very dry (crumbles)							
9.5	68	SAND, gray, very fine to fine and trace of gray silt, damp to wet	58'-60'	9	14	13	14	0	0

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Project Name: BOC Lansing Plant #3

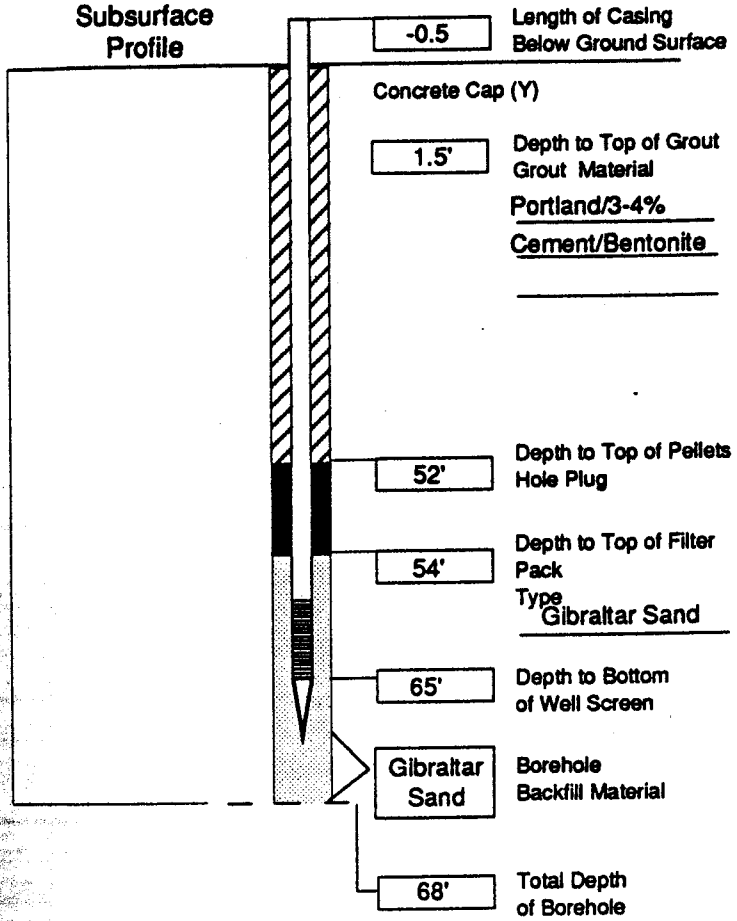
Project No: 21666.01

Log of Well Installation

Well Designation: MW 19

Date(s) of Installation: 8/13/91 To: 8/13/91

Generalized Subsurface Profile



Top of Casing Elevation: 100.485

Ground Surface Elevation: 100.735

Water Level Data

Date	Water Level Below TOC
8/30/91	56.69'

Development :

Survey Reference: TOC @ MW-88-1 (Assumed @ 99.73')

Well Casing

Diameter: 2"
Total Length: 55'
Material: PVC
Cap Type: Locking "J" Plug

Well Screen

Diameter: 2"
Length: 10'
Slot/Type: 10 Slot C.W.W.
Material: PVC

Protective Well Casing

Material: Steel Dia. 8"
Height Above Ground: Flush Mount Manhole
Lock Type: Locking "J" Plug on Well

General Notes:

Figure

WW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW-21
Client: BOC Lansing
Project No.: 21666.01
Date:
Started: 8/15/91 Finished: 8/15/91

"Drift Well"

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 75
Crew Chief: Duane
WW Supervisor: Don Johnson

Drilling Method(s) — **Depth**
4 1/4" ID HSA — 0.0-66.0'*

Grouting/Seal Depth/To — Material/Method
See reverse

Water Level 61' Ft. Below GD

Location

Remarks * 93 ppm on cuttings at approx. 6' depth. 0.0 ppm throughout remaining borehole.

* Over drilled to 66' to allow water table ro rise and to allow room for a monitor well. (60' depth is the last split spoon taken)

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	OVM/PID (ppm) Blow Counts 6"	12"	18"	24"	Response	Background
1.0	1.0	CONCRETE							
2.5	3.5	SAND, brown, fine to coarse and some fine gravel							
1.5	5.0	CLAY, brown, sandy and some fine to coarse gravel, dry	8'-10'	4	4	6	6	0	0
1.5	6.5	SAND, brownish gray with occasional fine gravel and trace of silty clay - 93 ppm							
7.5	14	CLAY, gray, sandy and gravelly, medium firm, dry, 0 ppm							
8	22	CLAY, gray, sandy and silty with occasional fine gravel, dry	18'-20'	5	13	15	13	0	0
3	25	SAND, brown, very fine to medium and some silts, dry							
7	32	SAND, brownish, gray, very fine to silty and some fine sand, dry	28'-30'	10	13	16	23	0	0
4.5	36.5	SAND, gray, very fine to silty, dry							
3.3	39.8	SILT, gray and some fine to very fine sands with occasional fine gravel	38'-40'	12	17	19	20	0	0
5.2	45	SILT, gray and some fine to very fine sands, wet							
4.5	49.5	CLAY, gray, silty and sandy, firm, dry (crumbles) and occasional fine gravel							
3.5	53	SILT, gray and some very fine gray sands, dry	48'-50'	12	19	27	28	0	0
7	60*	SILT, gray and some very fine to fine sands, wet						-	-
			58'-60'	4	10	13	13	0	0

WW Engineering & Science

Project Name: BOC Lansing Plant #3

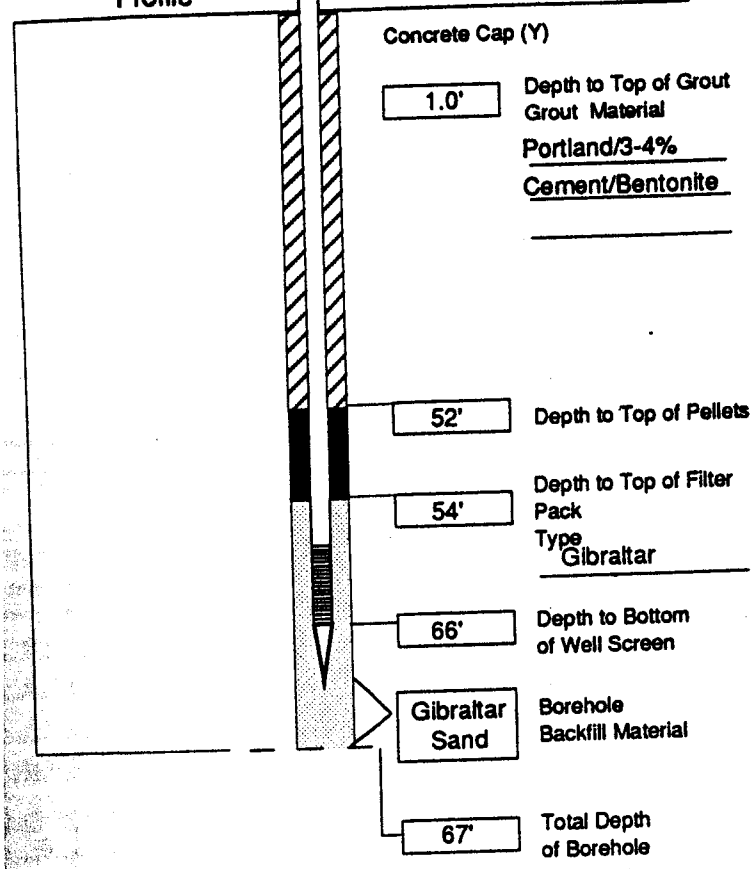
Project No: 21666.01

Log of Well Installation

Well Designation: MW-21

Date(s) of Installation: 8/15/91 To: 8/15/91

Generalized Subsurface Profile



Top of Casing Elevation: 100.465

Ground Surface Elevation: 100.885

Water Level Data

Date	Water Level Below TOC
8/30/91	55.65'

Development :

Survey Reference: TOC @ MW-88-1 (Assumed @ 99.73')

Well Casing

Diameter: 2"
Total Length: 56'
Material: PVC
Cap Type: Locking "J" Plug

Well Screen

Diameter: 2"
Length: 10'
Slot/Type: 10 Slot C.W.W.
Material: PVC

Protective Well Casing

Material: Steel Dia. 8"
Height Above Ground: Flush Mount Manhole
Lock Type: P-506

General Notes:

Figure

WW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW-22
Client: BOC Lansing
Project No.: 21666.01
Date:
Started: 8/19/91 Finished: 8/30/91

"Drift Well"

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor: Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 550
Crew Chief: Bryan Marshall
WW Supervisor: Don Johnson

Drilling Method(s)	Depth
4 1/4" ID HSA	0.0-63.0'*

Grouting/Seal Depth/To	Material/Method
See reverse	

Water Level 57' Ft. Below GD

Location

Remarks: *Over drilled to 63' to allow room for a monitor well.
Last split spoon sample collected at 58'-60' depth.

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"	OVM/PID (ppm) Response	Background
0.8	0.8	CONCRETE							
0.7	1.5	SAND, brown, fine to coarse and some fine to medium gravel							
4.0	5.5	CLAY, brown, sandy and gravelly	8'-10'	3	8	8	12	0	0
3.5	9.0	CLAY, gray, sandy and some fine to medium gravel							
3.5	12.5	CLAY, gray, sandy and gravelly with trace of silt, firm, dry	18'-20'	10	10	15	17	0	0
6	18.5	CLAY, gray, silty and some fine sands and gravels							
1.0	19.5	SAND, brown, very fine to fine and some silty, dry	28'-30'	6	9	10	13	0	0
9.5	29	SAND, brown, very fine and some brown silt, dry							
4	33	SILT, gray, and some very fine gray sands, dry	38'-40'	8	16	20	23	0	0
15	48	SILT, gray, and some very fine sands with trace of clay, dry	48'-50'	27	29	34	41	0	0
9	57	CLAY, gray, silty and occasional fine gravel, dry	58'-60'	7	18	26	27	0	0
3	60*	SAND, gray, fine to medium and some gray silt, wet							
								-	-
		* Actual EOB @ 63' *							

NW Engineering & Science

Project Name: BOC Lansing Plant #3

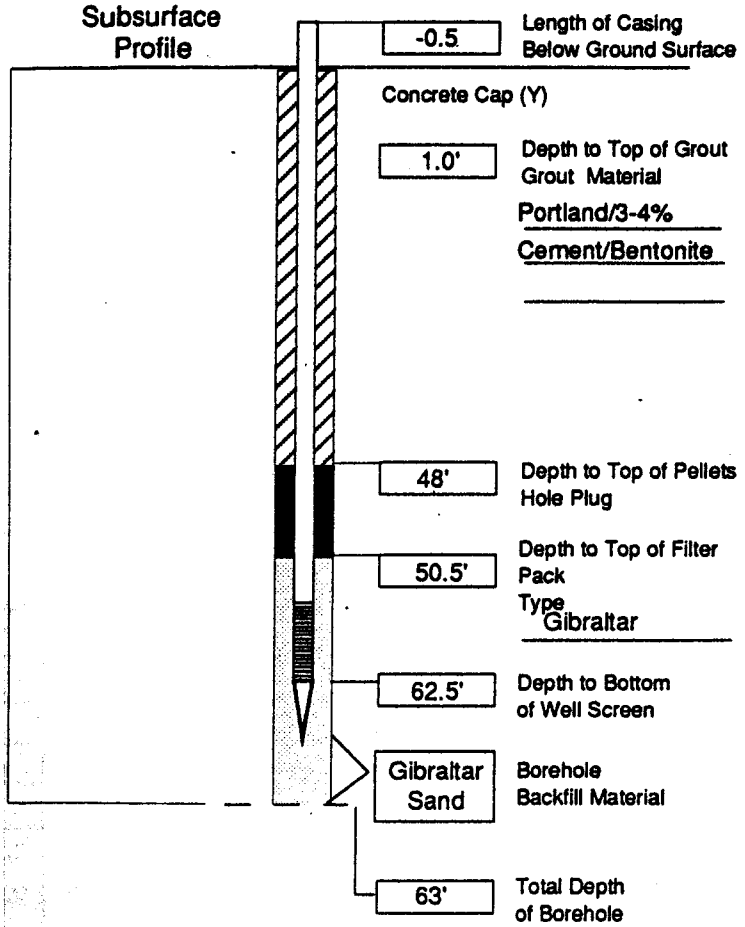
Project No: 21666.01

Log of Well Installation

Well Designation: MW-22

Date(s) of Installation: 8/19/91 To: 8/20/91

Generalized Subsurface Profile



Top of Casing Elevation: 100.435

Ground Surface Elevation: 100.825

Water Level Data

Date	Water Level Below TOC
8/30/91	55.74'

Development :

Survey Reference: TOC @ MW-88-1 (Assumed @ 99.73')

Well Casing

Diameter: 2"
Total Length: 52.5'
Material: PVC
Cap Type: Locking "J" Plug

Well Screen

Diameter: 2"
Length: 10'
Slot/Type: 10 Slot C.W.W.
Material: PVC

Protective Well Casing

Material: Steel Dia. 8"
Height Above Ground: Flush Mount Manhole
Lock Type: P-506

General Notes:

Figure

/W Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW-23
Client: BOC Lansing
Project No.: 21666.01
Date:
Started: 8/14/91 Finished: 8/14/91

"Drift Well"

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 75
Crew Chief: Duane
WW Supervisor: Don Johnson

Drilling Method(s) — **Depth**
4 1/4" ID HSA — 0.0-63.0'*

Grouting/Seal
Depth/To — Material/Method
See reverse

Location

Remarks

Water Level 58.2' Ft. Below GD

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"	OVM/PID (ppm) Response	Background
0.8	0.8	CONCRETE							
1.1	1.9	SAND, brown and gravel, fine to coase (road gravel)							
0.6	2.5	CONCRETE (piece of conduit with wires in it came up with cutting)							
1.0	3.5	SAND, brown, fine to coarse and some fine to medium gravel							
2.5	6.0	CLAY, brown, sandy and occasional fine gravel	8'-10'	12	13	13	11	0	0
3.0	9.0	SAND, brown, very fine to medium with trace of silts, moist							
0.5	9.5	CLAY, brown, sandy, dry							
2.5	12	CLAY, gray, firm and some fine to medium gravel, dry	18'-20'	7	16	25	22	0	0
11	23	CLAY, brownish, gray, firm, dry, sandy with occasional fine gravel							
4	27	SAND, brown, fine to medium, dry	28'-30'	3	4	4	2	0	0
6	33	SAND, gray, very fine to fine and very silty with occasional fine gravel, damp							
7	40	SAND, gray, very fine to fine and some silts, dry	38'-40'	13	20	22	22	0	0
9.7	49.7	SILT, gray and some very fine gray sand with occasional fine sands, dry	48'-50'	12	23	25	26	0	0
0.8	50.5	CLAY, gray, firm, dry with trace of gray silts	58'-60'	7	15	23	26	0	0
9.5	60	SILT, gray and some fine to very fine sands with black specs, wet							
		* Overdrilled to 63'							

WW Engineering & Science

Project Name: BOC Lansing Plant #3

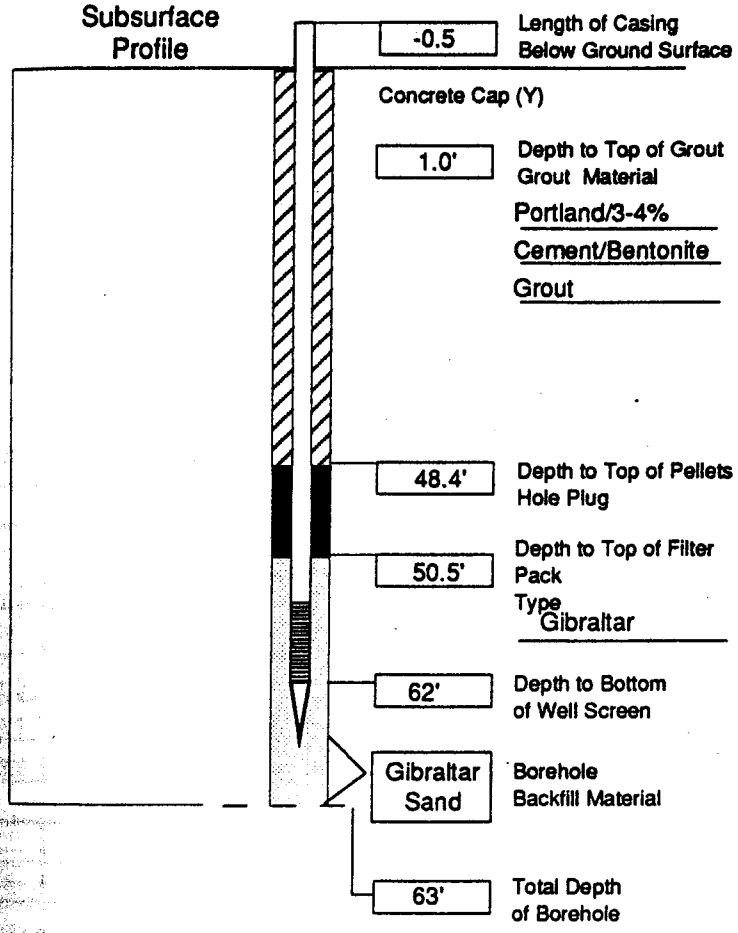
Project No: 21666.01

Log of Well Installation

Well Designation: MW-23

Date(s) of Installation: 8/14/91 To: 8/14/91

Generalized Subsurface Profile



Top of Casing Elevation: 100.195

Ground Surface Elevation: 100.605

Water Level Data

Date	Water Level Below TOC
8/30/91	54.68'

Development : _____

Survey Reference: TOC @ MW-88-1 (Assumed @ 99.73')

Well Casing

Diameter: 2"
Total Length: 52'
Material: PVC
Cap Type: Locking "J" Plug

Well Screen

Diameter: 2"
Length: 10'
Slot/Type: 10 Slot C.W.W.
Material: PVC

Protective Well Casing

Material: Steel Dia. 8"
Height Above Ground: Flush Mount Manhole
Lock Type: P-506

General Notes:

Figure

WW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW-24(2)
Client: BOC Lansing
Project No.: 21666.01
Date:
Started: 8/9/91 Finished: 8/9/91

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 75
Crew Chief: Duane
WW Supervisor: Don Johnson

Drilling Method(s) **Depth**
4 1/4" ID HSA 0.0-7.0'

Grouting/Seal

Depth/To	Material/Method
0.0'-1.0'	Open Hole
1.0'-7.0'	Natural Soils & Benseal

Water Level _____ Ft. Below _____

Location

Remarks Hit concrete slab at 7' - refusal - pulled off of hole until it can be relocated

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts / Sample Depth	OVM/PID (ppm) 6"	12"	18"	24"	Response	Background
1.3	1.3	CONCRETE							
2.7	4.0	SAND, brown, fine to coarse and some fine gravel, dry							
3.0	7.0	SAND, brown, fine to coarse and some fine gravel, wet							
		CONCRETE							

W Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW-24
Client: BOC Lansing
Project No.: 21666.01
Date:
Started: 8/20/91 Finished: 8/2191

"Drift Well"

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 550
Crew Chief: Bryan Marshall
WW Supervisor: Don Johnson

Drilling Method(s) — **Depth**
4 1/4" ID HSA — 0.0-63.0'*

Grouting/Seal Depth/To — Material/Method
See reverse

Water Level 56' Ft. Below GD

Location

Remarks This location is an offset of 10' to the east of the original attempt on 8-9-91
Overdrilled to 63' to allow room for the monitor well.

Thick-ness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"	OVM/PID (ppm) Response	Background
0.2	0.2	ASPHALT							
0.8	1.0	CONCRETE							
2.5	3.5	SAND, brown, fine to coarse and some gravel, fine to medium							
3	6.5	CLAY, brown, very sandy, soft and some fine gravel, dry							
9.5	16	CLAY, gray, sandy and gravelly, medium firm, dry	8'-10'	2	4	6	6	0	0
12.5	28.5	CLAY, brownish gray, sandy with occasional fine sand seams, dry							
1.2	29.7	CLAY, gray, very sandy, very soft, moist	18'-20'	2	4	6	10	0	0
0.8	30.5	SAND, reddish brown, very fine to medium, dry and occasional fine gravel							
4.5	35	SAND, gray, very fine to fine and some silts with occasional thin layers of gray silty clay, dry	28'-30'	2	7	10	17	0	0
7	42	SAND, gray, clayey (slight clay binder) with occasional fine gravel and fine to very fine sand seams, dry							
15	57	CLAY, gray, sandy and trace of silts with some fine gravel, dry	38'-40'	5	12	13	18	0	0
2	59	SAND, gray, very fine to fine, wet						-	-
1.0	60	SILT, gray and trace of gray clay	48'-50'	17	32	27	36	0	0
			58'-60'	10	15	17	15	0	0

WW Engineering & Science

Project Name: BOC Lansing Plant #3

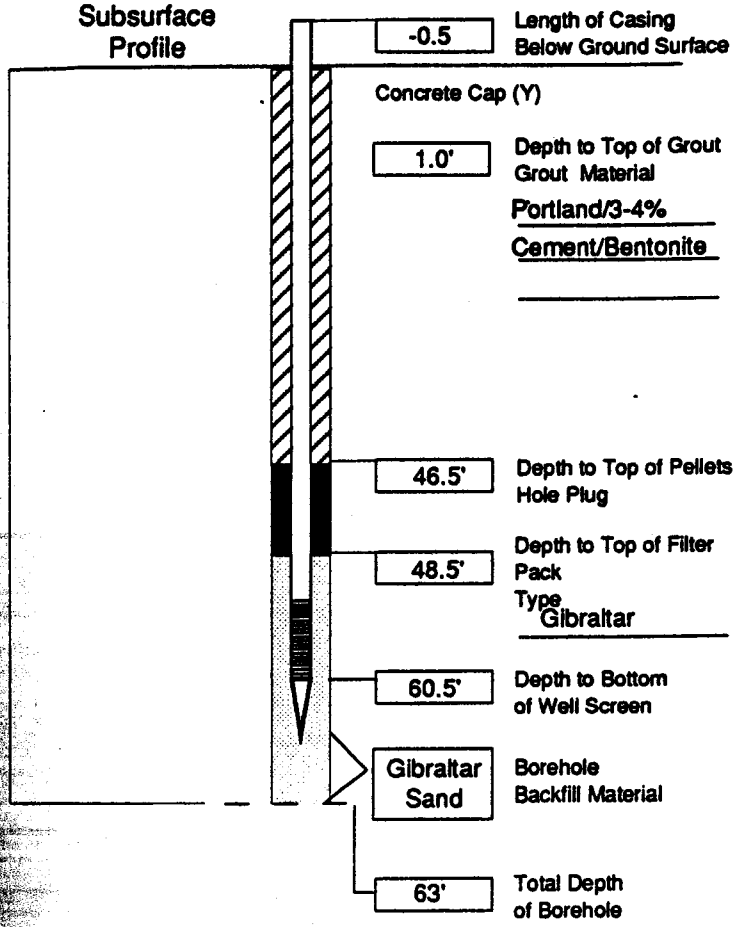
Project No: 21666.01

Log of Well Installation

Well Designation: MW-24

Date(s) of Installation: 8/21/91 To: 8/21/91

Generalized Subsurface Profile



Top of Casing Elevation: 100.375

Ground Surface Elevation: 100.74

Water Level Data

Date	Water Level Below TOC
8/30/91	55.73'

Development :

Survey Reference: TOC @ MW-88-1 (Assumed @ 99.73')

Well Casing

Diameter: 2"
Total Length: 50'
Material: PVC
Cap Type: Locking "J" Plug

Well Screen

Diameter: 2"
Length: 10'
Slot/Type: 10 Slot C.W.W.
Material: PVC

Protective Well Casing

Material: Steel Dia. 8"
Height Above Ground: Flush Mount Manhole
Lock Type: P-506

General Notes:

Figure

EDI Engineering & Science

Well/Boring No. 88-1
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment: 45 Acker

Supervisor: C. Cotton

Drilling Method(s) **Depth**
Auger / Split Spoon 45'
Mud Rotary 140

Grouting/Seal
Depth To Material/Method
103.0-103.5' Rubber Seal
0.0-103.0' Cement / Bentonite Grout

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
N/A To
To

Date
Started: 9/19/88 Finished: 9/22/88

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 77.45 Ft. Below TOC
Measure On: 9/22/88 - 4:30pm

Location NE Cor BOC Plant 3

Remarks (include here, other data available)

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Interval	Blow Counts 6"	12"	18"
2.5	0-2.5	TOPSOIL and brown CLAY, slightly sandy, some gravel	23.0-25.0	9	10	9
2.0	2.5-4.5	Medium to fine SAND, red, some clay	48.5-50.0	5	7	11
2.5	4.5-7.0	Sandy CLAY, light brown, moist at 6'	73.5-75.0	100 blows/1"		
1.0	7.0-8.0	Medium to fine SAND, light brown, wet				
6.0	8.0-14.0	Very sandy CLAY, light brown, wet				
2.0	14.0-16.0	Sandy CLAY, gray, wet				
3.0	16.0-19.0	Silty CLAY, gray, mixed with gravel, firm				
4.0	19.0-23.0	Sandy CLAY, light brown, gravelly, wet				
13.0	23.0-36.0	Medium SAND, light brown, gravelly, silty clay binder				
21.0	36.0-57.0	Silty CLAY, gray, occasional red/brown clay lense				
2.0	57.0-59.0	Very silty CLAY, gray, stiff				
4.0	59.0-63.0	CLAY, gray, lenses of sandy red/brown clay, soft				
3.0	63.0-66.0	Slightly sandy CLAY, red/brown				
5.0	66.0-71.0	Small GRAVEL mixed with medium to coarse SAND, brown/gray, some bits of coal				
2.0	71.0-73.0	Gravelly CLAY, light gray				
11.0	73.0-84.0	"SHALE", gray, sandstone or siltstone				
2.0	84.0-86.0	SHALE, black				
19.0	86.0-105.0	SANDSTONE, very light gray, soft				

EDI Engineering & Science

Page: 2 of 2
Well/Boring No. 88-1
Client: BOC Lansing
Project No.: 20682

Well/Boring Log Sheet

County	Township	Fraction NE NE SW	Section	T	R

Contractor Stearns Drlg.
Address: Dutton, Mich

Equipment:

Supervisor:

Drilling Method(s) **Depth**

Grouting/Seal
Depth To Material/Method

Development

Screen
Manufacturer:
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
To
To

Date
Started: Finished:

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks (include here, other data available)

Blow Counts 18"
Remarks 12"
6"
Sample Interval

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION
8.0	105.0-113.0	SANDSTONE, light brown, very soft, easily crumbled
4.0	113.0-117.0	SHALE, gray, hard
10.0	117.0-127.0	SILTSTONE, very dark gray, hard, very brittle
13.0	127.0-140.0	SHALE, dark gray, hard, layered with sandstone

WW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW 91-1
Client: BOC Lansing
Project No.: 20682.01
Date:
Started: 8/2/91 Finished: 8/7/91

"Drift Well"

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 75
Crew Chief: Mike Hefferan
WW Supervisor: Don Johnson

Drilling Method(s) — **Depth**
6 1/4" ID HSA — 0.0-79.0'

Grouting/Seal Depth/To — Material/Method
See reverse MW #91-1

Water Level ____ Ft. Below ____

Location

Remarks No split spoons taken; "Visual" log of the subsurface.

ness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"	PID/FID HNU (ppm) Response	Background
0.9	0.9	CONCRETE (cored)							
0.1	1.0	SAND, brown, fine to medium, and some fine to medium gravel							
3.5	4.5	CLAY, brown, dry							
2.5	7.0	CLAY, brown, sandy, dry, and some fine gravel							
3.5	10.5	CLAY, dark brown, sandy , medium-firm, dry with occasional fine gravel							
5.5	16.0	CLAY, gray, sandy, medium-firm, dry, and some fine gravel							
2.0	18.0	CLAY, gray, sandy, soft (modeling), and some fine gravel, moist							
17.0	35.0	SILT & SAND, gray, very fine to medium, wet							
7.0	42.0	SAND, gray, very fine to medium, dry to moist and trace clay, wet							
13.0	55.0	SAND, gray, very fine to coarse, wet							
15.0	70.0	SAND, gray, fine to coarse, and traces of gray clay, wet							
3.0	73.0	CLAY, gray, very sandy, soft, wet (sticky)							
3.0	76.0	SAND, gray, very fine to fine, and some silts, wet							
3.0	79.0	SANDSTONE (weathered), Bedrock	79.0-79.2'	100 for 2"				-	-
0.2	79.2	SHALE (weathered)							
		EOB @ 79.0'							

WW Engineering & Science

Project Name: BOC Lansing

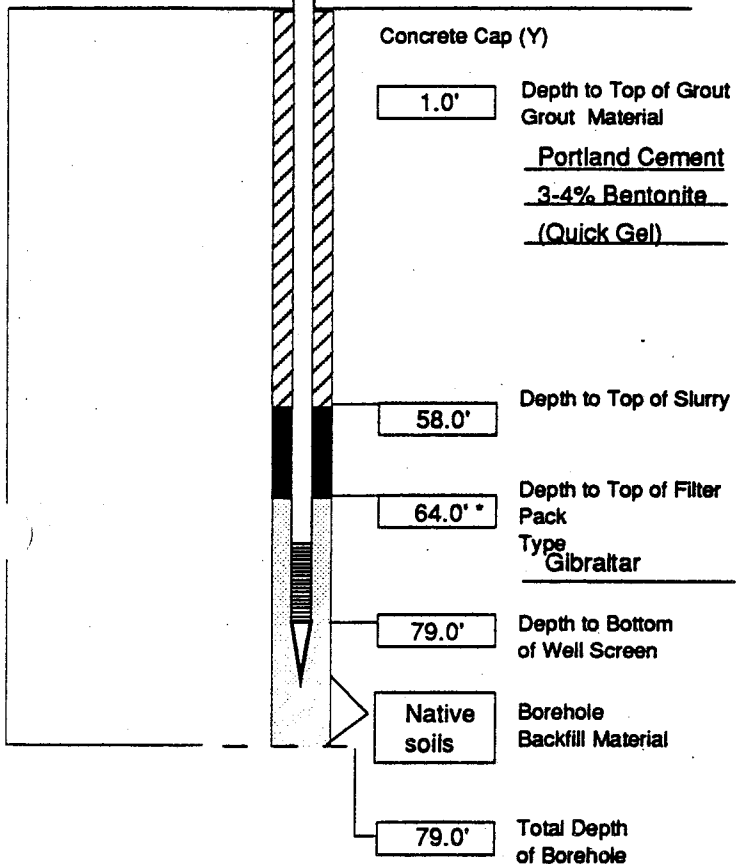
Project No: 20682.01

Log of Well Installation

Well Designation: MW 91-1

Date(s) of Installation: 8/7/91 To: 8/8/91

Generalized Subsurface Profile



Top of Casing Elevation: 100.385

Ground Surface Elevation: 100.65

Water Level Data

Date	Water Level Below TOC
8/30/91	57.46

Development : _____

Survey Reference: TOC @ MW-88-1
Assumed @ 99.73'

Well Casing

Diameter: 4"
Total Length: 68.5
Material: PVC
Cap Type: Locking J-Plug

Well Screen

Diameter: 4"
Length: 10'
Slot/Type: 10 Slot C.W.W.
Material: PVC

Protective Well Casing

Material: Steel Dia. 8"
Height Above Ground: Flush Mount
Lock Type: P-506

General Notes: 64.0' * = Possibly 3 to 4' of silt.

Figure

WW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW 91-2
Client: BOC Lansing
Project No.: 20682.01
Date:
Started: 8/22/91 Finished: 8/23/91

"Drift Well"

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 550 (ATV)
Crew Chief: Bryan Marshall
WW Supervisor: Don Johnson

Drilling Method(s) — **Depth**
6 1/4" ID HSA — 0.0-80.0'

Grouting/Seal
Depth/To — Material/Method
See reverse

Water Level 62.0' Ft. Below Ground

Location

Remarks "Visual" log of soils. No split spoons taken - other than the Bedrock verification.

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts / Sample Depth	N/A 6"	PID/FID 12"	PID/FID 18"	PID/FID 24"	Response	Background
2.5	2.5	CONCRETE							
0.5	3.0	CLAY, gray, silty							
0.5	3.5	SAND, brownish-gray, fine to medium, and some fine gravel							
9.5	13.0	SAND, brown, fine to medium, and some fine gravel, dry							
2.5	15.5	SAND, brown, fine to medium, and occasional fine gravel, dry							
3.5	19.0	CLAY, brown, sandy, soft, and some fine gravel, dry							
0.2	19.2	CONCRETE							
5.8	25.0	CLAY, brown, sandy, and some fine gravel, dry							
5.0	30.0	SAND, brown, very fine to medium, and some silts, dry							
12.0	42.0	SAND, gray, very fine to medium, and some silts, dry							
14.0	56.0	SILT, gray, and some very fine to fine gray sand, wet							
6.0	62.0	CLAY, gray, sandy, soft, moist							
10.0	72.0	SILT, gray, and some fine sands, wet, and some fine gravel							
4.0	76.0	SANDSTONE (weathered), very hard but fractured, wet							
4.0	80.0	SANDSTONE and layers of weathered silty sandstone, dry							

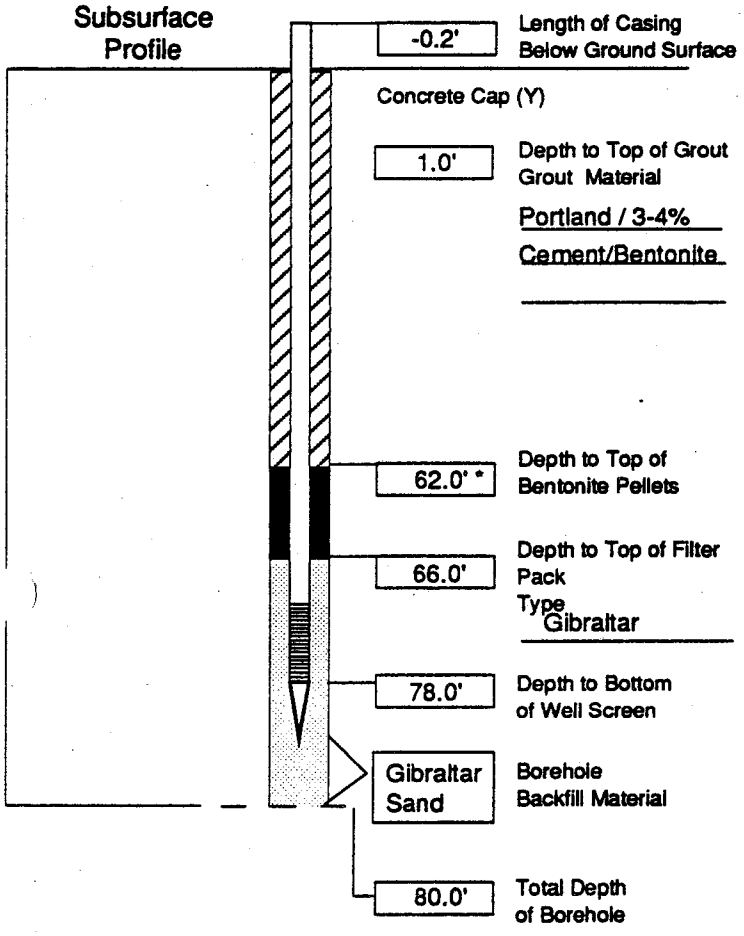
WW Engineering & Science

Project Name: BOC Lansing
Plant 3 Drift Well
Project No: 20682.01

Log of Well Installation

Well Designation: MW 91-2
Date(s) of Installation: 8/22/91 To: 8/23/91

Generalized Subsurface Profile



Top of Casing Elevation: 104.18

Ground Surface Elevation: 104.45

Water Level Data

Date	Water Level Below TOC
8/30/91	63.18'

Development :

Survey Reference: TOC @ MW-88-1
Assumed @ 99.73'

Well Casing
Diameter: 4"
Total Length: 68.0'
Material: PVC
Cap Type: Locking J-Plug

Well Screen
Diameter: 4"
Length: 10'
Slot/Type: 10 Slot C.W.W.
Material: PVC

Protective Well Casing
Material: Steel Dia. 8"
Height Above Ground: Flush Mount manhole
Lock Type: P-506

General Notes: During hole plug installation 1.0-1.5' of heave.

Figure

WW Engineering & Science, Inc.
Environmental Services Division

"Bedrock Well"

Well/Boring Log Sheet

Page: ____
Well/Boring No.: MW 91-3
Client: BOC Lansing
Project No.: 20682.01
Date: 7/22/91 7/24/91
Started: 3:00 pm Finished: 2:40 pm

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 95
Crew Chief: Jim Gryska
WW Supervisor: Don Johnson

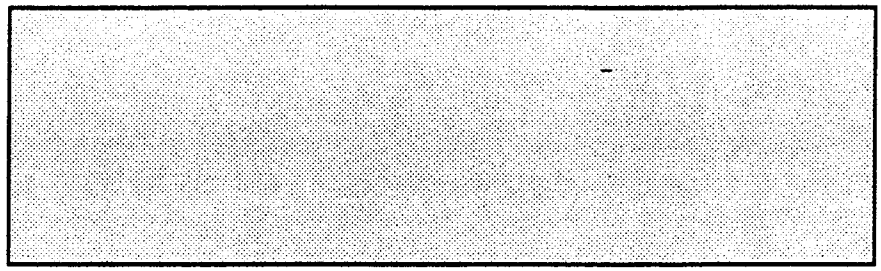
Drilling Method(s) **Depth**
7/22 4 1/4" ID HSA 0.0-104.0'
7/23 H20 Rotary (3 7/8" OD roller bit) 104.0-117.0'

Grouting/Seal

Depth/To	Material/Method
0.0-1.0'	Gravel-mix cement *
1.0-98.0'	Cement/Bentonite Grout
98.0-105.0'	Hole plug
105.0-117.0'	Open hole (Bedrock)

Water Level 50.0' Ft. Below Grade

Location



Remarks *Lithologic descriptions will be "generalized" due to drilling methods (I.E.: No split spooning)*.
*Protective casing 2'+ above grade.

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	N/A 6"	PID/FID N/A 12"	18"	24"	Response	Background
0.4	0.4	GRASSES, topsoil							
1.6	2.0	SAND, brown, fine to coarse, and some fine to medium gravel, dry							
4.0	-	CLAY, brown, sandy, dry, and some fine to medium gravel, dry, and							
-	6.0	trace brown silt							
1.5	7.5	SAND, brown, very fine to medium, and some silts, damp							
4.5	12.0	CLAY, brown, sandy, medium-firm, dry, and some fine gravel							
2.0	14.0	CLAY, gray, sandy, firm, dry, and some fine to medium gravel							
6.0	20.0	SAND, brown, fine to medium, dry, and occasional coarse gravel							
11.0	31.0	CLAY, brown, silty and sandy, crumbles, and some fine gravel							
1.0	32.0	SAND, brown, fine to medium, and some fine to coarse gravel, dry							
18.0	50.0	SAND, gray, fine to coarse, and some fine gravel, dry							
12.0	62.0	SAND, gray, fine to meidum, and trace silts, dry							
6.0	68.0	SAND, gray, very fine to medium, and some silts, moist							
2.0	70.0	SAND, gray, fine to coarse, and some gravel, fine to coarse, wet							
12.0	82.0	SAND, gray, very fine to medium, and trace silts, wet							
15.0	97.0	SAND, gray, very fine to medium, clayey, damp to wet							
11.0	108.0	SANDSTONE, weathered (Bedrock), wet	104.0-104.1'	130					
5.0	113.0	BEDROCK (sandstone), and occasional layers of weathered shale							
	117.0	SHALE, black							
		EOB @ 117.0'							

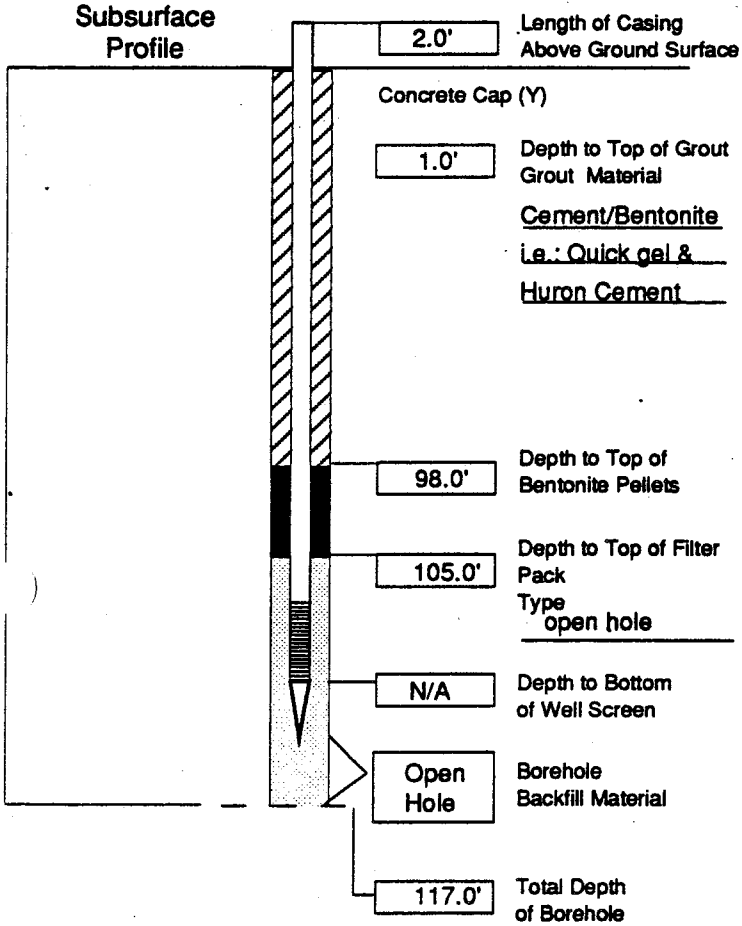
WW Engineering & Science

Project Name: BOC Lansing
Plant #3 - Bedrock well
Project No: 20682.01

Log of Well Installation

Well Designation: MW 91-3
Date(s) of Installation: 7/23/91 To: 7/24/91

Generalized Subsurface Profile



Top of Casing Elevation: 101.62

Ground Surface Elevation: 99.7

Water Level Data

Date	Water Level Below TOC
7/23/91	50.0'
8/30/91	67.20'

Development :

Survey Reference: TOC @ MW-88-1 (Assumed @ 99.73)

Well Casing
Diameter: 2"
Total Length: 107.0'
Material: PVC
Cap Type: PVC standard

Well Screen
Diameter: N/A
Length: 12'
Slot/Type: N/A
Material: Open hole (Bedrock)

Protective Well Casing
Material: Steel Dia. 4"
Height Above Ground: 2.0'
Lock Type: P-506

General Notes: Bedrock well has no screen attached to casing, only K-packers sealing off the drilled-out (over drilled) Bedrock.

* Grouting of well #91-3 started 7/24/91 at 9:00 am - completed 7/24/91 at 1:30 pm.

Figure

WW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW 91-4
Client: BOC Lansing
Project No.: 20682.01
Date: 7/24/91 7/25/91
Started: 3:15 pm Finished: 11:10 am

"Bedrock Well"

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 95
Crew Chief: Jim Gryska
WW Supervisor: Don Johnson

Location

Drilling Method(s)	**Depth**
4 1/4" ID HSA	0.0-114.0'
H20 Rotary (3 7/8" roller bit)	114.0-132.0'

Grouting/Seal Depth/To	Material/Method
0.0-1.0'	*Gravel-mix cement *
1.0-111.0'	Cement/Bentonite Grout
111.0-116.0'	Hole plug (Bentonite)
116.0-132.5'	Open hole (Bedrock)

Remarks *Lithologic descriptions are "generalized" in depths due to drilling methods (I.E.: No split spooning)*.
**9" flush mount manhole with locking "J"-Plug - P-506 lock.

Water Level 60.0'+ Ft. Below Grade

ness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	6"	12"	18"	24"	PID/FID Response	PID/FID Background
				N/A				N/A	
0.4	0.4	GRASSES, sand, brown, fine to medium, and some medium to coarse gravel							
3.1	3.5	CLAY, brown, sandy, and some fine to coarse gravel, dry							
9.0	12.5	CLAY, brown, sandy, and occasional fine to medium, gravel, dry							
5.5	18.0	SAND, brown, fine to medium, and trace brown clay, dry							
2.0	20.0	SAND, brown, very fine to medium, dry							
5.0	25.0	CLAY, brown, sandy, dry, and trace silts							
3.0	28.0	CLAY, brownish-gray, sandy, and some silts, moist							
4.0	32.0	SAND, brown, very fine to medium, and trace silt, dry							
13.0	45.0	SAND, brownish-gray, very fine to medium, dry, and some silts							
15.0	60.0	SAND, reddish-brown, fine to medium, dry							
35.0	95.0	SAND, reddish-brown, fine to coarse, wet, and some fine gravel							
8.0	-	SAND, brown, fine to coarse, and gravel, fine to coarse with occasional pieces							
-	103.0	of coal, wet	109.0-110.5'	29	15	9			
9.0	112.0	GRAVEL, fine to coarse, and sand, brown, fine to coarse, wet							
20.5	132.5	SANDSTONE, weathered (Bedrock), gray							
		EOB @ 132.5'							

WW Engineering & Science

Project Name: BOC Lansing
Plant #3 Bedrock Well
Project No: 20682.01

Log of Well Installation

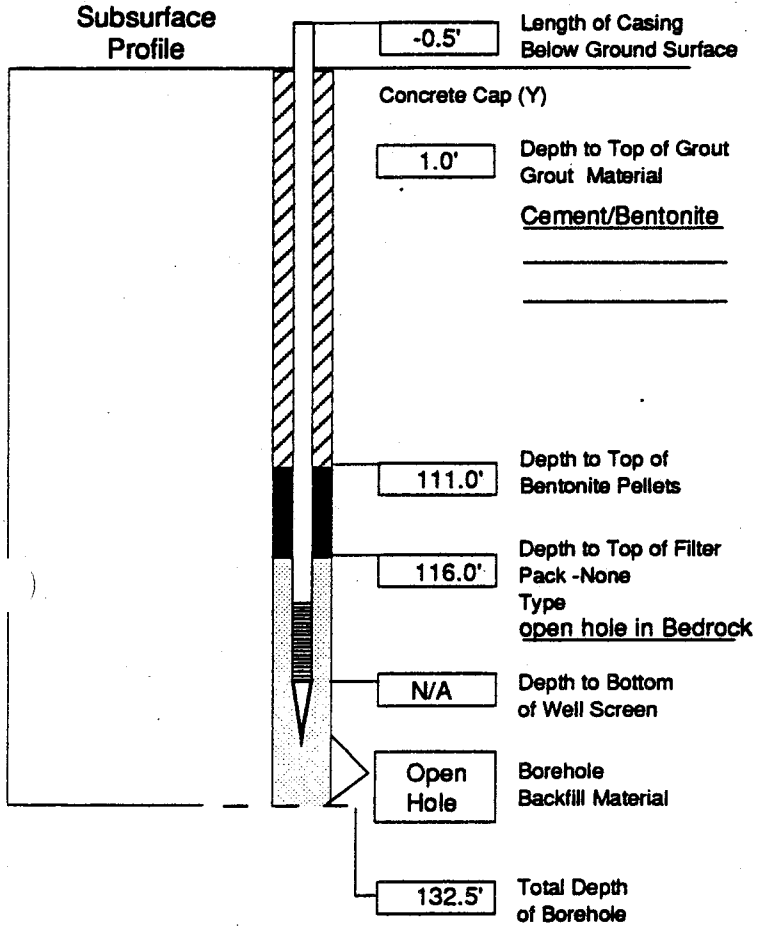
Well Designation: MW 91-4
Date(s) of Installation: 7/25/91 To: 7/25/91

Top of Casing Elevation: 96.45
Ground Surface Elevation: -

Water Level Data

Date	Water Level Below TOC

Generalized Subsurface Profile



Development : _____

Survey Reference: TOC @ MW-88-1
Assumed @ 99.73

Well Casing
Diameter: 2"
Total Length: 116.0'
Material: PVC
Cap Type: J-plug (locking)

Well Screen
Diameter: N/A
Length: N/A
Slot/Type: N/A
Material: N/A

Protective Well Casing
Material: Steel Dia. 9"
Height Above Ground: Flush mount
Lock Type: N/A

General Notes: No well screen used. K-packers attached to the bottom of the PVC casing at 116.0' depth - open hole in Bedrock is serving as screened area. Had to put hole plug inside the augers at a very slow rate as not to have it "Bridge". (2 bags hole plug)

45 bags of cement used to grout this well - 1 bag quick-gel.

This well was partially reconstructed on 9/11/91. An outer 6" diameter schedule 80 PVC casing was set from about 2' to 15' below ground. The original 2' diameter schedule 40 PVC casing was replaced with scheddule 80 PVC from 14' to ground surface.

Figure

WW Engineering & Science, Inc.
Environmental Services Division

"Bedrock Well"

Well/Boring Log Sheet

Page: ___ of ___
Well/Boring No.: MW 91-5
Client: BOC Lansing
Project No.: 20682.01
Date: 7/30/91 7/31/91
Started: 8:30 am Finished: 3:30 pm

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

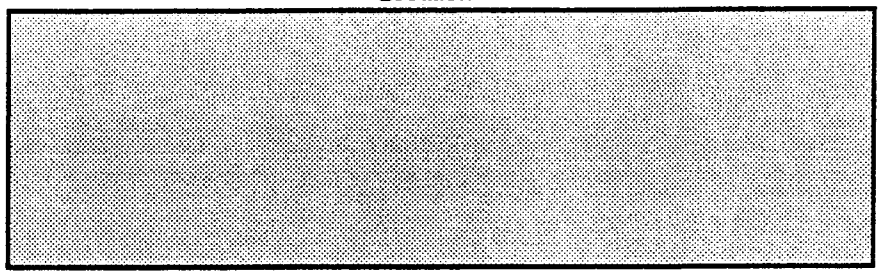
Contractor Steams Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 75
Crew Chief: Mike Hefferan
WW Supervisor: Don Johnson

Drilling Method(s)	Depth
4 1/4" ID HSA	0.0-108.5'
H20 Rotary *	108.5-128.0'

Grouting/Seal Depth/To	Material/Method
0.0-1.0'	*Gravel-mix cement *
1.0-85.0'	Cement/Bentonite Grout
85.0-107.0'	Natural soils/cave-in
107.0-112.5'	Hole plug
112.5-128.0'	Open hole (Bedrock)

Water Level ~80.0' Ft. Below Grade

Location



Remarks *No drilling mud used - H20 only -
** 9" flush mount cap with locking J-plug (P-506 Lock)
Augers got stuck while attempting to pull back 2 augers and when finally broke free, dec ided to pull one extra auger (as they were still turning very hard). Thus causing cave-in above Bentonite seal.

ness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"	PID/FID Response	Background
0.3	0.3	GRASSES, topsoil							
5.2	5.5	SAND, brown, fine to coarse, and some fine to medium gravel							
3.0	8.5	CLAY, brown, sandy, medium firm, dry, and occasional fine gravel							
4.5	13.0	CLAY, brownish-gray, sandy and gravelly, medium firm, dry							
13.0	26.0	CLAY, gray, sandy, medium firm, dry, and some fine gravel							
3.0	29.0	SAND, brown, fine to medium, and some fine gravel, dry							
4.0	33.0	SAND, brown, very fine to medium, and occasional coarse sands, dry							
7.0	40.0	SAND, brownish-gray, fine to medium, and some fine to medium gravel							
3.0	43.0	SAND, light brown, very fine to medium, dry with trace silts							
9.0	-	SAND, gray, very fine to medium, and some coarse sands, and trace gray silts,							
-	52.0	dry							
18.0	70.0	SAND, gray, very fine to silty, damp to wet							
37.0	107.0	SILT, gray, and some very fine to fine gray sands, wet	108.5-108.7'	100 for 2"					
21.0	128.0	BEDROCK, weathered sandstone, very hard							
		EOB @ 128.0'							

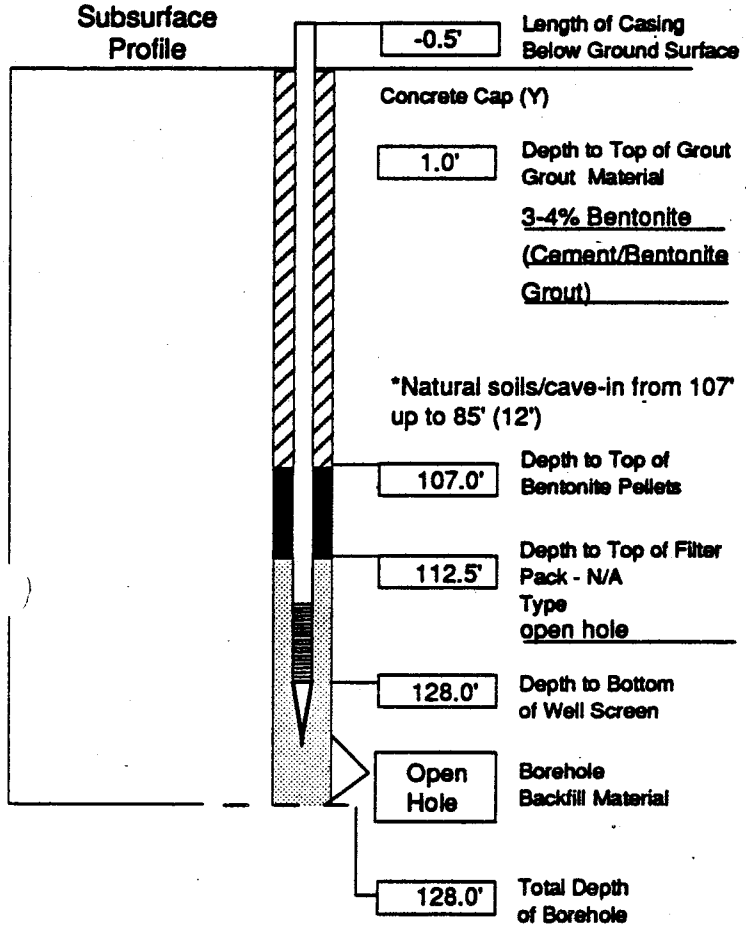
WW Engineering & Science

Project Name: BOC Lansing
Plant #3 Bedrock Well
Project No: 20682.01

Log of Well Installation

Well Designation: MW 91-5
Date(s) of Installation: 7/30/91 To: 7/31/91

Generalized Subsurface Profile



Top of Casing Elevation: 101.37

Ground Surface Elevation: 102.03

Water Level Data

Date	Water Level Below TOC
8/30/91	63.03'

Development :

Survey Reference: TOC @ MW-88-1 (Assumed @ 99.73)

Well Casing
Diameter: 2"
Total Length: 112.5'*
Material: PVC
Cap Type: J-plug (locking)

Well Screen
Diameter: N/A ** (3 7/8" openhole)
Length: N/A
Slot/Type: N/A
Material: N/A (openhole)

Protective Well Casing
Material: Steel Dia. 9"
Height Above Ground: Flush mount manhole
Lock Type: P-506 (J-Plug)

General Notes: *112.5' total casing with K-Packers
**Open hole in Bedrock served as screened area

Figure

MW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: MW 91-6
Client: BOC Lansing
Project No.: 20682.01
Date: 7/31/91 8/2/91
Started: 4:40 pm Finished:

"Bedrock Well"

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

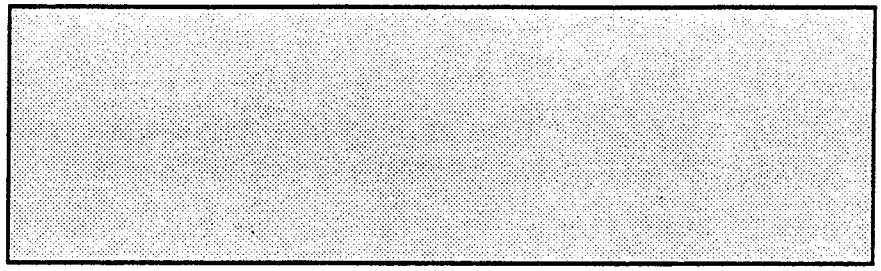
Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 75
Crew Chief: Mike Hefferan
WW Supervisor: Don Johnson

Drilling Method(s)	Depth
4 1/4" ID HSA	0.0-78.0'
H20 Rotary 3 7/8" Roller Bit	78.0-98.0'

Grouting/Seal Depth/To	Material/Method
0.0-1.0'	Gravel-mix cement**
1.0-77.0'	Cement/Bentonite Grout
77.0-82.0'	Hole plug
82.0-98.50'	Open hole (Bedrock)

Water Level _____ Ft. Below _____

Location



Remarks * Shale lencountered left a slight sheen on water in the mud tub.
** 9" flush mount manhole.

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"	PID/FID Response	Background
0.5	0.5	ASPHALT							
1.5	2.0	SAND, dark gray, and gravel, medium to coarse with some large stones							
2.0	4.0	GRAVEL, coarse, and some sand, dark gray, medium to coarse, dry							
3.5	7.5	SAND, black, medium to coarse, and occasional pieces of wood							
4.5	12.0	PEAT, black, soft							
9.0	21.0	CLAY, gray, sandy, and some fine gravel, soft, dry							
2.5	23.5	SAND, very fine to medium, and traces of silt and very soft clay, wet							
9.0	32.5	SAND, gray, sandy, and some fine gravel, moist, soft							
13.5	46.0	SAND, gray, very fine to fine, and some gray silt, dry							
17.0	63.0	SAND, brownish-gray, very fine to medium, and trace silts, dry							
10.0	73.0	GRAVEL, fine to coarse, and sand, fine to coarse, and some silts, wet							
4.0	77.0	SANDSTONE, weathered (Bedrock) *							
13.0	90.0	SANDSTONE - Bedrock	78.5-79.0	100 for 4"					
8.0	98.0	BEDROCK and layers of shale (weathered)*							
		EOB @ 98.0'							

WW Engineering & Science

Project Name: BOC Lansing Plant #3 Bedrock Well

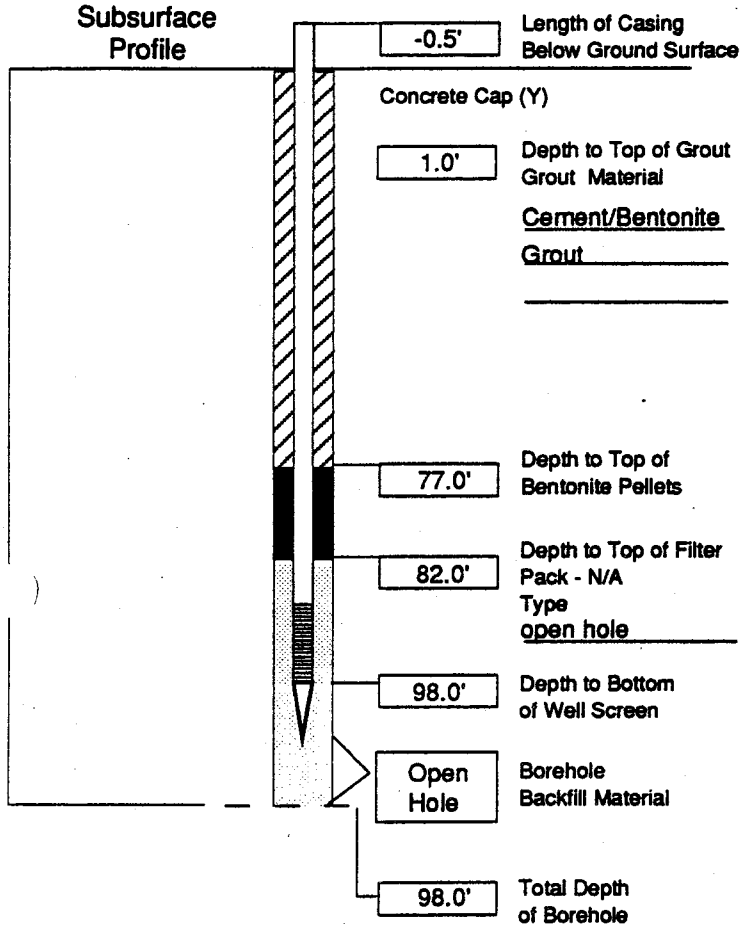
Project No: 20682.01

Log of Well Installation

Well Designation: MW 91-6

Date(s) of Installation: 8/1/91 To: 8/1/91

Generalized Subsurface Profile



Top of Casing Elevation: 92.52

Ground Surface Elevation: 92.89

Water Level Data

Date	Water Level Below TOC
8/30/91	59.81'

Development :

Survey Reference: TOC @ MW-88-1 (Assumed @ 99.73)

Well Casing

Diameter: 2"
Total Length: 82.0' *
Material: PVC
Cap Type: J-plug (locking)

Well Screen

Diameter: N/A **
Length: 16.0'
Slot/Type: N/A (open hole)
Material: J-plug (Bedrock)

Protective Well Casing

Material: Steel Dia. 9"
Height Above Ground: Flush mount manhole
Lock Type: P-506 (J-Plug)

General Notes:

* 82.0' total casing with K-packers

** Open hole in bedrock serves as screen area

Figure

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. **MW-93-1**

PROJECT: GM-Lansing, Plating Area, Plant 3	SHEET NO. 1 OF 2
CLIENT: GM-LAD	JOB NO. : 0535349.30
BORING CONTRACTOR: Geo Tek, Inc.	GROUND ELEVATION 863.65
GROUND WATER:	DATE STARTED: 10/15/93
DATE TIME LEV TYPE	DATE FINISHED: 10/18/93
	DRILLER: Peter Buell
	GEOLOGIST: Kovacs/Frazier (URS)
	REVIEWED BY:

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	SS	CME	
DIA.	4-1/4"	2"	3.5"	
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1										topsoil
		S-1	CME		100	light brown		CLAYEY SILT/SILTY CLAY, trace Sand and Gravel	ML/CL	moist
5						brown				wet
		S-2	CME		100					
10										
		S-3	CME		100			SILTY SAND, trace Clay and Gravel	SM	
15										
		S-4	CME		100	gray		SILTY CLAY, trace Gravel	CL	
20										
		S-5	CME		100					
25						brown		SANDY SILT, trace Gravel and Clay	ML	moist
		S-6	CME		80					
30						gray & brown		alternating 2-12" layers of Clay, Silt and Sand	CL/ ML/ SM/SP	
		S-7	CME		100					
35										
		S-8	CME		100					
38										

COMMENTS Boring advanced with CME-750 drill rig and 4-1/4"I.D. hollow stem auger. 5 ft. continuous tube sampling 0-40 ft., standard split spoon sampling 40-77ft.

PROJECT NO. 0535349.30
BORING NO. MW-93-1

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. **MW-93-1**

PROJECT: GM-Lansing, Plating Area, Plant 3
SHEET NO. 2 OF 2
CLIENT: GM-LAD
JOB NO. : 0535349.30

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-8	CME			100			alternating 2-12" layers of Clay,	CL/	moist
40									Silt and Sand	ML/	
										SM/SP	
45											
		S-9	SS	7	15	75	gray				
				19	22						
50											
		S-10	SS	6	8	75					
				16	20						
55											
		S-11	SS	15	16	100			SANDY SILT/SILTY SAND		dry
				32	22						
60											
		S-12	SS	5	10	75					wet
				12	15						
65											
		S-13	SS	4	8	100					dry
				12	19						
70											
		S-14	SS	5	9	100					wet
				13	15						
75											
		S-15	SS	5	9	60					
				14	12						
80											

COMMENTS 2 inch PVC monitoring well installed in borehole. Screen interval 65-75 ft.

PROJECT NO. 0535349.30
BORING NO. MW-93-1

DRILLING SUMMARY

Geologist:
Michael Kovacs

Drilling Contractor:
Geo Tek

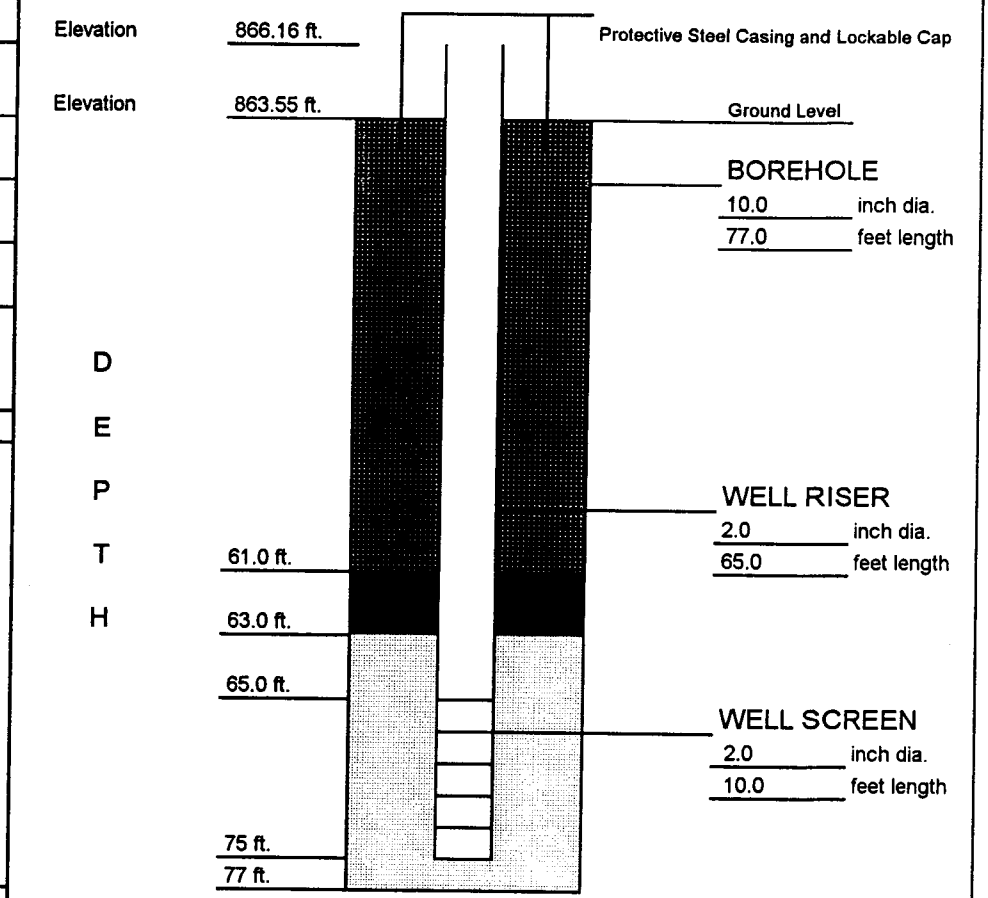
Driller:
Gary Qualls/Pete Buell

Date:
10/18/93

GEOLOGIC LOG

depth(ft.)	lithology
0 - 1'	Topsoil
1' - 25'	Silty Clay
25'-32'	Fine Sand
32'-77'	Silty Sand and Silt

WELL DESIGN



CASING MATERIAL

Surface: Steel Pipe

Monitor: Schedule 40 PVC

SCREEN MATERIAL

Type: Schedule 40 PVC

Slot Size: .010 inch

SEAL MATERIAL

Seal Type #1: Bentonite Slurry
Setting:

Seal Type #2: None
Setting:

FILTER MATERIAL

Type: #5 Sand

Setting: 63.0'-77.0'

ROCK CORING

Cored Interval: None

Core Diameter: None

Reamed Diameter: None

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: General Motors Corp.	Project: GM Lansing - Plant 3	Project No.: 0535349.30
URS Consultants, Inc.	Monitoring Well Construction Details	Well Number: MW-93-1

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-93-2

PROJECT: GM-Lansing, Plating Area, Plant 3
CLIENT: GM-LAD
BORING CONTRACTOR: Geo Tek, Inc.
SHEET NO. 1 OF 2
JOB NO. : 0535349.30
GROUND ELEVATION 863.99
DATE STARTED: 10/30/93
DATE FINISHED: 10/30/93
DRILLER: Gary Qualls
GEOLOGIST: Mike Kovacs (EMI)
REVIEWED BY:

GROUND WATER:					CAS.	SAMP.	CORE	TUBE
DATE	TIME	LEV	TYPE	TYPE	HSA	SS	CME	
				DIA.	4-1/4"	2"	3.5"	
				WT.		140#		
				FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1		S-1	CME			light brown brown		Concrete SANDY SILT. trace Clay, trace Gravel	ML	moist
5		S-2	CME		20	gray		SANDY SILT, some Gravel	ML	
10		S-3	CME		100			SANDY SILT, trace Gravel, trace Clay . . . interbedded Sand lenses	ML	
15		S-4	CME		100			SILTY CLAY, little fine Sand, trace Gravel	CL	
20		S-5	CME		100			. . . grade to SANDY CLAY		
25		S-6	CME		80			SILTY SAND	SM	
30		S-7	CME		80			SANDY SILT, some Clay, trace Gravel . . . lens medium SAND	ML	wet
35		S-8	CME		90			alternating layers of SAND, SILTY SAND and SANDY SILT	CL/ ML/ SM/SP	dry
38										

COMMENTS Boring advanced with CME-750 drill rig and 4-1/4"I.D. hollow stem auger. 5 ft. continuous tube sampling 0-40 ft., standard split spoon sampling 40-77ft.

PROJECT NO. 0535349.30
BORING NO. MW-93-1

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. **MW-93-2**

PROJECT: GM-Lansing, Plating Area, Plant 3
CLIENT: GM-LAD

SHEET NO. 2 OF 2
JOB NO. : 0535349.30

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-8	CME								
40									alternating layers of SAND, SILTY SAND and SANDY SILT		
45		S-9	SS	9	15	75	gray				
				17	18						
50		S-10	SS	5	8	75					moist
				10	10						
55		S-11	SS	11	17	90					
				19	20						
60		S-12	SS	10	13	90					
				13	25						
65		S-13	SS	6	8	100					
				12	20						
70		S-14	SS	4	6	100			. . . lens SILTY CLAY		
				7	10						
75		S-15	SS	6	4	100					
				7	11						
80											

COMMENTS 2 inch PVC monitoring well installed in borehole. Screen interval 65-75 ft.

PROJECT NO. 0535349.30
BORING NO. MW-93-1

DRILLING SUMMARY

Geologist: Michael Kovacs

Drilling Contractor: Geo Tek

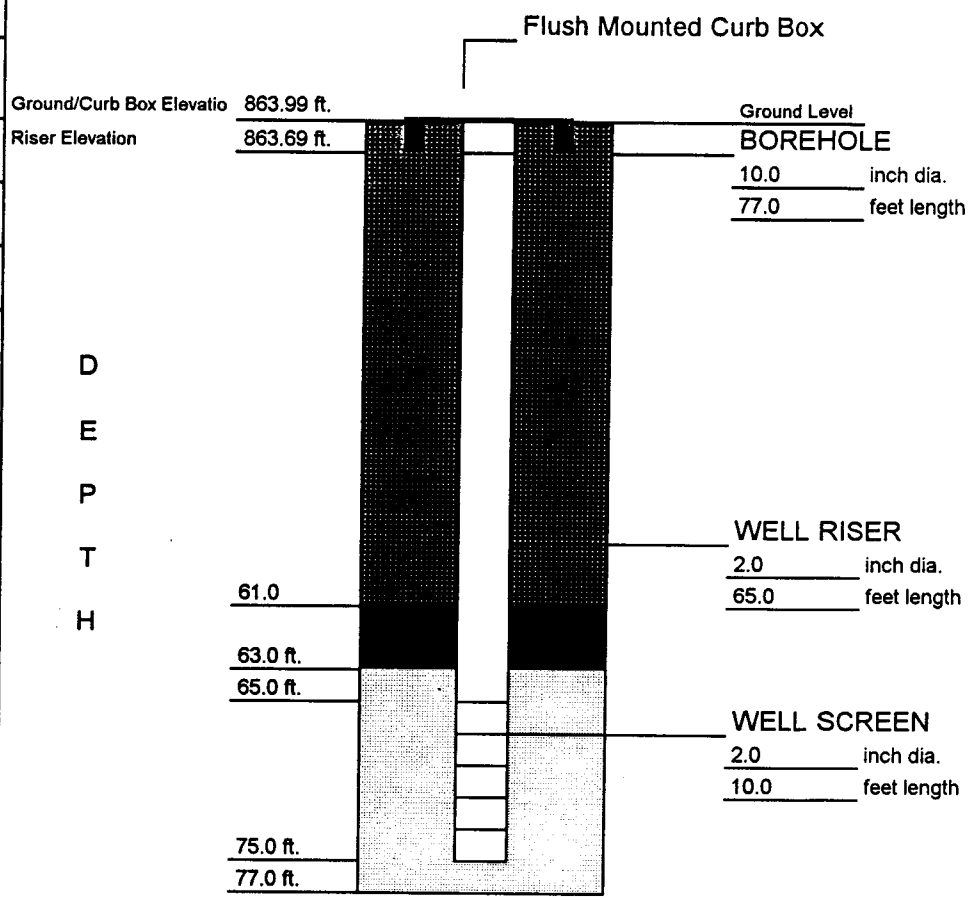
Driller: Gary Qualls

Date: 10/31/93

GEOLOGIC LOG

depth(ft.)	lithology
0'-1'	Concrete
1'-14'	Sandy Silt
14'-19'	Silty Clay
19'-77'	Silty Sand and Silt

WELL DESIGN



CASING MATERIAL

Surface: Steel Flush Mount

Monitor: Schedule 40 PVC

SCREEN MATERIAL

Type: Schedule 40 PVC

Slot Size: 0.01 inch

SEAL MATERIAL

Seal Type #1: Bentonite Slurry

Seal Type #2: None

Setting:

FILTER MATERIAL

Type: #5 Sand

Setting: 63.0-77.0 ft.

ROCK CORING

Cored Interval: None

Core Diameter: None

Reamed Diameter: None

LEGEND

Cement/Bentonite Grout

Bentonite Seal

Silica Sandpack

Client: General Motors Corp.	Project: GM Lansing -Plant 3	Project No.: 0535349.30
URS Consultants, Inc.	Monitoring Well Construction Details	Well Number: MW-93-2

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. **MW-93-3**

PROJECT: GM-Lansing, Plating Area
CLIENT: GM-LAD
BORING CONTRACTOR: Geo Tek, Inc.
SHEET NO. 1 OF 2
JOB NO. : 0535349.30
GROUND ELEVATION 864.02
DATE STARTED: 10/31/93
DATE FINISHED: 10/31/93
DRILLER: Gary Qualls
GEOLOGIST: Mike Kovacs (EMI)
REVIEWED BY:

GROUND WATER:					CAS.	SAMP.	CORE	TUBE
DATE	TIME	LEV	TYPE	TYPE	HSA	SS	CME	
				DIA.	4-1/4"	2"	3.5"	
				WT.		140#		
				FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								Concrete		
		S-1	CME		80	brown to gray		SANDY SILT. trace Clay, trace Gravel . . . lens SANDY CLAY	Fill	most to dry
5		S-2	CME		100					dry
10		S-3	CME		80			CLAY, little fine Sand, trace Gravel		moist, petroleum odor no petroleum odor
15		S-4	CME		100					dry
20		S-5	CME		80					
25		S-6	CME		60			alternating layers of SAND, SILTY SAND and CLAYEY SILT		very moist dry
30		S-7	CME		80					
35		S-8	CME		100					moist
38										

COMMENTS Boring advanced with CME-750 drill rig and 4-1/4"I.D. hollow stem auger. 5 ft. continuous tube sampling 0-40 ft., standard split spoon sampling 40-77ft.

PROJECT NO. 0535349.30
BORING NO. MW-93-3

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. **MW-93-3**

PROJECT: GM-Lansing, Plating Area, Plant 3
SHEET NO. 2 OF 2
CLIENT: GM-LAD
JOB NO. : 0535349.30

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-8	CME			100					moist
40											
											dry
									alternating layers of SAND,		
									SILTY SAND and CLAYEY SILT		
45											
		S-9	SS	5	15	75	gray				wet
				24	28						moist
50											
		S-10	SS	7	10	100					
				15	18						
55											
		S-11	SS	10	17	100					
				22	17						
60											
		S-12	SS	9	23	75					dry
				36	25						
65											
		S-13	SS	13	18	100					very wet
				25	21						
70											
		S-14	SS	10	14	100			. . . lens CLAY, little fine Sand		
				16	22						
75											
		S-15	SS	9	16	75					
				16	24						
80											

COMMENTS 2 inch PVC monitoring well installed in borehole. Screen interval 65-75 ft.

PROJECT NO. 0535349.30
BORING NO. MW-93-3

DRILLING SUMMARY

Geologist: Michael Kovacs

Drilling Contractor: Geo Tek

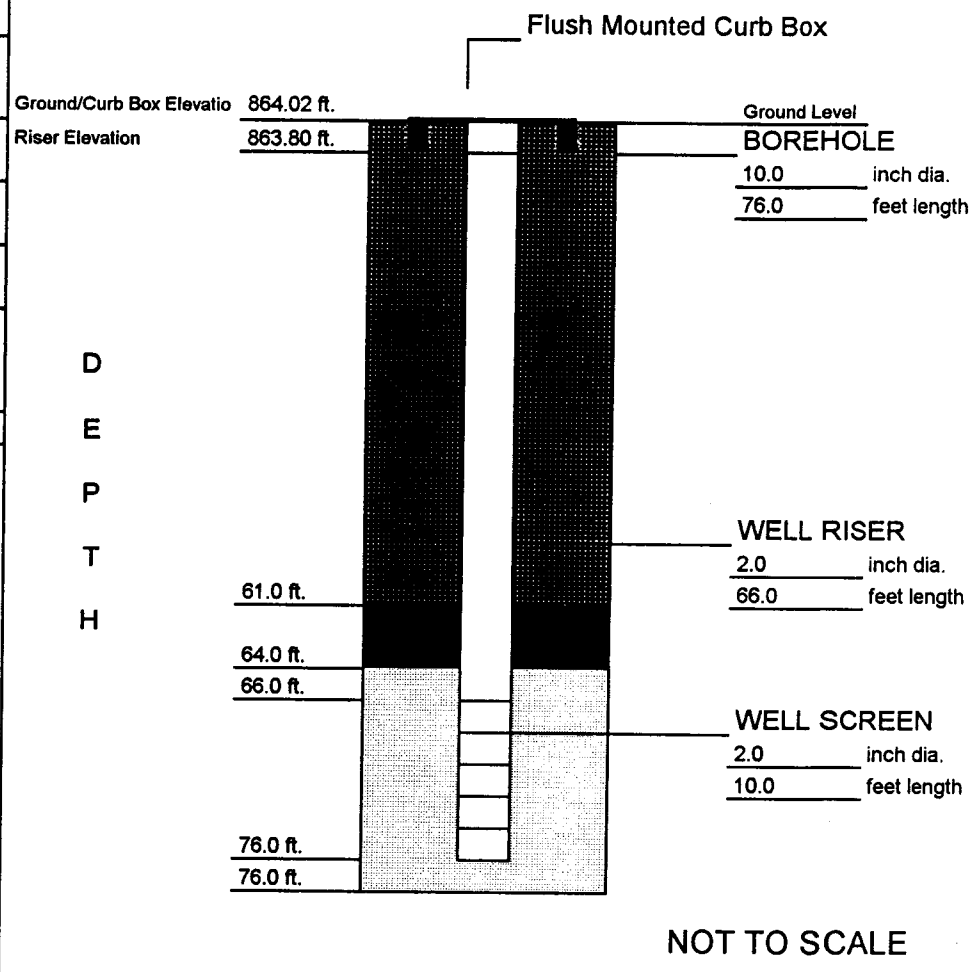
Driller: Gary Qualls

Date: 10/31/93

GEOLOGIC LOG

depth(ft.)	lithology
0'-1'	Concrete
1'-14'	Sandy Silt
14'-19'	Silty Clay
19'-76'	Silty Sand and Silt

WELL DESIGN



CASING MATERIAL

Surface: Steel Flush Mount

Monitor: Schedule 40 PVC

SCREEN MATERIAL

Type: Schedule 40 PVC

Slot Size: 0.01 inch

SEAL MATERIAL

Seal Type #1: Bentonite Pellets
Setting:

Seal Type #2: None
Setting:

FILTER MATERIAL

Type: #5 Sand

Setting: 64.0-76.0 ft.

ROCK CORING

Cored Interval: None

Core Diameter: None

Reamed Diameter: None

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: General Motors Corp.	Project: GM Lansing -Plant 3	Project No.: 0535349.30
URS Consultants, Inc.	Monitoring Well Construction Details	Well Number: MW-93-3

Date Start/Finish: 10/21/02 - 10/22/02
Drilling Company: Toltest
Driller's Name: Jay Leonard
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 4.25"
Rig Type: CME-75
Sampling Method: 2' Split Spoon

Northing: 5799.51
Easting: 3868.12
Casing Elevation: 865.71

Borehole Depth: 70' below grade
Surface Elevation: 863.47

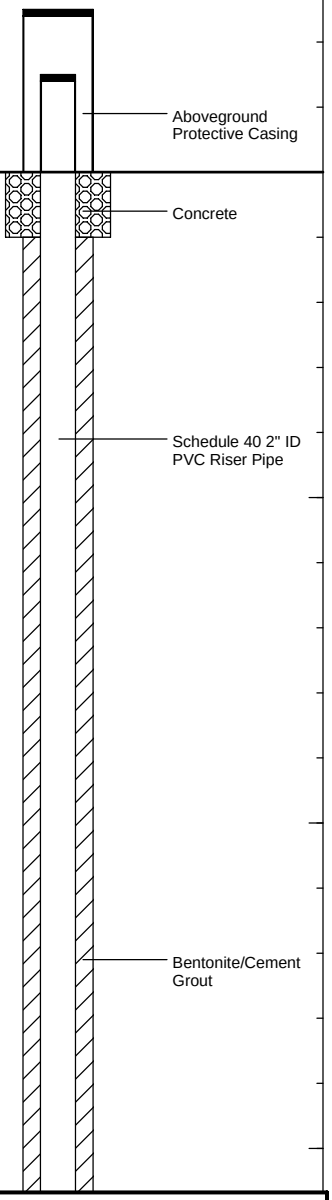
Geologist: J. Kralik

Well/Boring ID: MW02-01

Client: General Motors Corporation

Location: Lansing Plant #3
Lansing, Michigan

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy
	865										
0		1	SS	1.5			0			Medium brown TOPSOIL, some sand and fine gravel, some light brownish gray (5 YR 6/1) fine sand and silt, trace cobble, medium dense.	Topsoil
	860	2	SS	1.0			0			Moderate yellow-brown (10 YR 5/4) SANDY SILTY CLAY (CL), fine to medium sand, trace silt and coarse sand, trace to little fine gravel, damp, very stiff/medium dense.	Sandy Silty Clay
5		3	SS	2.0			0			Little coarse sand and fine gravel, trace silt, damp, stiff/medium dense.	
		4	SS	2.0			0			Little coarse sand and fine gravel, trace to little silt, damp, hard/dense.	
	855	5	SS	2.0			0			Pale brown (5 YR 5/2) SANDY SILTY CLAY (CL), fine to medium sand, trace to little fine subangular to subrounded gravel, little silt, damp, very stiff/medium dense.	
10		6	SS	2.0			0			Brownish gray (5 YR 4/1) SANDY SILT (ML), fine to medium sand, trace clay and fine gravel/coarse sand, damp, medium dense.	Sandy Silt
		7	SS	2.0			0			Moderate brown (5 YR 4/4) SANDY SILT (ML), fine to medium sand, little fine to medium gravel, little clay, damp, medium dense. Rusty brown and orange medium to coarse sand at 13.2' bgs.	
	850										
15		8	SS	2.0			0				



ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-01

Borehole Depth: 70' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									Grayish orange (10 YR 7/4) SAND (SP), fine to medium grained, damp, medium dense.	Sand	
	9	SS	1.0			0			Moderate yellow-brown (10 YR 5/4) SILT (MH), trace fine to medium sand, damp, very dense, laminar bedding present.	Silt	
845	10	SS	1.5			0			Slight orange tint present, very dense.		
20	11	SS	2.0			0			Layer of sandy silt at 21.5-21.7' bgs, medium dense. Moist. Moist to wet.		
840	12	SS	2.0			0			Brownish gray (5 YR 4/1) GRAVELLY CLAY (GC), fine to medium rounded to subrounded gravel, some fine to medium sand and silt, moist to wet, hard.	Gravelly Clay	Schedule 40 2" ID PVC Riser Pipe
25	13	SS	5"			0			Brownish gray (5 YR 4/1) GRAVELLY CLAY (GC) AND SILT (MH), moist to wet, auger refusal at 23.8' bgs due to glacial cobble. Offset directly south off first attempt and redrill.		
	14	SS	2.0			0			Medium gray (N50) SANDY SILT (ML), fine to medium sand, some coarse sand, trace fine gravel, damp to moist, loose, medium brown sandy soil horizon at 26.5' bgs, fine to coarse grained, plant debris present, damp.	Sandy Silt	
835	15	SS	2.0			0			Light gray (N70) SAND (SP), very fine to fine grained, trace silt, damp, medium dense.	Sand	Bentonite/Cement Grout
30	16	SS	2.0			0			Dense.		
	17	SS	2.0			0			Light brownish gray (5 YR 6/1) SANDY SILT (ML), fine to medium sand, damp, loose.	Sandy Silt	
830									Light brown (5 YR 5/6) SILT (MH), trace clay, damp, loose, plant debris present.		
									Light brownish gray (5 YR 6/1) SANDY SILT (ML), fine to medium sand, damp, loose.		
									Brownish gray (5 YR 4/1) SILT (MH), moist to wet, medium dense.	Silt	
35	18	SS	2.0			0			Light brown (5 YR 5/6) SILT (MH), damp.		
									Brownish gray (5 YR 4/1) SILT (MH), moist to wet, medium dense.		

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-01

Borehole Depth: 70' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									Brownish gray (5 YR 4/1) SILT (MH), moist to wet, medium dense.		
	19	SS	2.0			0			Light gray (N70) SAND (SP), very fine to fine grained, trace silt, damp, dense. Wet brownish gray silt from 38 to 38.25' bgs.		
825	20	SS	2.0			0					
40	21	SS	2.0			0			Dense.		Bentonite/Cement Grout
	22	SS	2.0			0			Very dense.	Sand	
820	23	SS	2.0			0					Schedule 40 2" ID PVC Riser Pipe
45	24	SS	2.0			0					
815	25	SS	2.0			0			Brownish gray (5 YR 4/1) SILT (MH), moist to wet, medium dense.	Silt	
50	26	SS	2.0			0			Brownish gray (5 YR 4/1) SAND (SP), very fine to fine grained, some clay, little silt, damp to moist, medium dense. Sandstone fragment at 50.5' bgs, becomes fine to medium grained at 50.5' bgs, medium dense.		
810	27	SS	2.0			0			Fine to medium grained, little coarse sand, trace fine gravel, dense, becoming wet.		
55									Some coarse sand, little fine gravel, trace medium gravel, subrounded to subangular sandstone and coal fragments present.		

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-01

Borehole Depth: 70' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	28	SS	2.0			0					Bentonite Chip (Hydrated)
	29	SS	2.0			0			Brownish gray (5 YR 4/1) SAND (SW), fine to medium grained, some silt, little coarse sand and fine subrounded gravel, trace sandstone fragments, very dense, moist to wet.		Bentonite Chip (Hydrated)
805	30	SS	2.0			0			Brownish gray (5 YR 4/1) SAND (SW), fine to medium grained, some fine subangular to subrounded gravel, little coarse sand and silt, moist to wet, very dense.	Sand	Schedule 40 2" ID PVC Riser Pipe
60	31	SS	2.0			0			Moist to wet.		Filter Sand
	32	SS	2.0			0			Moist to wet.		
800	33	SS	2.0			0			Wet to saturated.		
65	34	SS	2.0			0			Shale fragments in tip.		0.010" Machine Slotted 2" ID Schedule 40 Well Screen
795	35	SS	2.0			0			Brownish gray (5 YR 4/1) to medium dark gray (N40) CLAY (CL), trace to little fine to medium sand, shale fragments present, damp.		
70									Medium dark gray SHALE (weathered), damp.	Shale	
790											

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Date Start/Finish: 10/23/02 - 10/24/02
Drilling Company: Toltest
Driller's Name: Jay Leonard
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 4.25"
Rig Type: CME-75
Sampling Method: 2' Split Spoon

Northing: 6676.89
Easting: 3006.62
Casing Elevation: 863.04

Borehole Depth: 86' below grade
Surface Elevation: 863.39

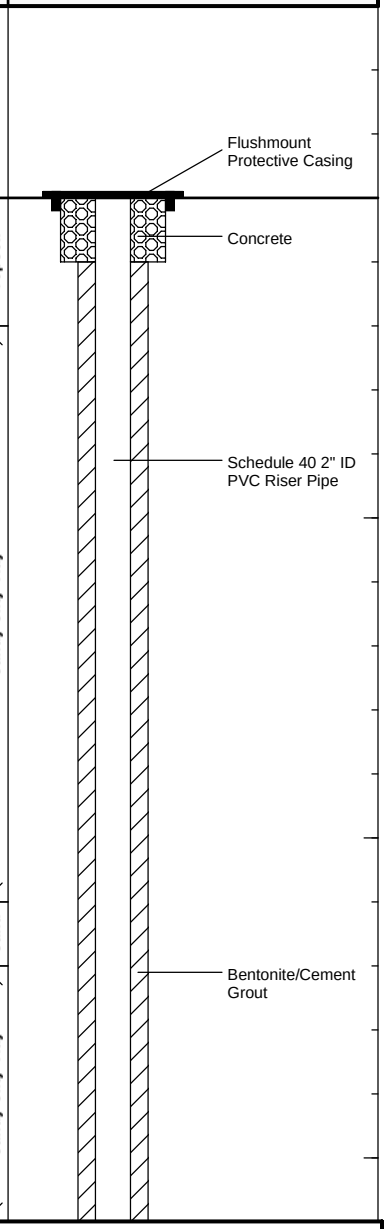
Geologist: J. Kralik

Well/Boring ID: MW02-02

Client: General Motors Corporation

Location: Lansing Plant #3
Lansing, Michigan

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy
865 / 0	1	SS	2.0			0			Medium brown TOPSOIL, some light brownish gray (5 YR 6/1) silt, sand and fine gravel, plant debris present, damp, medium dense.	Topsoil
860 / 5	2	SS	2.0			0			Moderate brown (10 YR 4/4) SANDY SILTY CLAY (CL), fine to medium sand, trace coarse sand and fine gravel, stiff to very stiff.	Sandy Silty Clay
	3	SS	1.5			0			Moderate brown (5 YR 4/4) and grayish brown (5 YR 4/4) SANDY SILTY CLAY (CL), little coarse sand and fine gravel, very thin layers (<0.5") of medium sand present, stiff.	
	4	SS	1.5			0			Moderate yellow-brown (10 YR 5/4) SANDY SILTY CLAY (CL), fine to medium sand, trace fine subangular to subrounded gravel, damp, stiff.	
855 / 10	5	SS	1.5			0				
	6	SS	2.0			0			Moderate yellow-brown (10 YR 5/4) SAND (SP), fine grained, little medium sand, trace fine gravel and silt, medium dense.	Sand
850 / 15	7	SS	0.5			0			Moderate yellow-brown (10 YR 5/4) SANDY SILTY CLAY (CL), fine to medium sand, trace fine subangular to subrounded gravel, damp, medium dense. 1" medium brown sandy soil horizon with plant debris, damp, at 12' bgs.	Sandy Silty Clay
	8	SS	2.0			0			Grades into pale yellow brown (10 YR 6/2), trace coarse sand and fine gravel, damp, very stiff.	



ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-02

Borehole Depth: 86' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	9	SS	1.5			0			Brownish gray (5 YR 4/1) SILTY CLAY (CL), trace coarse sand and fine subangular to subrounded gravel, damp, very stiff, medium plasticity.	Silty Clay	
845	10	SS	2.0			0					
20	11	SS	2.0			0			Thin layer (<1") of very fine light gray sand at 21.5' bgs.		
	12	SS	2.0			0			Thin layer (<1") of very fine light gray sand at 22.5' bgs. Moist at 23-23.5' bgs.		
840									Moderate yellowish brown (10 YR 5/4) SANDY SILT (ML), fine to medium sand, little coarse sand and fine gravel, trace clay, damp, stiff, distinct contact with overlying silty clay, vertical fracturing with rusty brown-orange staining. Trace fine rounded gravel.	Sandy Sil	Schedule 40 2" ID PVC Riser Pipe
25	13	SS	2.0			0			Grayish orange (10 YR 7/4) SAND (SAND), fine to medium grained, damp, medium dense.	Sand	
	14	SS	1.75			0					
835	15	SS	2.0			0					Bentonite/Cement Grout
30									Becomes more gray, slightly silty at 29.5' bgs.		
	16	SS	2.0			0			Brownish gray (5 YR 4/1) SILT (MH), trace very fine to fine sand, damp.	Silt	
									Light brown (5 YR 5/6) SAND (SP), fine to medium grained, trace silt, damp, overall thin layers (<1") of red (10 R 4/8) sand present. Becoming light gray at depth.	Sand	
	17	SS	2.0			0			Brownish gray SILT (MH), damp, trace fine sand.	Sandy Silt	
830									Light gray (N70) SAND (SP), fine to medium grained, damp, thin bedding present.		
									Brownish gray (5 YR 4/1) SILT (MH), damp, trace fine sand and fine gravel, little clay.	Silt	
35	18	SS	2.0			0			Brownish gray (5 YR 4/1) SILT, damp.		

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-02

Borehole Depth: 86' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	19	SS	1.5			0			Light gray (N70) SAND (SP), fine to medium grained, damp, thin bedding present.	Sand	
									Brownish gray (5 YR 4/1) SILT (MH), trace fine sand and fine gravel, little clay, damp.	Silt	
825	20	SS	2.0			0			Brownish gray (5 YR 4/1) SAND/SILTY SAND (SM), fine to medium grained, little coarse sand, trace fine gravel and coarse subangular gravel, damp, dense.	Sand/Silty Clay	
40	21	SS	2.0			0					Bentonite/Cement Grout
	22	SS	2.0			0			Medium dense.		
820											Schedule 40 2" ID PVC Riser Pipe
45	23	SS	2.0			0					
	24	ST-1	1.0						Shelby Tube ST-1 sampled from 46 - 48' bgs, SILTY SAND (SM).		
815	25	SS	2.0			0			Light gray (N70) SILT (MH/ML), some very fine sand, little fine sand, damp, medium dense. Thin layer (<1") of silty clay at 49' bgs.	Silt	
50	26	SS	1.5			0			Light brownish gray (5 YR 6/1) SAND (SP), medium grained, trace to little fine sand, damp, loose. Becoming sandy silt at depth. Becoming coarse at depth, trace fine rounded gravel.	Sand	
810	27	SS	2.0			0			Brownish gray (5 YR 4/1) SILTY SAND (SM), fine to medium grained, little fine subangular to subrounded gravel, trace coarse sand, damp, very dense.		
55	28	SS	2.0			0					

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-02

Borehole Depth: 86' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
		29	SS	2.0			0					
	805	30	SS	0.5			0					
60		31	SS	2.0			0			Sandstone/quartzite fragment in tip.		
		32	SS	2.0			0			More fine sands present, moist to damp.	Silty Sand	
	800	33	SS	2.0			0					
65		34	SS	2.0			0			Wet medium gray silt in tip of split spoon.		
	795	35	SS	2.0			0					
70			SS	2.0			0					
			SS	2.0			0			Brownish gray (5 YR 4/1) SILT (MH), trace to little very fine to fine sand, damp, very dense, wet zone at 73' - 73.25' bgs.	Silt	
	790									Brownish gray (5 YR 4/1) SILTY SAND (SM), fine to medium grained, damp. Thin layer (<1") of light brownish gray medium sand at 75' bgs.	Silty Sand	
75			SS	2.0			0			Brownish gray (5 YR 4/1) SILT (MH), moist, silty sand in tip of split spoon.	Silt	
										Brownish gray (5 YR 4/1) SILTY SAND (SM), fine to medium grained, damp.		

Schedule 40 2" ID PVC Riser Pipe
Bentonite/Cement Grout
Bentonite Chip (Hydrated)
Filter Sand
0.010" Machine Slotted 2" ID Schedule 40 Well Screen

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-02

Borehole Depth: 86' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
		SS	2.0			0			Light brownish gray SAND (SP), medium grained, damp. SILT. Brownish gray (5 YR 4/1) SILTY SAND (SM), fine to medium grained, damp.	Silty Sand/Silt	
785		SS	2.0			0			Brownish gray (5 YR 4/1) SILT (MH), trace clay, damp to moist, irregular contact with sand below. Interbedded brownish gray SILT (MH) and light brown medium grained SAND (SP), damp.	Silt/Sand/Silt	Filter Sand
80		SS	2.0			0			Brownish gray (5 YR 4/1) SILT (MH), trace clay, damp to moist, irregular contact with sand below. Light brown (5 YR 6/4) SAND (SP), medium grained, wet to saturated. 3" silt layer at 81-81.25' bgs.		
780		SS	2.0			0					0.010" Machine Slotted 2" ID Schedule 40 Well Screen
		SS	2.0			0			Brownish gray (5 YR 4/1) SANDY SILT (SM), fine to medium sand, damp.		
85		SS	2.0			0			Brownish gray (5 YR 4/1) SILT (MH), trace clay, damp to moist.		
775											
90											
770											
95											

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Date Start/Finish: 10/25/02 - 10/29/02
Drilling Company: Toltest
Driller's Name: Jay Leonard
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 4.25"
Rig Type: CME-75
Sampling Method: 2' Split Spoon

Northing: 6913.89
Easting: 3115.08
Casing Elevation: 859.83

Borehole Depth: 89.5' below grade
Surface Elevation: 860.18

Geologist: J. Kralik

Well/Boring ID: MW02-03

Client: General Motors Corporation

Location: Lansing Plant #3
Lansing, Michigan

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
0	860									ASPHALT.		Flushmount Protective Casing
										CONCRETE.		Concrete
		1	SS	1.5			0			Light to medium gray (N70 - N50) SILTY SANDY CLAY (CL), fine to medium grained sand, little coarse gravel, trace coarse sand, damp.		
		2	SS	1.5			0			Brownish gray (5 YR 4/1) SILTY SANDY CLAY (CL), fine to medium grained sand, little coarse sand, trace coarse gravel, damp.		Schedule 40 2" ID PVC Riser Pipe
5	855	3	SS	1.5			0			Some coarse sand, little fine to coarse gravel, damp.		
		4	SS	0.0			0			No recovery.		
		5	SS	2.0			0			Brownish gray (5 YR 4/1) SILTY SANDY CLAY (CL), fine to medium grained sand, little coarse sand, trace coarse gravel, damp.		
10	850	6	SS	2.0			0			Moderate yellowish brown and light gray (10 YR 5/4 and N70) SILTY SANDY CLAY (CL), mottled, fine to medium sand, little coarse sand, trace fine to coarse gravel, plant fragments present, vertical fracturing present.	Silty Sandy Clay	Bentonite/Cement Grout
		7	SS	1.5			0			Moderate yellowish brown (10 YR 5/4) SILTY SANDY CLAY (CL), fine to medium grained sand, little coarse sand and fine gravel, trace coarse gravel.		
15	845	8	SS	1.5			0			Thin (<1") layers of moderate yellow clay, 3" layer of brownish gray medium to coarse sand at 14.75' bgs.		

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-03

Borehole Depth: 89.5' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	9	SS	2.0			0			Grading into brownish gray (5 YR 4/1) silty sandy clay.		
20 840	10	SS	1.75			0			Brownish gray (5 YR 4/1) SILTY SANDY CLAY (CL), fine to medium grained sand, little coarse sand and fine gravel, trace coarse gravel, damp, very stiff.		
	11	SS	1.5			0			Pale yellow brown (10 YR 6/2) SILTY SAND (SM), fine to medium grained, little clay, trace coarse sand, damp, dense.	ilty Sand	
	12	SS	2.0			0			Brownish gray (5 YR 4/1) CLAY (CL), trace subangular fine to coarse gravel, damp, very stiff, moderate to high plasticity.	Clay	
25 835	13	SS	1.75			0			Pale brownish gray SAND (SP), medium to coarse grained, moist to wet, medium dense.	Sand	Schedule 40 2" ID PVC Riser Pipe
									Brownish gray (5 YR 4/1) SILTY CLAY (CL), trace fine to medium sand, damp.	y Cl	
									Yellow-brown SAND (SP/SW), medium to coarse grained, little fine sand, some silt, trace fine gravel, wet, medium dense.	Sand	
	14	SS	2.0			0			Brownish gray CLAY (CL), some silt, trace fine to medium sand, damp.	la	
									Moderate yellow-brown SAND (SW), medium to coarse grained, some silt, little fine grained, trace fine gravel, damp.	Sand	Bentonite/Cement Grout
									Brownish gray CLAY (CL), some moderate yellow-brown mottling, some fine subangular gravel, trace fine to medium sand, damp, plastic.	Clay	
30 830	15	SS	2.0			0			Brownish gray SILT/SILTY CLAY (ML/CL), trace coarse sand and fine gravel, damp, very stiff, slight plasticity.	t/Silty Cl	
									Moderate yellow-brown SAND (SW), some rusty orange layers, fine to medium grained, some coarse sand and silt, damp, medium dense.	Sand	
	16	SS	1.5			0			Brownish gray (5 YR 4/1) SAND (SP), fine grained, some silt, damp, dense.		
									Moderate yellow-brown to pale yellow-brown SAND (SW), fine grained, little medium to coarse sand and fine gravel, damp, dense, thin bedding present.		
	17	SS	2.0			0			Brownish gray and light gray SAND (SW), fine grained, trace silt and fine rounded to subrounded gravel, damp, dense.		
35 825	18	SS	2.0			0			Medium dark gray (N40) SANDY SILTY CLAY (CL), fine sand, trace medium to coarse sand and fine gravel, damp, stiff, low to moderate plasticity.	Sandy Silty Clay	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-03

Borehole Depth: 89.5' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	19	SS	1.0			0			Light gray SAND (SP), fine grained, trace very fine sand and silt, damp, dense, poorly graded.	Sand	
40 820	20	SS	1.5			0					Bentonite/Cement Grout
	21	SS	1.5			0					
	22	SS	1.75			0					0.010" Machine Slotted 2" ID Schedule 40 Well Screen
45 815									Brownish gray (5 YR 4/1) CLAY (CL), damp, moderate plasticity.	Clay	
	23	SS	2.0			0			Light gray SAND (SP), fine grained, trace very fine sand and silt, damp, dense, poorly graded.	Sand	
	24	SS	2.0			0					
									Brownish gray (5 YR 4/1) SILTY SAND (SM), fine grained, trace coarse sand and fine to medium subangular to subrounded gravel, damp, dense.	Sand/Silty Sand	
50 810	25	SS	1.75			0					
	26	SS	2.0			0			Light gray to brownish gray SILTY SAND (SM), fine to medium grained, trace fine to medium gravel, rock fragments present, damp, very dense, bedding present.	Silty Sand	
	27	SS				0			Cobble at 54' bgs.		
55 805											
	28	SS				0					

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-03

Borehole Depth: 89.5' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	29	SS				0			Light gray to brownish gray SILTY SAND (SM), very silty, fine to medium grained, damp, trace fine to medium gravel, rock gragments present, very dense, bedding present. Cobble at 58.5' bgs.		
60 / 800	30	SS	2.0			0			Brownish gray (5 YR 4/1) SANDY SILT (ML), fine to medium grained sand, trace to little coarse sand and fine gravel, damp, becoming a clayey sandy silt at depth.	Sandy Silt	Bentonite/Cement Grout
	31	SS	2.0			0					
	32	SS ST-3				0			Trace clay. Shelby Tube ST-3 sampled from 63 - 65' bgs, Sandy Silt (ML).		
65 / 795	33	SS	2.0			0					
	34	SS	0.5			0					
70 / 790	35	SS	2.0			0			Medium to dark gray SILT (MH), trace fine to medium sand, damp.	Silt	Schedule 40 2" ID PVC Riser Pipe
	36	SS	2.0			0			Wet at 71.5 - 72' bgs, thin (<1") layers of fine to medium grained sand at 72.5', becoming a sandy silt at 72.5 - 73' bgs.		
	37	SS	2.0			0					
75 / 785	38	SS	2.0			0			Pinkish gray sand at 76.5' bgs, fine to medium grained, damp.		Schedule 40 2" ID PVC Riser Pipe; Bentonite Chip (Hydrated)

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-03

Borehole Depth: 89.5' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									Brownish gray (5 YR 4/1) SAND (SP), fine grained, damp.		
	39	SS	2.0			0			Medium to dark gray SILT (MH), trace fine to medium sand, damp.	Silt	
									Pinkish gray SAND (SP), medium to coarse, wet.		
									Medium to dark gray SILT (MH), trace fine to medium sand, damp.		
80 / 780	40	SS	2.0			0			Brownish gray (5 YR 4/1) SAND (SP), fine grained, damp.	Sand	
									Light gray - brownish gray (5 YR 4/1) SILTY SAND (SM), fine to medium sand, trace fine to medium gravel, damp, dense.		
	41	SS	2.0			0			Brownish gray (5 YR 4/1) SAND (SP), fine grained, damp.	Sand	0.010" Machine Slotted 2" ID Schedule 40 Well Screen
	42	SS				0			Medium to dark gray SILT (MH), trace fine to medium sand, damp.		
85 / 775											
	43	SS	1.5			0			Brownish gray (5 YR 4/1) SAND (SP), fine grained, damp.	Silt	Filter Sand
									Medium to dark gray SILT (MH), trace fine to medium sand, damp.	Silt	
									Light gray - brownish gray (5 YR 4/1) SILTY SAND (SM), fine to medium sand, trace fine to medium gravel, damp, dense.		
	44	SS	2.0			0			Brownish gray (5 YR 4/1) SAND (SP), fine grained, damp.		
									Medium to dark gray SILT (MH), trace fine to medium sand, damp.	Silt	
90 / 770											
95 / 765											

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Date Start/Finish: 10/29/02 - 10/31/02
Drilling Company: Toltest
Driller's Name: Jay Leonard
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 4.25"
Rig Type: CME-75
Sampling Method: 2' Split Spoon

Northing: 6917.81
Easting: 3301.92
Casing Elevation: 859.75

Borehole Depth: 89' below grade
Surface Elevation: 860.27

Geologist: J. Kralik

Well/Boring ID: MW02-04

Client: General Motors Corporation

Location: Lansing Plant #3
Lansing, Michigan

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
0	860									ASPHALT.		Flushmount Protective Casing
										CONCRETE.		Concrete
		1	SS	0.5			0			Moderate yellow brown SILTY SANDY CLAY (CL), fine to medium sand, little coarse sand, trace fine gravel, damp.	Silty Sandy Clay	
		2	SS	1.5			0			Pale yellow-brown to moderate yellow-brown.		Schedule 40 2" ID PVC Riser Pipe
5	855	3	SS	2.0			0			Cobble at 6' bgs.		
		4	SS	2.0			0			Pale yellow-brown SILTY SAND (SM), fine to medium grained sand, some fine subrounded to subangular gravel, trace coarse sand and clay, damp.	Silty Sand	
10	850	5	SS	1.5			0			Medium brown SILTY SANDY CLAY (CL), fine to medium grained sand, some fine gravel, grades into brownish gray at last 0.5', damp.	Sandy	
		6	SS	2.0			0			Brownish gray (5 YR 4/1) SILTY CLAY (CL), little fine gravel, trace fine to medium sand, damp, slightly plastic.	Silty Clay	Bentonite/Cement Grout
		7	SS	1.0			0					
15	845	8	SS	2.0			0			Less sand, becoming pale yellow brown at depth.		

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-04

Borehole Depth: 89' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	9	SS	2.0			0			Moderate yellow brown SILTY SAND (SM), fine to medium grained, trace fine gravel and clay, damp.	Silty Clay Sandy Sa	
									Light yellow brown SAND (SP), medium grained, trace fine sand, damp.		
									Moderate yellow brown SILTY SAND (SM), fine to medium grained, trace fine gravel and clay, damp.		
20 / 840	10	SS	2.0			0			Pale yellow brown (10 YR 6/2) SILTY SAND (SM), fine to medium grained, little clay, trace coarse sand, damp, dense.	Silt	
									Pale brown to pale yellow-brown SILT (ML), little very fine to fine sand, trace fine gravel, damp.		
	11	SS	2.0			0			Moderate yellow-brown SILTY SAND (SM), fine to medium grained, trace to little fine gravel and clay, damp.	Silty Sand	
	12	SS	2.0			0			Medium gray CLAY/SILTY CLAY (CL), little fine gravel, moist, high plasticity.	Silty Clay/Silty Cla	Schedule 40 2" ID PVC Riser Pipe
25 / 835	13	SS	2.0			0			Brown SAND AND GRAVEL (GM), fine to coarse sand, fine to coarse gravel, trace silt.	Silty sand/sand clay	
									Light yellow brown SAND (SP), medium grained, trace very fine to fine grained, damp.		
	14	SS	2.0			0			Pale yellow brown to pale brownish gray SILT/SANDY SILT (SM), very fine to fine sand, trace fine gravel, damp.	Sandy Silt	Bentonite/Cement Grout
									Pale yellow-brown SAND/SILTY SAND (SM), fine to medium grained, trace clay and fine gravel, damp.		
									Brownish gray (5 YR 4/1) SANDY SILT (ML), fine to medium grained, damp. Little clay and cobble at 29' bgs.		
30 / 830	15	SS	2.0			0			Light gray (N70) SILT (MH), some very fine sand, medium dense to dense, damp, thin bedding present.	Silt	
	16	SS	2.0			0					
	17	SS	1.5			0					
35 / 825	18	SS	2.0			0					

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-04

Borehole Depth: 89' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	19	SS	1.75			0			Light gray (N70) SILT (MH), some very fine sand, medium dense to dense, damp.		Light gray SILT, thin bedding present, some very fine sand, damp.
40 820	20	SS	2.0			0			Becomes wet at 40 - 40.5' bgs.		Bentonite/Cement Grout
	21	SS	1.75			0			Light gray (N70) SAND (SP), fine grained, little medium grained, damp. Very fine to fine grained, trace silt.	Sand	
	22	SS	2.0			0			Bedding present.		Schedule 40 2" ID PVC Riser Pipe
45 815	23	SS	2.0			0			Dark gray SILTY CLAY (CL), some fine to coarse gravel, little fine to medium sand, trace coarse sand, damp, non plastic.	Clay	
	24	SS	2.0			0			Brownish gray SAND (SW), fine to medium grained, some coarse sand and fine gravel, damp, sandstone cobble at 46.5' bgs.	Sand	
50 810	25	SS	2.0			0			Moderate brown to pinkish gray SAND (SW), fine to medium grained, some coarse sand and fine gravel, little silt, damp, rock fragments present. Some silt.		
	26	SS	2.0			0					
	27	SS	0.5			0			Cobble at 53.5' bgs.		
55 805	28	SS	2.0			0			Brownish gray SILT (ML), little fine sand, trace cobbles and fine gravel, damp.	Silt	
									Brownish gray to grayish pink SAND (SW), fine to medium grained, some sandstone cobbles and silt, little fine gravel, trace coarse sand, damp, very dense.	Sand	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-04

Borehole Depth: 89' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	29	SS	2.0			0			Brownish gray to grayish pink SAND (SW), fine to medium grained, some sandstone cobbles and silt, little fine gravel, trace coarse sand, damp, very dense.	Sand	
60 / 800	30	SS	2.0			0			Brownish gray (5 YR 4/1) SILT (ML), little fine sand, trace fine gravel, damp to moist.	Silt	Bentonite/Cement Grout
	31	SS	2.0			0			Clayey silt layer at 62 - 62.5' bgs. Silt becomes pinkish gray below 62.5' bgs.		
	32	SS	2.0			0			Some clay, thick (1-2") layers of grayish pink fine to medium grained sand at 63.75, 64.25 and 64.75' bgs.		
65 / 795	33	ST-4							Shelby Tube ST-4 sampled from 65 - 67' bgs, Silt with Sand (ML).		
	34	SS	1.5			0			Brownish gray (5 YR 4/1) SILTY SAND (SM), fine to medium grained, trace very fine sand and clay, damp to moist, thin (<1") layers of pinkish gray fine to medium sand.	Silty Sand	
70 / 790	35	SS	2.0			0			Brownish gray (5 YR 4/1) SILT (MH), trace very fine to fine sand, damp to moist.	Silt	Schedule 40 2" ID PVC Riser Pipe
	36	SS	2.0			0			Moderate brown SILTY SAND (SM), fine to medium sand, damp to moist.	y Sa	
	37	SS	2.0			0			Brownish gray (5 YR 4/1) SILT (MH), trace very fine to fine sand, damp to moist. Thin (<1") layers of pinkish gray medium sand, wet at 74', 74.5', 74.75' bgs.		Bentonite Chip (Hydrated)
75 / 785	38	SS	2.0			0			Thin (<1") sand layers at 75.5' bgs.	ilt	0.010" Machine Slotted 2" ID Schedule 40 Well Screen

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW02-04

Borehole Depth: 89' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	39	SS	2.0			0			Laminar bedding present, trace medium sand from 77-77.5' bgs.		
80 / 780	40	SS	2.0			0			Thin sand layers (<1") at 80.5', 80.75' bgs, damp to moist		
	41	SS	1.5			0			Brownish gray (5 YR 4/1) SAND (SP), fine to medium grained, little coarse, damp to moist.	Sand	0.010" Machine Slotted 2" ID Schedule 40 Well Screen
									Brownish gray (5 YR 4/1) SILT (MH), trace very fine to fine sand, damp to moist.	Silt	
	42	SS	1.75			0			Brownish gray (5 YR 4/1) SAND (SP), fine to medium grained, little coarse, damp to moist.	Sand	
85 / 775									Brownish gray SILTY SAND (SM), fine to medium grained, trace coarse sand, moist to wet.	Sand	
	43	SS	2.0			0			Brownish gray (5 YR 4/1) SAND (SW), fine to medium grained, little coarse sand, trace fine gravel and silt, moist to wet.		Filter Sand
	44	SS	2.0			0					
90 / 770											
95 / 765											

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Date Start/Finish: 9/20/04 - 9/21/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow-Stem Auger/Water Rotary
Bit Size: 3.785"
Auger Size: 4.25"
Rig Type: Gus Pech 1100
Sampling Method: 2' Split Spoon

Northing: 5785.30
Easting: 3896.20
Casing Elevation: 862.89

Borehole Depth: 105' below grade
Surface Elevation: 863.20

Geologist: Wayne Patterson

Well/Boring ID: MW04-01

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #3
Lansing, Michigan

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy
865 / 0									Geology where split spoon samples not taken is based on soil samples collected at MW-02-01. Medium brown TOPSOIL, some sand and fine gravel, some light brownish gray (5 YR 6/1) fine sand and silt, trace cobble, medium dense.	TOPSOIL
860									Moderate yellow-brown (10 YR 5/4) SANDY SILTY CLAY (CL), fine to medium sand, trace silt and coarse sand, trace to little fine gravel, damp, very stiff.	CLAY AND SAND
5									Little coarse sand and fine gravel, trace silt, damp, stiff.	
									Little coarse sand and fine gravel, trace to little silt, damp, hard.	
855									Pale brown (5 YR 5/2) SANDY SILTY CLAY (CL), fine to medium sand, trace to little fine subangular to subrounded gravel, little silt, damp, very stiff.	
10	1	SS	2.0'			0			Brownish gray (5 YR 4/1) SANDY SILT (ML), fine to medium sand, trace clay and fine gravel/coarse sand, damp, medium dense. 1" Sand lens, wet.	SANDY SILT
850									Moderate brown (5 YR 4/4) SANDY SILT (ML), fine to medium sand, little fine to medium gravel, little clay, damp, medium dense. Rusty brown and orange medium to coarse sand at 13.2' bgs.	
15									Grayish orange (10 YR 7/4) SAND (SP), fine to medium grained, damp, medium dense.	

Well/Boring Construction

- Flushmount Protective Casing
- Concrete
- Schedule 40 2" ID PVC Riser Pipe
- Bentonite/Cement Grout

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Project: 64429
Data File:MW04-01.dat
Template: J:\Rockware\LogPlot 2001\LogFiles\Templates\Soilboring.ldf
Date: 12/16/04

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-01

Borehole Depth: 105' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									Moderate yellow-brown (10 YR 5/4) SILT (MH), trace fine to medium sand, damp, very dense, laminar bedding present.		
845									Slight orange tint present, very dense.		
20	2	SS	1.0'			0			Layer of sandy silt at 21.5-21.7' bgs, medium dense. Moist. Moist to wet.	SILT	
840									Brownish gray (5 YR 4/1) GRAVELLY CLAY (GC), fine to medium rounded to subrounded gravel, some fine to medium sand and silt, moist to wet, hard.		
25									Brownish gray (5 YR 4/1) GRAVELLY CLAY (GC) AND SILT (MH), moist to wet, auger refusal at 23.8' bgs due to glacial cobble. Offset directly south off first attempt and redrill.	GRAVEL AND SILT	Schedule 40 2" ID PVC Riser Pipe
835									Medium gray (N50) SANDY SILT (ML), fine to medium sand, some coarse sand, trace fine gravel, damp to moist, loose, medium brown sandy soil horizon at 26.5' bgs, fine to coarse grained, plant debris present, damp.	SANDY SILT	Bentonite/Cement Grout
30	3	SS	1.0'			0			Light gray (N70) SAND (SP), very fine to fine grained, trace silt, damp, medium dense. Dense.	SAND	
830									Light brownish gray (5 YR 6/1) SANDY SILT (ML), fine to medium sand, damp, loose. Light brown (5 YR 5/6) SILT (MH), trace clay, damp, loose, plant debris present. Light brownish gray (5 YR 6/1) SANDY SILT (ML), fine to medium sand, damp, loose.	SILTY S	
35									Brownish gray (5 YR 4/1) SILT (MH), moist to wet, medium dense. Light brown (5 YR 5/6) SILT (MH), damp. Brownish gray (5 YR 4/1) SILT (MH), moist to wet, medium dense. Brownish gray (5 YR 4/1) SILT (MH), moist to wet, medium dense.	SILT	

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-01

Borehole Depth: 105' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									Light gray (N70) SAND (SP), very fine to fine grained, trace silt, damp, dense. Wet brownish gray silt from 38 to 38.25' bgs.	SAND	
825											
40									Dense.		Bentonite/Cement Grout
	4	SS	1.0'			0					
									Very dense.		
820											Schedule 40 2" ID PVC Riser Pipe
45											
815									Brownish gray (5 YR 4/1) SILT (MH), moist to wet, medium dense.	SILT	
									Brownish gray (5 YR 4/1) SAND (SP), very fine to fine grained, some clay, little silt, damp to moist, medium dense.	SAND	
50									Sandstone fragment at 50.5' bgs, becomes fine to medium grained at 50.5' bgs, medium dense.		
	5	SS	0.75'			0					
									Fine to medium grained, little coarse sand, trace fine gravel, dense, becoming wet.		
810											
									Some coarse sand, little fine gravel, trace medium gravel, subrounded to subangular sandstone and coal fragments present.		
55											

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-01

Borehole Depth: 105' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									Brownish gray (5 YR 4/1) SAND (SW), fine to medium grained, some silt, little coarse sand and fine subrounded gravel, trace sandstone fragments, very dense, moist to wet.		
805									Brownish gray (5 YR 4/1) SAND (SW), fine to medium grained, some fine subangular to subrounded gravel, little coarse sand and silt, moist to wet, very dense.	SAND	
60									Moist to wet.		Bentonite/Cement Grout
	6	SS	1.0'			0					
									Moist to wet.		
800											
									Wet to saturated.		
65											
									Shale fragments in tip.		
	7	SS	1.5'			0					
795											
	8	SS	1.0'			0			Brownish gray (5 YR 4/1) to medium dark gray (N40) CLAY (CL), trace to little fine to medium sand, shale fragments present, damp.		
70									Medium dark gray SHALE (weathered), damp.	SHALE	Schedule 40 2" ID PVC Riser Pipe
	9	SS	1.0'			0					
	10	SS	1.5'			0					
790											
75		WR									

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

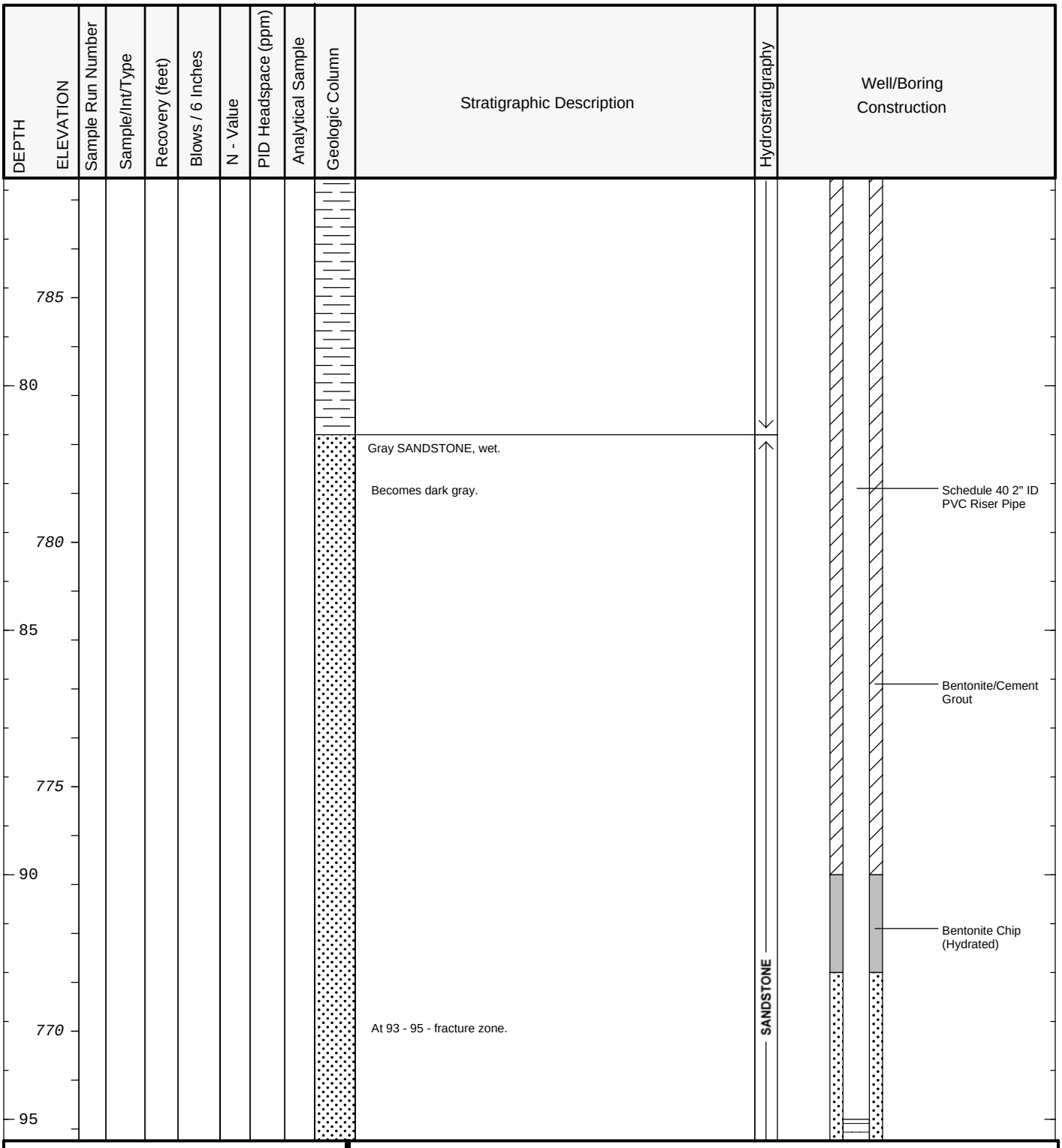
Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-01

Borehole Depth: 105' below grade

DRAFT



Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

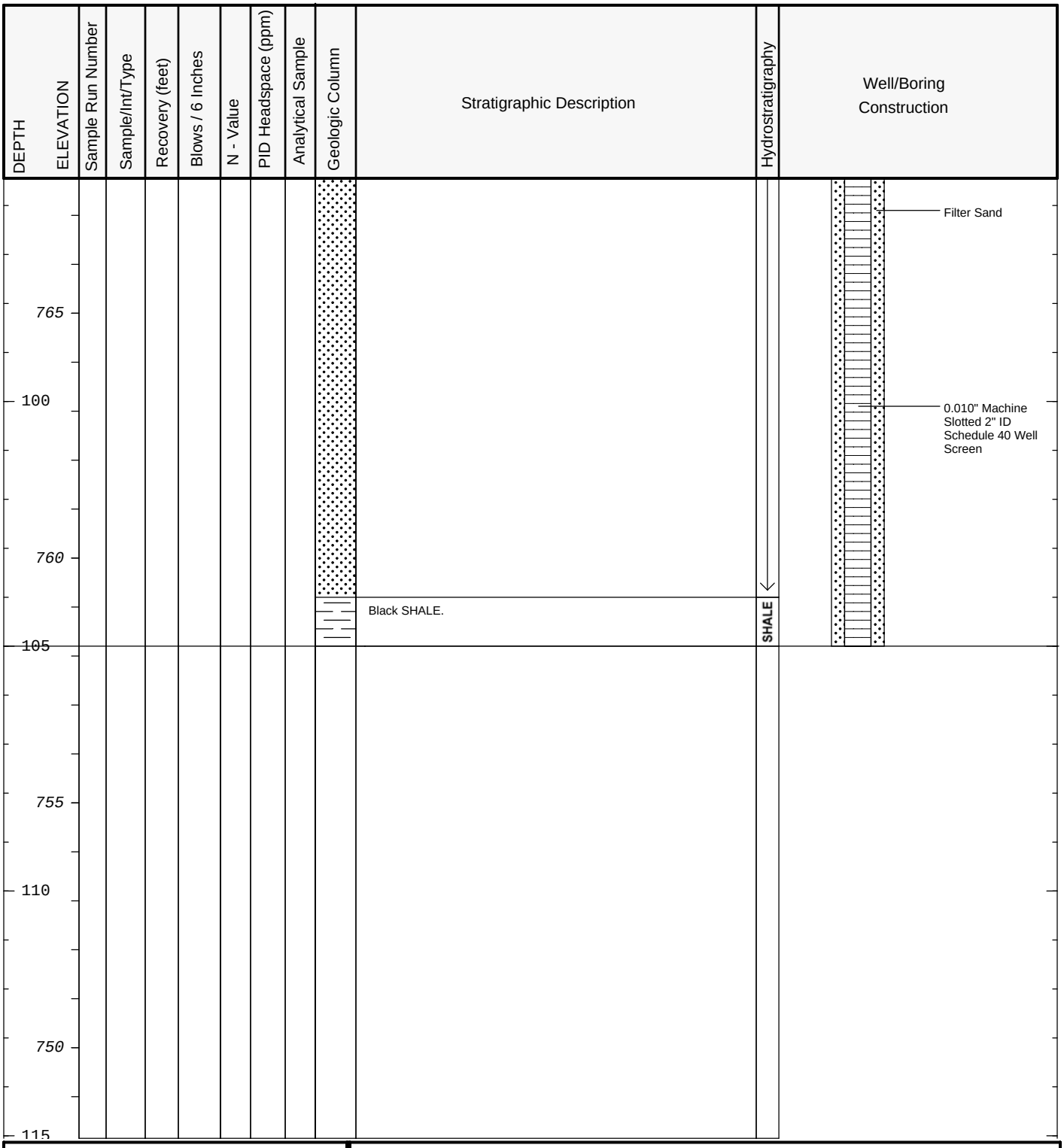
Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-01

Borehole Depth: 105' below grade

DRAFT



ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Project: 64429
Data File:MW04-01.dat

Template: J:\Rockware\LogPlot 2001\LogFiles\Templates\Soilboring.ldf
Date: 12/16/04

Date Start/Finish: 9/22/04 - 9/23/04; 10/04/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow-Stem Auger/Water Rotary
Bit Size: 3.785"
Auger Size: 4.25"
Rig Type: Gus Pech 1100
Sampling Method: 2' Split Spoon

Northing: 7441.49
Easting: 3261.25
Casing Elevation: 861.33

Borehole Depth: 136' below grade
Surface Elevation: 861.56

Geologist: Wayne Patterson

Well/Boring ID: MW04-02

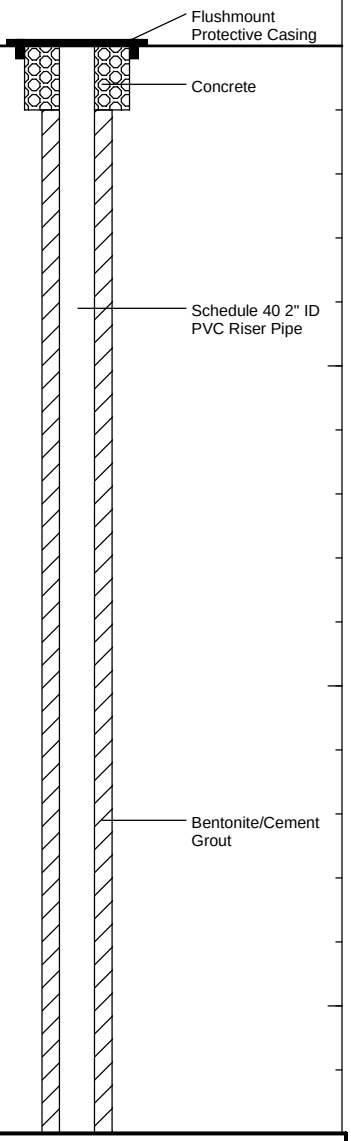
DRAFT

Client: General Motors Corporation

Location: Lansing Plant #3
Lansing, Michigan

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy
0											
	860	1	SS	1.0'			0			Brown 10 YR 4/3 SANDY CLAY, slightly plastic, few Sand, few fine subrounded Gravel, damp, fill.	CLAY AND SAND
		2	SS	1.0'			0			Dark gray 10 YR 4/1 LEAN CLAY with SILT, little mottling with brown 10 YR 4/3, little fine to coarse angular to subangular Sand, few fine angular Gravel, damp, stiff, fill.	
5		3	SS	1.0'			0			At 3.0 - 3.2' - Brown 10 YR 4/3 fine Sand layer.	
	855	4	SS	0.75'			0			Color becomes Brown 10 YR 4/3	
		5	SS	1.0'			0				
10		6	SS	1.5'			0			Gray 10 YR 5/1 and brown 10 YR 4/3 mottled FAT CLAY with SILT, some fine Sand, trace fine subrounded Gravel, roots, very plastic, moist.	SILTY CLAY
	850	7	SS	1.0'			0			Gray 10YR and brown 10 YR 4/3 mottled LEAN CLAY with SILT, trace fine Sand, trace fine angular Gravel, medium stiff, damp to moist.	
		8	SS	1.0'			0			Increased Sand to little.	
15											
	845									Gray 10 YR 5/1 FAT CLAY with SILT, very plastic, trace fine to coarse subrounded Sand, rare fine subrounded Gravel, moist to wet.	

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-02

Borehole Depth: 136' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	9	SS	1.5'			0					
	10	SS	1.0'			0			At 19 - 20' - interbedded with Brown 10 YR 4/3 fine to coarse subangular well graded SAND, saturated, dense.		
20											
840	11	SS	1.0'			0			Brown 10 YR 4/3 fine to coarse angular to subangular WELL GRADED SAND, rare fine angular Gravel, saturated, medium dense.	SAND	
	12	SS	1.5'			0			Some Silt Dark gray 10 YR 4/1 LEAN CLAY with SILT, trace fine to coarse subangular Sand, rare fine subangular to subrounded Gravel, stiff, damp, slightly plastic, clay till.		
25	13	SS	1.0'			0					Schedule 40 2" ID PVC Riser Pipe
835	14	SS	1.0'			0			Increased plasticity to moderately plastic, moist to wet.	SILTY CLAY	
	15	SS	0.75'			0					Bentonite/Cement Grout
30									Brown 10 YR 4/3 SILT, saturated. At 30 to 31.5' - few Clay, dry, dense.		
830	16	SS	1.0'			0			No Clay, saturated.	SILT	
	17	SS	1.5'			0					
35	18	SS	1.0'			0			Dark yellowish brown 10 YR 4/4 fine poorly graded SAND, dense, saturated.	SAND	
825									Very dark grayish brown 10 YR 3/2 and black 10 YR 2/1 LEAN CLAY with SILT, trace fine to coarse subrounded Sand, rare fine subrounded Gravel, stiff, weakly plastic, damp. 10 YR 3/2 only, damp to moist, slightly plastic.		

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-02

Borehole Depth: 136' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	19	SS	1.0'			0					
									Color becoming dark gray 10 YR 4/1.	SILTY CLAY	
	20	SS	1.5'			0					
40											Bentonite/Cement Grout
	21	SS	2.0'			0					
820											
	22	SS	1.5'			0			Gray 10 YR 6/1 very fine poorly graded SAND, dry, dense, laminations present.	SAND	
											Schedule 40 2" ID PVC Riser Pipe
45	23	SS	1.0'			0					
815	24	SS	1.5'			0			Dark gray 10 YR 4/1, saturated, some Silt.		
	25	SS	1.0'			0			Dark gray 10 YR 4/1 SILT, some fine to coarse Sand, rare fine angular Gravel, saturated, dense.		
50	26	SS	1.0'			0			Dark gray 10 YR 4/1 fine poorly graded SAND, trace coarse Sand, rare fine Gravel, saturated, dense.		
810	27	SS	1.5'			0			Dark gray 10 YR 4/1 SILT, little to some fine to medium Sand, rare fine Gravel, few Clay, saturated, dense.		
									Increased Clay to some.		
55	28	SS	1.0'			0					
805									Lenses of fine Sand - up to 2" thick.		

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-02

Borehole Depth: 136' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	29	SS	1.5'			0					
	30	SS	1.5'			0				SILT	
60									Medium dense.		Bentonite/Cement Grout
800	31	SS	1.5'			0					
	32	SS	1.0'			0			Trace Sand, rare Clay.		
65	33	SS	0.5'			0					
795	34	SS	1.0'			0			Gray 10 YR 4/1 fine to medium WELL GRADED SAND, occasional lenses of Silt, rare Clay, dense, saturated.	SAND	
	35	SS	1.0'			0			Dark gray 10 YR 4/1 SILT, little fine to coarse Sand, rare fine Gravel, very dense, damp to wet.	SILT	
70									Dark gray 10 YR 4/1 SILT, little fine to medium Sand, rare fine Gravel, very dense, saturated.		Schedule 40 2" ID PVC Riser Pipe
790	36	SS	1.0'			0					
	37	SS	1.5'			0					
75	38	SS	1.0'			0			3" lens highly compacted fine Sand, very dense.		
785											

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-02

Borehole Depth: 136' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	39	SS	1.0'			0					
	40	SS	1.25'			0					
80											
	41	SS	1.5'			0					
780									Brown 10 YR 4/3 fine to medium poorly graded SAND, dense, saturated.		Schedule 40 2" ID PVC Riser Pipe
	42	SS	0.5'			0					
	43	SS	1.0'			0					
85											
775											Bentonite/Cement Grout
	44	SS	1.0'			0					
	45	SS	1.0'			0					
90									Mostly fine Sand.		
	46	SS	1.0'			0					
770											
	47	SS	2.0'			0					
	48	SS	2.0'			0					
95											
765										SAND	

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-02

Borehole Depth: 136' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	49	SS	2.0'			0					
100											Schedule 40 2" ID PVC Riser Pipe
760	50	SS	2.0'			0					
	51	SS	2.0'			0					
105											
755	52	SS	2.0'			0					
	53	SS	1.5'			0					Bentonite/Cement Grout
110									Gray 10 YR 5/1 fine poorly graded SILTY SAND, rare Clay, saturated, medium dense.	SILTY SAND	
750	54	SS	0.5'			0			Gray 10 YR 6/1 fine poorly graded SAND, loose to medium dense, saturated, partly consolidated with depth, weathered sandstone.	SAND	
		WR							Gray 10 YR 6/1 fine SANDSTONE, fractured.		
115											
745											

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-02

Borehole Depth: 136' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
120 / 740									Out of fractured zone, harder Sandstone.	SANDSTONE	Bentonite Chip (Hydrated); Filter Sand; 0.010" Machine Slotted 2" ID Schedule 40 Well Screen
125 / 735											
130 / 730											
135 / 725											

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Date Start/Finish: 9/30/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow-Stem Auger
Bit Size: NA
Auger Size: 4.25"
Rig Type: Gus Pech 1100
Sampling Method: 2' Split Spoon

Northing: 6786.41
Easting: 2840.26
Casing Elevation: 860.99

Borehole Depth: 90' below grade
Surface Elevation: 861.41

Geologist: Wayne Patterson

Well/Boring ID: MW04-03

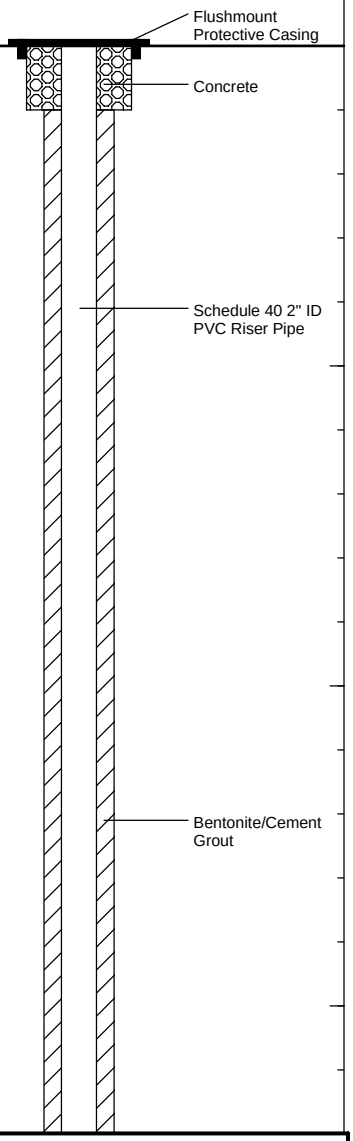
DRAFT

Client: General Motors Corporation

Location: Lansing Plant #3
Lansing, Michigan

DEPTH	ELEVATION	Stratigraphic Description	Hydrostratigraphy
0	860	Geology where split spoon samples not taken is based on soil samples collected at MW-04-02. Brown 10 YR 4/3 SANDY CLAY, slightly plastic, few Sand, few fine subrounded Gravel, damp, fill.	CLAY AND SAND
5	855	Dark gray 10 YR 4/1 LEAN CLAY with SILT, little mottling with brown 10 YR 4/3, little fine to coarse angular to subangular Sand, few fine angular Gravel, damp, stiff, fill. At 3.0 - 3.2' - Brown 10 YR 4/3 fine Sand layer. Color becomes Brown 10 YR 4/3	SILTY CLAY
10	850	Gray 10 YR 5/1 and brown 10 YR 4/3 mottled FAT CLAY with SILT, some fine Sand, trace fine subrounded Gravel, roots, very plastic, moist. Gray 10YR and brown 10 YR 4/3 mottled LEAN CLAY with SILT, trace fine Sand, trace fine angular Gravel, medium stiff, damp to moist. Increased Sand to little.	
15	845	Gray 10 YR 5/1 FAT CLAY with SILT, very plastic, trace fine to coarse subrounded Sand, rare fine subrounded Gravel, moist to wet.	

Well/Boring Construction



Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-03

Borehole Depth: 90' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									At 19 - 20' - interbedded with Brown 10 YR 4/3 fine to coarse subangular well graded SAND, saturated, dense.		
20 / 840	1	SS	1.5'			0			Brown 10 YR 4/3 fine to coarse angular to subangular WELL GRADED SAND, rare fine angular Gravel, saturated, medium dense.	SAND	
									Some Silt		
25 / 835									Dark gray 10 YR 4/1 LEAN CLAY with SILT, trace fine to coarse subangular Sand, rare fine subangular to subrounded Gravel, stiff, damp, slightly plastic, clay till.	SILTY CLAY	Schedule 40 2" ID PVC Riser Pipe
									Increased plasticity to moderately plastic, moist to wet.		Bentonite/Cement Grout
30 / 830									Brown 10 YR 4/3 SILT, saturated. At 30 to 31.5' - few Clay, dry, dense.	SILT	
									No Clay, saturated.		
35 / 825									Dark yellowish brown 10 YR 4/4 fine poorly graded SAND, dense, saturated.	SAND	
									Very dark grayish brown 10 YR 3/2 and black 10 YR 2/1 LEAN CLAY with SILT, trace fine to coarse subrounded Sand, rare fine subrounded Gravel, stiff, weakly plastic, damp. 10 YR 3/2 only, damp to moist, slightly plastic.		

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-03

Borehole Depth: 90' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									Color becoming dark gray 10 YR 4/1.	SILTY CLAY	Bentonite/Cement Grout
40 / 820	2	SS	0						Gray 10 YR 6/1 very fine poorly graded SAND, dry, dense, laminations present.	SAND	Schedule 40 2" ID PVC Riser Pipe
45 / 815	3	SS	1.0'			0			Dark gray 10 YR 4/1, saturated, some Silt.		
									Dark gray 10 YR 4/1 SILT, some fine to coarse Sand, rare fine angular Gravel, saturated, dense.		
50 / 810									Dark gray 10 YR 4/1 fine poorly graded SAND, trace coarse Sand, rare fine Gravel, saturated, dense.		
									Dark gray 10 YR 4/1 SILT, little to some fine to medium Sand, rare fine Gravel, few Clay, saturated, dense.		
									Increased Clay to some.		
55 / 805									Lenses of fine Sand - up to 2" thick.		

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-03

Borehole Depth: 90' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
60 / 800	4	SS	1.0'			0			Medium dense.	SILT	Bentonite/Cement Grout
									Trace Sand, rare Clay.		
65 / 795									Gray 10 YR 4/1 fine to medium WELL GRADED SAND, occasional lenses of Silt, rare Clay, dense, saturated.	SAND	
									Dark gray 10 YR 4/1 SILT, little fine to coarse Sand, rare fine Gravel, very dense, damp to wet.	SILT	
70 / 790									Dark gray 10 YR 4/1 SILT, little fine to medium Sand, rare fine Gravel, very dense, saturated.		Schedule 40 2" ID PVC Riser Pipe
75 / 785									3" lens highly compacted fine Sand, very dense.		

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

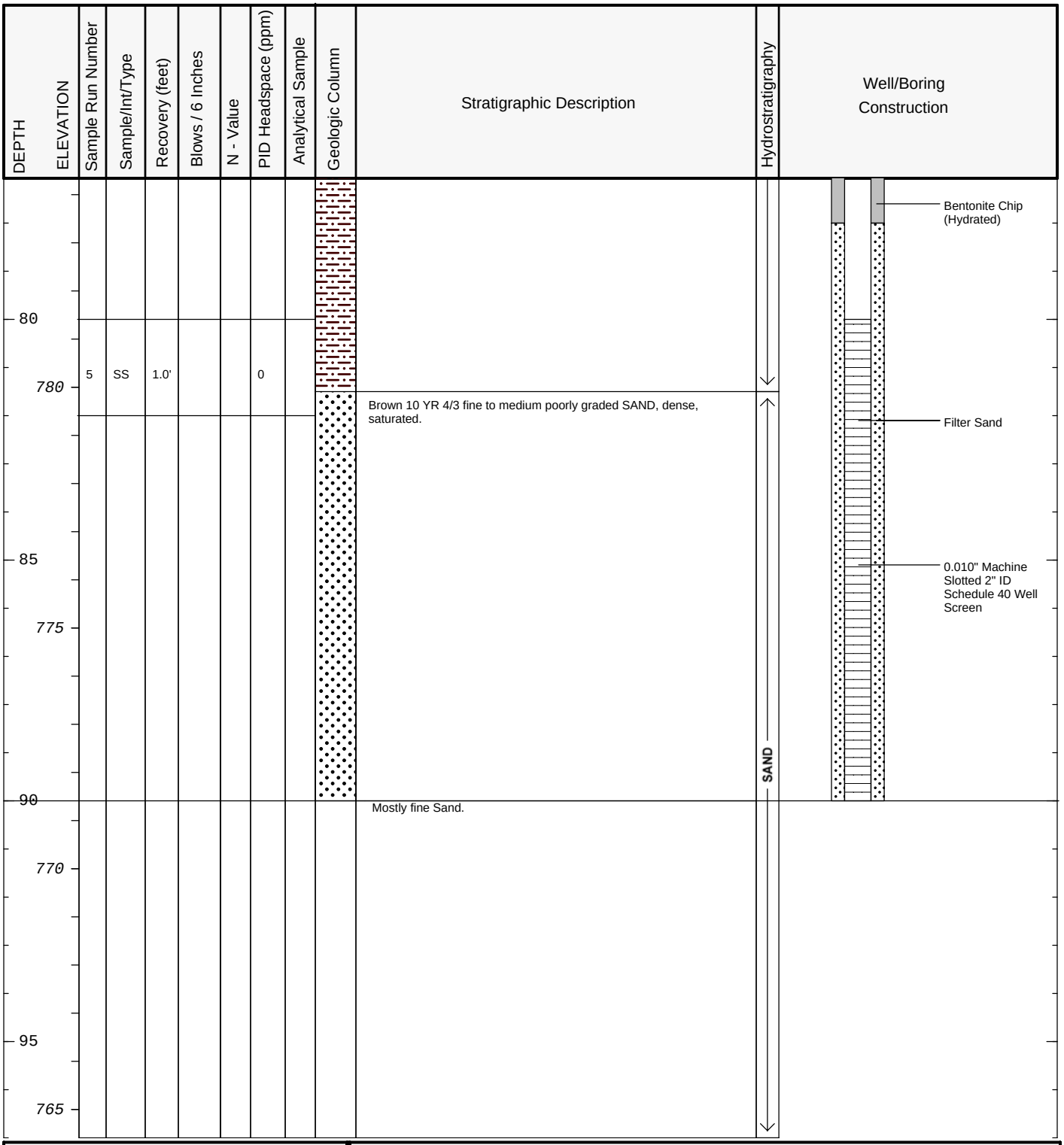
Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-03

Borehole Depth: 90' below grade

DRAFT



ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Date Start/Finish: 9/27/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow-Stem Auger
Bit Size: NA
Auger Size: 4.25"
Rig Type: Gus Pech 1100
Sampling Method: 2' Split Spoon

Northing: 6776.48
Easting: 2840.31
Casing Elevation: 856.05

Borehole Depth: 82' below grade
Surface Elevation: 856.53

Geologist: Wayne Patterson

Well/Boring ID: MW04-04

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #3
Lansing, Michigan

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
0 / 856									Geology where split spoon samples not taken is based on soil samples collected at MW-91-04. GRASSES, Sand, brown, fine to medium, and some medium to coarse Gravel.	PSC	Flushmount Protective Casing
855									CLAY, brown sandy, and some fine to coarse Gravel, dry.	CLAY	Concrete
									CLAY, brown, sandy, and occasional fine to medium, Gravel, dry.		Schedule 40 2" ID PVC Riser Pipe
5 / 851	1	SS	0.2'						Brown 10 YR 4/3 SILT, few Clay, some fine to coarse Sand, little fine Gravel, dry.	SILT	
850											
10 / 846	2	SS	1.0'						Brown 10 YR 4/3 LEAN CLAY with SILT, some fine Sand, little fine Gravel, moist to wet, soft.	SILTY CLAY	
845											Bentonite/Cement Grout
15 / 841	3	SS	1.0'						Becoming stiff and dry.		
840									Yellowish brown 10 YR 5/6 poorly graded fine SAND, loose, dry.		

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-04

Borehole Depth: 82' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
20 / 835	4	SS	1.0'			0			Becoming moist.	SAND	
25 / 830	5	SS	0.2'						Dark gray 10 YR 4/1 LEAN CLAY with SILT, little fine Sand, occasional thin Sand lenses, damp to moist, medium stiff.	TY CL	Schedule 40 2" ID PVC Riser Pipe
									Grayish brown 10 YR 5/2 SILT, few Clay, dry to damp, dense.	SILT	Bentonite/Cement Grout
30 / 825	6	SS	1.5'						Pale brown 10 YR 6/3 poorly graded fine SAND, loose, dry.	SAND	
35 / 820	7	SS	0.5'						Becoming very fine.		

Remarks:

ARCADIS BBL
Infrastructure, environment, facilities

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-04

Borehole Depth: 82' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
40 / 815	8	SS	0.25'						Little fine subrounded Gravel.		Bentonite/Cement Grout
									Dark gray 10 YR 4/1 SILT, damp, dense, little coarse subrounded SAND.	SILT	Schedule 40 2" ID PVC Riser Pipe
45 / 810	9	SS	1.25'			0			Becoming dark grayish brown 10 YR 4/2, interbedded with lenses up to 2" thick of fine poorly graded Sand, dry.		
50 / 805	10	SS	1.5'						Grayish brown 10 YR 5/2 medium SAND, loose, dry.		
55 / 800		SS	1.0'						Becoming fine grained.		

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-04

Borehole Depth: 82' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
60 / 795	11	SS	1.75'			0			Poorly graded fine to medium, dry.	SAND	Bentonite/Cement Grout
65 / 790	12	SS	1.0'						Damp.		Bentonite Chip (Hydrated)
70 / 785	13	SS	1.0'						Dark grayish brown 10 YR 4/2 well graded fine to coarse SAND, saturated, medium dense.		Schedule 40 2" ID PVC Riser Pipe
75 / 780	14	SS	2.0'						Little fine Gravel.		Filter Sand

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

Client:
General Motors Corporation

Site Location:
Lansing Plant #3
Lansing, Michigan

Well/Boring ID: MW04-04

Borehole Depth: 82' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
80 / 775	15	SS	1.0'			0			Dark grayish brown 10 YR 4/2 fine well-graded GRAVEL, subangular to subrounded, little fine to coarse Sand, saturated, loose.	GRAVEL	0.010" Machine Slotted 2" ID Schedule 40 Well Screen
85 / 770											
90 / 765											
95 / 760											

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:

EDI Engineering &

Page 1 of 1
Boring No. SB-1
Client: BOC Lansing
Project No.: 21253

County	Town	Section	T	R
Ingham				

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy.
Dutton, MI
Equipment: D-25
Supervisor: Bill Pushaw

Drilling Method(s) Depth
H.S. Auger 13.0'

Grouting/Seal
Depth To Material/Method
13.0 0.0 Soil Bentonite
Bent/Cement Grout w/ Tremie Rod

Development
N/A

Date
Started: 5/16/89 Finished: 5/16/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

9.5' EOB. The whole boring was

Thick-ness	Depth to Base	
	~3.5	
9.5		SAND, med. brown with gray
		SAND, med. gray saturated
		with gravel med. (1")
		EOB - 9.5'

Sample Depth	6"	12"	18"		
1.5-3.0	6	7	5	2	
4.0-5.5	2	2	2	350	
6.5-8.0	1	1	1	225	
9.0-10.5	1	1	1	500	
11.5-13.0					

Engineering & Science

Page: 1 of 1
Well/Boring No. SB-2
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	1/4 1/4 1/4			

Contractor: Steams Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment: D-25

Supervisor: Bill Pushaw

Drilling Method(s) Depth
H.S. Auger 13.0'

Grouting/Seal
Depth To Material/Method
3.0 0.0 Soil Bentonite

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Date
Started: 5/16/89 Finished: 5/16/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks 4.0'-5.5' & 6.5'-8.0'
Would not hold soil in them. Tried 4 times, soil is wet! So we spun soil up on augers for sample. It's mostly gray, wet, & contains odor. This whole boring was saturated. Maybe in vault? Hit concrete at 12.0'.

Thick-nes	Depth to Base	LITHOLOGIC DESCRIPTION	OVA	Blow Counts 18"	12"	6"
			Sample Depth			
	~3.5	SAND, med. brown, wet and gravel 3/4"	1.5-3.0	10	9	5	10
	6.5	SAND, med. gray-black, wet, odor, fine gravel, with occasional larger gravel. (3/4")	4.0-5.5	1	1	1	30
	12.0'	SAND, med. brownish gray, wet, trace small gravel	6.5-8.0	1	1	1	20
		Hit concrete or something hard at 12.0'	9.0-10.5	0	0	Hammer weight	10
			11.5-13.0	0	0	0	1
		EOB - 12.0'					

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Well/Boring No. SB-3
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor: Steams Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment:
Supervisor: Bill Pushaw

Drilling Method(s) **Depth**
H.S. Auger 13.0'

Grouting/Seal

Depth	To	Material/Method
13.0	0.0	Soil / Bentonite

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 5/15/89 Finished: 5/15/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks

OVA

Blow Counts: 18" / 12" / 6"

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	18"	12"	6"	
	~3.5	SAND, med. brown moist fine gravel	1.5-3.0	3	3	4	10
	6.0	SAND, med., black, saturated strong odor with fine gravel	4.0-5.5	2	1	2	450
	9.4	SILTY CLAY, gray, trace fine gravel	6.5-8.0	7	11	12	100
	13.0	CLAY, (less silt) gray, occasional gravel	9.0-10.5	5	7	11	8
			11.5-13.0	5	5	7	7
		EOB -13.0'					

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Page: 1 of 1
Well/Boring No. SB-4
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

nty	Township	Fraction 1/4 1/4 1/4	Section	T	R

ractor Stearns Drilling
ress: 6875 Industrial Pkwy
Dutton, MI
ment:
rvisor: Bill Pushaw

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Date
Started: 5/15/89 Finished: 5/15/89

Elevation
Casing:
Ground:
Ref. Pt.:

g Method(s) Depth
S. Auger 13.0'

Casing Flush Mount Cap

Dia.	Type	Depth Set
	N/A	To
		To

Water Level Ft. Below
Measure On:

ng/Seal

To	Material/Method
0.0	Soil / Bentonite

Location

Remarks

lopment
N/A

OVA
Blow Counts 18" / 12" / 6"

k- to Base	Depth	LITHOLOGIC DESCRIPTION	Sample Depth				
	13.0	SILTY CLAY, gray, trace fine sand, light brown, moist, occasional med. gravel-	1.5-3.0	4	4	3	30
		clay gradually	4.0-5.5	3	5	8	25
		Turned grayer and less silty as depth increased	6.5-8.0	5	8	8	35
			9.0-10.5	5	4	5	10
			11.5-13.0	4	6	9	2
		EOB -13.0'					

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Environmental Services Division

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Well/Boring No.: SB #4
Client: BOC Lansing
Project No.: 21544

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy.
Dutton, MI
Equipment: CME 45C
Crew Chief: R. Christensen
WW Supervisor: C. Cotton

Drilling Method(s) **Depth**
4 1/4" HSA 17'

Grouting/Seal
Depth/To Material/Method
17-1' Baroid Bent. Batch #1-9.5 lb/gal
Benseal & Catalyst Grout
1-0' Redi Mix

Development
Bailed dry 2 times - 3.5 gal.
2 bags - benseal
1 1/2 qts - catalyst
50 gal - water

Screen Temp Well - SB #4
Manufacturer: Johnson
Material: Stainless Steel
Model: Cont. Wound
Slot/Gauze: 7 sl. Dia.: 2"
Length: 3'
Depth Set: 12.4' To: 15.4'

Casing
Dia. Type Depth Set
2" Galv. +2.9' To 12.4'
To

Date
Started: 2/12/90 Finished: 2/15/90

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 13.68' Ft. Below surface
Measure On: 2/15/90

Location See sketch

Remarks Drilled through 1' concrete at 3-4' with 5" O.D. Solid Stem Auger

Thickness (feet)	Depth to Base (feet)	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	24"	18"	12"	6"
0.6	0.6	Concrete (cored)					
1.9	2.5	Sand, medium coarse, some small gravel (fill), brown, moist	8.5-10	4	7	8	
0.7	3.2	Concrete (original pvt outside bldg. 301) **Could not cut through with auger head	15-17	13	4	6	5
2.8	6	Sand and Gravel, medium fine to coarse, brown, small to medium stone, moist					
5	11	Clay, very sandy, some small gravel, yellow tint-discolored, slightly moist					
2	13	Gravel, small to medium, some sand, moist to wet					
4	17	Clay, sandy, silty, some gravel, wet, slightly moist with depth					
	EOB						
		Let augers sit (pulled up to 12') overnight. 1.5' of water in open hole on 2/15/90 am.					
		Set well. Bailed all standing water from well and open annulus to bottom of well.					
		Let stand 15 mins. - slightly better recovery than previous 2 temp wells (SB #6 & 5).					
		Bailed dry again. Sampled at 11:20 am.					

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Well/Boring No. SB-5
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

ty	Township	Fraction 1/4 1/4 1/4	Section	T	R

ctor Stearns Drilling
es: 6875 Industrial Pkwy
Dutton, MI
ment:
visor: Bill Pushaw

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Date
Started: 5/15/89 Finished: 5/15/89

Elevation
Casing:
Ground:
Ref. Pt.:

g Method(s) Depth
S. Auger 13.0'

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Water Level Ft. Below
Measure On:

ng/Seal
To Material/Method
0.0 Soil / Bentonite

Location

Remarks

opment
N/A

OVA

Blow Counts 18" 12" 6"

k- Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth					
4.5	SAND, med. fine, brown with fine gravel	1.5-3.0	3	4	5	0	
4.9	SAND, med. black, wet with glass particles, odor	4.0-5.5	5	7	6	10	
9.2	SAND, med. grayish brown, wet, black streaks, odor	6.5-8.0	1	1	4	480	
11.5	SILTY CLAY, gray, moist	9.0-10.5	3	4	4	110	
13.0	CLAY, gray, spoon is wet	11.5-13.0	5	9	9	20	
	EOB -13.0'						

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Page: 1 of 1
Well/Boring No.: SB #5
Client: BOC Lansing
Project No.: 21544

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy.
Dutton, MI
Equipment: CME 45C
Crew Chief: R. Christensen
WW Supervisor: C. Cotton

Drilling Method(s) **Depth**
4 1/4" HSA 23.5'

Grouting/Seal
Depth/To Material/Method
23.5-1' Baroid Bent. Batch #1=9.8 lb/gal
Benseal & Catalyst Grout #2=9.4 lb/gal
1-0' Redi Mix

Development Bailed dry 3 times or more
1/3 gal in 1 1/2 hrs. Sheen on purge water

Screen Temp Well - SB #5
Manufacturer: Johnson
Material: Stainless Steel
Model: Cont. Wound
Slot/Gauze: 7 sl. Dia.: 2"
Length: 3'
Depth Set: 14.3' To: 17.3'
.83

Casing
Dia. Type Depth Set
2" Galv. +1' To 14.3'
To

Date
Started: 2/12/90 Finished: 2/14/90

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level 16.47' Ft. Below surface
Measure On: 2/14/90

Location See sketch
(Nickel Recovery - 301B)

Remarks Used 5" OD Solid Stem Auger to cut through 1' concrete at 3-4'. Note: cuttings from below 1st spoon depth were highly saturated with black oily material. Extra spoon taken at 15-16.5', see note below.

3 bags - benseal
2 qts - catalyst
90 gal - water

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"
0.6	0.6	Concrete (cored)					
2.4	3	Sand, medium coarse, some small gravel, moist, brown	8.5-10	4	2	4	
1	4	Concrete	15-16.5	6	8	12	
6	10	Sand, poorly sorted, fine to coarse, some small to medium gravel, yellow/brown, moist, trace black oily sand at 10'	18.5-20	3	4	6	
5	15	Sand, medium fine, oily sheen, black, very moist, oily odor					
0.3	15.3	Clay, silty, slightly discolored with oily sheen, moist					
1.7	17	Sand and Gravel, may be slightly saturated, cuttings after 20' were coming up very moist					
		Note: spoon sample taken at 15.0-16.5' - top .3 clay, remainder of sample (sand and gravel)					
		fell out of spoon when pulled, no water after.					
6.5	23.5	Clay, sandy, some small gravel, slightly moist, gray					
	EOB						
		Very wet cuttings appeared as we augered down past 18-20'. Spoon sample at 18.5-20' was					
		not wet, and Steams was confident we were still in stiff clay below 20'. The sand and gravel					
		layer form 15-17' was most likely the zone producing the water. Pulled augers back to 13' and					
		set screen from 14-17'. After 40 mins. slightly less than a foot of water in well. Purged dry,					
		very slow recovery. May have silted up saturated zone with clay from below.					

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Well/Boring No. SB-6
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment:
Supervisor: Bill Pushaw

Drilling Method(s) **Depth**
H.S. Auger 13.0'

Grouting/Seal

Depth	To	Material/Method
13.0	0.0	Soil / Bentonite

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 5/16/89 Finished: 5/16/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks

OVA

Blow Counts 18" / 12" / 6"

Thickness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	18"	12"	6"	
		SILTY CLAY, brown, trace amounts gravel	1.5-3.0	3	5	3	15
		fine-med. moist at ~4.0' wet at ~9.0'	4.0-5.5	1	1	2	2
			6.5-8.0	0	0	0	0
			9.0-10.5	0	0	0	0
			11.5-13.0	0	0	0	0

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Page: 1 of 1
Well/Boring No.: SB #6
Client: BOC Lansing
Project No.: 21544

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy.
Dutton, MI
Equipment: CME 45C
Crew Chief: R. Christensen
WW Supervisor: C. Cotton

Drilling Method(s) **Depth**
4 1/4" HSA 80.5'

Grouting/Seal
Depth/To Material/Method Batch
80.5-1' Baroid Gran. Benseal #1=10.2 lb/gal #2=9.5 lb/gal #3=9.5 lb/gal #4=9.5 lb/gal #5=9.4 lb/gal #6=9.3 lb/gal
Baroid Aqua Grout Catalyst Grout
1-0' Redi Mix

Development
Bailed dry 10 times - 1.5 gal.

Screen Temp Well - SB #6
Manufacturer: Johnson
Material: Stainless Steel
Model: Cont. Wound
Slot/Gauze: 7 sl. Dia.: 2"
Length: 3'
Depth Set: 67.6' To: 70.6'
Total depth from TOC = 72.6'

Casing

Dia.	Type	Depth Set	
2"	Galv.	+2'	To 67.6'
			To

Date
Started: 2/12/90 Finished: 2/13/90

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 69.06' Ft. Below TOC
Measure On: 2/13/90

Location See sketch

Remarks A very moist to wet zone found at 22' produced some very sloppy cuttings, however after leaving hole overnight, no water accumulated in augers, not worth attempting to screen.

9 bags - benseal
6 qts - catalyst
250 gal - water

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	24"
0.8	0.8	Concrete					
6.2	7	Sand, medium coarse, some gravel (fill), moist, brown	8.5-10	8	9	9	
1.9	8.9	Clay, very sandy, fine, moist	18.5-20	6	6	9	
0.6	9.5	Sand, fine, very moist to wet, brown	28.5-30	3	5	6	
3.5	13	Clay, very sandy, moist, brown, occasional small gravel	38.5-40	15	9	21	
9	22	Clay, silty, some very fine sand, gray, occasional small gravel, slightly moist	48.5-50	52	31	39	
14	36	Clay, sandy and silty, very moist, gray, occasional small gravel	58.5-60	20	25	36	
5	41	Sand, fine, silty, some small gravel, occasional layer of dry silty clay	68.5-70.5	19	21	25	29
9	50	Sand and Gravel, very silty, trace clay, fine grain, dry, gray	80-80.5	120 for 5"			
4	54	Sand, fine to medium, poorly sorted, dry, loose, light brown					
1	55	Gravel, large cobbles					
4.5	59.5	Sand, fine, very clayey, stiff, occasional gravel, gray/brown, slightly moist					
0.1	59.6	Sandstone, weathered, very brittle, light gray					
5.4	65	Sand, fine, very clayey, some small gravel					
5	70	Silt, moist, gray/brown					
10	80	Sand, fine, wet, slightly silty, set temp well at 70.6'					
.3	80.3	Silt, some fine sand, dense, slightly moist					
0.1	80.4	Coal					
0.1	80.5	Sandstone, light gray, brittle					
	EOB						

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Page: 1 of 1
Well/Boring No. SB-7
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor: Steams Drilling
Address: 6875 Industrial Pkwy
Dutton, MI
Equipment:
Supervisor: Bill Pushaw

Drilling Method(s) Depth
H.S. Auger 13.0'

Grouting/Seal
From To Material/Method
13.0 0.0 Soil / Bentonite

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap
Dia. Type Depth Set
N/A To
To

Date
Started: 5/16/89 Finished: 5/16/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks
OVA will not light. I will check samples back at office. There is no visible contamination & no odors here.

OVA
Blow Counts 18"
12"
6"
Sample Depth

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	18"	12"	6"	
	15.5	SILTY CLAY, brown, moist, occasional gravel, med. wet at 4.0'	1.5-3.0	2	5	6	
		Hit something hard at 15.5'	4.0-5.5	1	1	1	
			6.5-8.0	0	0	2	
			9.0-10.5	0	0	0	
		E.O.B. 15.5'	11.5-13.0	0	0	0	
		OVA readings = 0 ppm	14.0-15.5	0	0	1	

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Page: 1 of 1
Well/Boring No.: SB #7
Client: BOC Lansing
Project No.: 21544

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy, Dutton, MI
Equipment: CME 45C
Crew Chief: R. Christensen
WW Supervisor: C. Cotton

Drilling Method(s) **Depth**
4 1/4" HSA 30'

Grouting/Seal
Depth/To Material/Method Batch
30-1' Baroid Benseal #1=9.6 lb/gal #2=9.3 lb/gal
Granular Bent. & Catalyst Grout
1-0' Redi Mix

Development
Bailed dry 6 times - 2 gal.

Screen Temp Well - SB #7
Manufacturer: Johnson
Material: Stainless Steel
Model: Cont. Wound
Slot/Gauze: 7 sl. Dia.: 2"
Length: 3'
Depth Set: 25.4' To: 28.4'
Total depth from TOC = 31.6'

Casing
Dia. Type Depth Set
2" Galv. +3.2' To 25.4'
To

Date
Started: 2/15/90 Finished: 2/19/90

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 26.90' Ft. Below TOC
Measure On: Bldg. 301B - Nickel Rec.

Location See sketch

Remarks Switched sample intervals per M. Jones phone conf. 2/15 pm - to catch lithology at "in between" intervals - see sample depth. Took extra spoon at 15-17' to check for sat. zone - no sample collected. Switched interval back to previous pattern after 25' per E. Strang, need horizontal consistency in samples.

Thickness (feet)	Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts 24" 18" 12" 6" Sample Depth					
1	1	Concrete						
2	3	Sand and Gravel, fine to coarse, medium brown, loose	4-6	3	4	6	7	
1.2	4.2	Concrete	13.5-15.5	4	4	7	8	
3.3	7.5	Clay, very sandy, some small and medium gravel, occasional seam fine sand, firm,	15-17	3	4	6	7	
		slightly yellow/brown, yellow coating around gravel stones at 4-5'	23.5-25.5	15	28	29	35	
2.5	10	Clay, sandy, occasional small gravel, moist, soft and cohesive, brown/yellow tint	28.5-30	3	3	4		
3.8	13.8	Sand, very clayey, medium grain, occasional small gravel, moist, brown/yellow tint						
9.9	23.7	Clay, sandy, slightly silty, some coarse sand and fine gravel, occcasional seam fine wet						
		sand between 14-15.5', then becoming more stiff, gray, moist						
1.3	25	Sand, fine, slightly silty, very discolored, yellow/orange, very moist						
1	26	Silt and Sand, trace of clay, very stiff, occasional small gray, gray, dry						
2	28	Sand, wet						
2	30	Clay, very sandy, very moist, occasional gravel and coal, gray						
	EOB	Water in augers after collecting sample at 28.5-30' stabilized at 21.8' below surface.						
		Set well at 28.4' to sample sat. sand layer, surprisingly poor recovery.						

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Page: 1 of 1
Well/Boring No. SB-8
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor: Stearns Drilling
Address: 6875 Industrial Pkwy, Dutton, MI
Equipment:
Supervisor: Bill Pushaw

Drilling Method(s) / **Depth**
H.S. Auger / 13.0'

Grouting/Seal

Depth	To	Material/Method
13.0	0.0	Soil / Bentonite

Development
N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing Flush Mount Cap

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 5/16/89 Finished: 5/16/89

Elevation
Casing:
Ground:
Ref. Pt.:

Water Level Ft. Below
Measure On:

Location

Remarks
OVA not working, will check back at lab to see if there are any readings. Soil here is primarily what appears to be clean sand. No visual contamination, no odors. Hit something hard and impassible just before 13.0'.

OVA
Blow Counts: 18" / 12" / 6"

Thick-ness	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	18"	12"	6"	
	4.5	SAND, med. brown with gravel med.	1.5-3.0	2	2	3	
	4.7	A few small lenses of silty clay at ~4.5'	4.0-5.5	4	4	5	
	10.00	SAND, fine, brown, moist	6.5-8.0	3	2	4	
	10.3	SILTY CLAY, brown (small lense)	9.0-10.5	3	3	4	
	13.0	SAND, fine, med. brown moist	11.5-13.0	3	5	10	
						concrete	
		OVA Readings =Oppm					

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB #8
Client: BOC Lansing
Project No.: 21544

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: 6875 Industrial Pkwy.
Dutton, MI
Equipment: CME 45C
Crew Chief: R. Christensen
WW Supervisor: M. Jones

Drilling Method(s) **Depth**
4 1/4" ID HSA 79'

Grouting/Seal
Depth/To Material/Method
0-79.5' Bent. slurry/tremmie pipe

Development None

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
N/A To
To

Date
Started: 2/20/90 Finished:

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level ~75' Ft. Below gr.
Measure On: 2/20/90

Location

Remarks Composite sample 1' to 7' (~1' concrete). No water 20-30', occasional damp seams only. 7 minutes to drill 58.5-60' with 400 psi hydra-pressure. 5 min 60-63' change ~61.5-66' resistance, probably rock, then 4 mins to 68.5' (from 66'). Rods, had to break at 10' intervals due to ceiling height. 4 mins at 500 psi. 77.5-78.5' Grab sample water from augers using Teflon Bailer.

Thickness (feet)	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 1st	2nd	3rd	4th
	0.7	Concrete	1-3	3	2	3	4
	4	Clay, sandy, occasional fine gravel, brown, dry, hard	3-5	4	9	15	21
	5.2	Sand, clayey, some silt and occasional fine gravel, dense, dry, seam of light colored silty material, dry, hard	5-7	5	9	11	12
	8.8	Clay, sandy, some silt and fine gravel, brown pliable, dry	8.5-10	8	6	7	
	~11	Sand, clayey, occasional rock and gravel, brown, moist, decayed wood and occasional organics, top of seam	18.5-20	2	4	8	
			28.5-30	2	2	3	
	~14	Clay, sandy, brown, pliable, occasional moist seams	38.5-40	14	21	34	
	~27	Clay, sandy, pliable, gray, soft, occasional seams and pockets of brown peat, dry	48.5-50	12	14	18	
	28.8	Sand, gray, fine, dry	58.5-60	15	19	26	
	~36	Clay, silty, some very fine sand, gray, soft, moist, occasional sand lenses	68.5-70	9	16	27	
	38.5	Silt, dry, brown	79-80	35/1"			
	~48	Sand, very fine, with some silt, occasional medium to coarse sand, very light gray, dry	No recovery except shattered sandstone				
	~58	Silt, sandy, some coarse sand, gray, occasional fine gravel, dry					
	79.5	Silt, very sandy, gray, occasional rock and gravel, slightly moist					
		Bedrock, sandstone					
	EOB						

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-9
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: Dutton, MI

Equipment: CME 55
Crew Chief: Gary Geerlings
Supervisor: R. Clapp

Drilling Method(s) **Depth**
3 1/4" ID HSA 70.5'
or ~10" OD HSA

Grouting/Seal

Depth/To	Material/Method
65-1'	Cement/Bent. Grout w/ Tremie Rod
1-0'	Redi-mix Concrete

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing

Dia.	Type	Depth Set
	N/A	To
		To

Date
Started: 11/13/89 Finished: 11/14/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 59.5' Ft. Below ground
Measure On: Immediately after encountering aquifer - inside augers

Location See seperate location map

Remarks Background OVM = 1.3 ppm (head space test)
Sample at 14-15.5' was taken only to describe lithology, no recovery so we went down to next interval (drove stone). A stone lodged in lead auger probably prevented the recovery of the silt layer at this depth.

Thickness (feet)	Depth to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	OVM (ppm above background)
.1	1	CONCRETE	1-2	From auger flights			.7
1	2	CLAY, some silt, some fine sand, trace coarse to medium sand, trace fine gravel,	9-11	3	4	7	.7
		brown mottled clay, slightly moist	14-15.5	7	11	15	NR
6	8	CLAY, some silt, some fine sand, trace coarse to medium sand, trace coarse to fine gravel,	19-20.5	25	60 for 5"		0
		brown, slightly moist	24-25.5	3	5	15	.7
7	15	CLAY, some fine sand, little silt, little coarse to medium sand, trace fine gravel, brownish	29-30.5	7	6	6	0
		gray, slightly moist	39-40.5	18	25	40	0
3	18	SILT, some fine sand, trace clay, brown, dry	49-50.5	19	31	50	0
16	34	CLAY, little silt, little coarse to fine sand, trace coarse to fine gravel, brownish gray, moist,	59-60.5	27	25	32	0
		with seams fine sand, wet	69-70.5	10	9	10	0
11	45	SAND, fine, little silt, gray, dry					
9	54	CLAY, some fine sand, little coarse to medium sand, trace coarse to fine gravel,					
		occasional rubble, brownish gray, slightly moist				6"	
6.7	60.7	CLAY, some fine sand, little coarse to medium sand, brownish gray, moist with layers (4")					
		clayey sand, moist					
9.3	70	SAND, medium to fine, some coarse sand, trace fine gravel, gravish brown, wet					
0.4	70.4	SAND, coarse to fine, some fine gravel, trace coarse gravel, gravish brown, wet					
0.1+	70.5+	SAND, coarse to fine, some fine gravel, trace fine gravel, gravish brown, wet, with small					
		1/2" pieces of weathered black shale					
		NR = No Recovery					
		EOB - 70.5'					

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-10
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: Dutton, MI

Equipment: CME 55
Crew Chief: Gary Geerlings
Supervisor: R. Clapp

Drilling Method(s)	Depth
4 1/4" ID HSA	63'
or 8" OD HSA	

Grouting/Seal

Depth/To	Material/Method
58-58'	Cave In/Nat. Soils
58-1'	Cement/Bent. Grout
1-0'	Redi-mix Concrete

Development With SS Bailer
Total purged - 3.5 gals.

Screen Temp Well
Manufacturer: Johnson
Material: Stainless Steel
Model: Cont. Wire Wound
Slot/Gauze: 7 Dia.: 2"
Length: 5'
Depth Set: 58' To: 63'

Casing

Dia.	Type	Depth Set
2"	Galv.	0' To 58'
		To

Date
Started: 11/14/89 Finished: 11/15/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 58.8' Ft. Below grade
Measure On: 11/15/89 ~14 hrs. after setting the well.

Location See base location map

Remarks Strong gasoline odor present in soils from about 1-5' below grade.
Screened formation has very low permeability.
Cloudy and rain, ~50°F, all day
Well was pulled imediately after sampling.

Depth (feet) to Base	LITHOLOGIC DESCRIPTION	Sample Depth	Blow Counts 6"	12"	18"	OVM (ppm above background) from auger flights
1	CONCRETE	1-2				85
5	CLAY, some silt, some fine sand, trace coarse to medium sand, trace fine gravel,	9-10.5	2	6	14	3
	brown mottled clay, moist, odor	18.5-20	24	28	45	0
8	CLAY, some silt, some fine sand, trace medium to coarse sand, trace coarse to fine gravel,	28.5-30	13	20	30	0
	brown, slightly moist, odor	38.5-40	15	25	47	0
17.5	CLAY, some fine sand, little silt, little coarse to medium sand, trace coarse to fine gravel,	50-51.5	25	50	48	0
	brownish gray, slightly moist	58.5-60	17	28	24	0
27	CLAY, some silt, some fine sand, trace coarse to to medium sand, trace coarse to fine gravel,					
	brown, dry, with layers (4") brown fine sand, gray, dry					
36	SILT, trace clay, trace fine sand, gray, dry					
43	SAND, very fine, some silt, gray, dry					
58	CLAY and SILT, some fine sand, trace coarse to medium sand, trace coarse to fine					
	gravel, brownish gray, slightly moist					
63+	SILT, some clay, little fine sand, gray to wet, with layers (1-2") brown fine sand, wet					
	EOB - 63'					

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-11
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: Dutton, MI

Equipment: Acker
Tim/John
Supervisor: M. Christensen

Drilling Method(s) **Depth**
H. S. Auger 29'

Grouting/Seal
Depth/To Material/Method
7-1' Grout/Full Depth

Development N/A

Screen Temp Well
Manufacturer: Johnson
Material: Stainless Steel
Model: Cont. Wire Wound
Slot/Gauze: 10 Dia.: 2"
Length: 5'
Depth Set: 23' To: 18'

Casing
Dia. Type Depth Set
2" Galv. 18 To +1'
To

Date
Started: 11/9/89 Finished: 11/9/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 22.1' Ft. Below surface
Measure On: 11/10/89

Location See base location map

Remarks Dry samples at 16' and 19', wet zone somewhere between.
After removing screen and casing water level rose to 9.8'.

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts / Sample Depth	Hnu (ppm above background) 24"	18"	12"	6"	
1	1	CONCRETE	1-3	off auger				0
12	13	SAND, medium (fill), moist	9-11	11	13	20	20	0
6.5	19.5	CLAY, brown, with occasional stone	14-16	4	8	10	14	0
1	20.5	SILT, brown, moist	19-21	13	22	5	8	0
3.5	24	CLAY, brown, sandy, moist	24-25.5	13	18	30	No sample	
1.5	25.5	SAND, brown, fine	29-31	8	10	14	9	0
4.5	30	SAND, very fine, silt						
1	31+	CLAY, sandy, brown						

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-12
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: Dutton, MI

Equipment: Acker
Tim/John
Supervisor: M. Christensen

Drilling Method(s) **Depth**
H. S. Auger 14.5'

Grouting/Seal
Depth/To Material/Method
7-1' Grout/Full Depth

Development N/A

Screen Temp Well
Manufacturer: Johnson
Material: Stainless Steel
Model: Cont. Wire Wound
Slot/Gauze: 10 Dia.: 2"
Length: 5'
Depth Set: 14.9' To: 9.9'

Casing
Dia. Type Depth Set
2" Galv. 9.9' To +2'
To

Date
Started: 11/7/89 Finished: 11/7/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 6.7' Ft. Below surface
Measure On: 11/8/89

Location See base location map

Remarks Water at 14.6' - 11/17/89 5:00 pm

Thickness (feet)	Depth to Base (feet)	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	Hnu (ppm above background) 24"	18"	12"	6"	
1.2	1.2	CONCRETE with steel	1-3	off auger				0
2.8	4	SAND, medium brown, fill	9-11	5	9	15	14	0
5.5	9.5	CLAY, sandy, moist	14-16	11	17	22	48	0
2.5	12	CLAY, sandy, very slight moisture (till)						
2	14	SAND, fine, silty, wet						
2	16	CLAY, sandy, (till), very slight moisture						

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-13
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: Dutton, MI

Equipment: Acker
Tim/John
Supervisor: M. Christensen

Drilling Method(s) **Depth**
H. S. Auger 14'

Grouting/Seal
Depth/To **Material/Method**
7-1' Grout/Full Depth

Development N/A

Screen Temp Well
Manufacturer: Johnson
Material: Stainless Steel
Model: Cont. Wire Wound
Slot/Gauze: 10 **Dia.:** 2"
Length: 5'
Depth Set: 15.5' **To:** 10.5'

Casing
Dia. Type Depth Set
2" Galv. 10.5' To +2'
To

Date
Started: 11/8/89 **Finished:** 11/8/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 12.5' Ft. Below surface
Measure On: 11/8/89 12:30 pm, after setting ~1 hour.

Location See base location map

Remarks

Thickness (feet)	Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	Hnu (ppm above background) 24"	18"	12"	6"	
1.2	1.2	CONCRETE with steel	1-3	off auger				3.5
1.8	3	SAND, medium brown, fill	9-11	5	7	11	13	19
12.2	15.2	CLAY, sandy, moist	14-16	3	5	9	12	0
0.2	15.4	SAND, medium, wet						
0.6	16	CLAY, sandy, moist						

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-14
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: Dutton, MI

Equipment: Acker
Tim/John
Supervisor: M. Christensen

Drilling Method(s) **Depth**
H. S. Auger 47'

Grouting/Seal
Depth/To Material/Method
7-1' Grout/Full Depth

Development N/A

Screen Temp Well
Manufacturer: Johnson
Material: Stainless Steel
Model: Cont. Wire Wound
Slot/Gauze: 10 Dia.: 2"
Length: 5'
Depth Set: 38' To: 43'

Casing
Dia. Type Depth Set
2" Galv. 38' To +4'
To

Date
Started: 11/8/89 Finished: 11/9/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 20' Ft. Below surface
Measure On: 11/9/89

Location See base location map

Remarks 8-8.2' soils wet but no water to sample.

Thickness (feet)	Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts / Sample Depth	Hnu (ppm above background) 24"	18"	12"	6"
1	1	CONCRETE with steel	1-3	off auger			9
2	3	SANDY, with gravels	6-8	9	12	18	13 3
3.7	6.7	CLAY, sandy	9-11	2	3	6	8 2
1	7	SAND, fine, very moist	14-16	5	7	10	13 0
1	8	CLAY, sandy, brown, slight moisture	19-21	22	30	34	22 1
0.2	8.2	SAND, medium to coarse, wet	29-31	15	20	21	17 0
5.8	14	CLAY, sandy, brown	39-41	18	25	31	27 0
5	19	CLAY, brown	47-49	17	23	28	35 0
10	29	CLAY, sandy, brown, very slight moisture					
2	31	SAND, very fine, silt, dry					
7	38	CLAY, sandy, slight moisture					
11	49	SAND, fine, very moist					

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-15
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: Dutton, MI

Equipment: Acker
Tim/Gary/John on 11/7/89
Supervisor: M. Christensen

Drilling Method(s) **Depth**
H. S. Auger 69'

Grouting/Seal
Depth/To Material/Method
7-1' Grout/Full Depth

Development N/A

Screen
Manufacturer:
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
To
To

Date
Started: 11/6/89 Finished: 11/7/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 59.2' Ft. Below surface
Measure On: 11/6/89
53.6' water level 11/7/89

Location See base location map

Remarks Bailed sample through screened lead auger.

Thickness (feet)	Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	Hnu (ppm above background) 24"	18"	12"	6"
0.8	0.8	CONCRETE with steel	1-3	2	4	5	5	0
1	1.8	SAND, medium (fill), wet	9-11	8	9	10	11	<1
1.2	3	CLAY, silty, moist, occasional stone	19-21	22	40	30		0
6.5	9.5	SILT, wet	29-31	11	16	20	22	0
8.5	18	CLAY, brown to gray, silty, moist	39-41	21	33	41		0
5	23	SAND, fine, silty, slight moisture	49-51	24	33	55		0
6	29	SILT, brown, wet, but no water to sample	59-61	16	17	17	19	0
21	50	SAND, very fine, slight moisture	69-71	2	5	7	9	0
19	69	SAND, fine, till						
1	70	SAND, coarse, with gravel, wet						

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Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-16 Plant 3
Client: BOC Lansing
Project No.: 21253

Well/Boring Log Sheet

County	Township	Fraction 1/4 1/4 1/4	Section	T	R

Contractor Stearns Drilling
Address: Dutton, MI

Equipment: Acker
Tim/John
Supervisor: M. Christensen

Drilling Method(s) **Depth**
H. S. Auger 60'

Grouting/Seal
Depth/To Material/Method
7-1' Grout/Full Depth

Development N/A

Screen
Manufacturer:
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
To
To

Date
Started: 11/3/89 Finished: 11/6/89

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 59.2' Ft. Below surface
Measure On: 11/3/89

Location See base location map

Remarks Bailed sample through screened auger.
Sample: 1.2-3.2 39-40.5
9-11 Storm sewer at 9' in east MH 49-51
19-20.5 59-61
29-31

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	Hnu 24"	18"	12"	6"	
1.2	1.2	CONCRETE with steel	1.2-3.2	10	13	14	9	<2
1.8	3	SAND, medium, brown, concrete, rubble	9-11	7	7	10	12	<0
8	11	CLAY, brown, sandy, moist	19-21	40	50	57		<2
8	19	CLAY, some sand, moist, brown	29-31	11	9	8	8	<2
6	25	SAND, medium to fine, slight binder, moist	39-40	22	40	43		<1
4	29	SAND, medium, brown, moist	49-51	18	20	26	31	<1
20	49	CLAY, silty, moist	59-61	17	28	35	40	<0
6	55	SAND, very fine, silty, slight moisture						
6	61	SAND, very fine, silty, wet						
		59' water sample from auger						

WW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-17
Client: BOC Lansing Plant 1
Project No.: 21666

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R

Contractor Stearns Drilling Co.
Address: 6974 Hammond Rd.
Dutton, MI 49316
Equipment: Acker
Crew Chief: Paul Mills
WW Supervisor: R.Wagner, J. Cargil

Drilling Method(s) **Depth**
4 1/4" ID HSA (screened) 42.0'

Grouting/Seal
Depth/To
42.0'-39.3' Cave In Nat. Soils
39.3'-1.0' Cement/Bent. Grout
1.0'-0.0' Ready Mix

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
N/A To
To

Date
Started: 4/24/90 Finished:

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level 41.0 Ft. Below ground
Measure On: Augers

Location

Remarks Back ground HNU 1ppm
RF= Refusal
NSR= No Sample Recovered

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	HNU (ppm) 18"	12"	6"	
4.0'	4.0'	Sand, fine to med., brown occassional gravel, dry	1.0-2.5	5	9	15	0
4.5'	8.5'	Silt, with fine sand, clay binder, brown, moist	5.0-6.5	5	6	7/9	0
3.0'	11.5'	Clay, sandy, grey, moist, no odor	10-11.5	4	7	9	0
0.2'	11.7'	Sand, fine to med., grey, wet, no odor	15-16.5	9	11	10	0
8.3'	20.0'	Clay, sandy, grey, slightly moist, no odor	20-21.5	21	24	70	5
6.0'	26.0'	Sand, fine, with occassional gravel, brown to grey, dry, no odor	30-31.5	8	10	21	12.6
4.0'	30.0'	Sand, fine, light brown, dry, no odor	40-41.5	24	45	RF	NSR
12.0'	EOB	Silt, sandy, grey, moist, no odor, drove rock with spoon?					

WW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-18
Client: BOC Lansing Plant 1
Project No.: 21666

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R

Contractor Steams Drilling Co.
Address: 6974 Hammond Rd.
Dutton, MI 49316
Equipment: Acker
Crew Chief: Paul Mills
WW Supervisor: R.Wagner, J. Cargil

Drilling Method(s) **Depth**
4 1/4" ID HSA 52.0'

Grouting/Seal
Depth/To
52.0'-1.0' Benut. Grout
1.0'-0.0' Ready Mix

Development N/A

Screen
Manufacturer: N/A
Material:
Model:
Slot/Gauze: Dia.:
Length:
Depth Set: To:

Casing
Dia. Type Depth Set
N/A To
To

Date
Started: 4/23/90 Finished: 4/23/90

Elevation
Casing: N/A
Ground:
Ref. Pt.:

Water Level dry Ft. Below
Measure On: N/A

Location

Remarks HNU may be slighty off calibration, no calibration gas.
Background 1 ppm, no noticable odors

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	PID (ppm)	Blow Counts 6"	12"	18"		
			Sample Depth					
7.5'	7.5'	Sand, fine to med., brown clay matrix, occassional gravel	0-1.5	4	4	8	70	
12.0'	19.5'	Clay, silty dark gray, dry, med., stiff	9.5-11.0	6	10	14	70	
3.5'	23.0'	Silt, brown, some sand, track of small gravel, dry	19.5-21.0	7	17	19	62	
5.0'	28.0'	Sand, brown, med., dry	30-31.5	9	15	10		
2.0'	30.0'	Sand, gray-brown, med. dry	40-41.5	10	18	53		
2.0'	32.0'	Silt, gray, trace of fine sand slightly moist	50-51.4	28	35	50/4.5		
9.0'	41.0'	Sand, gray fine, dry						
0.5'	41.5'	Clay, silty, brown, trace of sand & gracel, slightly moist						
0.5'	EOB	Sand, gray, fine: shale fragments in 50' to 51.4' spoon (from above) bedrock						

WW Engineering & Science, Inc.
Environmental Services Division

Page: 1 of 1
Well/Boring No.: SB-20
Client: BOC Lansing
Project No.: 21666.01
Date:
Started: 8/12/91 Finished: 8/12/91

Well/Boring Log Sheet

County	Township	Fraction	Section	T	R
Ingham	Lansing	SE1/4	7	4N	2W

Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 75
Crew Chief: Duane
WW Supervisor: Don Johnson

Drilling Method(s) — **Depth**
4 1/4" ID HSA — 0.0-70.0'

Location

Grouting/Seal

Depth/To	Material/Method
0.0'-1.0'	Gravel Mix Cement
1.0'-70'	Cement/Bentonite Grout

Remarks No well set at this location. Boring only/soils sampled at 10-foot intervals to the water table.

Water Level 60' Ft. Below GD

Thickness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts Sample Depth	OVM/PID (ppm) 6"	12"	18"	24"	Response	Background
1.0	1.0	CONCRETE							
3.5	4.5	SAND, brown, fine to coarse and some fine to medium gravel							
2.5	7.0	CLAY, brown, sandy and some fine to medium gravel, dry	8'-10'	3	4	5	7	0	0
12	19	CLAY, gray, sandy and some fine gravel, dry	18'-20'	4	6	8	10	0	0
4	23	CLAY, gray, sandy, medium firm and trace of silt, dry	28'-30'	8	12	16	26	0	0
16	39	CLAY, gray, sandy and some fine to medium gravel, dry	38'-40'	12	19	26	34	0	0
0.5	39.5	SILT, gray and traces of gray clay, dry							
6.5	46	SAND, gray, fine to coarse and some fine to medium gravel with occasional coarse gravel	48'-50'	18	24	23	18	0	0
2.5	48.5	SILT, gray and some fine gray sand, moist	58'-60'	11	15	17	17	0	0
6.5	55	SILT, gray and some very fine gray sand, dry	68'-70'	3	5	5	7	0	0
8	63	CLAY, gray, very silty, dry and occasional fine gravel with pieces of coal							
6	69	SAND, gray, very fine to fine and some gray silts, wet							
1.0	70	SILT, gray and some very fine gray sands, moist							
		EOB @ 70'							

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. SB-25

PROJECT:	GM-Lansing, Plant #3, Area 3
CLIENT:	GM-LAD
BORING CONTRACTOR:	Geo-Tek Inc.
GROUND WATER:	

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3-1/2"		
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION	860.32
DATE STARTED:	10/15/93
DATE FINISHED:	10/15/93
DRILLER:	Peter Buell
GEOLOGIST:	Michael Kovacs
REVIEWED BY:	David Frazier

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								Asphalt over Concrete		
		S-1	CME		60	light brown/ grey		CLAYEY SILT, some fine Sand	Fill	moist
5		S-2	CME		100	brown/ grey		SANDY SILT, some Gravel	ML	moist
10		S-3	CME		100	brown		...grade: little Gravel CLAY, little fine Sand, some Gravel	CL	moist
15		S-4	CME		100	light grey		SANDY SILT, little Gravel	ML	very moist dry
20		S-5	CME		100	grey		SAND Seam	SP	dry
25		S-6	CME		90	grey		interbedded SAND and SILT	SP/ML	moist dry
30		S-7	CME		100	brown				moist
						grey		SILTY CLAY, little fine Sand	CL	very wet moist
35		S-8	CME			grey/ brown		SILTY SAND	SM	moist
40								End of Boring 39.0 ft.		

COMMENTS HNu readings not reported due to malfunctioning gauge. CME - 3.5" dia. x 5' soil coring tube

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. SB-26

PROJECT: GM-Lansing, Plant #3, Area 3
CLIENT: GM-LAD
BORING CONTRACTOR: Geo-Tek Inc.
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3-1/2"		
WT.				
FALL				

SHEET NO. 1 OF 1
JOB NO. : E1-93-110
GROUND ELEVATION 860.36
DATE STARTED: 10/14/93
DATE FINISHED: 10/14/93
DRILLER: Peter Buell
GEOLOGIST: Michael Kovacs
REVIEWED BY: David Frazier

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								Concrete		
		S-1	CME		50	brown		SAND	Fill	moist , Hnu = ND
5		S-2	CME		100	brown/ grey		SANDY SILT with fine Sand interbeds	ML	black stain @ 5' Hnu(5')=68ppm very moist moist
10		S-3	CME		100	grey		SILTY SAND, little Gravel	SM	Hnu(6-9')=ND wet Hnu(9-14')=ND dry
15		S-4	CME		100	grey		SANDY SILT	ML	dry wet
						grey		CLAY and SILT, little fine Sand, little Gravel	CL/ML	Hnu(14-19')=ND dry
20		S-5	CME		20	grey		interbedded fine SAND and SANDY SILT	SP/ML	Hnu(19-24')=ND
25		S-6	CME		100					Hnu(24-29')=ND moist
30		S-7	CME		100					vertical sand/silt beds Hnu(29-34')=ND moist
35		S-8	CME		100					Hnu(34-39')=ND
40								End of Boring 39.0 ft.		

COMMENTS ND - non detect. CME - 3.5" dia. x 5' soil coring tube.

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. SB-27

PROJECT:	GM-Lansing, Plant #3, Area 3
CLIENT:	GM-LAD
BORING CONTRACTOR:	Geo-Tek Inc.
SHEET NO. 1 OF	1
JOB NO. :	E1-93-110
GROUND ELEVATION	860.16'
DATE STARTED:	10/14/93
DATE FINISHED:	10/14/93
DRILLER:	Peter Buell
GEOLOGIST:	Michael Kovacs
REVIEWED BY:	David Frazier

GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3-1/2		
WT.				
FALL				

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								1' Concrete		
		S-1	CME		50	brown		SAND, some Clay	Fill	Hnu(1-3')=ND moist
5		S-2	CME		100	brown		SILTY SAND with fine Sand interbeds ... little Gravel	SM	Hnu(3-8')=ND very moist
						grey		SAND and GRAVEL lens	SG	moist
10		S-3	CME		100					Hnu(8-13')=ND dry
15		S-4	CME		100	brown		SANDY SILT	ML	Hnu(13-18')=ND
20		S-5	CME		100					Hnu(18-23')=ND
25		S-6	CME		20	grey		interbedded fine SAND and SANDY SILT	SP/ML	Hnu(23-28')=ND dry
30		S-7	CME		100					Hnu(28-33')=ND moist very moist
35		S-8	CME		100			... little Gravel		Hnu(33-38')=ND moist
40								End of Boring 38.0 ft.		

COMMENTS ND - non detect. CME - 3.5" x 5' soil coring tube.

PROJECT NO. E1-93-110

Log of Well VEW-1

Plant #3 Tank Farm
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *8*
Date Started: *1/18/95* **Date Completed:** *1/18/95*	**Total Depth Drilled (ft.):** *16*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *6-16*	**Filter Pack Interval (ft. bgl):** *5-12*
Screen Length (ft.): *10*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *5.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-5*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #3 Tank Farm

Log of Well VEW-1

Depth (feet bgl)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0	**Concrete**			flush mount; cement		
	Clay lt. brown, 10YR6/3, lots sand, dry, slightly plastic			4-inch PVC casing; hydrated granular bentonite		
2						
4	**Clay** lt. brown, 10YR6/3, some sand, dry, trace gravel, hard					
6	**Clay** grayish brown, 10YR5/2, some sand, trace gravel, dry, hard					
8	**Clay** grayish brown, 10YR5/2, some sand, trace gravel, dry, hard, sand lens at 9-9.25 bgl - saturated	CL				
10	**Clay** gray, 10YR5/1, slightly plastic, moist, trace gravel, trace sand			4-inch PVC screen; filter sand		
12						
14						
16	End of Boring					

Log of Well SB-1/VOW-1

Plant #3 Tank Farm
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *8*
Date Started: *1/18/95* **Date Completed:** *1/18/95*	**Total Depth Drilled (ft.):** *13*
Apparent Depth to Saturation While Drilling (ft. bgl): *9*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *8-13*	**Filter Pack Interval (ft. bgl):** *7-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/2*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *7.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/2*	**Grout Interval (ft. bgl):** *1-7*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #3 Tank Farm — Log of Well SB-1/VOW-1

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	PID or FID (ppm) Values	PID or FID (ppm) Profile	Soil/Rock Description and Comments	USCS Classification	Lithologic Log	Well Construction	Elevation (ft.)
0					Concrete			flush mount; cement	
2	56	75%	0		Clay lt. brown, 10YR6/3, lots sand, dry, slightly plastic			2-inch PVC casing	
4	63	90%	0		Clay lt. brown, 10YR6/3, some sand, dry, trace gravel, hard			hydrated granular bentonite	
6	56	50%	0		Clay grayish brown, 10YR5/2, some sand, trace gravel, dry, hard	CL			
8	40	75%	0		Clay grayish brown, 10YR5/2, some sand, trace gravel, dry, hard, sand lens at 9-9.25 bgl – saturated			2-inch PVC screen; filter sand	
10	36	80%	0		Clay gray, 10YR5/1, slightly plastic, moist, trace gravel, trace sand				
12									
14					End of Boring				
16									

Environmental Science & Engineering, Inc.

Log of Well VOW-2

Plant #3 Tank Farm
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *8*
Date Started: *1/18/95* **Date Completed:** *1/18/95*	**Total Depth Drilled (ft.):** *13*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

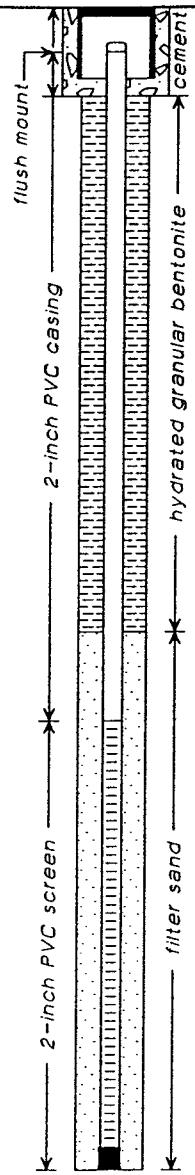
Completion Information

Screened Interval (ft. bgl): *8-13*	**Filter Pack Interval (ft. bgl):** *7-13*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/2*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *7.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/2*	**Grout Interval (ft. bgl):** *1-7*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #3 Tank Farm — Log of Well VOW-2

Depth (feet bgl)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0	Concrete					
2	Clay lt. brown, 10YR6/3, lots sand, dry, slightly plastic	CL				
4	Clay lt. brown, 10YR6/3, some sand, dry, trace gravel, hard					
6	Clay grayish brown, 10YR5/2, some sand, trace gravel, dry, hard					
8	Clay grayish brown, 10YR5/2, some sand, trace gravel, dry, hard, sand lens at 9–9.25 bgl – saturated					
10	Clay gray, 10YR5/1, slightly plastic, moist, trace gravel, trace sand					
12						
14	End of Boring					
16						



GM Lansing Plant 6
Boring Log Master List

Location Name	Have Boring Log
B-96-A	No
B-96-B	No
B-96-C	No
B-96-D	No
B-BP-1	Yes
B-BP-14	Yes
B-BP-15	Yes
B-BP-16	Yes
B-BP-2	Yes
B-BP-3	Yes
B-BP-4	Yes
B-BP-5	Yes
B-BP-6	Yes
B-BP-7	Yes
B-BP-8	Yes
CollectionSump	NA
Composite Waste	NA
E-1	Yes
E-10	Yes
E-11	Yes
E-12	Yes
E-13	Yes
E-14	Yes
E-15	Yes
E-16	Yes
E-17	Yes
E-18	Yes
E-19	Yes
E-2	Yes
E-20	Yes
E-21	Yes
E-22	Yes
E-23	Yes
E-24	Yes
E-25	Yes
E-26	Yes
E-27	Yes
E-28	Yes
E-29	Yes
E-3	Yes
E-30	Yes
E-31	Yes
E-32	Yes
E-33	Yes
E-34	Yes
E-34A	No
E-35	Yes
E-35A	No
E-36	Yes

GM Lansing Plant 6
Boring Log Master List

Location Name	Have Boring Log
E-36A	No
E-37	Yes
E-37A	No
E-38	Yes
E-38A	No
E-39	Yes
E-39A	No
E-4	Yes
E-40	Yes
E-40A	No
E-40A MD	NA
E-41	Yes
E-41A	No
E-5	Yes
E-7	Yes
E-8	Yes
E-9	Yes
Equipment Blank	NA
ExcavationWater	NA
G-1	Yes
G-10	Yes
G-2	Yes
G-3	Yes
G-4	Yes
G-5	Yes
G-6	Yes
G-7	Yes
G-8	Yes
G-9	Yes
GDW-96-BP1	No
GDW-96-BP2	No
GP-1	Yes
GP-10	Yes
GP-2	Yes
GP-3	Yes
GP-4	Yes
GP-5	Yes
GP-6	Yes
GP-7	Yes
GP-8	Yes
GP-9	Yes
MW-02-01	Yes
MW-02-02	Yes
MW-02-03	Yes
MW-03-01	Yes
MW-03-02	Yes
MW-03-03	Yes
MW-03-04	Yes
MW-03-05	Yes

GM Lansing Plant 6
Boring Log Master List

Location Name	Have Boring Log
MW-03-06	Yes
MW-03-07	Yes
MW-03-08	Yes
MW-04-01	Yes
MW-04-02	Yes
MW-04-03	Yes
MW-04-04	Yes
MW-04-05	Yes
MW-04-06	Yes
MW-1	Yes
MW-100	NA - Duplicate Sample
MW-101	NA - Duplicate Sample
MW-10A	No
MW-12A	No
MW-13A	No
MW-2	Yes
MW-3	Yes
MW-4	Yes
MWBP-10	Yes
MWBP-10	Yes
MWBP-10A	Yes
MWBP-11	Yes
MWBP-11	Yes
MWBP-11A	Yes
MWBP-12	Yes
MWBP-12	Yes
MWBP-12A	Yes
MWBP-13	Yes
MWBP-13A	Yes
Rinse Blank	NA
S-1	No
S-2	No
S-3	No
S-4	No
SA 10-2	Yes
SA 10-3	Yes
SA 10-4	Yes
SA 10-4R	Yes
SA 11-1	Yes
SA 11-10	Yes
SA 11-11	Yes
SA 11-12	Yes
SA 11-14	Yes
SA 11-15	Yes
SA 11-16	Yes
SA 11-17	Yes
SA 11-18	Yes
SA 11-1B	Yes
SA 11-2	Yes

GM Lansing Plant 6
Boring Log Master List

Location Name	Have Boring Log
SA 11-3	Yes
SA 11-4	Yes
SA 11-5	Yes
SA 11-6	Yes
SA 11-7	Yes
SA 11-8	Yes
SA 11-9	Yes
SA 12-1	Yes
SA 12-2	Yes
SA 12-3	Yes
SA 12-4	Yes
SA 13-1	Yes
SA 13-2	Yes
SA 14-1	Yes
SA 1-5	Yes
SA 1-6	Yes
SA 20-1	Yes
SA 20-2	Yes
SA 20-3	Yes
SA 20-4	Yes
SA 22-2	Yes
SA 22-3	Yes
SA 26-3	Yes
SA 28-1	Yes
SA 28-2	Yes
SA 28-3	Yes
SA 29-2	Yes
SA 29-3	Yes
SA 3-1	Yes
SA 3-2	Yes
SA 32-1	Yes
SA 32-2	Yes
SA 34-1	Yes
SA 34-2	Yes
SA 34-3	Yes
SA 34-4	Yes
SA 34-5	Yes
SA 34-6	Yes
SA 34-7	Yes
SA 34-8	Yes
SA 4-1	Yes
SA 4-3	Yes
SA 4-4	Yes
SA 4-5	Yes
SA 5-1	Yes
SA 5-4	Yes
SA 5-5	Yes
SA 6-1	Yes
SA 6-10	Yes

GM Lansing Plant 6
Boring Log Master List

Location Name	Have Boring Log
SA 6-11	Yes
SA 6-12	Yes
SA 6-2	Yes
SA 6-3	Yes
SA 6-4	Yes
SA 6-5	Yes
SA 6-6	Yes
SA 6-7	Yes
SA 6-8	Yes
SA 6-9	Yes
SA 7-1	Yes
SA 7-10	Yes
SA 7-2	Yes
SA 7-3	Yes
SA 7-4	Yes
SA 7-5	Yes
SA 7-6	Yes
SA 7-7	Yes
SA 7-8	Yes
SA 7-9	Yes
SA 8-1	Yes
SA 8-2	Yes
SA 8-3	Yes
SA 8-5	Yes
SA 8-6	Yes
SA 9-2	Yes
SB-1	Yes
SB-1A	No
SB-2	No
SB-3	Yes
SB-4	Yes
SB-5	Yes
SB-5A	No
SME-MW-1	Yes
SME-MW-2	Yes
SME-MW-3	Yes
SME-MW-4	Yes
SS-1	Yes
SS-2	Yes
SS-3	Yes
SW-1	NA - Side-Wall Sample
SW-1	NA - Side-Wall Sample
SW-2	NA - Side-Wall Sample
SW-2	NA - Side-Wall Sample
SW-3	NA - Side-Wall Sample
SW-3	NA - Side-Wall Sample
SW-4	NA - Side-Wall Sample
SW-4	NA - Side-Wall Sample
SW-5	NA - Side-Wall Sample

GM Lansing Plant 6
Boring Log Master List

Location Name	Have Boring Log
SW-5	NA - Side-Wall Sample
SW-6	NA - Side-Wall Sample
SW-7	NA - Side-Wall Sample
SW-8	NA - Side-Wall Sample
Trip Blank	NA
VEW-1	Yes
VEW-2	Yes
VEW-3	Yes
VEW-4	Yes
VEW-5	Yes
VEW-6	Yes
VEW-7	Yes
VEW-8	Yes
VEW-9	Yes
Waste Character	NA
Waste Water	NA

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-85	PROJECT NAME: GM BOC - BUILDING 23	BORING/WELL DESIGNATION: B-BP-1	BORING/WELL LOCATION:
DRILLING CONTRACTOR: ACCUSTAR	DRILLING METHOD: HOLLOW-STEM AUGERS	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 20 FT.
DATE STARTED: 5-10-91	DATE COMPLETED: 5-10-91	GROUND ELEV.: NA FT.	MEASURING POINT ELEV: NA FT.
WELL DEPTH: N/A FT.			
RIG: D-50	DRILLER: J. TAFT	HELPER: O. KNIGHT	LOGGED BY: D. BELAN

SEE FIGURE 3

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	CONCRETE						
	SAND - brown-gray/black streaking, moist						
	CLAY - medium gray, very plastic, firm, damp, some black and green discoloration, no odor	3.5-5'	SS\LAB	2-3-3	BG		
5							
	CLAY - medium brown, very plastic, with interbedded brown sand, 1 inch gray sand at 10 feet	8.5-10'	SS\LAB	5-6-13	BG		
10							
	CLAY - medium gray, moderately plastic, silty and sandy, with wet thin wet sand layers, no odor	13.5-15'	SS\LAB	7-8-8	BG		
15							
	CLAY - medium gray, non-slightly plastic, damp, a few sand stringers, no odor	18.5-20'	SS\LAB	8-2-3	BG		
20	END OF BORING AT 20 FEET						

NOTES: BG - BACKGROUND
NA - NOT AVAILABLE
N/A - NOT APPLICABLE
LAB - COMPOSITE LABORATORY SAMPLE
SS - 18 INCH SPLIT-SPOON

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-85	PROJECT NAME: GM BOC - BUILDING 23	BORING/WELL DESIGNATION: B-BP-2	BORING/WELL LOCATION:
DRILLING CONTRACTOR: ACCUSTAR	DRILLING METHOD: HOLLOW-STEM AUGERS	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 14 FT.
DATE STARTED: 5-10-91	DATE COMPLETED: 5-10-91	GROUND ELEV.: NA FT.	MEASURING POINT ELEV: NA FT.
WELL DEPTH: N/A FT.			
RIG: D-50	DRILLER: J. TAFT	HELPER: O. KNIGHT	LOGGED BY: D. BELAN

SEE FIGURE 3

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	SAND - red-brown, fine-medium grained, dry-damp, no odor	0-4'	LAB		BG		
5	SAND - medium brown, medium-coarse grained, damp-moist, gray stain, strong odor	6-9'	LAB		10-40	STRONG ODOR	
10		9-10.5'	LAB		50-150		
	SAND - medium brown, medium-coarse grained, moist-wet, some gray staining, strong odor	11-14'	LAB		5-10		
15	END OF BORING AT 14 FEET						
20							

NOTES: BG - BACKGROUND
NA - NOT AVAILABLE
N/A - NOT APPLICABLE
LAB - COMPOSITE LABORATORY SAMPLE
SOIL DESCRIPTIONS AND SAMPLES WERE TAKEN FROM DRILLING FLIGHTS

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-85	PROJECT NAME: GM BOC - BUILDING 23	BORING/WELL DESIGNATION: B-BP-3	BORING/WELL LOCATION:
DRILLING CONTRACTOR: ACCUSTAR	DRILLING METHOD: HOLLOW-STEM AUGERS	BOREHOLE SIZE: 8 IN.	BOREHOLE DEPTH: 20 FT.
DATE STARTED: 5-10-91	DATE COMPLETED: 5-10-91	GROUND ELEV.: NA FT.	MEASURING POINT ELEV: NA FT.
RIG: D-50	DRILLER: J. TAFT	HELPER: O. KNIGHT	LOGGED BY: D. BELAN

SEE FIGURE 3

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	CONCRETE						
	SANDY CLAY - medium brown, very plastic, firm, damp, with gravel, no odor	3.5-5'	SS\LAB	8-2-3	BG		
5							
	CLAY - medium gray, slightly-moderately plastic, stiff, damp, trace silt and sand, no odor	8.5-10'	SS\LAB	4-6-9	BG		
10							
	CLAY - medium gray, slightly plastic, very stiff, damp, little gravel, no odor	13.5-15'	SS\LAB	6-9-16	BG		
15							
	CLAY - medium gray, non-slightly plastic, damp, a few sand stringers, trace gravel, no odor	18.5-20'	SS\LAB	7-12-19	BG		
20	END OF BORING AT 20 FEET						

NOTES: BG - BACKGROUND
NA - NOT AVAILABLE
N/A - NOT APPLICABLE
LAB - COMPOSITE LABORATORY SAMPLE
SS - 18 INCH SPLIT-SPOON

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-BP-14

PROJECT:	GM-Lansing, Body Plant, Area 7
CLIENT:	GM-LAD
BORING CONTRACTOR/DRILL RIG:	Geo-Tek, Inc./CME 750
SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION:	871.01
DATE STARTED:	10/31/93
DATE FINISHED:	10/31/93
DRILLER:	Peter Buell
GEOLOGIST:	David McMahon
REVIEWED BY:	David Frazier

GROUND WATER:

DATE	TIME	LEV	TYPE
10/31/94		15'	static

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	SS		
DIA.	4-1/4"	2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1									Asphalt		
		S-1	SS	10	10	80	brown	medium dense	fine to coarse SAND	Fill	moist, Hnu=ND
				6	9						
5											
		S-2	SS	2	2	80	grey	loose	SANDY GRAVEL	GW	wet, Hnu=ND
10				4	4						
		S-3	SS			0					
15											very wet, Hnu=ND
		S-4	SS	4	6	90	grey	stiff	SILTY CLAY	CL	wet, Hnu=ND
20				4	11						

COMMENTS: ND - non detect

PROJECT NO. E1-93-110
BORING NO. B-BP-14

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-BP-15

PROJECT:	GM-Lansing, Body Plant, Area 7
CLIENT:	GM-LAD
BORING CONTRACTOR/DRILL RIG:	Geo-Tek, Inc./CME 750
SHEET NO. 1 OF	1
JOB NO. :	E1-93-110
GROUND ELEVATION:	869.40'
DATE STARTED:	10/31/93
DATE FINISHED:	10/31/93
DRILLER:	Peter Buell
GEOLOGIST:	David McMahon
REVIEWED BY:	David Frazier

GROUND WATER:

DATE	TIME	LEV	TYPE
10/31/94		15'	static

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	SS		
DIA.	4-1/4"	2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1									Asphalt		
		S-1	SS	1	WH	50	brown	very loose	SAND and RUBBLE	Fill	dry, Hnu=ND
				WH	WH						
5											
		S-2	SS	WH	WH	35		loose			moist, Hnu=ND
10				5	6						
		S-3	SS	WH	WH	80	grey	very soft to stiff	SILTY CLAY, some Sand, with Sand lenses	CL	
15				9	6						moist, Hnu=ND
		S-4	SS	4	5	100	grey	stiff	SILTY CLAY with SANDY GRAVEL lenses	CL	moist, Hnu=ND
20				9	10						

COMMENTS: ND - non detect

PROJECT NO. E1-93-110
BORING NO. B-BP-15

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-BP-16

PROJECT: GM-Lansing, Body Plant, Area 7	SHEET NO. 1 OF 1
CLIENT: GM-LAD	JOB NO. : E1-93-110
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750	GROUND ELEVATION:
GROUND WATER:	DATE STARTED: 11/2/93
DATE: 10/31/94	DATE FINISHED: 11/2/93
TIME:	DRILLER: Peter Buell
LEV: 15	GEOLOGIST: David McMahon
TYPE: static	REVIEWED BY: David Frazier

	TYPE	CAS.	SAMP.	CORE	TUBE
TYPE		HSA	SS		
DIA.		4-1/4"	2"		
WT.			140#		
FALL			30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1	XXXX							Asphalt		
		S-1	grab			brown		fine to coarse SAND	fill	dry
5										
10										
15										
20										

COMMENTS: ND - non detect

PROJECT NO. E1-93-110
BORING NO. B-BP-16

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-1

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE: GROUND SURFACE ELEV: 868.01	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE	PID READING (ppm)	LEAD COMPOSITE
868.01	N/A	ASPHALT	00.0						EP TOXICTY LEAD 2.26 mg/L
	GW	FILL: ROAD GRAVEL							
866.01	SP	FILL: loose to medium dense dark brown/black fine to medium SAND, trace coarse sand and fine gravel	2.0	S-1	5-6-6-5	12	DRY	1.2	
864.01	CL	FILL: medium brown SANDY CLAY with trace coarse sand and fine gravel	4.0						
862.01	SM	FILL: medium dense dark fine to medium SAND and fine to coarse GRAVEL with silt ▼	6.0	S-2	10-8-9-6	17	DRY	0.7	TCLP Lead 7.24 mg/L
860.01	CL	FILL: medium brown/gray SILTY CLAY with trace coarse sand and fine gravel	8.0	S-3	2-3-3-4	6	MOIST	1.7	
858.01			10.0						
856.01	CL	medium brown/gray SANDY CLAY with trace coarse sand and fine gravel (patches of orange/ brown sandy clay)	12.0						
854.01			14.0	S-4	6-8-10-14	18	WET	0.4	
852.01			16.0						TOTAL Lead 54.7 mg/kg
850.01	CL	medium to stiff brown/gray SILTY CLAY with trace coarse sand and fine gravel (patches of orange/brown sandy clay)	18.0	S-5	7-9-11-12	20	WET	0.2	
848.01		EOB ● 20 FT	20.0						
			22.0						
			24.0						
			26.0						
			28.0						
			30.0						
			32.0						
			34.0						
			36.0						

TOTAL DEPTH: 20 FT
DRILLING DATE: 7/30/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 6.2 FEET

FILE	GMB_E1.DWG
DATE	8-13-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-2

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE: GROUND SURFACE ELEV: 869.08	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE	PID READING (ppm)
869.08	N/A	CONCRETE	00.0					
867.08	SP	FILL: medium dense fine to coarse light gray to white SAND AND fine to coarse GRAVEL	2.0	S-1	8-5-4-3	9	WET	1.1
865.08	CL	FILL: medium brown and dark brown and orange/ brown mottled SANDY CLAY with trace fine gravel and coarse sand	4.0					
863.08			6.0	S-2	2-2-2-3	4	WET	0.7
861.08	CL	FILL: soft to medium brown SANDY CLAY with trace coarse sand and fine gravel	8.0	S-3	4-5-9-8	14	MOIST	0.7
859.08			10.0					
857.08	CL	medium to stiff light brown/gray SANDY CLAY with trace fine gravel and coarse sand	12.0					
855.08			14.0	S-4	5-9-13-15	22	WET	1.4
853.08	CL	medium to stiff gray SANDY CLAY and SILTY CLAY with trace coarse sand and fine gravel	16.0					
851.08			18.0	S-5	4-5-7-8	12	WET	0.6
849.08		EOB @ 20 FT'	20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 20 FT
DRILLING DATE: 8/5/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL

DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 7.9 FEET

FILE	GMBLE2.DWG
DATE	8-13-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-3

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT–LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE: GROUND SURFACE ELEV: 868.82	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE	PID READING (ppm)
868.82	N/A	BITUMINOUS MATERIAL	00.0					
866.82	SW	FILL: brown fine to coarse SAND and subrounded to angular gravel	2.0	S-1	5-4-5-8	9	MOIST	5.3
864.82	CL	FILL: medium to stiff brown SANDY CLAY with trace coarse sand and fine gravel	4.0					
862.82			6.0	S-2	5-5-8-9	13	MOIST	8.8
860.82	CL	FILL: medium to stiff brown/gray SILTY CLAY with trace coarse sand and fine gravel	8.0	S-3	4-7-9-7	16	MOIST	6.1
858.82	SP	FILL: brown fine to medium SAND	10.0					
856.82		▼	12.0					
854.82	CL	medium to stiff brown/gray SANDY CLAY with trace coarse sand and fine gravel	14.0	S-4	4-5-7-8	12	WET	2.3
852.82			16.0					
850.82	CL	stiff gray SILTY CLAY with trace coarse sand and fine subrounded gravel	18.0	S-5	4-7-11-11	18	WET	0.9
848.82		EOB @ 20 FT	20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 20 FT
DRILLING DATE: 8/3/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL

DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 12.5 FEET

FILE	GWB.E3.DWG
DATE	8-13-92 RLR

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-4

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 867.49	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE	PID READING (ppm)
867.49	GP	FILL: RR cobbles - Angular fine to coarse dark GRAVEL	00.0					
865.49			2.0	S-1	4-7-3-2	-	WET	1.1
863.49	SM	FILL: medium dense dark brown coarse SAND with silt and fine gravel ▼	4.0					
				S-2	8-8-13-13	-	WET	77.0
861.49			6.0					
859.49			8.0	S-3	10-8-7-11	-	WET	44.0
857.49	CL	FILL: medium brown SANDY CLAY with trace fine gravel and coarse sand, occasional layer clayey sand	10.0					
855.49			12.0					
				S-4	13-13-16-17	-	WET	34.0
853.49			14.0					
851.49			16.0					
849.49			18.0					
				S-5	8-10-11-14	-	WET	22.0 (COMBINED)
847.47	CL	medium brown/gray SANDY CLAY with trace coarse sand and fine gravel	20.0					
				S-6	10-10-9-11	-	WET	
845.45		EOB @ 22 FT'	22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 22 FT
DRILLING DATE: 8/3/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 4.0 FEET

FILE	GMBLE4.DWG
DATE	8-14-92 RLB

WE. CK ASSOCIATES, INCORP RATED

LOG OF TEST BORING NO: E-5

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN
WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE: GROUND SURFACE ELEV: 867.17	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE	PID READING (ppm)
867.17	GP	FILL: RR cobbles - dark black fine to coarse angular GRAVEL and coarse angular to sub-rounded sand	00.0					
865.17	CL	FILL: medium brown SANDY CLAY with trace coarse sand and fine gravel	2.0	S-1	2-3-4-5	7	WET	450
863.17			4.0					
861.17			6.0	S-2	0-2-3-5	5	MOIST	300
859.17			8.0					
857.17			10.0	S-3	3-4-4-6	8	MOIST	25
855.17			12.0					
853.17			14.0	S-4	9-7-9-7	16	MOIST	71
851.17	CL	medium to stiff gray SANDY CLAY with trace fine to coarse gravel and coarse sand	16.0					
849.17			18.0	S-5	5-5-7-8	12	WET	81
847.17		EOB @ 20 FT	20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 20 FT
DRILLING DATE: 7/29/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 1.5 FEET

FILE	GMBLES.DWG
DATE	8-14-92 RLP

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-7

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 868.38	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD. PEN. RES. (N)	MOISTURE	PID READING (ppm)
868.38	N/A	BITUMINOUS MATERIAL	00.0					
	SL	FILL: CLAYEY SAND and fine gravel						
866.38			2.0	S-1	3-3-4-3	7	-	18.2
864.38			4.0					
862.38			6.0	S-2	2-4-5-8	9	MOIST	29.5
	CL	FILL: medium to stiff brown SANDY CLAY with trace coarse sand and fine gravel						
860.38			8.0	S-3	8-8-10-11	18	MOIST	12.5
858.38			10.0					
856.38			12.0					
854.38			14.0	S-4	18-15-16-22	31	WET	19.4 (COMBINED)
852.38	CL	medium to stiff light red/brown SANDY CLAY	16.0	S-5	12-15-18-20	33	MOIST	
850.38	CL	medium to stiff brown SANDY CLAY with trace fine gravel and coarse sand	18.0					
	CL	medium to stiff brown/gray SANDY CLAY, trace fine gravel and coarse sand		S-6	9-11-14-16	25	WET	3.8
848.38		EOB @ 20 FT	20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 20 FT
DRILLING DATE: 7/31/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: CRAIG COCHRANE
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
GROUND WATER NOT OBSERVED

FILE: GMBLE7.DWG
DATE: 8-14-92 R.B

WE. CK ASSOCIATES, INCORF RATED

LOG OF TEST BORING NO: E-8

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT–LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 867.54	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE	PID READING (ppm)
867.54	N/A	BITUMINOUS MATERIAL	00.0					
865.54	SP	FILL: loose brown fine to coarse SAND with trace silt and fine gravel	2.0	S-1	0-0-0-3	0	MOIST	4.8
	CL	FILL: soft dark brown and gray and black SANDY CLAY						
863.54	GP	FILL: black fine GRAVEL	4.0					
861.54	CL	FILL: soft to medium brown and gray and black stained SANDY CLAY with trace fine gravel and coarse sand	6.0	S-2	2-2-9-7	11	WET	0.6
859.54	CL	FILL: medium to stiff brown SANDY CLAY with trace fine gravel and coarse sand	8.0	S-3	6-7-12-14	19	MOIST	4.1
857.54			10.0					
855.54	CL	stiff brown/gray SANDY CLAY with trace fine gravel	12.0	S-4	7-11-15-21	26	MOIST	0.1
853.54			14.0					
851.54	CL	stiff brown SANDY CLAY with trace fine gravel	16.0					
849.54	CL	stiff brown/gray to gray SANDY CLAY with trace fine gravel	18.0	S-5	7-8-13-18	21	MOIST	1.1
847.54		EOB @ 20 FT'	20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 20 FT
DRILLING DATE: 8/3/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL

DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 3.9 FEET

FILE	GWBLEB.DWG
DATE	8-14-92 RLB

WE CK ASSOCIATES, INCORF RATED

LOG OF TEST BORING NO: E-9

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE: GROUND SURFACE ELEV: 867.36	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE	PID READING (ppm)
867.36	N/A	CONCRETE	00.0					
865.36	SM	FILL: very loose dark brown fine to coarse SAND AND fine to coarse GRAVEL with silt	2.0	S-1	3-2-1-1	3	MOIST	5.6
863.36			4.0					
861.36	CL	FILL: soft brown and black and gray mottled SANDY CLAY with trace fine gravel and coarse sand	6.0	S-2	0-0-1-2	1	MOIST	1.4
859.36			8.0	S-3	2-2-2-2	4	WET	(COMBINED)
857.36	CL	FILL: medium to stiff brown and gray motteld SANDY CLAY with trace fine gravel and coarse sand	10.0	S-4	3-6-9-12	15	WET	0
855.36			12.0					
853.36	CL	stiff brown SANDY CLAY with trace fine gravel and coarse sand	14.0	S-5	7-11-15-16	26	WET	0.6
851.36			16.0					
849.36			18.0					
847.36	CL	stiff brown/gray to gray SANDY CLAY with trace coarse sand and fine gravel	20.0	S-6	4-6-9-11	WET	WET	0
		EOB @ 20 FT'	22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 20 FT
DRILLING DATE: 8/3/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 5.2 FEET

FILE	GMBLE9.DWG
DATE	8-14-92 RLP

WE CK ASSOCIATES, INCORP RATED

LOG OF TEST BORING NO: E-10

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE: GROUND SURFACE ELEV: 870.92	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD. PEN. RES. (N)	MOISTURE	PID READING (ppm)
870.92	N/A	ASPHALT	00.0					
	N/A	CONCRETE						
868.08			2.0	S-1	1-3-6-9	9	DRY	45.2
866.08			4.0					
864.08	CL	FILL: medium to stiff brown SANDY CLAY with trace fine gravel and coarse sand (occasional gray and orange/brown patches)	6.0	S-2	6-6-7-10	13	MOIST	121.5
862.08			8.0					
860.08			10.0	S-3	3-6-7-8	13	MOIST	158.6
858.08			12.0					
856.08	CL	medium to stiff brown SANDY CLAY with trace fine gravel and coarse sandy, occasional layer of brown fine to medium brown sand	14.0	S-4	4-4-5-7	9	MOIST	3.2
854.08			16.0					
852.08	CL	medium to stiff brown/gray SILTY CLAY with trace fine gravel and coarse sand, occasional layer gray sand and fine gravel	18.0	S-5	3-5-8-11	13	MOIST	0.7
850.08		EOB @ 20 FT	20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 20 FT
DRILLING DATE: 8/5/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE GWB_E10.DWG
DATE 8-14-92 R:B

WE CK ASSOCIATES, INCORP RATED

LOG OF TEST BORING NO: E-11

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 870.31	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE	PID READING (ppm)
870.31	N/A	CONCRETE	00.0					
868.31	CL	FILL: loose to medium dense light brown and orange/brown and light gray mottled fine to coarse SAND, trace gravel, and cobbles	2.0	S-1	6-6-4-4	10	DRY	0.9
866.31			4.0					
864.31			6.0	S-2	2-3	-	MOIST	0.7
862.31	CL	FILL: medium brown to brown/gray SANDY CLAY with trace fine gravel with inter-layered thin veins of fine to coarse sand and fine subrounded to angular gravel	8.0	S-3	4-3-2-2	5	WET	0.9
860.31			10.0					
858.31	CL	medium brown SANDY CLAY with trace coarse sand and fine gravel	12.0					
856.31			14.0	S-4	3-4-6-8	10	MOIST	0.9
854.31	CL	medium brown/gray SANDY CLAY with trace coarse sand and fine gravel	16.0					
852.31			18.0	S-5	3-3-4-6	7	WET	0.7
850.31		EOB @ 20 FT	20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 20 FT
DRILLING DATE: 8/5/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE GMB_E11.DWG
DATE 8-14-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-12

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT–LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 867.70	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE	PID READING (ppm)
867.70	GW	FILL: RR cobbles – angular fine to coarse GRAVEL and subrounded fine gravel and coarse sand	00.0					
865.36	CL	FILL: medium to stiff brown SANDY CLAY with trace coarse sand and fine gravel	2.0	S-1	8-35	–	WET	1.5
863.36			4.0					
861.36			6.0	S-2	3-5-6-8	11	WET	3.0
859.36			8.0					
857.36	CL	medium to stiff brown and red SILTY CLAY with traces coarse to fine sand and gravel	10.0	S-3	5-8-15-15	23	WET	3.8
855.36			12.0					
853.36	CL	medium to stiff gray SILTY CLAY with traces coarse sand and fine gravel	14.0	S-4	4-5-7-8	12	WET	1.1
851.36			16.0					
849.36			18.0	S-5	4-6-8-10	14	WET	0.8
847.36		EOB @ 20 FT	20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 20 FT
DRILLING DATE: 7/29/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL

DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 1.8 FEET

FILE: GWBLE12.DWG
DATE: 8-14-92 R_B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-13

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT–LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

GROUND SURFACE ELEV: 868.53

ELEV. (FT)	USCS GROUP		DEPTH (FT)
868.53	N/A	BITUMINOUS MATERIAL	00.0
	SM	FILL: brown fine to medium SAND with silt	
866.36	CL	FILL: medium brown and black and gray mottled SANDY CLAY with trace fine gravel and coarse sand	2.0
864.36			4.0
862.36			6.0
860.36	CL	medium light brown to brown SANDY CLAY with occasional gray mottling with trace fine gravel and coarse sand, occasional layer brown sand	8.0
858.36			10.0
856.36			12.0
854.36			14.0
852.36	SM	brown fine to medium SAND with silt and coarse sand	16.0
850.36	CL	medium brown/gray to gray SANDY CLAY with trace coarse sand and fine gravel	18.0
848.36		EOB @ 20 FT	20.0
			22.0
			24.0
			26.0
			28.0
			30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	STD. PEN. RES. (N)	MOISTURE	PID READING (ppm)
S-1	3-2-3-3	5	MOIST	3.9
S-2	5-4-5-7	9	MOIST	2.4
S-3	5-7-9-11	16	MOIST	0.9
S-4	9-9-12-10	21	WET	0 (COMBINED)
S-5	8-9-10-13	19	WET	
S-6	5-7-10-13	17	MOIST	0

TOTAL DEPTH: 20 FT
DRILLING DATE: 8/3/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT . FEET

FILE GMBLE13.DWG
DATE 8-14-92 RLB

WE CK ASSOCIATES, INCORF RATED

LOE OF TEST BORINE NO: E-14

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

GROUND SURFACE ELEV: 868.45

ELEV. (FT)	USCS GROUP		DEPTH (FT)
868.45		ASPHALT	00.0
866.45	CL	FILL: very loose black fine to coarse SAND and fine gravel	2.0
864.45			4.0
862.45	CL	FILL: medium brown/orange/gray mottled fine sandy CLAY with trace coarse sand and fine gravel (occasional pockets fine to medium silty SAND)	6.0
860.45			8.0
858.45			10.0
856.45			12.0
854.45			14.0
	CL	fine to coarse silty SAND	
852.45	CL	FILL: medium to stiff brown/orange fine sandy CLAY with trace coarse sand and fine gravel	16.0
850.45	CL	medium dense brown/multicolored fine to medium coarse sand and silt	18.0
848.45			20.0
	CL	very stiff reddish gray fine sandy CLAY	
847.45		EOB @ 21 FT	22.0
			24.0
			26.0
			28.0
			30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	EP TOXICITY LEAD (mg/L)	TCLP LEAD (mg/L)	TOTAL LEAD (mg/L)
S-1	2-1-1-1	MOIST	<0.01	<0.01	4.8
S-2	2-3-3-5	MOIST	<0.01	<0.01	4
S-3	1-2-4-4	WET	<0.01	<0.01	2.4
S-4	3-11-13-15	–	<0.01	<0.01	3

TOTAL DEPTH: 21 FT
DRILLING DATE: 9/4/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: CRAIG COCHRANE
DRILLING METHOD: 4 1/4 ID H.S.A.
DRILLING METHOD: 2" X 2' SPLIT-SPOON

WATER LEVEL OBSERVATION:

FILE	GMCBLE14.DWG
DATE	9-14-92 R.B

WE CK ASSOCIATES, INCORF RATED

LOG OF TEST BORING NO: E-15

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

GROUND SURFACE ELEV: 868.19

ELEV. (FT)	USCS GROUP		DEPTH (FT)
868.19		ASPHALT	00.0
866.19	CL	FILL: very loose black fine to coarse SAND and fine gravel	2.0
864.19			4.0
862.19	CL	FILL: medium brown/gray orange mottled fine sandy CLAY with trace coarse sand and fine gravel	6.0
860.19			8.0
858.19		fine to medium silty SAND	10.0
856.19	CL	medium to stiff blue/gray fine SANDY CLAY	12.0
854.19			14.0
852.19	CL	FILL: medium to stiff brown/orange fine sandy CLAY with trace coarse sand and fine gravel	16.0
850.19	CL	medium to stiff brown with occasional gray and orange mottling fine SANDY CLAY with trace coarse sand and fine gravel	18.0
848.19			20.0
847.19		EOB @ 21 FT	22.0
			24.0
			26.0
			28.0
			30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	EP TOXICITY LEAD (mg/L)	TCLP LEAD (mg/L)	TOTAL LEAD (mg/L)
S-1	2-1-1-2	MOIST	0.01	0.01	4.2
S-2	2-2-2-2	MOIST	0.01	0.01	8.9
S-3	4-7-7-10	MOIST	<0.01	<0.01	2.3
S-4	3-4-5-6	MOIST	0.01	<0.01	3.8

TOTAL DEPTH: 21 FT
DRILLING DATE: 9/4/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: CRAIG COCHRANE
DRILLING METHOD: 4 1/4 ID H.S.A.
DRILLING METHOD: 2" X 2' SPLIT-SPOON

WATER LEVEL OBSERVATION:

FILE	GMCBLE15.DWG
DATE	9-14-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-16

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	EP TOXICITY LEAD (mg/L)	TCLP LEAD (mg/L)	TOTAL LEAD (mg/L)
867.91		GROUND SURFACE ELEV: 867.91	00.0						
		ASPHALT							
	CL	FILL: fine light brown sand and fine GRAVEL	2.0						
865.91									
863.91			4.0	S-1	4-1-2-2	DRY	45.3	3.72	1290
861.91	CL	FILL: medium to stiff brown/gray fine sandy CLAY with trace coarse sand and fine gravel	6.0						
859.91			8.0						
857.91			10.0	S-2	2-3-2-3	MOIST	–	–	–
855.91		medium dense black fine to coarse SAND and fine gravel	12.0	S-3	6-7-7-10	MOIST	0.06	<0.01	3.4
853.91	CL	FILL: stiff brown/gray/orange motteld fine sandy CLAY with trace coarse sand and fine gravel	14.0						
851.91			16.0	S-4	5-7-8-10	MOIST WET	0.06	0.07	6.1
849.91			18.0						
847.91	CL	soft to medium blue/gray/brown mottled fine sandy CLAY with trace coarse sand and fine gravel	20.0	S-5	5-8-10-12	–	0.37	0.42	66.5
846.91		EOB @ 21 FT	22.0						
			24.0						
			26.0						
			28.0						
			30.0						
			32.0						
			34.0						
			36.0						

TOTAL DEPTH: 21 FT
DRILLING DATE: 9/4/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: CRAIG COCHRANE
DRILLING METHOD: 4 1/4 ID H.S.A.
DRILLING METHOD: 2" X 2' SPLIT-SPOON

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT APPROXIMATELY 16 FEET

FILE	GMCBLE16.DWG
DATE	9-14-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-17

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

GROUND SURFACE ELEV: 867.42

ELEV. (FT)	USCS GROUP		DEPTH (FT)
867.42		ASPHALT	00.0
	CL	FILL: fine light brown sand and fine GRAVEL	
865.42			2.0
863.42			4.0
861.42	CL	FILL: stiff gray sandy CLAY	6.0
859.42	CL	FILL: stiff brown sandy CLAY	8.0
857.42			10.0
855.42			12.0
853.42	CL	stiff brown/gray sandy CLAY	14.0
851.42			16.0
849.42			18.0
847.42			20.0
846.42		EOB ● 21 FT	22.0
			24.0
			26.0
			28.0
			30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	EP TOXICITY LEAD (mg/L)	TCLP LEAD (mg/L)	TOTAL LEAD (mg/L)
S-1	8-6-4-3	DRY	3.61	6.23	1480
S-2	9-12-11-14	MOIST	0.53	0.23	314
S-3	8-9-11-11	MOIST	0.21	0.05	63
S-4	5-6-7-4	MOIST	<0.01	<0.01	5.6

TOTAL DEPTH: 21 FT
DRILLING DATE: 9/4/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: CRAIG COCHRANE
DRILLING METHOD: 4 1/4 ID H.S.A.
DRILLING METHOD: 2" X 2' SPLIT-SPOON

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT APPROXIMATELY 16 FEET

FILE	GMCBLE17.DWG
DATE	9-15-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-18

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 866.7	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
866.7		CONCRETE	00.0					
	SM	FILL: loose brown SILTY SAND						
864.7	CL	FILL: soft gray SANDY CLAY; trace fine gravel	2.0	S-1	2-3-2-4	WET	188	4.2
	SP	FILL: loose black SAND and GRAVEL with silt						
862.7	CL	FILL: soft greenish gray/dark brown mottled SANDY CLAY; trace fine gravel with occasional light gray mottling	4.0					
				S-2	1-3-1-3	MOIST	5.9	0.012
860.7	CL	FILL: soft black/dark brown fine SAND CLAY with organic fiberous material and trace fine gravel	6.0					
858.7	CL	FILL: soft to medium gray/brown/orange brown mottled SANDY CLAY with trace fine gravel	8.0	S-3	2-3-5-8	WET	6	0.017
856.7			10.0					
854.7	CL	stiff brown/gray with occasional orange brown and pink mottled SANDY CLAY; trace fine gravel	12.0					
852.7			14.0	S-4	6-12-12-13	MOIST	2.7	<0.005
		EOB @ 15 FT	16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/21/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GMCBLE18.DWG
DATE	12-3-92 R.B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-19

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 865.99	DEPTH (FT)
865.99		CONCRETE	00.0
	SP	FILL: loose brown SAND and FINE GRAVEL with silt	
863.99	CL	FILL: medium dark gray/black and brown and light gray and orange/brown mottled SANDY CLAY; trace fine gravel	2.0
861.99	CL	FILL: soft gray and dark gray mottled SANDY CLAY with trace fine gravel	4.0
859.99			6.0
857.99	CL	medium to stiff brown with occasional orange/brown and gray mottled SANDY CLAY; trace fine gravel	8.0
855.99			10.0
853.99			12.0
851.99			14.0
		EOB @ 15 FT	16.0
			18.0
			20.0
			22.0
			24.0
			26.0
			28.0
			30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	LEACHABLE LEAD (ppm)
S-1	4-7-5-5	MOIST	257	0.534
S-2	3-2-2-3	MOIST	8.5	0.017
S-3	4-6-8-12	MOIST	5.2	<0.005
S-4	4-6-9-11	MOIST	<0.005	<0.005

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/21/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE: GMCBLE19.DWG
DATE: 11-24-97 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-20

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 865.20	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
865.20		CONCRETE	00.0					
	SP	FILL: medium dense COARSE GRAVEL						
863.20	SW	FILL: medium dense brown SAND with silt and fine gravel	2.0	S-1	11-12-8-7	MOIST	4.1	<0.005
861.20	SP	FILL: very loose dark and multicolored FINE GRAVEL	4.0	S-2	2-1-2-1	WET	4.4	0.027
859.20			6.0					
857.20			8.0	S-3	6-8-11-13	WET	3.4	<0.005
855.20	CL	FILL: medium to stiff brown SANDY CLAY with trace fine gravel (occasional gray and light gray and orange mottling)	10.0					
853.20			12.0					
851.20	CL	stiff dark brown/dark gray SANDY CLAY with trace fine gravel	14.0	S-4	6-6-8-10	MOIST	2.3	<0.005
		EOB @ 15 FT	16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/21/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GMOBLE20.DWG
DATE	12-3-92 R.B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-21

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE: GROUND SURFACE ELEV: 867.26	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
867.26		CONCRETE	00.0					
	SM	FILL: loose brown SAND with silt						
865.26	CL	FILL: medium greenish gray and brown and gray and black mottled SANDY CLAY (occasional orange/brown mottling at lower depths)	2.0	S-1	3-5-6-5	MOIST	10.4	0.02
863.26			4.0					
	CL	FILL: soft dark brown/black SANDY CLAY with brown fiberous organic material		S-2	1-2-1-2	MOIST	4.4	<0.005
861.26	CL	FILL: soft gray and light gray mottled SANDY CLAY; trace fine gravel	6.0					
859.26			8.0					
	CL	FILL: medium brown with occasional orange brown and light gray mottled SANDY CLAY; trace fine gravel		S-3	2-6-7-6	MOIST	3.5	<0.005
857.26			10.0					
855.26			12.0					
853.26	CL	medium dark brown/dark gray SANDY CLAY with trace fine gravel	14.0	S-4	3-5-6-8	MOIST	2.7	<0.005
		EOB @ 15 FT	16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/21/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GMCB_E21.DWG
DATE	12-3-92 R_B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-22

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE

GROUND SURFACE ELEV: 867.26

ELEV. (FT)	USCS GROUP		DEPTH (FT)
867.26		CONCRETE	00.0
	CL	FILL: very soft brown SANDY CLAY with trace fine gravel	
865.26	SM	FILL: very loose black SAND with silt	2.0
863.26	CL	FILL: medium light gray and dark gray/brown and brown mottled SANDY CLAY with trace fine gravel	4.0
861.26			6.0
859.26	CL	FILL: medium light gray and dark gray/brown and brown mottled SANDY CLAY with orange brown mottling; trace fine to coarse red gravel	8.0
857.26			10.0
855.26	CL	FILL: medium brown SANDY CLAY with fine gravel (occasional orange brown and gray mottling)	12.0
853.26			14.0
		EOB @ 15 FT	16.0
			18.0
			20.0
			22.0
			24.0
			26.0
			28.0
			30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
S-1	2-2-1-2	MOIST	300	1.43
S-2	1-4-3-4	MOIST	9	<0.005
S-3	2-6-9-7	MOIST	11.5	<0.005
S-4	4-6-4-6	WET	2.9	<0.005

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/21/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE GMCBLE22.DWG
DATE 12-3-92 R:B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-23

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 867.24	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
867.24		ASPHALT	00.0					
865.24	CL/SM	FILL: medium black/dark brown/light brown mottled SANDY CLAY and brown SAND with trace silt	2.0	S-1	3-50-12-3	MOIST	829	5.43
863.24			4.0					
861.24	CL	FILL: soft to medium gray/dark gray/blue mottled SANDY CLAY with trace fine gravel	6.0	S-2	7-4-2-2	NO RECOVERY	--	--
				S-3	3-1-3-6	MOIST	9.8	0.02
859.24	CL	FILL: soft to medium brown/gray/light gray mottled SANDY CLAY with trace fine gravel	8.0	S-4	6-6-8-10	WET	15.4	0.12
857.24			10.0					
855.24	CL	medium brown/gray SANDY CLAY with trace fine gravel	12.0					
853.24			14.0	S-5	5-7-9-12	MOIST	10.7	<0.01
		EOB @ 15 FT	16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/19/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GMOBLE23.DWG
DATE	12-3-92 R.B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-24

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE

GROUND SURFACE ELEV: 867.24

ELEV. (FT)	USCS GROUP		DEPTH (FT)
867.24		CONCRETE	00.0
	SM	FILL: very loose black SILTY SAND and fine gravel	
865.24	CL	FILL: soft orange brown/brown mottled SANDY CLAY; trace fine gravel	2.0
863.24	CL	FILL: soft brown/gray SANDY CLAY; trace fine gravel	4.0
861.24	SM	FILL: black medium to coarse SILTY SAND and fine gravel	6.0
		FILL: soft dark brown/dark gray SANDY CLAY; trace fine gravel	
859.24	CL	FILL: soft orange brown/gray mottled SANDY CLAY; trace fine gravel	8.0
857.24	SM	FILL: brown fine silty sand	10.0
		FILL: soft orange brown/gray mottled SANDY CLAY; trace fine gravel	
855.24	CL	FILL: medium brown with occasional orange brown/gray mottling SANDY CLAY; trace fine gravel	12.0
853.24		EOB @ 15 FT	14.0
			16.0
			18.0
			20.0
			22.0
			24.0
			26.0
			28.0
			30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
S-1	2-1-2-2	WET	5	0.286
S-2	1-2-2-1	WET	7	0.064
S-3	2-2-2-2	WET	16.9	<0.005
S-4	3-4-6-5	WET	23.1	<0.005

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/20/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

FILE GWCBLE24.DWG
DATE 12-3-92 R.B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-25

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE: GROUND SURFACE ELEV: 867.44	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
867.44		ASPHALT	00.0					
	SP/CL	FILL: loose black/dark brown fine to FILL: SAND and black/brown SANDY CLAY						
865.44			2.0	S-1	7-3-3-4	DRY	4030	37.3
863.44	CL	FILL: soft light brown SANDY CLAY with fine gravel	4.0					
				S-2	1-1-1-2	WET	25.2	0.48*
861.44			6.0					
859.44	CL	FILL: soft black/dark brown SANDY CLAY; trace fine gravel	8.0	S-3	2-1-2-3	MOIST	15.7	<0.01
857.44			10.0					
855.44	CL	medium brown/gray SANDY CLAY; trace fine gravel; occasional orange brown and light brown mottling	12.0					
853.44			14.0	S-4	4-6-7-10	WET	9.1	0.13*
		EOB @ 15 FT	16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/19/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

* – EP TOXICITY LEAD GIVEN BECAUSE ITS VALUE HIGHER THAN TCLP LEAD

FILE	GMCBLE25.DWG
DATE	12-3-92 R.B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-26

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 868.75	DEPTH (FT)
868.75		CONCRETE	00.0
	CL	FILL: soft brown/dark brown/orange brown/light gray mottled SANDY CLAY; trace fine gravel	
866.75	CL	FILL: black SANDY CLAY	2.0
864.75	CL	FILL: soft brown/dark brown/gray mottled SANDY CLAY; trace fine gravel	4.0
	CL	FILL: soft black SANDY CLAY	
862.75	CL	FILL: soft to medium dark brown/dark gray mottled SANDY CLAY; trace fine gravel	6.0
860.75			8.0
858.75	CL	FILL: soft to medium orange brown/gray/light gray mottled SANDY CLAY; trace fine gravel	10.0
856.75	CL	FILL: medium orange brown/brown SANDY CLAY with occasional light gray mottling; trace fine gravel	12.0
854.75			14.0
		EOB @ 15 FT	16.0
			18.0
			20.0
			22.0
			24.0
			26.0
			28.0
			30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
S-1	1-1-1-2	MOIST	18.2	0.035
S-2	4-4-4-2	WET	7.8	<0.005
S-3	2-1-2-3	WET	4.6	<0.005
S-4	3-5-6-10	--	3.9	<0.005

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/20/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GWCBLE26.DWG
DATE	11-24-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-27

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE

GROUND SURFACE ELEV: 867.35

ELEV. (FT)	USCS GROUP		DEPTH (FT)
867.35		ASPHALT	00.0
865.35	CL	FILL: medium to soft light brown/gray/light gray mottled SANDY CLAY; trace coarse gravel; occasional pockets fine to coarse sand with silt and fine gravel from approximately 3 to 7 feet; trace medium to coarse and fine gravel	2.0
863.35			4.0
861.35			6.0
859.35	CL	FILL: soft black SANDY CLAY; trace fine gravel	8.0
857.35	CL	FILL: soft brown/gray/blue mottled SANDY CLAY; trace fine gravel	10.0
855.35	CL	medium brown/gray and occasional orange/brown mottled SANDY CLAY with trace fine gravel	12.0
853.35			14.0
		EOB @ 15 FT	16.0
			18.0
			20.0
			22.0
			24.0
			26.0
			28.0
			30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
S-1	6-5-3-3	DRY	3240	14.8
S-2	2-2-1-2	MOIST	21.3	0.29
S-3	1-2-2-2	WET	6.9	0.08
S-4	3-4-7-8	WET	3.2	<0.01

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/20/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE: GMOBLE27.DWG
DATE: 12-3-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-28

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 868.26	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
868.26		ASPHALT	00.0					
866.26	CL	FILL: medium to stiff light brown/orange brown/light gray mottled SANDY CLAY with trace fine gravel	2.0	S-1	6-8-7-7	MOIST	2.8	<0.01
864.26	CL	FILL: soft brown/gray SANDY CLAY with trace fine gravel	4.0	S-2	1-1-1-1	WET	62.4	0.05
862.26			6.0					
860.26	CL	FILL: medium orange brown/light gray/gray mottled SANDY CLAY with trace fine gravel	8.0	S-3	1-2-5-7	WET	3.8	<0.01
858.26			10.0					
856.26	CL	medium brown/gray with occasional orange brown mottling SANDY CLAY with trace fine gravel	12.0	S-4	3-5-7-9	WET	2.8	<0.01
854.26			14.0					
		EOB @ 15 FT	16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/20/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GMCBLE28.DWG
DATE	12-3-92 R.B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-29

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 866.75	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
866.75		ASPHALT	00.0					
864.75	SP	FILL: loose light brown FINE SAND; trace coarse gravel	2.0	S-1	2-2-2-2	DRY	1.8	<0.01
862.75	SM	FILL: very loose brown SILTY SAND; trace gravel	4.0	S-2	2-1-1-1	WET	4.9	0.04
860.75			6.0					
858.75	CL	FILL: soft to medium gray SANDY CLAY with brown mottlings ("specs"); trace fine gravel	8.0	S-3	2-2-2-3	MOIST	4.5	<0.01
856.75			10.0					
854.75	CL	FILL: medium brown/gray mottled SANDY CLAY; trace fine gravel	12.0					
852.75			14.0	S-4	2-3-5-8	MOIST	3.2	<0.01
		EOB @ 15 FT	16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/19/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GMCBLE29.DWG
DATE	12-3-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-30

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE				SOIL SAMPLE DATA			
ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 868.65	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	
868.65		CONCRETE WITH REBAR	00.0				
		CONCRETE					
		GRAVEL/ASPHALT					
866.65		CONCRETE	2.0				
	SM	FILL: loose brown/orange brown/occasional dark green/black SAND with silt and white fine gravel		S-1	3-4-4-3	--	
864.65			4.0				
				S-2	3-4-5-2	NO RECOVERY	
862.65	CL	FILL: medium brown SANDY CLAY; occasional gray/orange brown/light green/pink mottling; trace fine gravel	6.0				
				S-3	4-6-8-15	--	
860.65			8.0				
	SM	multicolored brown SAND with silt		S-4	3-4-8-14	--	
858.65			10.0				
856.65	CL	medium to stiff brown/gray SANDY CLAY with occasional orange brown mottling; trace fine gravel	12.0				
854.65			14.0	S-5	6-8-16-19	--	
	CL	stiff reddish brown SANDY CLAY; trace fine gravel					
		EOB @ 15 FT	16.0				
			18.0				
			20.0				
			22.0				
			24.0				
			26.0				
			28.0				
			30.0				
			32.0				
			34.0				
			36.0				

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/20/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GMCBLE3C.DWG
DATE	12-3-92 R.B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-31

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 873.4	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
873.4		COAL	00.0					
871.4	CL	FILL: medium to stiff gray/dark gray/brown mottled SANDY CLAY with trace fine gravel; trace fiberous organic material	2.0	S-1	11-10-14-13	DRY	35.7	0.299
869.4			4.0					
867.4	SM	FILL: soft black and light gray mottled SANDY CLAY with trace fine gravel and organics	6.0	S-2	2-1-2-3	MOIST	17	0.025
865.4			8.0					
863.4	CL	soft brown/gray/orange brown mottled SANDY CLAY with trace fine gravel (becoming all brown/gray at lower depth)	10.0	S-3	2-2-3-4	MOIST	4.4	<0.005
861.4			12.0					
859.4			14.0	S-4	3-3-3-4	MOIST	3.7	<0.005
		EOB @ 15 FT	16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 15 FT
DRILLING DATE: 10/22/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO
DRILLER: VINCE BENNETT
DRILLING METHOD: 4 1/4 ID H.S.A.
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GMGB_E31.DWG
DATE	12-3-92 R_B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-32

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV (FT)	USCS GROUP	GROUND SURFACE ELEV: 871.62	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
871.62		BITUMINOUS MATERIAL	00.0					
869.62	CL	FILL: medium brown/black/light gray/orange brown mottled SANDY CLAY with trace fine gravel	2.0	S-1	4-6-5-4	DRY	3.7	<0.005
			4.0					
	C	FILL: stiff to medium brown SANDY CLAY with trace fine grave	6.0	S-2	1-2-4-6	MOIST	190	<0.005
			8.0	S-3	7-10-12-8	MOIST	6.9	<0.005
	CL	medium brown/gray SANDY CLAY with trace fine gravel	10.0					
			12.0					
			14.0	S-4	2-4-5-8	WET	3.8	<0.005
		EOB @ 15 FT	16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

DEPTH: 15 FT
ING DATE: 10/22/92
NSPECTOR: JAMES W. TIGGELAAR
NTRACTOR: MATECO
ER: VINCE BENNETT
NG METHOD: 4 1/4 ID H.S.A.
PLING METHOD: 2" X 2' SPLIT-SPOON W/"SPRING CATCHER"

WATER LEVEL OBSERVATION:
GROUNDWATER NOT OBSERVED

FILE	GMCBLE32.DWG
DATE	12-3-92 R.B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: E-33

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 870.69	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	TOTAL LEAD (ppm)	TCLP LEAD (ppm)
870.69		CONCRETE	00.0					
868.69	SP	brown fine SAND with trace medium to coarse sand and fine gravel	2.0	HA-1	--	MOIST	3	<0.005
866.69	SM/CL	gray fine SAND with silt and soft to med. gray fine SANDY CLAY with trace med. to coarse sand and fine gravel	4.0					
	SM	black fine SAND with silt and soft to med. black fine SANDY CLAY with trace med. to coarse sand and fine gravel						
864.69	SM/CL	gray fine SAND with silt and soft to med. gray fine SANDY CLAY with trace med. to coarse sand and fine gravel	6.0	HA-2	--	MOIST	3.1	<0.005
	SM/CL	gray SANDY CLAY with trace med. to coarse sand and fine gravel						
	SM/GP	gray fine SAND with silt and soft to med. gray fine SANDY CLAY with trace med. to coarse sand and fine gravel		HA-3	--	WET	1.8	<0.005
861.19	CL	gray med. to coarse multicolored SAND with silt and fine GRAVEL	8.0					
	CL/GP	med. gray/pink/dark gray mottled SANDY CLAY w/trace gravel						
		med. to stiff brown/light brown mottled SANDY CLAY and coarse GRAVEL						
		EOB @ 8.5 FT	10.0					
			12.0					
			14.0					
			16.0					
			18.0					
			20.0					
			22.0					
			24.0					
			26.0					
			28.0					
			30.0					
			32.0					
			34.0					
			36.0					

TOTAL DEPTH: 8.5 FT
DRILLING DATE: 10/23/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: –
DRILLER: JAMES W. TIGGELAAR
DRILLING METHOD: 3" OD HAND AUGER
SAMPLING METHOD: 3" OD HAND AUGER

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 6 FEET

NOTE: ALL ABOVE SOILS AR FILL.

FILE	GWCBLE33.DWG
DATE	12-3-92 R.S.

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. E-34

PROJECT: GM-Lansing, Body Plant, Area 9
CLIENT: GM-LAD
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : E1-93-110
GROUND ELEVATION 866.20
DATE STARTED: 10/21/93
DATE FINISHED: 10/21/93
DRILLER: Peter Buell
GEOLOGIST: David McMahon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1		S-1	CME		10	brown	soft	Construction Sand	Fill	wet
5		S-2	CME		10	grey	soft	SILTY CLAY, with 6" Sand seam	CL/ SP	wet
10		S-3	CME		10		soft	SILTY CLAY	CL	wet
15								End of Boring		Composite sample taken from 0 to 15' (due to poor sample recovery). Discrete sample collected from 15' depth.
20										

COMMENTS: CME - 3.5 ID x 5' soil core tube

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. E-35

ROJECT: GM-Lansing, Body Plant, Area 9
CLIENT: GM-LAD
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

SHEET NO. 1 OF 1
JOB NO. : E1-93-110
GROUND ELEVATION 866.28
DATE STARTED: 10/22/93
DATE FINISHED: 10/22/93
DRILLER: Peter Buell
GEOLOGIST: Mike Kovacs
REVIEWED BY:

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1		S-1	CME		60	black	soft	6" Asphalt SAND and GRAVEL	Fill	
5		S-2	CME		10	grey		SANDY SILT, trace Gravel	Fill	very moist
10		S-3	CME		100	grey/ brown	soft	SANDY CLAY, trace Gravel	CL	wet, mottled
15								End of Boring		Composite sample taken from 3.5 to 8.5'
20										Discrete sample collected at 13.5' depth.

COMMENTS: CME - 3.5 ID x 5' soil core tube

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. E-36

PROJECT: GM-Lansing, Body Plant, Area 9
CLIENT: GM-LAD
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : E1-93-110
GROUND ELEVATION 866.44
DATE STARTED: 10/21/93
DATE FINISHED: 10/21/93
DRILLER: Peter Buell
GEOLOGIST: David McMahon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1		S-1	CME		10	brown	soft	SAND grading to SILTY CLAY	Fill	dry
5		S-2	CME		15	grey	soft	SILTY CLAY	Fill	wet
10		S-3	CME		100	grey	hard	SILTY CLAY	CL	wet
15								End of Boring		Composite sample taken from 4 to 9.5' Discrete sample collected at 14' depth.
20										

COMMENTS: CME - 3.5 ID x 5' soil core tube

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. E-37

PROJECT: GM-Lansing, Body Plant, Area 9
SHEET NO. 1 OF 1
CLIENT: GM-LAD
JOB NO. : E1-93-110
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750
GROUND ELEVATION 866.41
DATE STARTED: 10/22/93
DATE FINISHED: 10/22/93
DRILLER: Peter Buell
GEOLOGIST: Mike Kovacs
REVIEWED BY:

GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1		S-1	CME		60	black	soft	SAND and GRAVEL		
							soft	SANDY SILT, trace Gravel		wet
5		S-2	CME		100	grey	soft	SANDY CLAY, trace Gravel	Fill	wet
10		S-3	CME		90	black grey	soft	organic SANDY CLAY SANDY SILT	ML	
						grey	soft	medium SAND, trace Gravel	SP	wet
15								End of Boring		Composite sample taken from 3.5 to 8.5'
20										Discrete sample collected at 11.5' depth.

COMMENTS: CME - 3.5 ID x 5' soil core tube

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. E-38

PROJECT: GM-Lansing, Body Plant, Area 9
CLIENT: GM-LAD
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : E1-93-110
GROUND ELEVATION 866.39
DATE STARTED: 10/21/93
DATE FINISHED: 10/21/93
DRILLER: Peter Buell
GEOLOGIST: David McMahon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1		S-1	CME		10	black/ brown	soft	Asphalt Construction debris	Fill	moist
5		S-2	CME		85	grey	soft	SILTY CLAY	CL	wet water in boring
10		S-3	CME		95		soft	SAND and GRAVEL	SW	wet
15								End of Boring		Composite sample taken from 1 to 4' Discrete sample collected at 9.5' depth.
20										

COMMENTS: CME - 3.5 ID x 5' soil core tube

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. E-39

PROJECT: GM-Lansing, Body Plant, Area 9
CLIENT: GM-LAD
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : E1-93-110
GROUND ELEVATION 867.94
DATE STARTED: 10/22/93
DATE FINISHED: 10/22/93
DRILLER: Peter Buell
GEOLOGIST: Mike Kovacs
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								GRAVELY SAND		drilled through rubble from 1.5 to 3' -no sample taken
		S-1	CME		20			Concrete	Fill	
						grey	soft	SILTY CLAY, tr. Sand, tr. Gravel	Fill	
5						brown		SANDY GRAVEL	Fill	
		S-2	CME		0					no recovery, soil descriptions from auger cuttings
10										
		S-3	CME		0					
15		S-4	SS			grey	soft	SANDY CLAY, trace Gravel	CL	
								End of Boring		Fill sample taken from 3 to 4'
20										Discrete sample collected at 14 to 16'

COMMENTS: CME - 3.5 ID x 5' soil core tube

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. E-40

PROJECT: GM-Lansing, Body Plant, Area 9
CLIENT: GM-LAD
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : E1-93-110
GROUND ELEVATION 869.00
DATE STARTED: 10/21/93
DATE FINISHED: 10/21/93
DRILLER: Peter Buell
GEOLOGIST: David McMahon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6"	SAMPLE RECOVERY RQD %	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	DESCRIPTION CLASS USCS	REMARKS
1								Asphalt		
						brown	soft	SAND	Fill	
		S-1	CME		90					
5						grey	soft	SANDY CLAY	CL	moist
		S-2	CME		70					
10										
		S-3	CME		100	brown		. . . grade: some Gravel	CL	moist
15										
								End of Boring		Composite sample taken from 1 to 15'
20										Discrete sample collected at 6' depth.

COMMENTS: CME - 3.5 ID x 5' soil core tube

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. E-41

PROJECT: GM-Lansing, Body Plant, Area 9
SHEET NO. 1 OF 1
CLIENT: GM-LAD
JOB NO. : E1-93-110
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750
GROUND ELEVATION 867.41
DATE STARTED: 10/21/93
DATE FINISHED: 10/21/93
DRILLER: Peter Buell
GEOLOGIST: Mike Kovacs
REVIEWED BY:

GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6"	SAMPLE RECOVERY RQD %	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	DESCRIPTION CLASS USCS	REMARKS
1								Concrete		
						brown		SAND		
		S-1	CME		60	brown/ grey		SANDY CLAY	Fill	
								. . . layer black SANDY CLAY		
5								. . . grade: trace Gravel		moist
		S-2	CME		70	grey		SANDY CLAY	CL	
10								. . . grade: some Gravel		
		S-3	CME		100			SANDY SILT	ML	moist
15								End of Boring		Composite sample taken from 3 to 7'
20										Discrete sample collected at 14'

COMMENTS: ND - non detect

PROJECT NO. E1-93-110

WE..CK ASSOCIATES, INCORF..RATED

LOG OF TEST BORING NO: G-1

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT–LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE				SOIL SAMPLE DATA						
ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 872.13	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
872.13	N/A	CONCRETE SLAB	00.0							
	SW	FILL: light gray fine to coarse sand and fine gravel with silt								
70.13			2.0	LS-1	4-6-10-12	16	DRY	–	–	2.5
68.13			4.0							
	CL	FILL: medium to stiff brown and gray and orange/brown mottled SANDY CLAY with trace fine gravel and coarse sand		LS-2	5-8-9-10	17	DRY	–	–	2.0
66.13			6.0							
64.13			8.0	LS-3	5-10-15-18	25	(11,7)	128.3	–	1.2
62.13			10.0							
60.13			12.0							
58.13			14.0	LS-4	3-3-4-5	7	WET	–	–	1.0
	CL	medium brown/gray to gray SANDY CLAY with trace fine gravel and coarse sand, occasional layers of silty sand								
56.13			16.0							
54.13			18.0	LS-5	4-5-6-9	11	WET	–	–	0.8
52.13			20.0							
	CL	medium to stiff brown/gray to gray SANDY CLAY with trace fine gravel and coarse sand								
50.13			22.0							
48.13			24.0	LS-6	7-9-11-14	20	MOIST	–	–	1.2
	CL	medium to stiff gray SILTY CLAY with trace fine gravel and coarse sand								
46.13			26.0							
44.13			28.0	LS-7	11-13-13-14	26	MOIST	–	–	1.0
42.13	CL	medium to stiff gray SANDY CLAY with frequent layers of gray fine to medium silty sand	30.0							
40.13	CL	soft to medium gray SANDY CLAY with trace coarse sand and fine gravel	32.0							
38.13	SM	very dense gray SILTY SAND with trace coarse sand and fine gravel	34.0	LS-8	6-19-43-68	64	WET	–	–	0.6
36.13		EOB @ 35 FT	36.0							

TOTAL DEPTH: 35 FT
DRILLING DATE: 8/4/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SAMPLE RET.

WATER LEVEL OBSERVATION:
GROUNDWATER NOT ENCOUNTERED

FILE GMBLG1.DWG
DATE 8-[illegible]-92 RJR

WEI .K ASSOCIATES, INCORP :ATED

LOG OF TEST BORING NO: G-2 (originally E-6)

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 869.09	DEPTH (FT)
869.09	N/A	BITUMINOUS MATERIAL	00.0
867.09	SP	FILL: coarse brown SAND	2.0
865.09			4.0
863.09	CL	FILL: medium to stiff brown SANDY CLAY with trace fine gravel and coarse sand	6.0
861.09			8.0
859.09			10.0
857.09			12.0
855.09			14.0
853.09			16.0
851.09			18.0
849.09	CL	medium to stiff brown/gray SANDY CLAY with trace fine gravel and coarse sand	20.0
847.09			22.0
845.09			24.0
843.09			26.0
841.09			28.0
839.09	SM	medium dense gray fine SILTY SAND	30.0
	CL	medium to stiff gray SANDY CLAY with trace fine gravel and coarse sand	
837.09			32.0
	SM	dense brown/gray fine SILTY SAND	
835.09			34.0
	CL	medium to stiff gray SANDY CLAY with trace fine gravel and coarse sand	
	SM	dense gray fine SILTY SAND w/Trace Fine Gravel and Coarse Sand	
833.09		EOB @ 35 FT	36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
LS-1	3-3-2-2	5	DRY	-	-	1.4
LS-2	5-7-10-13	17	MOIST	-	-	0.9
LS-3	4-5-7-8	12	WET	-	-	3.7
ST-1	PUSHED	-	-	-	-	-
LS-4	4-5-7-9	12	WET	-	-	0.7
LS-5	4-7-9-10	16	WET	-	-	0.3
LS-6	10-8-9-12	17	WET	-	-	0.4
LS-7	0-16-23-26	49	WET	-	-	0.1

TOTAL DEPTH: 35 FT
DRILLING DATE: 7/27/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON (LINED);
3" X 2' SHELBY TUBE

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 10.8 FEET

FILE	GMBLG2.DWG
DATE	8-11-92 RLB

WE. CK ASSOCIATES, INCORF RATED

LOG OF TEST BORING NO: G-3

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 869.51	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
		SUBSURFACE PROFILE		SOIL SAMPLE DATA						
869.51	N/A	BITUMINOUS MATERIAL	00.0							
	SC	FILL: brown fine to coarse SAND with brown sandy clay								
67.51			2.0	S-1	2-3-4-4	7	MOIST	-	-	1.0
65.51			4.0							
63.51	CL	FILL: medium to stiff brown SANDY CLAY with trace fine gravel and coarse sand, black staining, occasional layer brown sand	6.0	S-2	3-6-9-11	15	MOIST	-	-	1.5
61.51			8.0							
59.51			10.0	ST-1	PUSHED	-	(12.6)	129.7	6400	4.8
57.51			12.0							
55.51	CL	medium to stiff brown/gray to gray SANDY CLAY with trace fine gravel and coarse sand	14.0	LS-1	6-6-6-8	12	WET	-	-	2.7
53.51			16.0							
51.51			18.0	ST-2	PUSHED	-	(10.3)	130.6	-	5.1
49.51			20.0							
47.51			22.0							
45.51	CL	stiff to very stiff gray SILTY CLAY with trace coarse sand and fine gravel	24.0	LS-2	6-10-13-16	23	MOIST	-	-	1.5
43.51			26.0							
41.51			28.0	ST-3	PUSHED	-	(13.6)	114.9	-	0.8
39.51			30.0							
37.51			32.0							
35.51	CL	medium to stiff gray SANDY CLAY with trace coarse sand and fine gravel, occasional layer gray silty sand	34.0	LS-3	5-6-11-19	17	WET	-	-	0.8
33.51			36.0							

TOTAL DEPTH: 50 FT
DRILLING DATE: 8/4/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 12.2 FEET

DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SAMPLE RET.;
3" X 2' SHELBY TUBE

FILE GVB-G3.DWG
DATE 8 [illegible]-92 R.B

WE CK ASSOCIATES, INCORF RATED

LOG OF TEST BORING NO: G-3

PROJECT NAME: B.O.C. AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

ELEV. (FT)	USCS GROUP		DEPTH (FT)
33.51			36.0
31.51	CL	medium to stiff gray SILTY CLAY with trace sand and fine gravel	38.0
29.51			40.0
27.51			42.0
25.51	CL	stiff gray SILTY CLAY with trace fine gravel	44.0
23.51			46.0
21.51			48.0
19.51		very dense light gray fine to medium SAND AND fine to coarse GRAVEL	50.0
		EOB @ 50 FT	52.0
			54.0
			56.0
			58.0
			60.0
			62.0
			64.0
			66.0
			68.0
			70.0
			72.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
LS-4	6-7-10-12	17	-	-	-	0.8
ST-4	PUSHED	-	(10.1)	129.1	7200	1.2
LS-5	7-29-70-80/4"	99	MOIST	-	-	0.6

TOTAL DEPTH: 50 FT
DRILLING DATE: 8/4/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL

DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SAMPLE RET.;
3" X 2' SHELBY TUBE

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 12.2 FEET

FILE	GMBLG38.DWG
DATE	8-11-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: G-4

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT–LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE				SOIL SAMPLE DATA						
ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 869.81	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
869.81	N/A	BITUMINOUS MATERIAL	00.0							
	SP	FILL: coarse brown SAND								
67.81			2.0	LS-1	3-4-3-4	7	MOIST	–	–	2.5
65.81			4.0							
63.81			6.0	LS-2	3-3-4-5	7	MOIST	–	–	2.3
61.81	CL	FILL: medium brown SANDY CLAY with trace coarse sand and fine gravel	8.0	LS-3	0-1-1-2	2	WET	–	–	0.5
59.81			10.0							
57.81			12.0							
55.81			14.0	LS-4	3-8-11-7	19	–	–	–	0.3
53.81			16.0							
51.81			18.0	LS-5	3-4-8-11	12	WET	–	–	0.0
49.81			20.0							
47.81	CL	stiff gray SANDY CLAY with trace coarse sand and fine gravel	22.0							
45.81			24.0	LS-6	4-7-10-11	17	(17.2)	113.9	3600	0.0
43.81			26.0							
41.81			28.0	LS-7	4-5-7-9	12	WET	–	–	0.0
39.81			30.0							
37.81			32.0	LS-8	7-6-7-7	13	WET	–	–	(COMBINED)
35.81	SM	very dense gray fine SILTY SAND	34.0							
				ST-1	(no sample)	–	–	–	–	–
33.81			36.0	LS-9	19-29-36-40	65	WET	–	–	1.4

TOTAL DEPTH: 49 FT
DRILLING DATE: 7/24/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON;
3" X 2' SHELBY TUBE

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 6.3 FEET

FILE	GMBLG4.DWG
DATE	8-11-92 RLB

WE CK ASSOCIATES, INCORF RATED

LOG OF TEST BORING NO: G-4

PROJECT NAME: B.O.C. AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

ELEV. (FT)	USCS GROUP		DEPTH (FT)
33.81		same as above	36.0
31.81			38.0
29.81	CL	stiff gray SANDY CLAY, trace coarse sand and fine gravel	40.0
27.81			42.0
25.81	CL	dense gray CLAYEY SAND with trace coarse sand and fine gravel	44.0
23.81			46.0
21.81	CL	stiff gray CLAY	48.0
	CL	very dense gray medium to coarse SILTY SAND AND fine to coarse GRAVEL	50.0
		EOB @ 50 FT	52.0
			54.0
			56.0
			58.0
			60.0
			62.0
			64.0
			66.0
			68.0
			70.0
			72.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
LS-10	7-8-12-13	20	-	-	-	0.3
LS-11	14-16-18-28	34	WET	-	-	0.1
LS-12	12-17-36-53	53	WET	-	-	0

TOTAL DEPTH: 50 FT
DRILLING DATE: 7/24/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON (LINED);
3" X 2' SHELBY TUBE

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 12.2 FEET ON 7-24-92
GROUNDWATER OBSERVED AT 4.6 FEET ON 7-27-92

FILE	GMB:G48.DWG
DATE	8-11-92 R.B

WE CK ASSOCIATES, INCORF RATED

LOG OF TEST BORING NO: G-5

PROJECT NAME: B.O.C. AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE				SOIL SAMPLE DATA						
ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 868.12	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
868.12	N/A	BITUMINOUS MATERIAL	00.0							
	SM	FILL: very loose silty/oily brown/gray fine to coarse SAND								
866.12	CL	FILL: soft brown/gray SANDY CLAY with black staining	2.0	LS-1	0-0-0-3	0	WET	-	-	340
864.12	CL	FILL: highly stained dark black/brown/gray SANDY CLAY	4.0							
862.12	CL	FILL: soft to medium brown/gray SANDY CLAY with trace coarse sand and fine gravel	6.0	LS-2	4-4-4-3	8	WET	-	-	225
860.12			8.0							
				LS-3	2-3-4-5	7	WET	-	-	214
858.12			10.0							
856.12	CL	medium to stiff brown/gray SILTY CLAY with trace coarse sand and fine gravel, occasional layer silty sand	12.0							
854.12			14.0	LS-4	6-8-12-14	20	-	-	-	178
852.12			16.0							
850.12			18.0							
				LS-5	7-9-13-16	22	(9.6)	137.7	3200	43
848.12			20.0							
846.12			22.0							
844.12			24.0	LS-6	-	-	WET	-	-	41
842.12			26.0							
840.12			28.0							
				LS-7	6-14-13-9	27	WET	-	-	50
838.12	SP	medium dense brown/gray fine to medium SAND with silt	30.0							
836.12			32.0							
834.12	CL	medium to stiff brown/gray SILTY CLAY with trace grave' and coarse sand	34.0	LS-8	10-11-14-15	25	WET	-	-	162
832.12		E.O.B. @ 35 FT'	36.0							

TOTAL DEPTH: 35 FT
DRILLING DATE: 7/29/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECODRILLING CO.
DRILLER: JACK MASKELL

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 2.5 FEET

DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON RET. AND BRASS LINERS; 3 X 2" SHELBY TUBE

FILE	GWBLGS.DWG
DATE	8-11-92 R.B

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: G-6

PROJECT NAME: B.O.C. AUTOMOTIVE
PROJECT LOCATION: BODY PLANT–LANSING, MICHIGAN
WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	SUBSURFACE PROFILE: GROUND SURFACE ELEV: 867.90	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	LEAD COMPOSITE	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
867.90	N/A	ASPHALT	00.0								
	GW	FILL: ROAD GRAVEL									
865.90	SM	FILL: loose light brown fine to coarse SAND and fine gravel, occasional layer black stained sandy clay	2.0	LS-1	4-2-3-3	5	DRY	–	EP TOXICITY LEAD 0.08 mg/L	–	5.2
863.90			4.0								
861.90			6.0	LS-2	2-1-1-1	2	WET	–		–	2.9
859.90			8.0	LS-3	2-6-5-3	11	WET	–		–	186.0
857.90	CL	FILL: soft dark brown SANDY CLAY (black stains, gray patches)	10.0								
855.90			12.0								
853.90	CL	FILL: medium brown SANDY CLAY with traces and layers of dense fine to coarse brown sand and fine gravel	14.0	LS-4	6-8-13-16	21	WET	–		–	34.0
851.90			16.0						TCLP Lead 0.7 mg/L		
849.90	CL	medium to stiff brown/gray SILTY CLAY with trace coarse sand and fine gravel	18.0	LS-5	6-8-10-12	18	WET	–		–	24.0
847.90			20.0								
845.90	CL	medium brown/gray SANDY CLAY with trace fine gravel and coarse sand	22.0								
843.90			24.0	LS-6	5-6-9-11	15	WET	–	TOTAL Lead 47.1 mg/kg	–	12.5
841.90			26.0								
839.90			28.0	LS-7	7-9-13-13	22	WET	–		–	8.2
837.90	CL	medium to stiff gray SILTY CLAY with trace fine gravel and coarse sand	30.0								
835.90			32.0								
833.90	SM	medium dense fine SILTY SAND with trace fine gravel and coarse sand	34.0	LS-8	11-15-15-13	30	WET	–		–	5.8
831.90		EOB @ 35 FT	36.0								

TOTAL DEPTH: 35 FT
DRILLING DATE: 7/30/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 3.8 FEET

DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON RET. AND BRASS LINERS;
3" X 2' SHELBY TUBE

FILE	GMBLG6.DWG
DATE	8-17-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: G-7

PROJECT NAME: B.O.C. AUTOMOTIVE
PROJECT LOCATION: BODY PLANT–LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 868.57	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	LEAD COMPOSITE	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
868.57	N/A	ASPHALT	00.0								
	GW	FILL: ROAD GRAVEL									
866.57	SP	FILL: loose dark brown/black fine to coarse SAND and FINE GRAVEL	2.0	LS-1	3-2-3-4	5	MOIST	–		–	2.3
864.57	CL	FILL: soft to medium brown SANDY CLAY with trace fine gravel and coarse sand (patches of light gray and orange/brown)	4.0								
862.57			6.0	LS-2	2-2-2-4	4	MOIST	–	EP TOXICITY LEAD <0.01 mg/L	–	3.6
860.57			8.0	LS-3	3-2-3-4	5	WET	–		–	0.8
858.57	SC	FILL: loose fine SAND with sandy clay	10.0								
856.57	CL	FILL: medium brown SANDY CLAY with trace fine gravel and coarse sand	12.0								
854.57	SM	FILL: layers of fine to medium brown SAND WITH SILT and trace coarse sand and fine gravel	14.0	LS-4	5-7-8-10	15	WET	–		–	1.5
852.57	CL	medium brown SANDY CLAY with trace fine gravel and coarse sand	16.0								
850.57	SM	medium dense brown/light brown fine medium SAND with trace silt and coarse sand and fine gravel ▼	18.0	LS-5	8-10-13-21	23	WET	–	TCLP Lead 0.05 mg/L	–	1.6
848.57	CL	medium brown/gray SANDY CLAY and brown/red sandy clay with trace coarse sand and fine gravel	20.0								
846.57	SM	loose brown fine to medium SAND with silt and trace coarse sand and fine gravel	22.0								
844.57	CL	medium to stiff gray SANDY CLAY with trace coarse sand and fine gravel	24.0	LS-6	4-6-8-10	14	WET	–		–	0.8
842.57	CL	medium brown/red and light gray SANDY CLAY with trace fine gravel and coarse sand	26.0								
840.57	CL	medium to stiff gray SANDY CLAY with trace fine gravel and coarse sand	28.0	LS-7	7-8-10-12	18	WET	–		–	1.0
838.57	CL	medium to stiff gray SILTY CLAY with trace coarse sand and fine gravel	30.0								
836.57	CL	medium gray SANDY CLAY with trace coarse sand and fine gravel with rough patches near base	32.0						TOTAL Lead 12 mg/kg		
834.57			34.0	LS-8	6-7-9-11	16	WET	–		–	0.7
832.57		EOB @ 35 FT	36.0								

TOTAL DEPTH: 35 FT
DRILLING DATE: 7/31/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON WITH SPRING RET.

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 18.5 FEET

FILE GMBLG7.DWG
DATE 8-11-92 RLB

WE. CK ASSOCIATES, INCORF RATED

LOG OF TEST BORING NO: G-8 (originally G-2)

PROJECT NAME: B.O.C. AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN
WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

ELEV (FT)	USCS GROUP	SUBSURFACE PROFILE — GROUND SURFACE ELEV: 867.85	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
867.85			00.0							
	GP	FILL: RR COBBLES - medium dense angular fine to coarse dark GRAVEL								
865.85			2.0	LS-1	1-7-13-15	20	WET	-	-	1.1
863.85	GP	FILL: medium dense sub-rounded fine GRAVEL	4.0							
				LS-2	4-6-8-12	14	WET	-	-	0.1
861.85			6.0							
	CL	FILL: medium to stiff brown SANDY CLAY with trace fine and coarse gravel and coarse sand		LS-3	7-20-15-11	35	WET	-	-	0
859.85			8.0							
857.85			10.0							
855.85			12.0							
				LS-4	4-20-15-11	35	WET	-	-	0.3
853.85	CL	medium to stiff brown/gray SANDY CLAY with trace fine and coarse gravel and coarse sand	14.0							
851.85			16.0							
849.85	CL	medium to stiff gray SILTY CLAY with trace coarse sand and fine gravel	18.0	LS-5	5-6-7-10	13	WET	-	-	0
847.85			20.0							
845.85			22.0							
				LS-6	8-7-8-6	15	WET	-	-	0.1
843.85	CL	medium to stiff gray SILTY CLAY with trace coarse sand and fine gravel, with occasional layer silty fine sand	24.0							
841.85			26.0							
839.85			28.0							
				LS-7	17-20-14-10	34	(11.0)	127.6	-	0
837.85			30.0							
	CL	medium to stiff gray SANDY CLAY								
835.85			32.0							
833.85			34.0							
	CL	medium to stiff gray SILTY CLAY with trace fine gravel and coarse sand		LS-8	6-7-9-11	16	WET	-	-	0.1
831.85			36.0							

TOTAL DEPTH: 50 FT
DRILLING DATE: 7/28/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON LINED

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 3.0 FEET

FILE	GWBLG8.DWG
DATE	8-11-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: G-8 (originally G-2)

PROJECT NAME: B.O.C. AUTOMOTIVE
PROJECT LOCATION: BODY PLANT-LANSING, MICHIGAN
WENCK PROJ. NO: 0191-01-01
CHECKED BY: JWT

SUBSURFACE PROFILE

ELEV. (FT)	USCS GROUP		DEPTH (FT)
31.85			36.0
29.85			38.0
27.85	CL	same as above	40.0
25.85			42.0
23.85			44.0
21.85			46.0
19.85	GM	gray to black very dense fine to coarse GRAVEL and fine to coarse sand and silt	48.0
17.85		EOB @ 49.1 FT	50.0
			52.0
			54.0
			56.0
			58.0
			60.0
			62.0
			64.0
			66.0
			68.0
			70.0
			72.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	STD.PEN. RES. (N)	MOISTURE (%)	DRY DENSITY (PCF)	UNCONF. COMP.ST. (PSF)	PID READING (ppm)
LS-9	5-7-10-12	17	WET	-	-	0.5
LS-10	10-13-14-17	27	WET	-	-	1.2
LS-11	38-70-50/2"	120	WET	-	-	0.7

TOTAL DEPTH: 49.1 FT
DRILLING DATE: 7/28/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: MATECO DRILLING CO.
DRILLER: JACK MASKELL
DRILLING METHOD: 4 1/4 ID H.S.A. WITH AUGER BASKET
DRILLING METHOD: 2" X 2' SPLIT-SPOON (LINED);

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 3 FEET

FILE	GMB: G88.DWG
DATE	8-11-92 RLB

WENCK ASSOCIATES, INCORPORATED

LOG OF TEST BORING NO: G-9

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 866.26	DEPTH (FT)	SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	SPT (N)	TOTAL Pb (ppm)	TCLP LEAD (ppm)
866.26		ASPHALT	00.0						
	SM	FILL: medium dense dark brown/black SAND		LS-1	7-9-10	DRY	19	131	0.43
864.26	CL	FILL: medium dark gray/black light gray mottled SANDY CLAY with trace coarse sand and fine gravel	2.0	LS-2	6-6-6-10	MOIST	12	32.4	0.05
862.26	CL	FILL: soft to medium red SANDY CLAY with trace fine gravel and coarse sgravel and ▼	4.0	ST-1	PUSHED	WET	--	6.6	0.16*
860.26	CL	FILL: medium light gray/gray/occasional black SANDY CLAY with trace coarse sand and fine gravel	6.0	ST-2	PUSHED	--	--	6.3	<0.01
858.26			8.0	LS-3	1/1'-1/6"-2/6"	--	1	7.2	<0.01
856.26	CL	FILL: very soft dark brown/occasional black SANDY CLAY and very soft light gray/brown/gray mottled SANDY CLAY; trace coarse sand and fine gravel	10.0						
854.26			12.0						
852.26			14.0	LS-4	1/1'-1/6"-2/6"	WET	1	4.2	<0.01
850.26			16.0						
848.26	CL	medium light gray SANDY CLAY with trace coarse sand and fine gravel	18.0	LS-5	3-3-5-12	WET	8	--	--
846.26			20.0						
844.26	CL	medium to stiff brown/gray SANDY CLAY with trace medium to coarse sand and fine gravel	22.0						
842.26			24.0	LS-6	9-7-9-15	WET	16	--	--
840.26			26.0						
838.26			28.0	LS-7	6-11-12-19	WET	23	--	--
836.26		EOB @ 30 FT	30.0						
			32.0						
			34.0						
			36.0						

TOTAL DEPTH: 30 FT
DRILLING DATE: 10/14/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: PEARSON
DRILLER: BERNARD PRIELIPP

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 4 FEET

DRILLING METHOD: 4 1/4 ID H.S.A. W/CENTER BIT
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/FLEX-PLUG W/PLASTIC LINER

* – EP TOXICITY LEAD GIVEN BECAUSE ITS VALUE HIGHER THAN TCLP LEAD

FILE: GMCB_G9.DWG
DATE: 12-3-92 R.B

WE CK ASSOCIATES, INCORF RATED

LOG OF TEST BORING NO: G-10

PROJECT NAME: B.O.C. LANSING AUTOMOTIVE
PROJECT LOCATION: BODY PLANT – LANSING, MICHIGAN

WENCK PROJ. NO: 0191-01-01
CHECKED BY: MEG

SUBSURFACE PROFILE

ELEV. (FT)	USCS GROUP	GROUND SURFACE ELEV: 864.95	DEPTH (FT)
864.95		ASPHALT	00.0
862.95	SP/CL	FILL: brown/black fine to medium SAND and dark gray/black/white/brown mottled SANDY CLAY; trace fine gravel and coarse sand	2.0
860.95	CL	FILL: very soft dark brown/dark blue mottled SANDY CLAY with organic fibers throughout; trace fine gravel and coarse sand	4.0
858.95			6.0
856.95	SM	FILL: medium dense dark brown/gray SILTY FINE SAND	8.0
854.95	CL	FILL: medium dark brown/orange/gray mottled SANDY CLAY with occasional pockets/layers of silty fine sand and trace coarse sand and fine gravel	10.0
852.95			12.0
850.42	CL	medium to stiff dark brown/gray SANDY CLAY with trace coarse sand and fine gravel with occasional layers of gray silty sand	14.0
848.42			16.0
846.42			18.0
844.42	SM	gray SILTY SAND	20.0
842.42	CL	medium to stiff dark brown/gray SANDY CLAY with trace coarse sand and fine gravel with occasional layers of gray silty sand	22.0
840.42	SM	gray SILTY SAND	24.0
838.42	CL	stiff to very stiff dark brown/gray SANDY CLAY with trace coarse sand and fine gravel; occasional thin layers of silty sand	26.0
836.42			28.0
834.42		EOB @ 30 FT	30.0
			32.0
			34.0
			36.0

SOIL SAMPLE DATA

SAMPLE TYPE	BLOW COUNT/6"	MOISTURE (%)	SPT (N)	TOTAL Pb (ppm)	TCLP LEAD (ppm)
LS-1	9-9-9	DRY	18	48.5	0.03
LS-2	5-8-8-7	DRY	16	28.3	0.02
LS-3	1/1"-1/1'-2/11"	WET	2	9.2	0.02
LS-4	5-8-8-10	WET	16	3.2	<0.01
LS-5	2-4-4-8	WET	8	3.6	<0.01
LS-6	5-10-16-24	WET	26	--	--
LS-7	0-0-13-15	WET	13	--	--
LS-8	7-9-15-31	WET	24	--	--

TOTAL DEPTH: 30 FT
DRILLING DATE: 10/14/92
INSPECTOR: JAMES W. TIGGELAAR
CONTRACTOR: PEARSON
DRILLER: BERNARD PRIELIPP

WATER LEVEL OBSERVATION:
WATER FIRST OBSERVED AT 4 FEET

DRILLING METHOD: 4 1/4 ID H.S.A. W/CENTER BIT
SAMPLING METHOD: 2" X 2' SPLIT-SPOON W/FLEX-PLUG W/PLASTIC LINER

FILE	GWCB_G10.DWG
DATE	12-3-92 RLB

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-1

DRIVE DEPTH FROM/TO		SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	3.0 ft (2.0 - 5.7 ft)	----------	Sandy Clay, Soft, Trace of Stone, Gray	Soil 5.0 ft
		(5.7 - 6.0 ft)	----------	Silty Sand, Trace Clay, Black and Gray	
6.0 ft	10.0 ft	4.0 ft (6.0 - 7.5 ft)	----------	Silty Sand, Trace Clay, Black and Gray	Soil 6.0 ft
		(7.5 - 9.5 ft)	----------	Sandy Clay, Gray Green	Soil 8.0 ft
		(9.5 - 10.0 ft)	----------	Silty Sand, Gray, Wet	

DEPTH TO WATER Approximately 9.5 ft
BACKFILL METHOD Bentonite
***PPM = PARTS PER MILLION**

geoprobe\le25107\gps\burtraw-cro

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-2

DRIVE DEPTH FROM	DRIVE DEPTH TO	SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	3.0 ft (2.0 - 4.5 ft)	----------	Silty Sand, Trace Clay and Gravel, Black, Red, Brown, Gray	Soil 3.0 ft
		(4.5 - 5.5 ft)	----------	Silty Sand, Trace Stone and Cinder, Black	Soil 5.0 ft
		(5.5 - 6.0 ft)	----------	Sandy Clay, Soft, Gray-Green	
6.0 ft	10.0 ft	2.5 ft (6.0 - 9.0 ft)	----------	Silty Sand, Trace Clay, Wet, Black, Gray-Green	Soil 8.0 ft
		(9.0 - 10.0 ft)	----------	Silty Sand, Gray-Green, Wet	

DEPTH TO WATER Approximately 6.0 ft
BACKFILL METHOD Bentonite
***PPM = PARTS PER MILLION**

geoprobe\le25107\gps\burtraw-cro

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-3

DRIVE DEPTH FROM	DRIVE DEPTH TO	SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	4.0 ft (2.0 - 4.5 ft)	----------	Sandy Clay, Moist, Brown, Gray- Green	
		(4.5 - 6.0 ft)	----------	Fine Sandy Silt, Trace Clay, Brown, Gray-Green	Soil 5.0 ft
6.0 ft	10.0 ft	4.0 ft	----------	Fine Sandy Silt, Trace Clay, Brown and Gray, Occasional Wet Lens	Soil 8.0 ft

DEPTH TO WATER Approximately 8.0 ft
BACKFILL METHOD Bentonite
***PPM = PARTS PER MILLION**

geoprobe\le25107\gps\burtraw-cro

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-4

DRIVE DEPTH FROM/TO		SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	4.0 ft	----------	Sandy Clay, Trace Silt, Mottled Gray and Brown	Soil 5.0 ft
6.0 ft	10.0 ft	3.0 ft	----------	Sandy Clay, Trace Silt, Mottled Gray and Brown	Soil 8.0 ft

DEPTH TO WATER Not Encountered
BACKFILL METHOD Bentonite
***PPM = PARTS PER MILLION**

geoprobe\le25107\gps\burtraw-cro

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-5

DRIVE DEPTH FROM	DRIVE DEPTH TO	SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	3.0 ft (2.0 - 5.5 ft)	----------	Silty Sand, Fine to Medium, Brown, Red, Gray, White, Trace of Black	
		(5.5 - 6.0 ft)	----------	Silty Sand, Fine to Medium, White, Trace of Gray	Soil 5.0 ft
6.8 ft	10.8 ft	1.0 ft (9.8 - 10.0 ft)	----------	Silty Sand, Fine, Wet	
		(10.0 - 10.5 ft)	----------	Silty Sand, Black With Trace Gray	Soil 10.0 ft
		(10.5 - 10.8 ft)	----------	Sandy Clay, Brown, Gray- Green	
		Note: 3 feet of water recovered. In sample tube from 6.8 - 10.8 ft			

DEPTH TO WATER Approximately 6.8 ft
BACKFILL METHOD Bentonite
***PPM = PARTS PER MILLION**

geoprobe\le25107\gps\burtraw-cro

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-6

DRIVE DEPTH FROM/TO		SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	3.0 ft	----------	Silty Sand, Fine to Medium, Gray- Green With Trace of Black	Soil 5.0 ft
6.0 ft	10.0 ft	4.0 ft (6.0 - 8.0 ft)	----------	Silty Sand, Fine to Medium, Gray- Green With Trace of Black	
		(8.0 - 9.0 ft)	----------	Silty Sand, Fine to Medium, Trace of Clay, Black	Soil 8.0 ft
		(9.0 - 10.0 ft)	----------	Silty Sand, Fine to Medium, Trace of Clay, Gray-Brown	

DEPTH TO WATER Not Encountered

BACKFILL METHOD Bentonite

***PPM = PARTS PER MILLION**

geoprobe\le25107\gps\burtraw-cro

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-7

DRIVE DEPTH FROM/TO		SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	4.0 ft	----------	Sandy Clay, Trace of Silt, Black and Gray	Soil 5.0 ft
6.0 ft	10.0 ft	4.0 ft	----------	Very Sandy Clay, Gray	Soil 8.0 ft

DEPTH TO WATER Not Encountered

BACKFILL METHOD Bentonite

***PPM = PARTS PER MILLION**

geoprobe\le25107\gps\burtraw-cro

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-8

DRIVE DEPTH FROM/TO		SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	2.0 ft	----------	Silty Sand, Fine to Medium, Gray and Black, Wet 5.5 to 6.0 Ft	Soil 5.0 ft
6.0 ft	10.0 ft	4.0 ft (6.0 - 9.8 ft)	----------	Silty Sand, Fine to Medium, Gray-Black, Wet	
		(9.8 - 10.0 ft)	----------	Silty Sand, Trace of Clay, Black	Soil 10.0 ft

DEPTH TO WATER Approximately 5.5 ft
BACKFILL METHOD Bentonite
***PPM = PARTS PER MILLION**

geoprobe\le25107\gps\burtraw-cro

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-9

DRIVE DEPTH FROM	DRIVE DEPTH TO	SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	2.5 ft	----------	Slity Sand, Fine to Coarse, Occasional Gravel, Gray-Green	Soil 5.0 ft
6.0 ft	10.0 ft	3.5 ft (6.0 - 7.0 ft)	----------	Silty Sand, Fine to Medium, Gray-Green, Wet	
		(7.0 - 8.0 ft)	----------	Silty Sand, Trace of Clay, Black	Soil 7.0 ft
		(8.0 - 10 ft)	----------	Sandy Clay, Gray-Green	Soil 8.0 ft

DEPTH TO WATER Approximately 6.0 ft
BACKFILL METHOD Bentonite
***PPM = PARTS PER MILLION**

geoprobe\le25107\gps\burtraw-cro

SME PROJECT NAME General Motors Area 9

SME PROJECT NUMBER LE-25107

SME ON-SITE REPRESENTATIVE Michael R. Burtraw

SOIL PROBE SAMPLING FIELD LOG

DATE/TIME START October 23, 1996 **BORING NUMBER** GP-10

DRIVE DEPTH FROM	DRIVE DEPTH TO	SAMPLE RECOVERY	PID READING	SAMPLE DESCRIPTION	SAMPLE SUBMITTED TO LAB
2.0 ft	6.0 ft	2.0 ft	----------	Silty Sand, Trace of Clay, Black	Soil 5.0 ft
6.0 ft	10.0 ft	2.0 ft (6.0 - 8.0 ft)	----------	Peastone, Black, Wet	
		(8.0 - 10.0 ft)	----------	Sandy Clay, Gray-Black	Soil 9.0 ft

DEPTH TO WATER Approximately 6.0 ft
BACKFILL METHOD Bentonite
***PPM = PARTS PER MILLION**

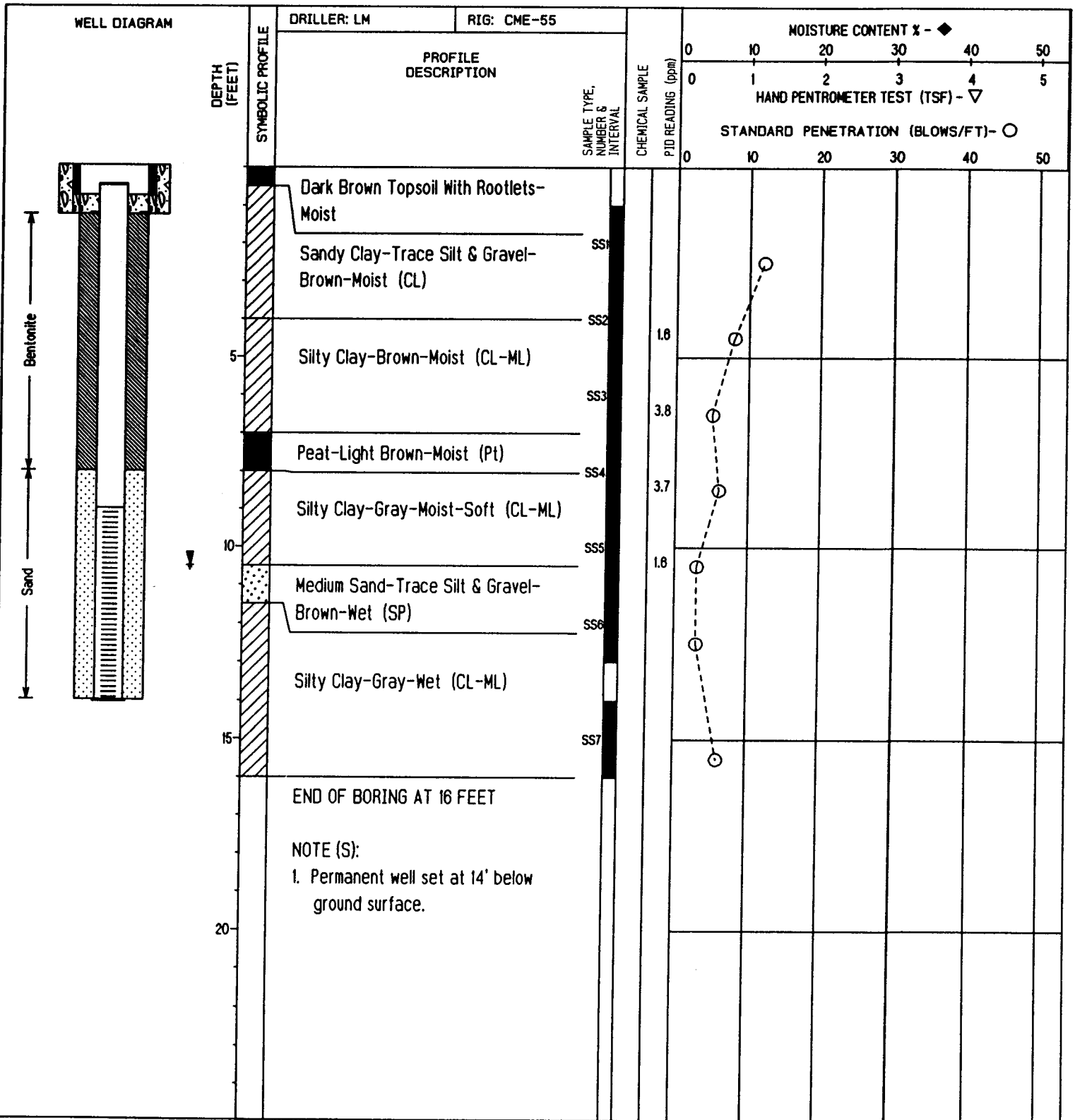
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SOIL AND MATERIALS ENGINEERS, INC

JOB NAME: Gate 4 Gasoline Tank
JOB LOCATION: Lansing, Michigan
CLIENT: GM – SCG

GEO/ENG: RSR REVIEWED BY: KLC
DATE: 11-2-95
JOB NUMBER: LE-24815

BORING MW-1
SHEET: 1



WATER LEVEL OBSERVATIONS

▼ GROUNDWATER ENCOUNTERED DURING DRILLING
▽ GROUNDWATER AFTER DRILLING

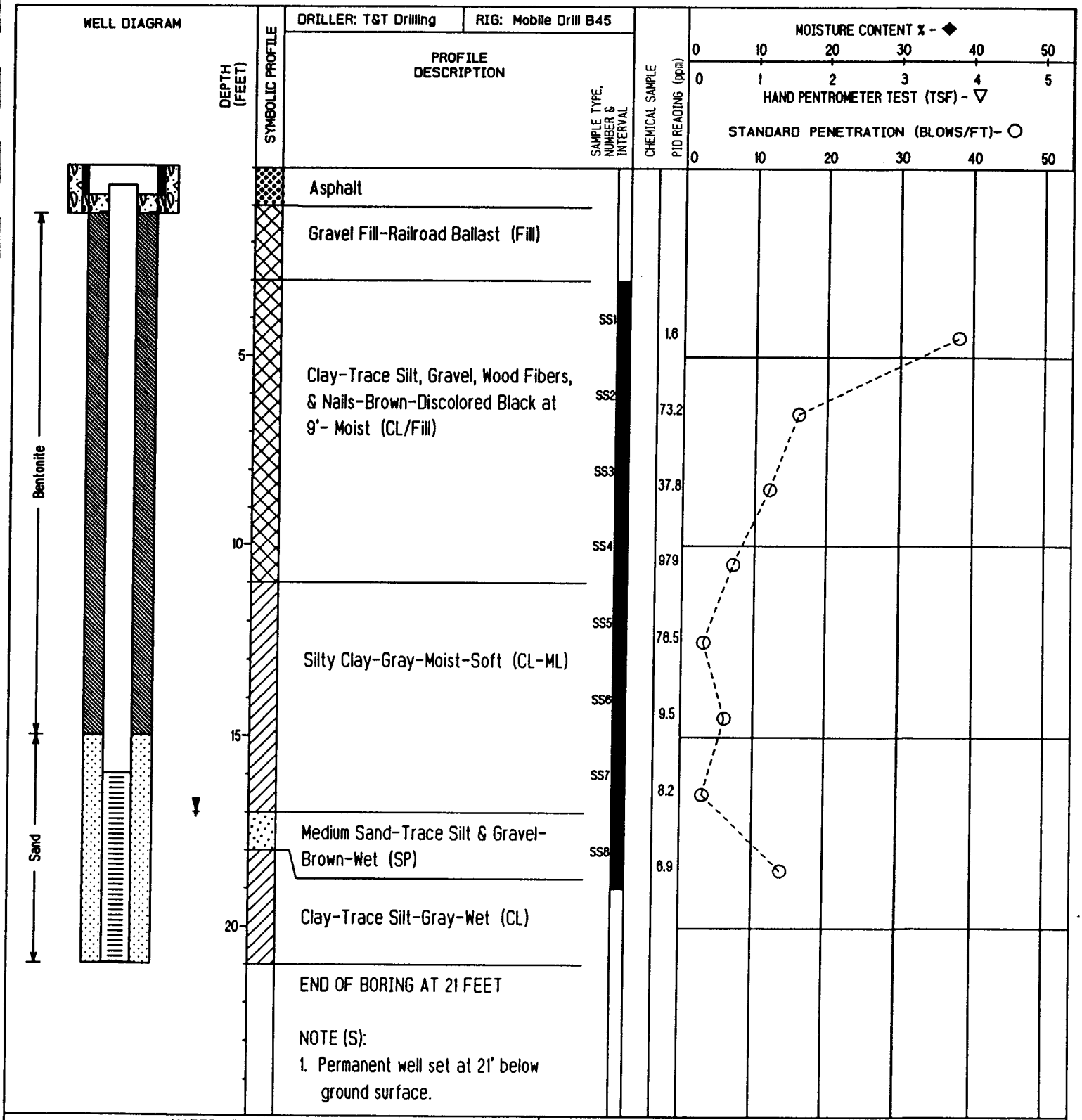
NOTES:
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2. NR = NO RESPONSE FROM PID
3. NA = NOT ANALYZED

SOIL AND MATERIALS ENGINEERS, INC

JOB NAME: Gate 4 Gasoline Tank
JOB LOCATION: Lansing, Michigan
CLIENT: GM – SCG

GEO/ENG: RSR REVIEWED BY: KLC
DATE: 11-2-95
JOB NUMBER: LE-24815

BORING MW-2
SHEET: 1



WATER LEVEL OBSERVATIONS
▼ GROUNDWATER ENCOUNTERED DURING DRILLING
▽ GROUNDWATER AFTER DRILLING

NOTES:
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2. NR = NO RESPONSE FROM PID
3. NA = NOT ANALYZED

SOIL AND MATERIALS ENGINEERS, INC

JOB NAME: Area 9 Lead Evaluation
JOB LOCATION: Lansing, Michigan
CLIENT: GM – Body Plant

GEO/ENG: KLC REVIEWED BY: GTD
DATE: 3-13-08
JOB NUMBER: LE-25107

BORING MW-1
SHEET: 1

WELL DIAGRAM

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE, NUMBER & INTERVAL	CHEMICAL SAMPLE	HNU/OVM (ppm)
0		DRILLER: LN RIG: 44			
		Concrete Pavement	SS1		
5		Sand and Gravel – Broken Concrete (Fill)	SS2		
		Sandy Topsoil – Red Brown to Black (Topsoil)			
10		Silty Clay – Mottled Gray and White (CL) (Probable Fill)	SS3		
		Peat – Dark Brown to Black (PT)			
15		Organic Clay – Gray to Black (Marl)	SS4		
20			SS5		
		Sandy Clay – Trace Silt and Gravel – Gray (CL)	SS6		
25			SS7		
30			SS8		
		Silty Fine Sand – Gray – Wet (SM)	SS9		
35		END OF BORING AT 34.5 FEET			
40		NOTE (S): 1. Permanent well set at 34.5 feet below ground surface.			
45					

MOISTURE CONTENT % – ◆
0 10 20 30 40 50
HAND PENTROMETER TEST (TSF) – ▽
0 1 2 3 4 5
STANDARD PENETRATION (BLOWS/FT) – ○
0 10 20 30 40 50

Grout
Bentonite
Sand

WATER LEVEL OBSERVATIONS
▼ GROUNDWATER ENCOUNTERED DURING DRILLING
▼ GROUNDWATER AFTER DRILLING

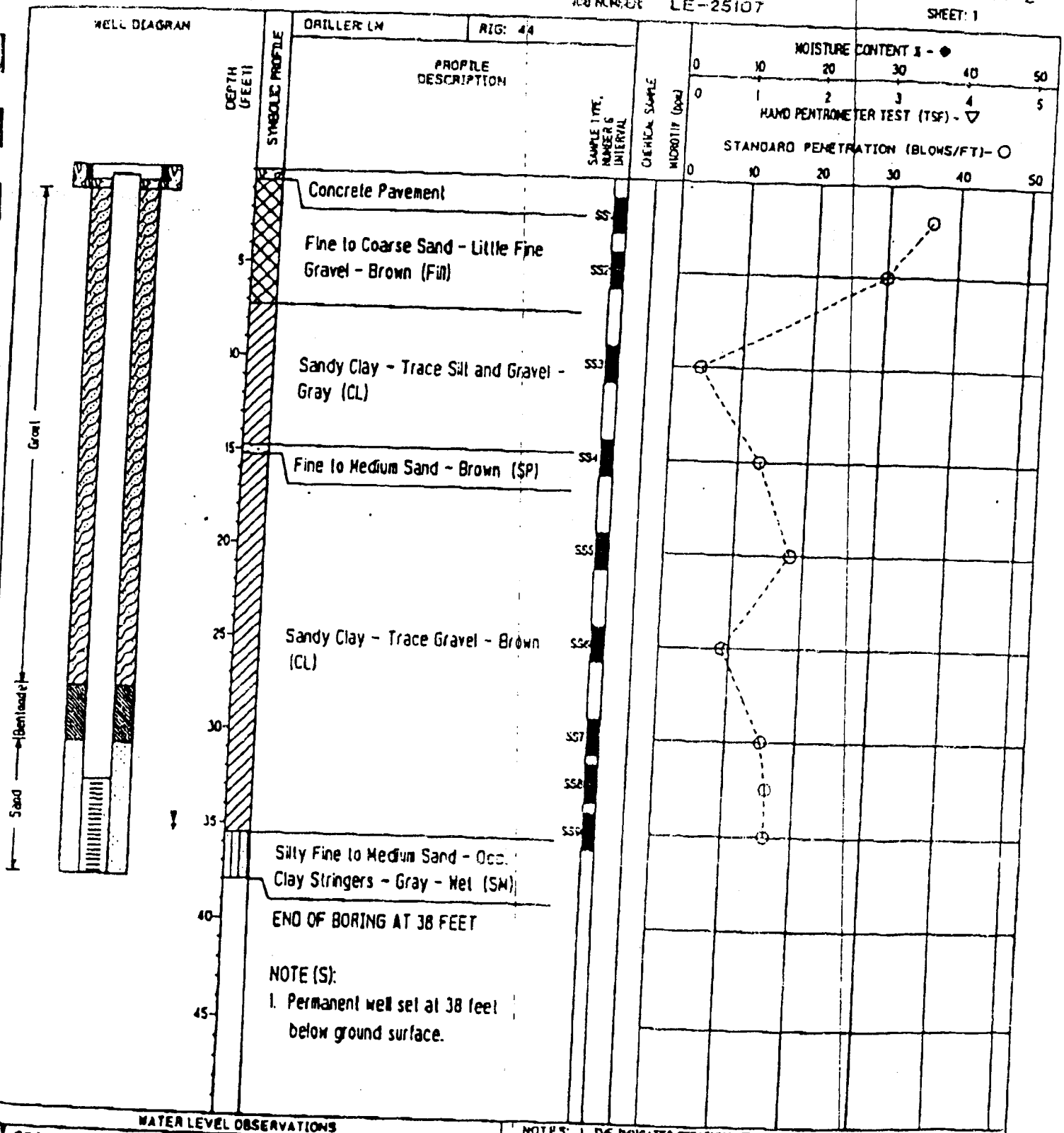
NOTES: 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2. ND = NON-DETECTION LIMIT

SOIL AND MATERIALS ENGINEERS, INC

JOB NAME: Area 9 Lead Evaluation
JOB LOCATION: Lansing, Michigan
CLIENT: GM - Body Plant

GEO/ENG: KLC REVIEWED BY: GTD
DATE: 3-13-96
JOB NUMBER: LE-25107

BORING MW-2
SHEET: 1



WATER LEVEL OBSERVATIONS
▼ GROUNDWATER ENCOUNTERED DURING DRILLING
▼ GROUNDWATER AFTER DRILLING

NOTES: 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2. ND = NON-DETECTION LIMIT

SOIL AND MATERIALS ENGINEERS, INC

JOB NAME: Area 9 Lead Evaluation
JOB LOCATION: Lansing, Michigan
CLIENT: GM – Body Plant

DES/ENG: KLC REVIEWED BY: GTD
DATE: 3-14-98
JOB NUMBER: LE-26107

BORING MW-3
SHEET: 1

WELL DIAGRAM

DRILLER: LM RIG: 44

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE, NUMBER & INTERVAL	CHEMICAL SAMPLE
0		Asphalt Over Concrete Pavement		
		Aggregate Base Gravel (Fill)	SS1	
5		Silty Clay - Little Sand - Mottled Olive Gray and Black (CL) (Probable Fill)	SS2	
10		Silty Fine Sand - Gray - Wet (SM)	SS3	
15		Silty Clay - Some Sand and Fine Gravel - Gray - Moist (CL)	SS4	
20		Silty Fine Sand - Little Gravel - Trace Silt and Clay - Gray - Moist (SM)	SS5	
25			SS6	
30		Sandy Clay - Some Silt - Trace Gravel - Gray (CL)	SS7	
			SS8	
35			SS9	
		Silty Fine Sand - Gray - Wet (SM)	SS10	
40		END OF BORING AT 39 FEET		
45		NOTE (S): 1. Permanent well set at 39 feet below ground surface.		

Grout
Sand — Bentonite

MOISTURE CONTENT % - ◆
0 10 20 30 40 50

0 1 2 3 4 5
HAND PENETROMETER TEST (TSF) - ▽

STANDARD PENETRATION (BLOWS/FT) - ○
0 10 20 30 40 50

WATER LEVEL OBSERVATIONS
▼ GROUNDWATER ENCOUNTERED DURING DRILLING
▼ GROUNDWATER AFTER DRILLING

NOTES: 1. THE DESIGNATED STRATIFICATION LINES ARE APPROXIMATE IN SITU THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL
2. ND = NON-DETECTION LIMIT

SOIL AND MATERIALS ENGINEERS, INC

JOB NAME: Area 9 Lead Evaluation
JOB LOCATION: Lansing, Michigan
CLIENT: GM – Body Plant

GEO/ENG: RSR REVIEWED BY: KLC
DATE: 3-15-90
JOB NUMBER: LE-25107

BORING MW-4
SHEET: 1

WELL DIAGRAM | DRILLER: LM | RIG: 44

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE, NUMBER & INTERVAL	CHEMICAL SAMPLE	MICROTIP (ppm)
0		Asphalt Pavement			
		Aggregate Base Gravel (FM)			
5		Silty Clay – Trace Sand – Mottled Gray and Black (CL) (Probable Fill)	SS1		
			SS2		
10			SS3		
15			SS4		
20		Sandy Clay – Trace Silt and Gravel – Gray (CL)	SS5		
25			SS6		
30			SS7		
			SS8		
35		Silty Fine Sand – Gray – Wet (SM)			
		END OF BORING AT 36 FEET			
40		NOTE (S): 1. Permanent well set at 38 feet below ground surface.			
45					

MOISTURE CONTENT % – ◆
0 10 20 30 40 50
HAND PENTROMETER TEST (TSF) – ▽
0 1 2 3 4 5
STANDARD PENETRATION (BLOWS/FT) – ○
0 10 20 30 40 50

Grout
Sand

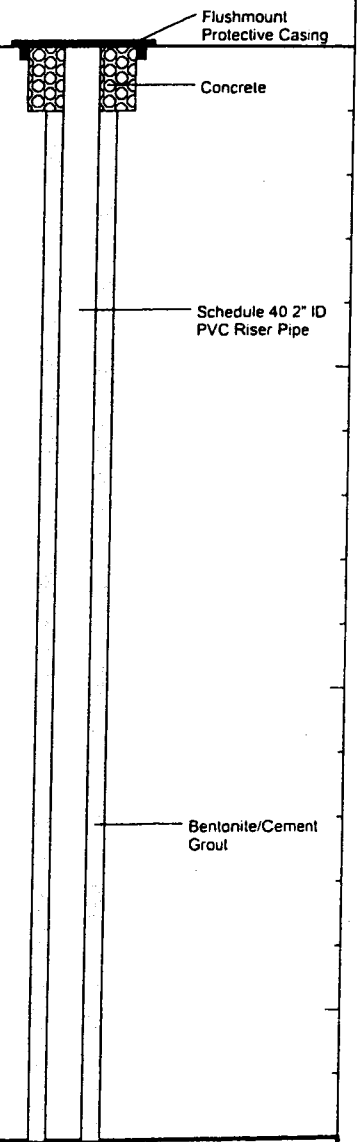
WATER LEVEL OBSERVATIONS
▼ GROUNDWATER ENCOUNTERED DURING DRILLING
▼ GROUNDWATER AFTER DRILLING

NOTES: 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2. ND = NON-DETECTION LIMIT

Date Start/Finish: 11/07/02 **Drilling Company:** Toltest **Driller's Name:** Jay Leonard **Drilling Method:** Hollow-Stem Auger **Bit Size:** **Auger Size:** 4.25" **Rig Type:** CME-75 **Sampling Method:** 2' Split Spoon	**Northing:** 3836.73 **Easting:** 4312.77 **Casing Elevation:** 866.33 **Borehole Depth:** 47' below grade **Surface Elevation:** 866.63 **Geologist:** J. Kralik	**Well/Boring ID:** MW02-1 **Client:** General Motors Corporation **Location:** Lansing Plant #6 Lansing, Michigan

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0										ASPHALT.
										Brownish-gray to blackish-gray FILL, fine to medium sand, fine to coarse gravel, wood debris, clay, red brick, black slag, damp, medium dense/stiff, no apparent odor.
	865	1	SS	1.5	9 9 4 4		0 ppm			
		2	SS	1.5	5 21 4 3		0 ppm			Medium dense.
5		3	SS	1.5	1 2 1 1		0 ppm			Moist to wet, very loose/soft.
	860	4	SS	1.5	1 1 1		0 ppm			Lght gray to light brownish-gray CLAY and SANDY CLAY (CL), fine to medium sand, trace fine gravel, moist to wet, soft.
10		5	SS	1.5	1 2 2 1		0 ppm			Light gray to light brownish gray SANDY CLAY (CL), medium to coarse sand, trace fine gravel, moist, soft.
	855	6	SS	1.5	2 2 2 2		0 ppm			Some silt and very fine sand, damp to moist..
		7	SS	2.0	2 2 4 3		0 ppm			Light gray SILTY SAND (SM), fine grained, little medium sand, moist to wet, loose.
15		8	GW	1.5	3 3 4 2		0 ppm			Groundwater sample GW-02-01 taken at 15-19 ft bgs.
	850									

Well/Boring Construction



BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
GW - groundwater; ST - Shelby Tube

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW02-1

Borehole Depth: 47' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	9	SS	0.5	3 3 3 4		0 ppm			Light gray SILTY SAND (SM), fine grained, little medium sand, moist to wet, loose.
									Some clay, trace coarse sand and fine gravel, moist to wet, loose.
20	10	SS	1.0	3 4 5 7		0 ppm			
845	11	SS	1.5	6 8 9 11		0 ppm			SANDY SILT (ML), very fine to fine grained sand, little clay, trace coarse sand, damp to moist, medium dense, "sticky".
	12	SS	2.0	3 4 6 7		0 ppm			Brownish gray SILTY CLAY (CL), slightly to moderately plastic, little fine to coarse sand and fine gravel, damp, stiff.
25	13	SS	2.0			0 ppm			
840	14	SS	2.0	3 5 9 11		0 ppm			Trace coarse subangular gravel, stiff.
	15	ST-1	2.0	2 3 5 8		0 ppm			Medium stiff. Shelby tube ST-1 sampled from 30.5-31 ft bgs, lean clay with sand (CL).
30									
835	16	SS	2.0	5 7 10 11		0 ppm			Very stiff.
	17	SS	2.0	3 5 7 9		0 ppm			Stiff.
35									
830	18	SS	2.0	4 5 7 8		0 ppm			

Well/Boring Construction

- Schedule 40 2" ID PVC Riser Pipe
- Bentonite/Cement Grout
- Bentonite Chip (Hydrated)
- Filter Sand
- 0.010" Machine Slotted 2" ID Schedule 40 Well Screen

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
GW - groundwater; ST - Shelby Tube

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW02-1

Borehole Depth: 47' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	19	SS	2.0	7 7 9 10		0 ppm			Brownish gray SILTY CLAY (CL), slight to moderately plastic, little fine to coarse sand, trace fine gravel, damp, stiff.	
40	20	SS	2.0	5 9 8 9		0 ppm			Brownish gray SILT (MH), little clay and fine to medium sand, trace coarse sand, moist to wet, medium dense.	Filter Sand
825	21	SS	2.0	7 9 10 11		0 ppm			Thin (<1") medium sand layers present, medium dense.	
	22	SS	2.0	3 5 6 7		0 ppm			Brownish gray SILTY CLAY (CL), slight to moderately plastic, little fine to coarse sand, trace fine gravel, damp, stiff.	0.010" Machine Slotted 2" ID Schedule 40 Well Screen
45	23	SS	2.0	4 7 11 16		0 ppm			Stiff.	
820										

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
GW - groundwater; ST - Shelby Tube

Date Start/Finish: 11/08/02
Drilling Company: Toltest
Driller's Name: Jay Leonard
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 4.25"
Rig Type: CME-75
Sampling Method: 2' Split Spoon

Northing: 3733.97
Easting: 4334.22
Casing Elevation: 868.44

Borehole Depth: 47' below grade
Surface Elevation: 868.76

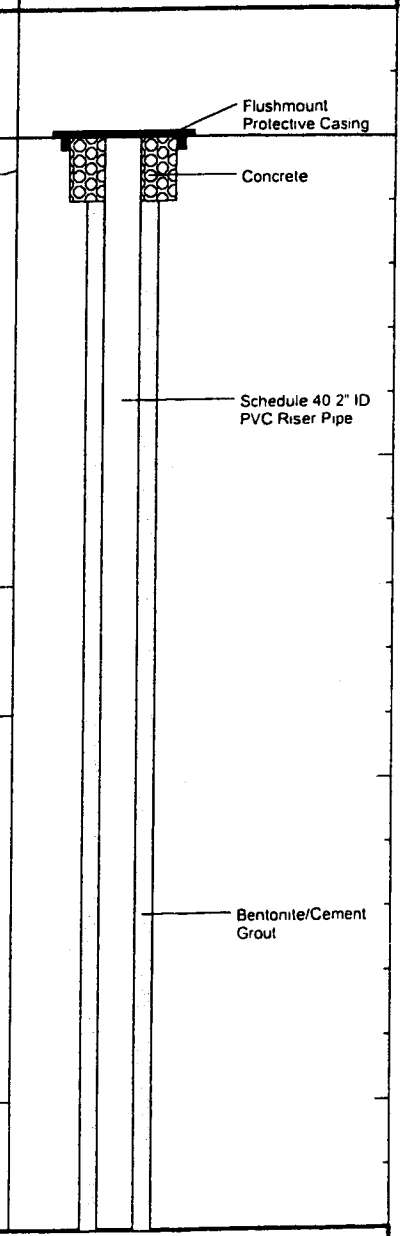
Geologist: J. Kralik

Well/Boring ID: MW02-2

Client: General Motors Corporation

Location: Lansing Plant #6
Lansing, Michigan

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	870									
0										ASPHALT.
										Yellow-brown to blackish-brown FILL, fine to coarse sand and fine to medium gravel, damp, loose.
		1	SS	0.5	3 3 3 2		0 ppm			
										Black slag and metal/wood debris present.
	865	2	SS	0.5	4 3 3 5		0 ppm			
5		3	SS	1.5	3 3 2 2		0 ppm			0.5' olive-gray moist soft clay, little fine gravel at depth.
		4	SS	NR	1 2 2 2		0 ppm			No recovery due to soft soils.
	860									
10		5	SS	2.0	1 2 3 4		0 ppm			Olive-gray CLAY (CL), some fine gravel, little fine to coarse sand, trace silt, plant debris and roots present, medium stiff to firm, moist.
		6	SS	1.5	2 3 4 5		0 ppm			Wet at depth, plant debris present.
	855	7	SS	NR	1 4 6 7		0 ppm			Little clay and sandstone fragments in tip, possible cobble.
15		8	SS	2.0	2 3 6 7		0 ppm			Brownish gray CLAY (CL), some fine to coarse sand, little fine subrounded to subangular gravel, plant debris present, some yellow-brown mottling at depth, silt and sand partings from 16.5' to 17' bgs, damp, stiff.



BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
GW - groundwater; ST - Shelby Tube

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW02-2

Borehole Depth: 47' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	9	SS	2.0	5 7 12 1		0 ppm			Brownish gray CLAY (CL), some fine to coarse sand, little fine subrounded to subangular gravel, damp, very stiff.
850									
				4					Silty, stiff, wet sand and gravel seams from 19-20' bgs.
20	10	GW SS	1.0	5 6 6		0 ppm			Groundwater sample GW-02-02 taken at 19-21' bgs.
									Trace fine gravel.
	11	SS	2.0	8 9 10 12		0 ppm			
845	12	SS	2.0	5 7 6 7		0 ppm			
25	13	SS	2.0	3 7 5 9		0 ppm			
	14	SS	2.0	4 7 7 7		0 ppm			
840									Shelby Tube ST-2 sampled from 29-31' bgs, lean clay with sand (CL).
30	15	ST-2	2.0						
	16	SS	2.0	8 9 9 9		0 ppm			Fine to medium brownish gray wet sand in tip of split spoon, no fine gravel present.
									3" layer of brownish gray fine to medium sand from 33 - 33.25' bgs.
835	17	SS	2.0	2 6 4 4		0 ppm			4" layer of brownish gray silty sand, fine to medium grained, from 34 - 34.3' bgs, becoming siltier at depth.
35	18	SS	2.0	3 4 5 7		0 ppm			Brownish gray SILTY CLAY (CL), trace coarse sand, damp, stiff.

Well/Boring Construction

- Schedule 40 2" ID PVC Riser Pipe
- Bentonite/Cement Grout
- Bentonite Chip (Hydrated)
- Filter Sand
- 0.010" Machine Slotted 2" ID Schedule 40 Well Screen

Remarks: SS - split spoon; bgs - below ground surface
GW - groundwater; ST - Shelby Tube

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Client:
General Motors Corporation

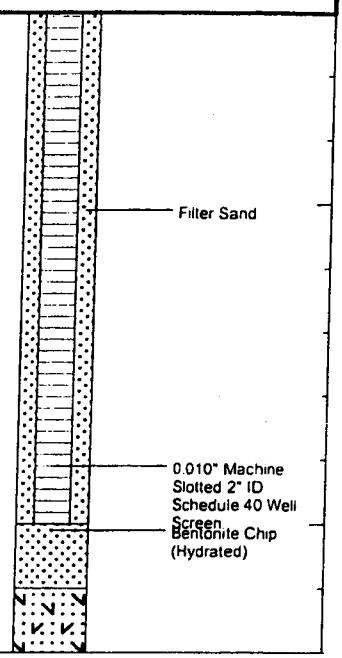
Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW02-2

Borehole Depth: 47' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
		19	SS	0.5	12 15 19 23		0 ppm			Brownish gray SILTY CLAY (CL), trace coarse sand, damp, stiff.
	830									
40		20	SS	2.0	2 2 2 1		0 ppm			Brownish gray SILT (MH), little fine sand, trace clay, saturated, very loose/soft.
		21	SS	2.0	2 4 6 8		0 ppm			Brownish gray SILTY CLAY (CL), some very fine to fine sand, little medium to coarse sand, trace subrounded to subangular fine gravel, damp to moist, stiff. Wet fine to medium grained sand parting at 42.25' bgs.
	825	22	SS	1.5	3 7 9 11		0 ppm			
45		23	SS	2.0	32 30 50(6")		0 ppm			Brownish gray SAND and GRAVEL (GW), fine to coarse grained, rock fragments present, damp, very dense. Two thin (<1") layers of peat at 46.25 ft and 46.4 ft bgs. Shale in tip of split spoon.

Well/Boring Construction



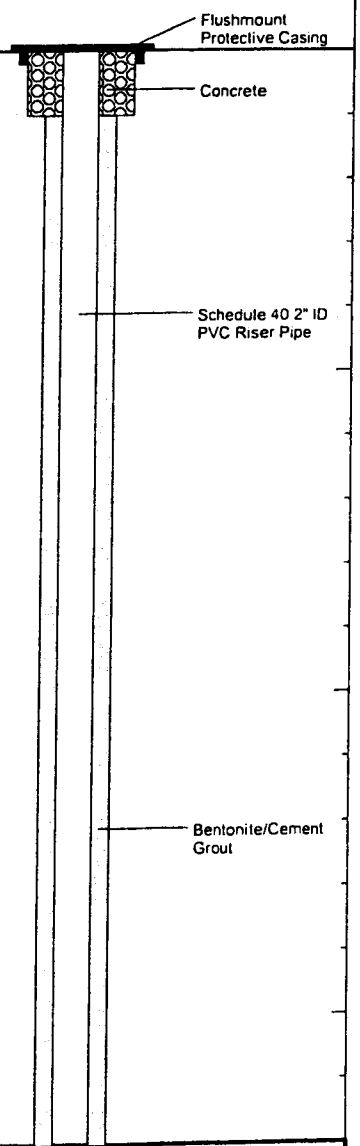
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Remarks: SS - split spoon; bgs - below ground surface
GW - groundwater; ST - Shelby Tube

Date Start/Finish: 11/11/02 **Drilling Company:** Toltest **Driller's Name:** Jay Leonard **Drilling Method:** Hollow-Stem Auger **Bit Size:** **Auger Size:** 4.25" **Rig Type:** CME-75 **Sampling Method:** 2' Split Spoon	**Northing:** 3786.03 **Easting:** 4394.71 **Casing Elevation:** 869.87 **Borehole Depth:** 47' below grade **Surface Elevation:** 870.29 **Geologist:** J. Kralik	**Well/Boring ID:** MW02-3 **Client:** General Motors Corporation **Location:** Lansing Plant #6 Lansing, Michigan

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	870									ASPHALT.
		1	SS	2.0	5 8 10 16		0 ppm			Moderate yellow-brown FILL, fine sand, some medium sand, little silt, trace fine gravel, damp, medium dense.
										Brownish gray-black FILL, sand and gravel present, wood debris.
		2	SS	1.5	11 13 8 6		0 ppm			Moderate yellow-brown FILL, sand, gravel, medium clay, black sandy clay, wood debris, brownish gray gravelly clay.
5	865	3	SS	1.5	4 4 50(5")		0 ppm			Moderate yellow-brown FILL, sand and gravel, black sandy clay with some fine gravel, brownish gray silty gravelly clay.
		4	SS	0.5	1 1 2 1		0 ppm			Moderate yellow-brown FILL, sandy clay, fine to medium grained, damp, crushed concrete present.
		5	SS	2.0	1 1 1 1		0 ppm			Brownish gray FILL, sandy silty clay, fine to medium grained, damp to wet, soft.
10	860									Dark brown to blackish brown silty clayey SAND (SM), with plant fragments, "peaty" odor present. Possible soil horizon.
		6	SS	1.5	1 1 2 4		0 ppm			Blackish brown-brownish gray SILTY CLAY (CL), damp, thin (1") wet gravelly layer at 11.5' bgs.
										Brownish gray SAND (SP), medium grained, some coarse, wet to saturated.
		7	SS	0.5	1 2 2 1		0 ppm			Grayish green CLAY (CL), some fine gravel, little fine sand, damp, soft to very soft.
15	855									Brownish gray CLAY (CL), some fine gravel, sandstone cobble at 15.5' bgs, damp.
		8	GW	2.0	5 5 6 4		0 ppm			Mottled yellow-brown and light gray SILTY CLAY (CL), some fine gravel, damp, becoming more silty at depth.

Well/Boring Construction



Remarks: SS - split spoon; bgs - below ground surface
GW - groundwater; ST - Shelby Tube

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Client:
General Motors Corporation

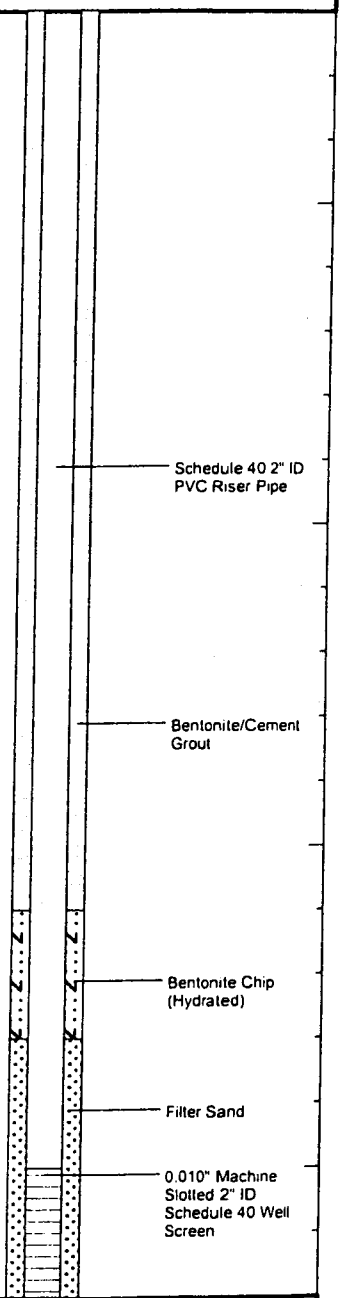
Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW02-3

Borehole Depth: 47' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
		9	SS	2.0	2 3 5 9		0 ppm			Brownish gray CLAY (CL), some fine sand and silt, trace coarse sand and fine gravel, thin (<1") fine to coarse wet sand layers from 17-19' bgs, damp.
20	850	10	GW SS	2.0	1 3 4 5		0 ppm			Brownish gray CLAY (CL), some fine sand and silt, trace coarse sand and fine gravel, peat fragments present, damp. Some yellow and greenish-gray mottling at 19-19.2' bgs, plant fragments present. Groundwater sample GW-02-03 taken at 17-21' bgs.
		11	SS	2.0	4 7 10 8		0 ppm			Thin (<1") layer of medium wet sand at 22.3' bgs, damp, very stiff.
		12	SS	1.5	3 4 8 10		0 ppm			Stiff.
25	845	13	SS	1.5	6 12 12 13		0 ppm			Very stiff.
		14	SS	1.5	4 10 13 11		0 ppm			Very stiff.
30	840	15	SS	1.5	3 4 7 7		0 ppm			Stiff.
		16	SS	2.0	3 4 9 10		0 ppm			Stiff.
		17	SS	2.0	5 7 7 7		0 ppm			
35	835	18	ST-3	1.5						Shelby Tube ST-3 sampled from 35-37 ft bgs, sandy silty clay (CL-ML).
										Brownish gray SILTY CLAY (CL), trace coarse sand and fine gravel.

Well/Boring Construction



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Remarks: SS - split spoon; bgs - below ground surface
GW - groundwater; ST - Shelby Tube

Client:
General Motors Corporation

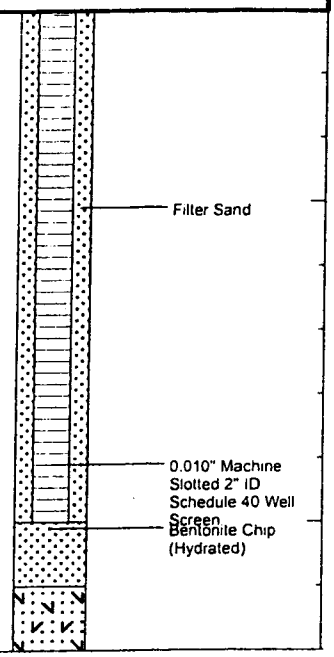
Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW02-3

Borehole Depth: 47' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
				4					damp.
	19	SS	2.0	5 7 7		0 ppm			Brownish gray SILTY SAND (SM), very fine to medium grained, wet to saturated, medium dense.
									Brownish gray CLAY (CL).
40 830	20	SS	2.0	6 5 7 7		0 ppm			Brownish gray SILTY SAND (SM), very fine to medium grained, wet to saturated, medium dense.
	21	SS	2.0	4 5 4 4		0 ppm			SILT (MH).
	22	SS	2.0	5 5 4 5		0 ppm			Brownish gray SILTY CLAY (CL), some very fine to fine sand, little medium to coarse sand, trace fine gravel, damp, stiff.
45 825	23	SS	2.0	3 4 9 5		0 ppm			Stiff

Well/Boring Construction

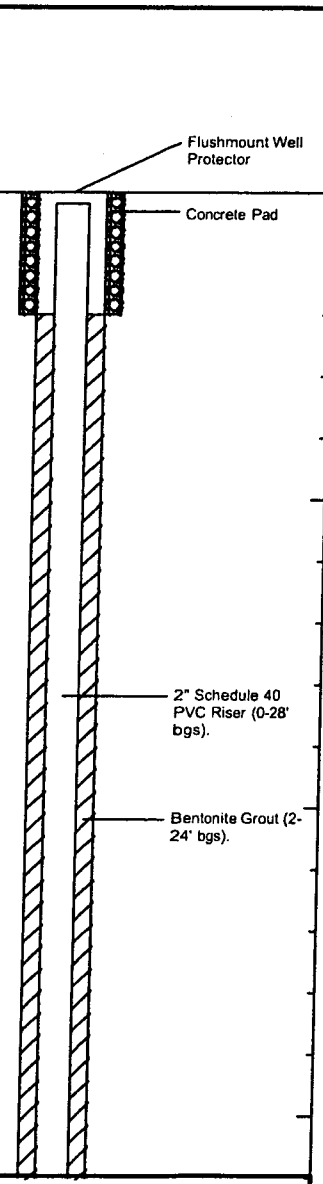


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Remarks: SS - split spoon; bgs - below ground surface
GW - groundwater; ST - Shelby Tube

Date Start/Finish: 7/28/03 **Drilling Company:** Prosonic Corp. **Driller's Name:** D. Bond **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 85 **Sampling Method:** 5' Macrocore	**Northing:** 4121.81 **Easting:** 4493.88 **Casing Elevation:** 861.85 **Borehole Depth:** 50' below grade **Surface Elevation:** 862.15' **Geologist:** J. Kralik	**Well/Boring ID:** MW-03-01 **Client:** General Motors Corporation **Location:** GM Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 15 inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
865 / 0									
0				NA	NA				ASPHALT, black coarse Sand, some Gravel. [FILL]
860	1	0-5	4			NA	CL		Brown to yellowish brown SILTY CLAY (CL), some fine to medium Sand, little coarse Sand, fine Gravel, moist, light gray mottling at depth. Thin (<1") wet layers at 4' bgs and 5'bgs.
5				7 7 7 7	14		SP		Yellowish brown medium SAND (SP), little fine Sand, Silt, trace coarse Sand, medium dense, wet, no odor.
855	2	5-10	5			NA			Brown to yellowish brown SILTY CLAY CL), some fine to medium Sand, little coarse Sand, fine Gravel, moist. Thin (<1") wet layer at 7.5' bgs.
10				2 2 3 2	5		CL		Grayish brown CLAY (CL), some Silt, very fine to fine Sand, little fine angular Gravel, medium firm, moist, no odor.
850	3	10-15	5			NA			
15				3					
	4	15-20	4	3	6	NA			



Well/Boring Construction

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Remarks: bgs = below ground surface
NA = Not Applicable/Available

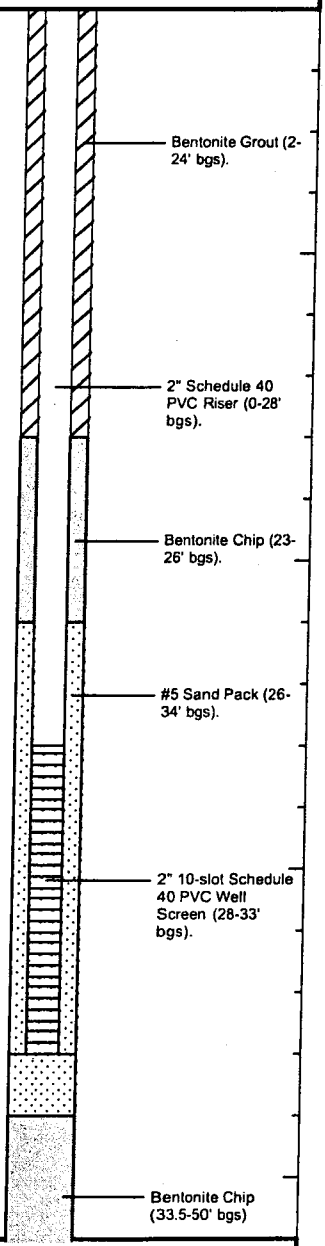
Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-01

Borehole Depth: 50' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
845	4	15-20	4	3 4	6	NA	CL		Grayish brown CLAY (CL), some Silt, very fine to fine Sand, little fine angular Gravel, medium firm, moist, no odor.
							ML		Grayish brown fine SILT (ML), some Clay, trace fine Sand, moist, no odor.
							SW		Grayish brown fine to medium SAND (SW), little coarse Sand, trace rounded medium Gravel, wet to 19.75' bgs, moist to 20' bgs, silty at depth.
20									
840	5	20-25	5	5 5 7 6	12	NA	CL		Grayish brown CLAY (CL), some Silt, very fine Sand, trace coarse angular Gravel, stiff, moist, no odor.
25									
835	6	25-30	5	6 7 3 5	10	NA			Grayish brown SILTY CLAY (CL), little fine Sand, fine Gravel, stiff, moist to damp, slight to moderate plasticity.
30							ML		Grayish brown SANDY SILT (ML), fine to medium Sand, medium dense, moist to wet, no odor.
830	7	30-35	4	3 5 12 6	17	NA	CL		Grayish brown CLAY (CL), some Silt, little fine Sand, trace find Gravel, damp.
35	8	35-40	5	3 5	20	NA	ML		Grayish brown CLAYEY SILT (ML), little to some Clay at top, little fine to medium Gravel, trace very fine to coarse Sand, slight plasticity.



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Remarks: bgs = below ground surface
NA = Not Applicable/Available

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-01

Borehole Depth: 50' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
825	8	35-40	5	15 25	20	NA	ML		Grayish brown SILT/CLAYEY SILT (ML), little to some Clay at top, little fine to medium Gravel, trace very fine to coarse Sand, slight plasticity.	
40							GW		Gray to grayish brown SAND and GRAVEL (GW), medium to coarse Sand, fine to medium subrounded to rounded Gravel, dry to damp, loose.	Bentonite Chip (33.5-50' bgs)
820	9	40-45	5	9 7 9 10	16	NA	ML		Grayish brown SILT/SANDY SILT (ML), some coarse Sand to fine Gravel, little Clay, trace coarse angular Gravel and Rock fragments, medium dense, damp, silty at depth.	
45										
815	10	45-50	4	5 8 10 17	18	NA	CL		Grayish brown SILTY CLAY (CL), little fine to medium Sand, very stiff, damp to moist, moderate plasticity.	
50									End of boring at 50' bgs.	
810										
55										

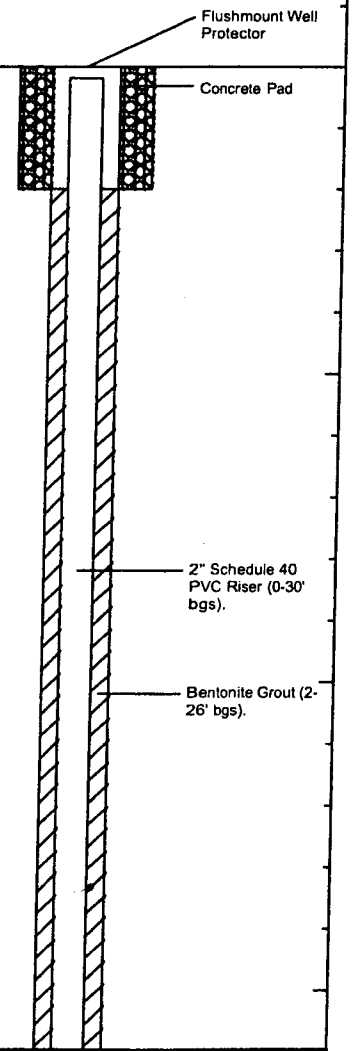
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Remarks: bgs = below ground surface
NA = Not Applicable/Available

Date Start/Finish: 7/29/03 **Drilling Company:** Prosonic Corp. **Driller's Name:** D. Bond **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 85 **Sampling Method:** 5' Macrocore	**Northing:** 4127.68 **Easting:** 4349.57 **Casing Elevation:** 864.91 **Borehole Depth:** 66.5' below grade **Surface Elevation:** 865.21 **Geologist:** J. Kralik	**Well/Boring ID:** MW-03-02 **Client:** General Motors Corporation **Location:** GM Lansing Plant #6

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 15 inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
0	865	1	0-5	NA	5 3 2 3	5	NA	CL		ASPHALT. GRAVEL. Brown to yellow-brown CLAY (CL), some fine to medium Sand, little coarse Sand, trace fine angular to subrounded Gravel, firm, moist, no apparent odor.
								SP		Brown to yellow-brown fine to medium SAND (SP), wet.
5	860	2	5-10	NA	5 6 10 11	16	NA			Brown to yellow-brown SILTY CLAY (CL), some fine to medium Sand, little coarse Sand, fine Gravel, very stiff, moist, slight to no plasticity, light mottling to 7' bgs. Increased Gravel content at 5-7' bgs.
10	855	3	10-15	NA	2 5 9 15	14	NA	CL		Cobble at 9.5-10' bgs. Gray-brown CLAY (CL), some Silt, very fine to fine Sand, little fine Gravel, medium stiff, moist, no apparent odor. Wet Sand layer (2") at 13' bgs.
15	850	4	15-20	NA	3 3	7	NA			

Well/Boring Construction



Remarks: bgs = below ground surface; NA = Not Applicable/Available. Original soil boring backfilled with bentonite grout; MW-03-02 offset, drilled, and set.

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Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-02

Borehole Depth: 66.5' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
					4 7	7				Gray-brown CLAY (CL), some Silt, very fine to fine Sand, little fine Gravel, medium stiff, moist, no apparent odor. Wet Sand layer (2") at 13' bgs.
		4	15-20	NA			NA			
										Gray-brown medium Silty SAND, trace Clay, wet, at 19-19.5' bgs.
20	845				6 9 14 12	23		CL		Gray-brown Sand, wet, at 20.5-21' bgs.
		5	20-25	NA			NA			
										Gray-brown Sand, wet, at 23.5-24' bgs.
25	840				4 7 12 23	19				
		6	25-30	5			NA	SP		Gray-brown medium to coarse SAND (SP), wet.
								CL		Gray-brown SILTY CLAY (CL), little very fine to fine Sand, trace fine Gravel, moist, slight to no plasticity, no odor.
30	835				2 6 6 6	12				
		7	30-35	NA			NA			
								ML		Gray-brown SANDY SILT (ML), very fine to fine Sand, trace Clay, wet, medium dense.
35	830									
		8	35-40	NA	4 3	6	NA			

Well/Boring Construction

- Bentonite Grout (2-26' bgs).
- 2" Schedule 40 PVC Riser (0-30' bgs).
- Bentonite Chip (26-28' bgs).
- #5 Sand Pack (28-40' bgs).
- 2" 10-slot Schedule 40 PVC Well Screen (30-40' bgs).

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Remarks: bgs = below ground surface; NA = Not Applicable/Available. Original soil boring backfilled with bentonite grout; MW-03-02 offset, drilled, and set.

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-02

Borehole Depth: 66.5' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
					3 3	6				Gray-brown SANDY SILT (ML), very fine to fine Sand, trace Clay, wet, medium dense.
		8	35-40	NA			NA			Gray-brown SILT (ML), little to some Clay, trace fine angular Gravel, moist.
40	825				4 8 11 16	19				Gray-brown CLAYEY SILT (ML), some fine to coarse Sand, fine rounded to subrounded Gravel, trace fine angular Gravel to Rock fragments, moist, very stiff, no odor. Less coarse material at depth. [TILL]
		9	40-45	NA			NA	ML		
45	820				6 9 17 60	26				
		10	45-50	NA			NA			Gray to light gray SAND and GRAVEL (SP), fine to coarse Sand, fine to medium angular to rounded gravel, damp, loose.
50	815				19 37 43 23	80		SP		Clayey SILT (ML). [TILL] Gray-brown fine to medium SILTY SAND (SP), little coarse Sand, fine Gravel, damp, very dense, Quartzite Cobble at 50.25' bgs. Sandstone fragment at 51' bgs.
		11	50-55	5			NA			Gray-brown CLAYEY SILT (ML), little fine to coarse Sand, fine to medium angular to subrounded Gravel, damp, very dense. [TILL]
55	810							ML		
		12	55-60	5	18 28	64	NA			

Well/Boring Construction

- #5 Sand Pack (28-40' bgs).
- 2" 10-slot Schedule 40 PVC Well Screen (30-40' bgs).
- Bentonite Chip (40-70' bgs).

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Remarks: bgs = below ground surface; NA = Not Applicable/Available. Original soil boring backfilled with bentonite grout; MW-03-02 offset, drilled, and set.

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-02

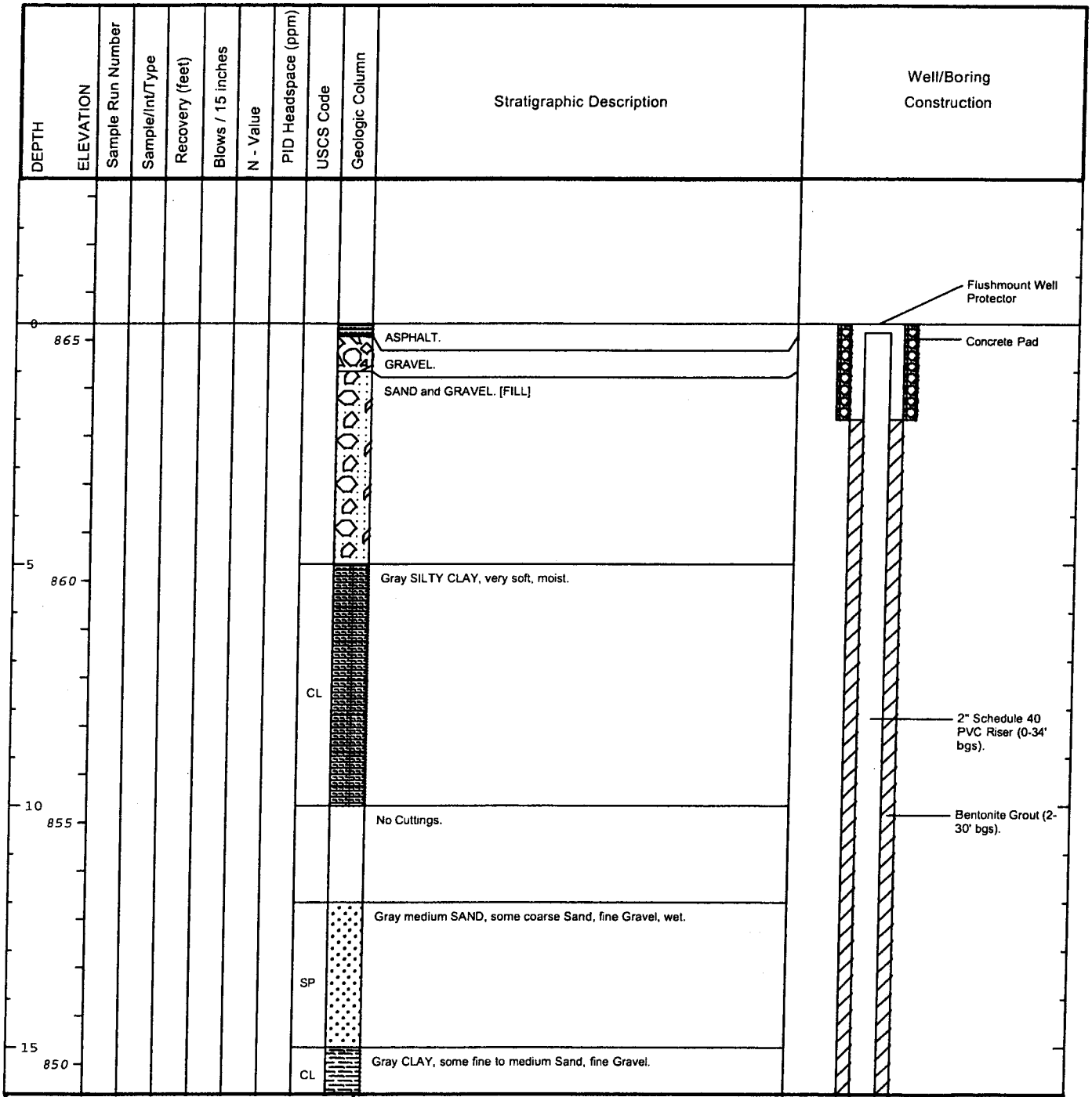
Borehole Depth: 66.5' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
	12	55-60	5	36 34	64	NA	ML		Gray-brown CLAYEY SILT (ML), little fine to coarse Sand, fine to medium angular to subrounded Gravel, damp, very dense.	
60 805	13	60-65	5	31 47 50 43	97	NA			Sandstone fragments at 60-65' bgs.	Bentonite Chip (40-70' bgs).
65 800	14	65-70	1.5	28 47 280 X	327	NA			Brown-gray to light gray medium grained weathered SANDSTONE, some Silt, fine Sand.	
70 795									End of boring at 70' bgs.	
75 790										

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Remarks: bgs = below ground surface; NA = Not Applicable/Available. Original soil boring backfilled with bentonite grout; MW-03-02 offset, drilled, and set.

Date Start/Finish: 7/30/03 **Drilling Company:** Prosonic Corp. **Driller's Name:** D. Bond **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 85 **Sampling Method:** 5' Macrocore	**Northing:** 3922.97 **Easting:** 4332.51 **Casing Elevation:** 865.05' **Borehole Depth:** 40' below grade **Surface Elevation:** 865.35' **Geologist:** J. Kralik	**Well/Boring ID:** MW-03-03 **Client:** General Motors Corporation **Location:** GM Lansing Plant #6



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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Drill and set installation. Boring logged by cuttings to 30' bgs.

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-03

Borehole Depth: 40' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							CL		Gray CLAY, some fine to medium Sand, fine Gravel.	Bentonite Grout (2-30' bgs).
20 / 845							SW		Gray fine SAND, wet.	2" Schedule 40 PVC Riser (0-34' bgs).
25 / 840									SAND and CLAY, wet.	
30 / 835				2 2 4 6	6		CL		Grayish brown SILTY CLAY (CL), little fine to coarse Sand, fine subrounded Gravel, medium stiff, damp, no apparent odor.	Bentonite Chip (30-32' bgs).
	1	30-35	5			NA	ML/CL		Grayish brown SILT/SILTY CLAY (ML/CL), some medium to coarse Sand, fine subrounded Gravel.	#5 Sand Pack (32-40' bgs).
35 / 830	2	35-40	5	3 5	14	NA			Thin (1") layer of medium to coarse Sand at 36' bgs.	2" 10-slot Schedule 40 PVC Well Screen (34-39' bgs).

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Drill and set installation. Boring logged by cuttings to 30' bgs.

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-03

Borehole Depth: 40' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
				9 6	14		ML		Grayish brown SILT (ML).	
	2	35-40	5			NA	SP		Grayish brown fine to medium SILTY SAND (SP), wet, no apparent odor.	2" 10-slot Schedule 40 PVC Well Screen (34-39' bgs).
							ML		Grayish brown SILT.	#5 Sand Pack (32-40' bgs).
40 825									End of boring at 40' bgs.	
45 820										
50 815										
55 810										

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Drill and set installation. Boring logged by cuttings to 30' bgs.

Date Start/Finish: 7/30/03 **Drilling Company:** Prosonic Corp. **Driller's Name:** D. Bond **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 85 **Sampling Method:** 5' Macrocore	**Northing:** 3937.71 **Easting:** 4159.37 **Casing Elevation:** 865.81 **Borehole Depth:** 45' below grade **Surface Elevation:** 866.11 **Geologist:** J. Kralik	**Well/Boring ID:** MW-03-04 **Client:** General Motors Corporation **Location:** GM Lansing Plant #6

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 15 inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
0	865	1	0-5	5	2 7 3 4	10	NA			ASPHALT. GRAVEL. Brown to yellowish brown SILTY CLAY (CL), some fine to medium Sand, little coarse Sand, fine Gravel, stiff, moist, light gray mottling, no odor.
5	860	2	5-10	5	5 5 6 8	11	NA	CL		Little medium Gravel, 5-12.5' bgs.
10	855	3	10-15	5	3 5 7 8	12	NA			Brownish gray SILTY CLAY (CL), little fine Sand, fine Gravel, damp, no odor. Yellowish brown SILTY CLAY (CL), thin (<1") yellow-brown sand layers.
15		4	15-20	5	6 8	16	NA	ML		Grayish brown SILT (ML).

Well/Boring Construction

Flushmount Well Protector

Concrete Pad.

Bentonite Grout (2-29' bgs).

2" Schedule 40 PVC Riser (0-33' bgs).

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Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-04

Borehole Depth: 45' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
850				8			ML		Grayish brown SILT (ML).	
				5	16				Grayish brown SILTY CLAY (CL), some very fine to fine Sand, little fine Gravel, moist, slightly to non-plastic, no odor.	Bentonite Grout (2-29' bgs).
	4	15-20	5			NA				
20							CL			2" Schedule 40 PVC Riser (0-33' bgs).
845				2						
				3						
				7	10					
				8						
	5	20-25	5			NA				
							ML		Grayish brown CLAYEY SILT (ML), little very fine to fine Sand, trace medium to coarse Sand, fine Gravel, moist, no odor.	
25										
				4						
840				11						
				10	21					
				9						
							CL		Reddish brown CLAY (CL), trace very fine to fine Sand and Silt, damp, vertical fracturing with greenish-gray fine Sand infillings.	
	6	25-30	5			NA				
							ML		Grayish brown CLAYEY SILT (ML), little very fine to fine Sand, trace medium to coarse Sand, fine Gravel, trace Rock fragments, medium dense, moist, no odor.	
30										
				4						
835				7					Dolostone Cobble at 30.5' bgs.	Bentonite Chip (29-31' bgs)
				11	18					
				16						
	7	30-35	5			NA				#5 Sand Pack (31-45' bgs).
35										
				3						
	8	35-40	5	5	13	NA				2" 10-slot Schedule 40 PVC Well Screen (33-43' bgs).

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Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-04

Borehole Depth: 45' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	830	8	35-40	5	8 9	13	NA	SP		Grayish brown very fine to medium SAND (SP), grading into Silt at depth, wet.	#5 Sand Pack (31-45' bgs).
								ML		Grayish brown SILT (ML), little very fine to fine Sand, wet to moist.	2" 10-slot Schedule 40 PVC Well Screen (33-43' bgs).
40	825	9	40-45	5	4 5 7 6	12	NA	SP		Grayish brown SAND (SP), wet.	
								ML		Grayish brown SILT (ML), little very fine to fine Sand, wet to moist.	
45								CL		Brownish gray SILTY CLAY (CL), little very fine to medium Sand, trace fine Gravel, damp, slightly to non plastic.	
										End of boring at 45' bgs.	
	820										
50											
	815										
55											

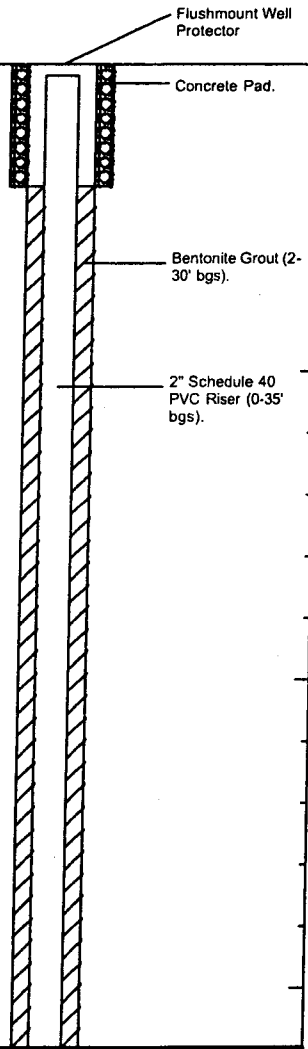
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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Date Start/Finish: 8/14/03 **Drilling Company:** Prosonic Corp. **Driller's Name:** D. Bond **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 85 **Sampling Method:** 5' macrocore	**Northing:** 3927.84 **Easting:** 4614.59 **Casing Elevation:** 869.15 **Borehole Depth:** 70' below grade **Surface Elevation:** 869.49 **Geologist:** J. Kralik	**Well/Boring ID:** MW-03-05 **Client:** General Motors Corporation **Location:** GM Lansing Plant #6

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 15 inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
	870									
0					9 10 11 13	21				CONCRETE.
		1	0-5	4.5			NA	SP		Yellowish brown to pale brown medium to coarse SAND (SP), little fine Gravel, trace Clay, medium dense, dry to damp, no odor. [FILL]
	865									
5					5 27 13 4	40				ASPHALT.
		2	5-10	3.5			NA	ML		Yellowish brown to gray-brown SANDY SILT (ML), trace fine to medium Gravel, damp.
										Black fine GRAVEL (3" layer).
								CL		Greenish gray SANDY CLAY (CL), soft, damp.
	860									
10					3 5 6 8	11				Yellowish brown fine to medium SAND (SP), little fine Gravel, medium dense, damp to wet.
		3	10-15	3			NA	SP		
	855									
15										Grayish brown SANDY CLAY (CL), some fine Sand, little Silt, fine Gravel, stiff, damp to wet, slight plasticity, no odor.
		4	15-20	1.5	2 3	9	NA	CL		

Well/Boring Construction



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Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-05

Borehole Depth: 70' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
					6 7	9				Grayish brown Sandy CLAY, some fine Sand, little Silt, fine Gravel, stiff, damp to wet, slight plasticity, no odor.
		4	15-20	1.5			NA	CL		
	850									
20					3 7 8 13	15		SP		Dark gray fine SAND (SP), wet. Cobble 20.2' bgs.
										Dark gray CLAY (CL), some Silt, very fine to fine Sand, little coarse Sand, fine Gravel, damp to moist, very stiff, slightly plastic.
		5	20-25	3			NA			
	845									
25					4 5 6 9	11				Cobble at 25.3' bgs.
		6	25-30	3			NA	CL		Cobble at 28' bgs.
	840									
30					8 8 7 5	15				Gray-brown fine SAND layer at 30.5-31.5' bgs.
		7	30-35	3			NA			
	835									
35										
		8	35-40	NA	3 5	14	NA	SP		Grayish brown fine SAND (SP), some medium Sand, Silt, medium dense, wet.

Well/Boring Construction

- Bentonite Grout (2-30' bgs).
- 2" Schedule 40 PVC Riser (0-35' bgs).
- Bentonite Chip (30-33' bgs)
- #5 Sand Pack (33-46' bgs).
- 2" 10-slot Schedule 40 PVC Well Screen (35-45' bgs).

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Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-05

Borehole Depth: 70' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
				9 10	14		SP		Grayish brown fine SAND, some medium Sand, Silt, medium dense, wet.	
	8	35-40	NA			NA			Dark gray SILTY CLAY (CL), little very fine to fine Sand, firm, damp to moist, slightly plastic.	#5 Sand Pack (33-46' bgs).
830										2" 10-slot Schedule 40 PVC Well Screen (35-45' bgs).
40				3 3 4 3	7		CL			
	9	40-45	NA			NA				
825									Grayish brown SILT (ML), some fine to coarse Gravel, trace fine to coarse Gravel, trace fine to coarse Sand, Shale, Sandstone fragments, hard, dry.	
45				32 89 34 40	123					
	10	45-50	NA			NA				Borehole backfilled with Bentonite Chip (46-59' bgs).
820							ML			
50				56 131 X X	187				Moist to wet at 50-52' bgs.	
	11	50-55	2			NA				
815										
55										
	12	55-60	4	NA NA	NA	NA	SP		Grayish brown fine to medium SAND (SP).	

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Client:
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Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-05

Borehole Depth: 70' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
					NA NA	NA				Light gray SILT (ML).
		12	55-60	4			NA			Grayish brown SILT (ML), Sandstone fragments.
	810									
60					15 26 32 26	58		ML		
		13	60-65	4			NA			
	805									
65					36 150 X X	186		CL		CLAY (CL), weathered Sandstone fragments.
										Weathered SANDSTONE.
		14	65-70	1			NA			
	800									
70										End of boring at 70' bgs.
	795									
75										

Well/Boring Construction

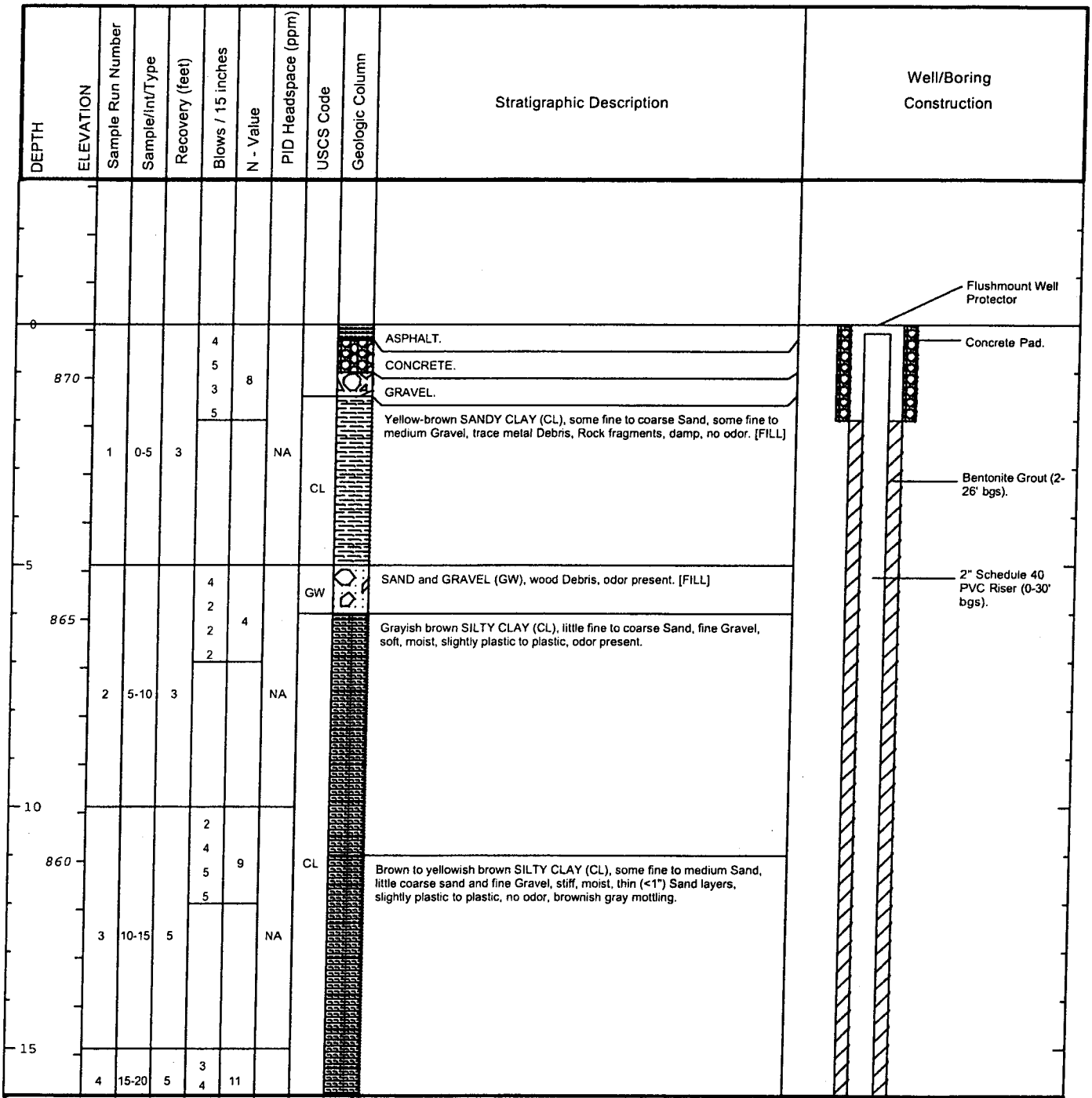
Borehole backfilled with Bentonite Chip (46-59' bgs).

Natural Collapse (59-66' bgs).

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Date Start/Finish: 7/31/03 **Drilling Company:** Prosonic Corp. **Driller's Name:** D. Bond **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 85 **Sampling Method:** 5' macrocore	**Northing:** 3714.36 **Easting:** 4607.69 **Casing Elevation:** 870.81 **Borehole Depth:** 45' below grade **Surface Elevation:** 871.11 **Geologist:** J. Kralik	**Well/Boring ID:** MW-03-06 **Client:** General Motors Corporation **Location:** GM Lansing Plant #6



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Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-06

Borehole Depth: 45' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
855	4	15-20	5	7 8	11	NA	CL		Brown to yellowish brown SILTY CLAY (CL), some fine to medium Sand, little coarse sand and fine Gravel, stiff, moist, thin (<1") Sand layers, slightly plastic to plastic, no odor, brownish gray mottling.
							ML		Grayish brown CLAYEY SILT (ML), little medium to coarse Sand, fine Gravel, trace coarse Gravel, moist, no odor, yellowish brown mottling at top.
20									
850	5	20-25	5	2 3 4 7	7	NA	SP		Grayish brown fine SAND (SP), trace very fine Sand, Silt, wet.
							ML		Grayish brown CLAYEY SILT (ML), little medium to coarse Sand, fine Gravel, trace coarse Gravel, moist, no odor.
									Grayish brown SILT (ML), some very fine to fine Sand, wet to moist.
25									
845	6	25-30	5	2 3 3 5	6	NA	CL		Grayish brown SILTY CLAY (CL), little very fine to medium Sand, trace coarse Sand, fine Gravel, some thin (<1") grayish brown Silt layers, damp to moist, medium stiff, slightly plastic.
30									
840	7	30-35	5	3 5 6 14	11	NA			Wet Silt layer 33.5-34.5' bgs.
35	8	35-40	5	2 4	12				

Well/Boring Construction

- Bentonite Grout (2-26' bgs).
- 2" Schedule 40 PVC Riser (0-30' bgs).
- Bentonite Chip (26-28' bgs)
- #5 Sand Pack (28-45' bgs).
- 2" 10-slot Schedule 40 PVC Well Screen (30-40' bgs).

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Client:
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Site Location:
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Plant #6

Well/Boring ID: MW-03-06

Borehole Depth: 45' below grade

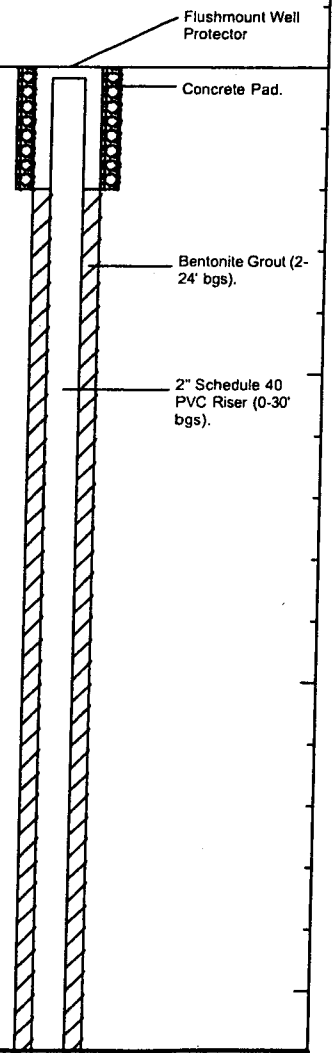
DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
835				8	12		CL		Grayish brown SILTY CLAY (CL), as above.	
				9					Grayish brown SILT (ML), wet.	
	8	35-40	5			NA	ML			#5 Sand Pack (28-45' bgs).
40									Grayish brown SILTY CLAY (CL), thin (<1") Sand layers, moist.	2" 10-slot Schedule 40 PVC Well Screen (30-40' bgs).
830				12 8 5 5	13					
	9	40-45	5			NA	CL			
45									End of boring at 45' bgs.	
825										
50										
820										
55										

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Date Start/Finish: 7/31/03 **Drilling Company:** Prosonic Corp. **Driller's Name:** D. Bond **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 85 **Sampling Method:** 5' macrocore	**Northing:** 3792.27 **Easting:** 4142.92 **Casing Elevation:** 867.16 **Borehole Depth:** 45' below grade **Surface Elevation:** 867.32 **Geologist:** J. Kralik	**Well/Boring ID:** MW-03-07 **Client:** General Motors Corporation **Location:** GM Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 15 inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
870									
0				8 8 9 14	17		SW		CONCRETE. Yellowish brown medium SAND (SW), some fine to coarse Sand, medium dense, damp, no odor.
865	1	0-5	3			NA	GW		Yellowish brown to brownish black fine to coarse SAND and fine to medium GRAVEL (GW), damp, slight odor. [FILL]
5				3 4 2 3	8		CL		Grayish black SANDY CLAY (CL), fine Sand, some Silt and medium Sand, trace coarse Sand and fine to medium Gravel, soft to firm, damp, plant debris present, slight odor.
860	2	5-10	5			NA	TS		Black Sandy TOPSOIL (TS), some Clay, plant Debris, moist, slight odor.
10				1 3 5 6	8		CL		Dark greenish gray CLAY (CL), little very fine to fine Sand, trace fine Gravel, damp, slightly plastic, no apparent odor. SANDY CLAY (CL), medium Sand, trace coarse Sand, moist.
855	3	10-15	4			NA	ML		Yellowish brown CLAYEY SILT (ML), some fine Sand, little coarse Sand, fine Gravel, thin (<1") wet medium Sand layers, medium stiff, moist to wet, light gray mottling, no odor.
15	4	15-20	4	3 3	8	NA			



Well/Boring Construction

Remarks: bgs = below ground surface; NA = Not Applicable/Available.

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Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-07

Borehole Depth: 45' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
850	4	15-20	4	5 9	8	NA	ML		Yellowish brown CLAYEY SILT (ML), some fine Sand, little coarse Sand, fine Gravel, thin (<1") wet medium Sand layers, medium stiff, moist to wet, light gray mottling, no odor.	Bentonite Grout (2-24' bgs).
20							ML/CL		Grayish brown SILTY CLAY (ML/CL), some very fine to fine Sand, little medium Sand, trace coarse Sand and fine Gravel, stiff, damp.	2" Schedule 40 PVC Riser (0-30' bgs).
				3 6 8 10	14					
845	5	20-25	4			NA				
							SP		Grayish brown fine SAND (SP), little Silt, trace Clay, wet.	
25				3 5 10 11	15		ML/CL		Grayish brown SILTY CLAY (ML/CL), some very fine to fine Sand, little medium Sand, trace coarse Sand and fine Gravel, stiff, damp.	Bentonite Chip (24-28' bgs)
840	6	25-30	5			NA			2" layer of fine Sand at 26.5' bgs, wet.	
									2" layer of fine to coarse Sand and fine Gravel at 28.75' bgs, wet.	#5 Sand Pack (28-45' bgs).
30				2 5 6 8	11					2" 10-slot Schedule 40 PVC Well Screen (30-40' bgs).
835	7	30-35	5			NA			Thin (<1") layer of Silt at 34' bgs, wet.	
35	8	35-40	5	4 5	12	NA	ML		Grayish brown SILT (ML), some very fine Sand, wet.	

Remarks: bgs = below ground surface; NA = Not Applicable/Available.

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Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-07

Borehole Depth: 45' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
830	8	35-40	5	7 5	12	NA	ML		Grayish brown SILT (ML), some very fine Sand, wet.	#5 Sand Pack (28-45' bgs). 2" 10-slot Schedule 40 PVC Well Screen (30-40' bgs).
40										
				3 3 3 5	6		ML/CL		SILTY CLAY (ML/CL).	
825	9	40-45	5			NA				
45									End of boring at 45' bgs.	
820										
50										
815										
55										

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Date Start/Finish: 8/4/03-8/5/2003 **Drilling Company:** Prosonic Corp. **Driller's Name:** D. Bond **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 85 **Sampling Method:** 5' macrocore	**Northing:** 3605.88 **Easting:** 4408.31 **Casing Elevation:** 869.41 **Borehole Depth:** 70' below grade **Surface Elevation:** 869.71 **Geologist:** J. Kralik	**Well/Boring ID:** MW-03-08 **Client:** General Motors Corporation **Location:** GM Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 15 inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 870										Flushmount Well Protector
				8 9 9 8	18				CONCRETE. Yellowish brown SAND. [FILL] Light gray SAND and GRAVEL. [FILL] Brownish gray SILTY CLAY, very stiff. [FILL]	Concrete Pad.
	1	0-5	3			NA			Greenish gray CLAY (CL), very soft, odor present.	Bentonite Grout (2-30' bgs).
5 / 865				2 3 4 6	7				Brown CLAY (CL), little fine to coarse Sand and fine Gravel, trace medium to coarse Gravel, medium stiff, damp, slight yellow brown mottling present.	2" Schedule 40 PVC Riser (0-35' bgs).
	2	5-10	5			NA				
10 / 860				12 11 11 13	22		CL		Yellowish brown CLAY/SILTY CLAY (CL), little fine to coarse Sand and fine Gravel, damp, slight brown to grayish brown mottling present.	
	3	10-15	1			NA			Very soft from 12-20' bgs.	
15 / 855				3 4	10					
	4	15-20	1			NA			Yellowish brown SILTY CLAY (CL), little very fine to coarse Sand, stiff, damp, soft in some places.	

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Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-08

Borehole Depth: 70' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
20 / 850	4	15-20	1	6, 6	10	NA			Yellowish brown SILTY CLAY (CL), little very fine to coarse Sand, stiff, damp, soft in some places.	Bentonite Grout (2-30' bgs).
	5	20-25	5	4, 4, 6, 7	10	NA	CL		Grayish brown CLAY/SILTY CLAY (CL), little medium to coarse Sand and fine Gravel, stiff, damp, very plastic, some yellowish brown mottling present.	2" Schedule 40 PVC Riser (0-35' bgs).
25 / 845	6	25-30	1	7, 8, 11, 12	19	NA			Trace coarse Gravel, moist.	
30 / 840	7	30-35	4	4, 5, 6, 7	11	NA	SP		Grayish brown fine SAND (SP), some Silt, trace medium to coarse Sand, loose, damp.	Bentonite Chip (30-33' bgs)
							CL		Grayish brown CLAY/SILTY CLAY (CL), little medium to coarse Sand and fine Gravel, stiff, damp, very plastic, some yellowish brown mottling present.	
							ML		Grayish brown SILT (ML), little very fine to fine Sand, damp to wet.	#5 Sand Pack (33-45.5' bgs).
35 / 835	8	35-40	5	5, 4	9	NA	SP		Grayish brown very fine to fine SAND (SP), some Silt, trace medium to coarse Sand, loose, wet.	2" 10-slot Schedule 40 PVC Well Screen (35-45' bgs)

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-08

Borehole Depth: 70' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description
				5 6	9		SP		Grayish brown very fine to fine SAND (SP), some Silt, trace medium to coarse Sand, loose, wet.
	8	35-40	5			NA			
									Grayish brown CLAY/SILTY CLAY (CL), little medium to coarse Sand and fine Gravel, stiff, damp, very plastic, some yellowish brown mottling present.
830 40				3 6 8 15	14				Thin (<1") layer of wet fine Sand at 41.3' bgs.
	9	40-45	5			NA	CL		Wet fine to medium Sand from 42.4-42.9' bgs,
									Thin (<1") layer of wet fine Sand at 44.1' bgs.
825 45				6 12 14 18	26				
	10	45-50	2			NA			Cobble at 48.5' bgs.
820 50				8 14 27 55	41				Light gray to reddish gray SAND and GRAVEL (SP), fine to coarse Sand, fine to coarse Gravel, trace Silt, Sandstone and Shale fragments, dense, dry to damp no apparent odor.
	11	50-55	4			NA	SP		
815 55				17 17	39				
	12	55-60	4			NA			

Well/Boring Construction

- #5 Sand Pack (33-45.5' bgs).
- 2" 10-slot Schedule 40 PVC Well Screen (35-45' bgs)
- Bentonite Chip (45.5-70' bgs)

Remarks: bgs = below ground surface; NA = Not Applicable/Available.

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engineers & scientists

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-08

Borehole Depth: 70' below grade

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
				22 15	39		SP		Light gray to reddish gray SAND and GRAVEL (SP), as above.	
60 810	12	55-60	4			NA			Light grayish brown to grayish brown SILT (ML), some very fine to fine Sand, trace fine Gravel, dense, dry to damp.	Bentonite Chip (45.5-70' bgs)
				12 19 25 30	44		ML			
	13	60-65	5			NA				
65 805				17 35 51 70	86				Weathered SANDSTONE.	
	14	65-70	2.5			NA			SANDSTONE.	
70 800									End of boring at 70' bgs.	
75 795										

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Date Start/Finish: 9/29/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow Stem Auger/Water Rotary
Bit Size: 3.785"
Auger Size: 4.25" ID
Rig Type: Gus Pech 1100
Sampling Method: 2' split spoon

Northing: 3785.0020
Easting: 4143.1740
Casing Elevation: 867.20

Borehole Depth: 88' below grade
Surface Elevation: 867.47

Geologist: Wayne Patterson

Well/Boring ID: MW04-01

Client: General Motors Corporation

Location: GM Lansing
Plant #6

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
0	0									CONCRETE.		Flushmount Protective Casing; Concrete Pad.
										Yellowish brown medium SAND (SW), some fine to coarse Sand, medium dense, damp, no odor.		
										Yellowish brown to brownish black fine to coarse SAND and fine to medium GRAVEL (GW), damp, slight odor. [FILL]		Cement/Bentonite Grout.
5	-5									Grayish black SANDY CLAY (CL), fine Sand, some Silt and medium Sand, trace coarse Sand and fine to medium Gravel, soft to firm, damp, plant debris present, slight odor.		2" Schedule 40 PVC Riser.
										Black Sandy TOPSOIL (TS), some Clay, plant Debris, moist, slight odor.		
										Dark greenish gray CLAY (CL), little very fine to fine Sand, trace fine Gravel, damp, slightly plastic, no apparent odor.		
10	-10	1	SS	0.5'	5 2 1 2	3	0			SANDY CLAY (CL), medium Sand, trace coarse Sand, moist.		
										Yellowish brown CLAYEY SILT (ML), some fine Sand, little coarse Sand, fine Gravel, thin (<1") wet medium Sand layers, medium stiff, moist to wet, light gray mottling, no odor.		
15	-15											

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW04-01

Borehole Depth: 88' below grade

DRAFT

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									Yellowish brown CLAYEY SILT (ML), some fine Sand, little coarse Sand, fine Gravel, thin (<1") wet medium Sand layers, medium stiff, moist to wet, light gray mottling, no odor.		Cement/Bentonite Grout.
									Dark grayish brown 10 YR 4/2 LEAN CLAY with SILT (CL), trace fine to coarse Sand, rare fine Gravel, medium stiff, damp, native clay till.		2" Schedule 40 PVC Riser.
20-20	2	SS	1.0'	6 4 5 6	9	0					
25-25									2" layer of fine Sand at 26.5' bgs, wet.		
									2" layer of fine to coarse Sand and fine Gravel at 28.75' bgs, wet.		
30-30	3	SS	1.5'	- 5 9 7	14	0					
									Thin (<1") layer of Silt at 34' bgs, wet.		
35-35											

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW04-01

Borehole Depth: 88' below grade

DRAFT

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
									Grayish brown SILT (ML), some very fine Sand, wet.		Cement/Bentonite Grout.
											2" Schedule 40 PVC Riser.
40-40	4	SS	0.5'	6 6 20 28	26	0					
45-45									End of boring at 45' bgs.		
	4	SS	1.0'	4 8 16 16	24	0					
	5	SS	1.0'	8 12 15 21	27	0					
50-50	6	SS	1.5'	4 6 12 26	18	0					
	7	SS	1.0'	12 30 33 31	63	0			Dark grayish brown 10 YR 4/2 fine to coarse well graded SAND and GRAVEL (GW), few Clay, little Silt, saturated. Dark grayish brown 10 YR 4/2 fine poorly graded SILTY SAND (SM), loose, saturated.		
55-55	8	SS	1.0'	17 31 41 50	72	0			Dark grayish brown 10 YR 4/2 fine to coarse well graded SAND and GRAVEL (GW), few Clay, little Silt, saturated.		

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW04-01

Borehole Depth: 88' below grade

DRAFT

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	8	SS	1.0'	25 40 26 36	66	0					Cement/Bentonite Grout.
	9	SS	1.5'	WOR 16 20 17	36	0			Dark grayish brown 10 YR 4/2 SILT (ML), little Clay, little fine to coarse Sand, little fine Gravel, wet, dense.		2" Schedule 40 PVC Riser.
60-60	10	SS	0.75'	13 35 17 21	52	0					
	11	SS	0.25'	92 50 - -	50	0			Dark grayish brown 10 YR 4/2 fine poorly graded SAND (SP), loose, dry to damp.		
65-65	12	SS	0.5'	34 75 - -	75	0					
	13	SS	0.75'	29 80 - -	80	0					
	14	SS	0.1'	130 - - -	130	0			Gray 2.5 4/1 fine to medium SANDSTONE, predominately fine grained, medium hard to hard.		
70-70		WR									
75-75											Bentonite Chip (hydrated).

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW04-01

Borehole Depth: 88' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
80-80											Filter Sand.
85-85											2" 10-slot Schedule 40 PVC Well Screen.

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; WOR - weight of rod

Date Start/Finish: 10/6/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow-Stem Auger
Bit Size: NA
Auger Size: 4.25"
Rig Type: Gus Pech 1100
Sampling Method: 2' Split Spoon

Northing: 3590.5350
Easting: 4599.3170
Casing Elevation: 871.03

Borehole Depth: 61.75' below grade
Surface Elevation: 871.35

Geologist: Wayne Patterson

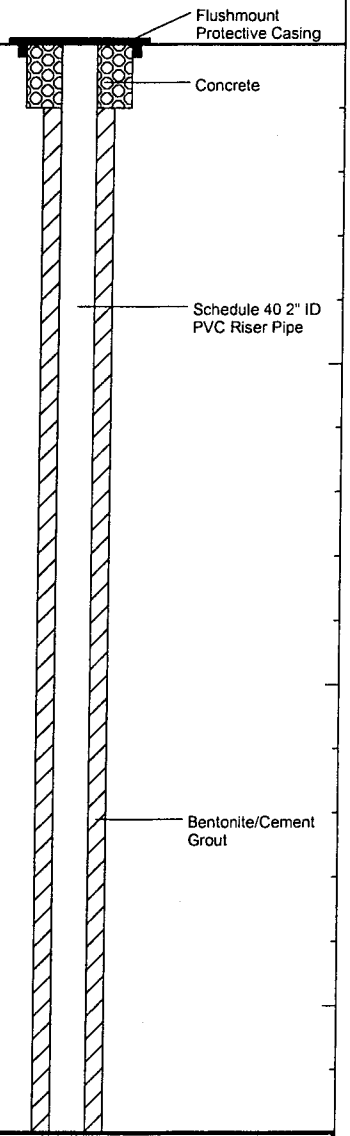
Well/Boring ID: MW04-02
Client: General Motors Corporation

Location: Lansing Plant #6
Lansing, Michigan

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy
0											
	870	1	SS	0.25'	3 3 4 6	7	0.2			Yellowish brown 10 YR 5/6 fine poorly graded SAND (SP), loose, damp, some Clay at surface.	SAND
		2	SS	1.0'	8 7 7 6	14	0				
5		3	SS	1.5'	4 3 5 7	8	0			Dark yellowish brown 10 YR 4/4 LEAN CLAY with SILT (CL), some coarse angular Sand, rare fine angular Gravel, damp, stiff. At 5.0 - 5.5' - black stained, saturated, no odor.	
	865	4	SS	0.2'	8 9 10 14	19	0			Sand is fine to coarse grained.	
		5	SS	1.0'	8 8 10 15	18	0			Occasional thin lenses of fine Clayey Sand.	
10		6	SS	1.5'	10 6 8 12	14	0			Color becomes dark gray 10 YR 4/1, increasing amount of Silt with depth.	
	860	7	SS	1.5'	6 3 4 5	7	0			Color is brown 10 YR 4/3, moist, very silty.	SILTY CLAY
15		8	SS	0.1'	8 6 7 13	13	0				
	855				6 2					Color is Dark gray 10 YR 4/1, less Silt content.	

Well/Boring Construction



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engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-02

Borehole Depth: 61.75' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	9	SS	1.5'	5 6	7	0			Little fine to coarse Sand.		
	10	SS	1.5'	3 4 9 12	13	0					
20 850	11	SS	0.25'	5 6 5 8	11	0			Brown 10 YR 4/3 fine poorly graded SAND (SP), rare fine Gravel, saturated, loose.		
	12	SS	1.5'	4 6 10 15	16	0			Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), little fine to coarse Sand, some fine angular Gravel, damp, stiff.		
25	13	SS	2.0'	6 8 8 10	16	0			Few fine to coarse Sand, medium stiff, moderately plastic.	SILTY CLAY	Schedule 40 2" ID PVC Riser Pipe
845	14	SS	2.0'	5 5 7 7	12	0			Becoming soft and very plastic.		
	15	SS	1.5'	WOR 6 10 16	16	0			Grayish brown 10 YR 5/2 SILT (ML), loose, medium dense, dry.	SILT	Bentonite/Cement Grout
30 840	16	SS	2.0'	15 12 7 6	19	0			Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), little fine to coarse Sand, some fine angular Gravel, very plastic, saturated, soft. At 30.8 - 31.4' - fine Sand lens.	SILTY CLAY	
	17	SS	1.5'	7 6 5 5	11	0			Soft, saturated, and very plastic.		Bentonite Chip (Hydrated)
35	18	SS	1.5'	WOR WOR WOR 12	1	0			Dark grayish brown 10 YR 4/2 fine Sand and Silt, saturated.		
835				14 19					Dark grayish brown 10 YR 4/2 SILT (ML), saturated, loose to medium dense.	LT	

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engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-02

Borehole Depth: 61.75' below grade

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
		19	SS	1.0'	27 36	46	0				SI	
		20	SS	1.5'	WOR 5 7 6	12	0			Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), few fine to coarse Sand, rare to few fine Gravel, saturated, medium dense, moderately plastic.	SILTY CLAY	Filter Sand
40		21	SS	1.0'	WOR WOR 8 10	9	0			1" fine Sand lens. Moist, veins of saturation.		0.010" Machine Slotted 2" ID Schedule 40 Well Screen
	830	22	SS	1.5'	5 7 9 11	16	0					
45		23	SS	1.5'	WOR 8 8 10	16	0			6" increased Sand content, saturated.		
	825	24	SS	1.0'	32 60 - -	60	0					
		25	SS	0.5'	38 65 - -	65	0			Dark grayish brown 10 YR 4/2 angular fine to coarse well graded SAND and GRAVEL (GW), rare Silt, dense, dry.	GRAVEL AND SAND	
50		26	SS	1.0'	33 51 50 -	51	0					
	820	27	SS	1.25'	9 21 33 30	54	0					
55		28	SS	1.25'	WOR 17 20 22	37	0			Angular to subrounded grains.		
	815				WOR 17							

BBL
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engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-02

Borehole Depth: 61.75' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	29	SS	1.25	20 22	37	0					
	30	SS	1.5'	17 19 23 26	42	0					
60									Gray 10YR 6/1 weathered SANDSTONE.	SANDSTONE	
810	31	SS	1.0'	19 38 80	118	0					

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Date Start/Finish: 10/07/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow-Stem Auger
Bit Size: NA
Auger Size: 4.25"
Rig Type: Gus Pech 1100
Sampling Method: 2' Split Spoon

Northing: 3616.8390
Easting: 4717.1300
Casing Elevation: 870.78

Borehole Depth: 62' below grade
Surface Elevation: 871.16

Geologist: Wayne Patterson

Well/Boring ID: MW04-03

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6
Lansing, Michigan

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
0	870	1	SS	0.1'	6 6 8 9	14	0			Asphalt.	ASPHALT	Flushmount Protective Casing; Concrete
		2	SS	0.2'	4 9 12 12	21	0			Dark grayish brown 10 YR 4/2 LEAN CLAY with SILT (CL), some fine to coarse subangular Sand, medium stiff, damp, moderately plastic.		
5	865	3	SS	0.5'	7 4 4 5	8	0			Mottling with grayish brown 10 YR 5/2, soft, moist.		Schedule 40 2" ID PVC Riser Pipe
		4	SS	0	5 3 5 15	8	0					
		5	SS	0.5'	2 2 4 6	6	0			No mottling, vertical fractures with gray 10 YR 5/1 coloring and saturation, rare fine subangular Gravel.		
10	860	6	SS	0.2'	6 9 12 14	21	0			No fractures, soft.		
		7	SS	1.5'	4 3 4 6	7	0			Color becoming dark gray 10 YR 4/1, wet.		Bentonite/Cement Grout
15		8	SS	1.75'	6 8 9 9	17	0			Medium stiff, moist.		
	855				4 5					Damp.		

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-03

Borehole Depth: 62' below grade

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
		9	SS	1.5'	10 8	15	0					
					4 6 10 12					Little fine to coarse Sand.		
		10	SS	2.0'		16	0					
20					4 7 7 10					Stiff.		
	850	11	SS	2.0'		14	0					
					4 5 6 10					Few fine to coarse Sand.		
		12	SS	1.5'		11	0				SILTY CLAY	
					4 4 6 8							Schedule 40 2" ID PVC Riser Pipe
25		13	SS	1.5'		10	0					
	845				WOR 6 6 8					Becoming moist, very plastic, medium stiff.		
		14	SS	2.0'		12	0					
					WOR WOR 9 12							Bentonite/Cement Grout
		15	SS	1.0'		9	0					
30					WOR 10 8 10					2" Silty Sand lens, few Clay, few fine Gravel, wet. Wet.		
	840	16	SS	1.5'		18	0			2" Silt lens, few fine Gravel, moist.		
					5 7 10 12							Bentonite Chip (Hydrated)
		17	SS	0		17	0					
					7 7 15 7							
35		18	SS	1.5'		22	0			2" fine to medium Sand lens, dry. Silt is saturated.		
	835				WOR 7					Saturated, soft.		Filter Sand

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-03

Borehole Depth: 62' below grade

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
		19	SS	1.0'	6 7	13	0					
		20	SS	1.0'	1 5 7 9	12	0					
40										Medium stiff, slightly plastic.		0.010" Machine Slotted 2" ID Schedule 40 Well Screen
	830	21	SS	1.5'	7 10 8 8	18	0			Stiff, little fine to coarse Sand, damp.		
		22	SS	1.0'	12 23 15 17	38	0					
45		23	SS	1.0'	18 51 50 -	101	0					Bentonite Chip (Hydrated)
	825	24	SS	0	38 60 - -	60	0			Dark grayish brown 10 YR 4/2 angular fine to coarse well graded SAND and GRAVEL (GW), few Silt, damp, dense.	GRAVEL AND SAND	
		25	SS	0.5'	36 49 50 -	99	0			Dry, rare Silt.		
50												
	820	26	SS	1.0'	17 28 36 22	64	0			Few Gravel, moist fine to coarse subangular Sand, dry.		
55												Natural Collapse
	815				23 70							

BBL
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engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-03

Borehole Depth: 62' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	27	SS	0.5'	73	143	0					
				-					Black SHALE.	SHALE	
60				80					Gray 10 YR 6/1 fine SANDSTONE, dry.	SANDSTONE	
810	28	SS	0.2'	-	80	0					
				-							

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Date Start/Finish: 10/12/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow-Stem Auger/Water Rotary
Bit Size: 3.785"
Auger Size: 4.25"
Rig Type: Gus Pech 1100
Sampling Method: NA

Northing: 3610.4140
Easting: 4717.2180
Casing Elevation: 870.77

Borehole Depth: 108' below grade
Surface Elevation: 871.15

Geologist: Wayne Patterson

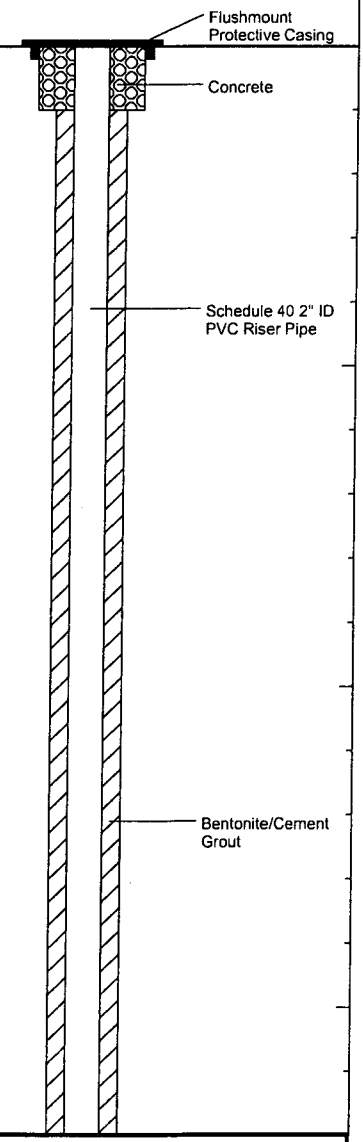
Well/Boring ID: MW04-04
Client: General Motors Corporation

Location: Lansing Plant #6
Lansing, Michigan

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy
0	870	1	SS	0.1'	6 6 8 9	14	0			Asphalt.	ASPHALT
		2	SS	0.2'	4 9 12 12	21	0			Dark grayish brown 10 YR 4/2 LEAN CLAY with SILT (CL), some fine to coarse subangular Sand, medium stiff, damp, moderately plastic.	
5	865	3	SS	0.5'	7 4 4 5	8	0			Mottling with grayish brown 10 YR 5/2, soft, moist.	
		4	SS	0	5 3 5 15	8	0				
		5	SS	0.5'	2 2 4 6	6	0			No mottling, vertical fractures with gray 10 YR 5/1 coloring and saturation, rare fine subangular Gravel.	
10	860	6	SS	0.2'	6 9 12 14	21	0			No fractures, soft.	
		7	SS	1.5'	4 3 4 6	7	0			Color becoming dark gray 10 YR 4/1, wet.	
15		8	SS	1.75'	6 8 9 9	17	0			Medium stiff, moist.	
	855				4 5					Damp.	

Well/Boring Construction



BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
WOR - weight of rod; WR - water rotary

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-04

Borehole Depth: 108' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	9	SS	1.5'	10 8	15	0					
				4 6					Little fine to coarse Sand.		
	10	SS	2.0'	10 12	16	0					
20				4					Stiff.		
850	11	SS	2.0'	7 7 10	14	0					
				4					Few fine to coarse Sand.		
	12	SS	1.5'	5 6 10	11	0				SILTY CLAY	
				4							Schedule 40 2" ID PVC Riser Pipe
25	13	SS	1.5'	4 6 8	10	0					
845				WOR					Becoming moist, very plastic, medium stiff.		
	14	SS	2.0'	6 6 8	12	0					
				WOR							Bentonite/Cement Grout
	15	SS	1.0'	WOR 9 12	9	0					
30				WOR					2" Silty Sand lens, few Clay, few fine Gravel, wet. Wet.		
840	16	SS	1.5'	10 8 10	18	0			2" Silt lens, few fine Gravel, moist.		
	17	SS	0	5 7 10 12	17	0					
				7							
35	18	SS	1.5'	7 15 7	22	0			2" fine to medium Sand lens, dry. Silt is saturated.		
835				WOR 7					Saturated, soft.		

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
WOR - weight of rod; WR - water rotary

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-04

Borehole Depth: 108' below grade

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
		19	SS	1.0'	6 7	13	0					
		20	SS	1.0'	1 5 7 9	12	0					
40										Medium stiff, slightly plastic.		Schedule 40 2" ID PVC Riser Pipe
	830	21	SS	1.5'	7 10 8 8	18	0					
										Stiff, little fine to coarse Sand, damp.		
		22	SS	1.0'	12 23 15 17	38	0					
45		23	SS	1.0'	18 51 50 -	101	0					Bentonite/Cement Grout
	825									Dark grayish brown 10 YR 4/2 angular fine to coarse well graded SAND and GRAVEL (GW), few Silt, damp, dense.	GRAVEL AND SAND	
		24	SS	0	38 60 - -	60	0					
										Dry, rare Silt.		
		25	SS	0.5'	36 49 50 -	99	0					
50												
	820											
		26	SS	1.0'	17 28 36 22	64	0					
										Few Gravel, moist fine to coarse subangular Sand, dry.		
55												
	815				23 70							

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
WOR - weight of rod; WR - water rotary

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-04

Borehole Depth: 108' below grade

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
		27	SS	0.5'	73 -	143	0					
										Black SHALE.	SHALE	
60	810	28	SS	0.2'	80 - - -	80	0			Gray 10 YR 6/1 fine SANDSTONE, dry.	SANDSTONE	Schedule 40 2" ID PVC Riser Pipe
			WR									
65	805											Bentonite/Cement Grout
70	800									Thin Shale layer.		
75	795											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
WOR - weight of rod; WR - water rotary

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-04

Borehole Depth: 108' below grade

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
80	790											Schedule 40 2" ID PVC Riser Pipe
85	785											Bentonite/Cement Grout
90	780											
95	775											Bentonite Chip (Hydrated)

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
WOR - weight of rod; WR - water rotary

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-04

Borehole Depth: 108' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
100 / 770											Filter Sand
											0.010" Machine Slotted 2" ID Schedule 40 Well Screen
105 / 765											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface
WOR - weight of rod; WR - water rotary

Date Start/Finish: 10/8/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow-Stem Auger
Bit Size: NA
Auger Size: 4.25"
Rig Type: Gus Pech 1100
Sampling Method: 2' Split Spoon

Northing: 4203.4580
Easting: 4652.2184
Casing Elevation: 858.57

Borehole Depth: 50' below grade
Surface Elevation: 859.07

Geologist: Wayne Patterson

Well/Boring ID: MW04-05

Client: General Motors Corporation

Location: Lansing Plant #6
Lansing, Michigan

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	860									
0										
		1	SS	0.1'	6 7 5 8	12	0			Brown 10 YR 6/3 and gray 10 YR 5/1 mottled LEAN CLAY with SILT (CL), little fine to coarse Sand, stiff, dry, weakly plastic.
		2	SS	0.2'	7 7 8 7	15	0			
	855	3	SS	0.5'	6 5 6 7	11	0			Greenish gray Gley 1 6/1 LEAN CLAY (CL), very plastic, medium stiff, damp, little mottling with dark gray 10 YR 4/1.
5		4	SS	0	2 3 2 4	5	0			Gray 10 YR 5/1 SILT (ML), plant debris present, few Clay, slight Peat odor, damp to moist.
	850	5	SS	0.5'	2 3 5 6	8	0			Brown 10 YR 4/3 SANDY SILT (SM), little Clay lenses, saturated, loose.
10		6	SS	0.2'	2 2 3 2	5	0			Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), little fine to medium subangular Sand, rare fine Gravel, wet, medium stiff.
		7	SS	1.5'	2 3 5 5	8	0			Dark gray 10 YR 4/1 fine to medium poorly graded SAND (SP), loose, saturated, top 3" fine to coarse grained.
	845									
15		8	SS	1.75'	3 4 2 2	6	0			
					9 7					

Hydrostratigraphy: ASPHALT

Well/Boring Construction:
- Flushmount Protective Casing
- Concrete
- Schedule 40 2" ID PVC Riser Pipe
- Bentonite/Cement Grout
- Bentonite Chip (Hydrated)

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-05

Borehole Depth: 50' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	9	SS	1.5'	8 7	15	0			Dark gray 10 YR 4/1 SANDY SILT (SM), fine to coarse Sand, wet, dense.		
840	10	SS	2.0'	3 4 6 5	10	0			Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), few fine to coarse Sand, stiff, moist to wet, weakly plastic.		
20	11	SS	2.0'	3 4 4 5	8	0			Very plastic, rare Sand.		
	12	SS	1.5'	1 3 3 7	6	0			Very silty, weakly plastic, becoming soft, few fine to coarse Sand.	SILTY CLAY	Filter Sand
835	13	SS	1.5'	5 6 7 11	13	0					0.010" Machine Slotted 2" ID Schedule 40 Well Screen
25	14	SS	2.0'	6 5 6 6	11	0			Dark gray 10 YR 4/1 SILT (ML), saturated.		
830	15	SS	1.0'	WOR 9 6 6	15	0			Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), few fine to coarse subangular Sand, weakly plastic, medium stiff, damp.		
30	16	SS	1.5'	WOR WOR 6 6	7	0			Few little Sand, rare fine Gravel.		
			0								
825	17	SS	1.5'	26 53 70 -	123	0			Dark gray 10 YR 4/1 SILT (ML), few fine angular Gravel, dense, dry, 2" lens of fine subrounded Gravel at top.		Bentonite/Cement Grout
35				28 43					Very dense, few fine to coarse Sand, rare fine Gravel.		

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-05

Borehole Depth: 50' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
	18	SS	1.0'	49 41	92	0			Few Clay, moist.		
820	19	SS	1.0'	7 8 10 10	18	0			Some Clay, wet to saturated, little fine to coarse Sand, few fine Gravel, soft, weakly plastic.		
40	20	SS	1.5'	WOR WOR 8 7	9	0			Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), little fine to coarse Sand, few fine Gravel, soft to medium stiff, moderately plastic, wet.		
	21	SS	1.0'	WOR 11 8 9	19	0					
815	22	SS	1.0'	WOR 33 8 6	41	0			2" Sand and Gravel lens, wet.	GRAVEL AND SAND	Natural Collapse
45	23	SS	0	WOR 12 28 26	40	0			Light Gray 10 YR 7/1 fine SANDSTONE, dry weathered, interbedded with dark gray 10 YR 4/1 fine SILTY SAND (SM), dry to damp.		
810	24	SS	0.5'	31 51 50	101	0					
50											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Date Start/Finish: 10/11/04
Drilling Company: EDAC, Inc.
Driller's Name: Emerick Kish
Drilling Method: Hollow-Stem Auger/Water Rotary
Bit Size: 3.785"
Auger Size: 4.25"
Rig Type: Gus Pech 1100
Sampling Method: 2' Split Spoon

Northing: 4216.3970
Easting: 4652.2330
Casing Elevation: 858.70

Borehole Depth: 98' below grade
Surface Elevation: 859.05

Geologist: Wayne Patterson

Well/Boring ID: MW04-06

Client: General Motors Corporation

Location: Lansing Plant #6
Lansing, Michigan

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
860 / 0									Brown 10 YR 6/3 and gray 10 YR 5/1 mottled LEAN CLAY with SILT (CL), little fine to coarse Sand, stiff, dry, weakly plastic.	ASPHALT	Flushmount Protective Casing; Concrete
855 / 5									Greenish gray Gley 1 6/1 LEAN CLAY (CL), very plastic, medium stiff, damp, little mottling with dark gray 10 YR 4/1.		Schedule 40 2" ID PVC Riser Pipe
									Gray 10 YR 5/1 SILT (ML), plant debris present, few Clay, slight Peat odor, damp to moist.		
850 / 10									Brown 10 YR 4/3 SANDY SILT (SM), little Clay lenses, saturated, loose.		
									Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), little fine to medium subangular Sand, rare fine Gravel, wet, medium stiff.		Bentonite/Cement Grout
845 / 15									Dark gray 10 YR 4/1 fine to medium poorly graded SAND (SP), loose, saturated, top 3" fine to coarse grained.		

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-06

Borehole Depth: 98' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
840 / 20									Dark gray 10 YR 4/1 SANDY SILT (SM), fine to coarse Sand, wet, dense.	SILTY CLAY	Schedule 40 2" ID PVC Riser Pipe
									Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), few fine to coarse Sand, stiff, moist to wet, weakly plastic.		
									Very plastic, rare Sand.		
									Very silty, weakly plastic, becoming soft, few fine to coarse Sand.		
835 / 25											Bentonite/Cement Grout
									Dark gray 10 YR 4/1 SILT (ML), saturated.		
830 / 30									Dark gray 10 YR 4/1 LEAN CLAY with SILT (CL), few fine to coarse subangular Sand, weakly plastic, medium stiff, damp.		
									Few little Sand, rare fine Gravel.		
825 / 35									Dark gray 10 YR 4/1 SILT (ML), few fine angular Gravel, dense, dry, 2" lens of fine subrounded Gravel at top.		
									Very dense, few fine to coarse Sand, rare fine Gravel.		

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

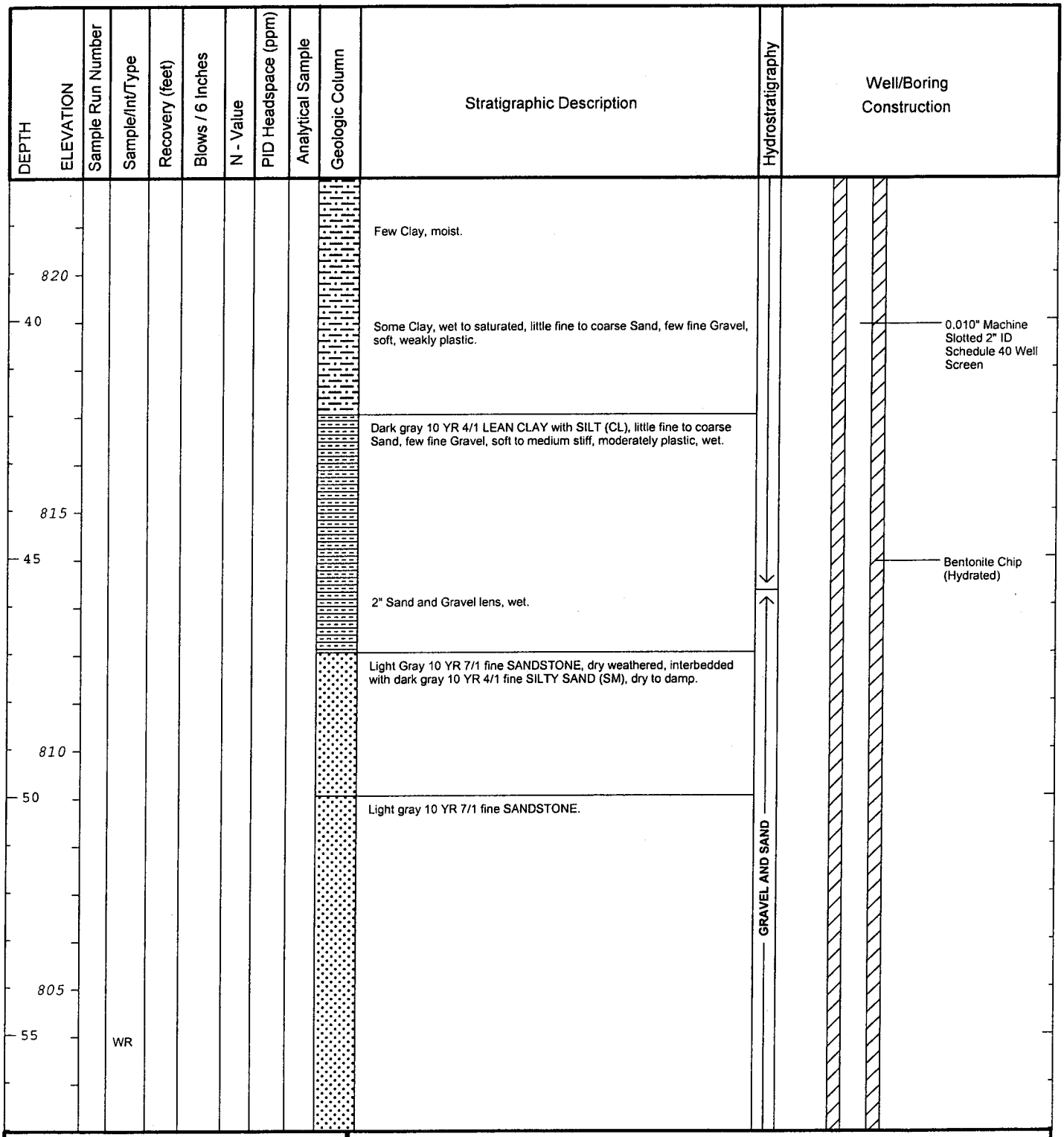
Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-06

Borehole Depth: 98' below grade

DRAFT



BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

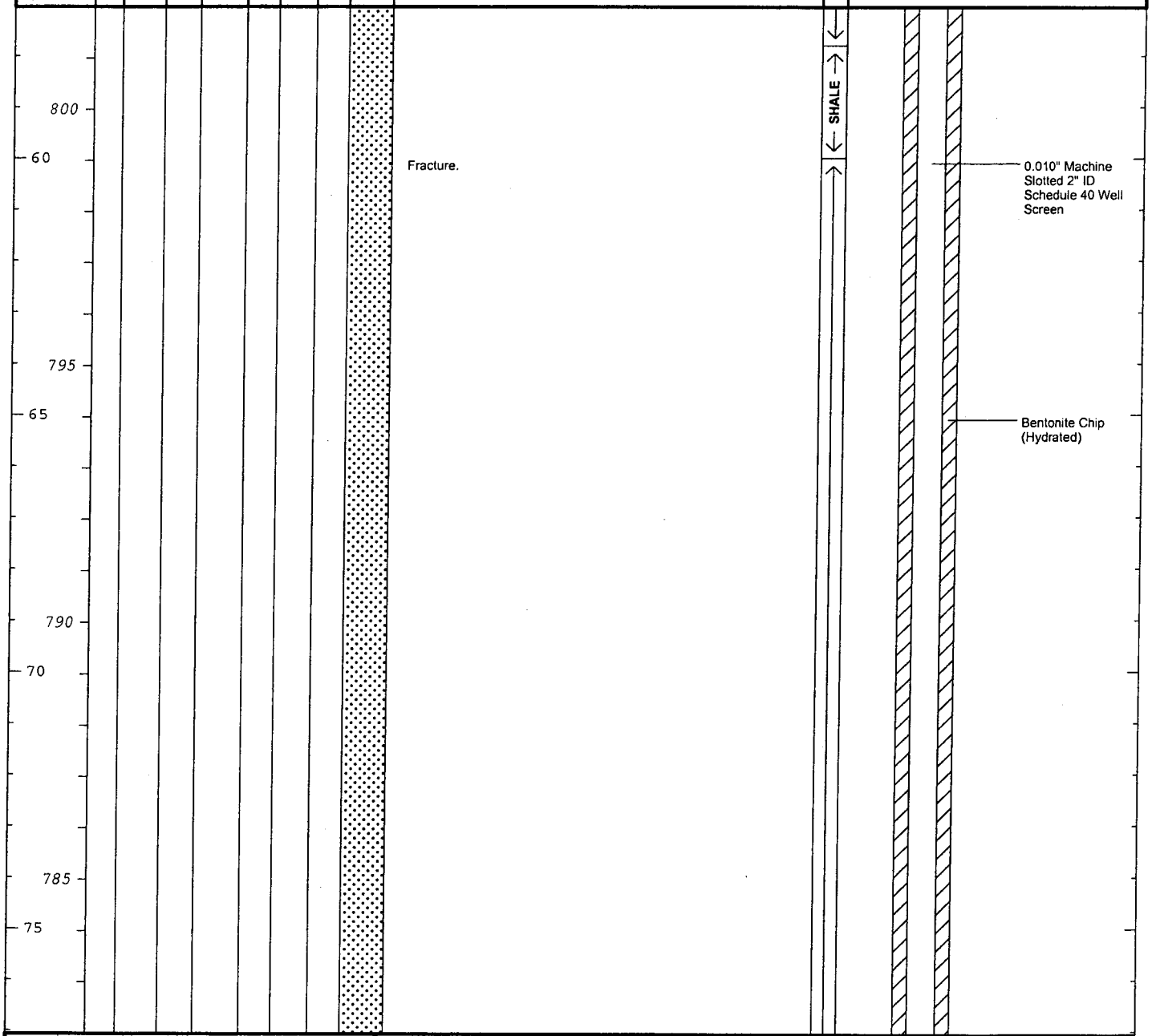
Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-06

Borehole Depth: 98' below grade

DRAFT



BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-06

Borehole Depth: 98' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction
780 / 80									At 83 - 85' - fractures.	SANDSTONE	Bentonite Chip (Hydrated)
775 / 85											
770 / 90											Filter Sand
765 / 95											0.010" Machine Slotted 2" ID Schedule 40 Well Screen

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

Client:
General Motors Corporation

Site Location:
Lansing Plant #6
Lansing, Michigan

Well/Boring ID: MW04-06

Borehole Depth: 98' below grade

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Well/Boring Construction

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: SS - split spoon; bgs - below ground surface; WOR - weight of rod

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MWBP-10A

PROJECT:	GM-Lansing, Body Plant, Area 7
CLIENT:	GM-LAD
BORING CONTRACTOR/DRILL RIG:	Geo-Tek, Inc./CME 750
SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION:	867.41'
DATE STARTED:	10/31/93
DATE FINISHED:	10/31/93
DRILLER:	Peter Buell
GEOLOGIST:	David McMahon
REVIEWED BY:	David Frazier

GROUND WATER:

DATE	TIME	LEV	TYPE
10/31/94		30'	static

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	SS		
DIA.	4-1/4"	2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								Asphalt		
5										
10										
15										
20										first sample recovered at 23 feet
25		S-1	SS		100	grey		SILTY CLAY with interbedded SAND lenses	CL/SP	dry
30		S-2	SS	4 2	100	grey	very loose	medium SAND	SP	very wet
35		S-3	SS	4 8	100		stiff	SILTY CLAY	ML	very wet
								SAND and GRAVEL	GW	very wet
40		S-4	SS	4 5	100	grey	stiff	SILTY CLAY, trace Gravel	CL	

COMMENTS ND - non detect.

PROJECT NO. E1-93-110
BORING NO. MWBP-10A

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MWBP-12A

PROJECT: GM-Lansing, Body Plant, Area 7	SHEET NO. 1 OF 1
CLIENT: GM-LAD	JOB NO. : E1-93-110
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750	GROUND ELEVATION 870.24
GROUND WATER:	DATE STARTED: 10/30/93
DATE: 10/30/94 TIME: LEV: 35' TYPE: static	DATE FINISHED: 10/30/93
	DRILLER: Peter Buell
	GEOLOGIST: David McMahon
	REVIEWED BY: David Frazier

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	SS		
DIA.	4-1/4"	2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								Concrete		
5										
10										
15										
20										first sample recovered at 27 feet
25										
					80	grey	medium dense	SILTY CLAY	CL	very wet
		S-1	SS	6	6		very stiff	medium SAND	SP	dry
				12	9					
30										soil description based on field
								SAND and GRAVEL		observations
		S-2	SS	3	3		loose			
35				5	7					very wet
		S-3	SS	2	5	grey	stiff	SILTY CLAY, trace Gravel	ML	dry
40				6	11					

COMMENTS ND - non detect.

PROJECT NO. E1-93-110
BORING NO. MWBP-12A

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MWBP-13A

PROJECT: GM-Lansing, Body Plant, Area 7	SHEET NO. 1 OF 1
CLIENT: GM-LAD	JOB NO. : E1-93-110
BORING CONTRACTOR/DRILL RIG: Geo-Tek, Inc./CME 750	GROUND ELEVATION: 870.28'

GROUND WATER:					CAS.	SAMP.	CORE	TUBE	DATE STARTED: 10/31/93
DATE	TIME	LEV	TYPE	TYPE	HSA	SS			DATE FINISHED: 10/31/93
10/31/94		30'	static	DIA.	4-1/4"	2"			DRILLER: Peter Buell
				WT.		140#			GEOLOGIST: David McMahon
				FALL		30"			REVIEWED BY: David Frazier

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1	XXXX								Asphalt		
5											
10											
15											
20											first sample recovered at 23 feet
		S-1	SS	8	11	100	grey	medium dense	medium SAND	SP	dry
25				10	19						
		S-2	SS	8	9	100	grey	very stiff	SANDY CLAY	CL	dry
30				10	18						
		S-3	SS	4	6	100	grey	stiff	SILTY CLAY, trace Gravel	CL	moist
35				8	9						
									SAND and GRAVEL	GW	very wet
		S-4	SS	5	6	100					
40				6	12				SILTY CLAY, trace Gravel	CL	

COMMENTS Hole advanced at former well MW-13 location due to underground utility interferences.

PROJECT NO. E1-93-110
BORING NO. MWBP-13A

DRILLING SUMMARY

Geologist: David A. McMahon

Drilling Company: Geo-Tek, Inc.

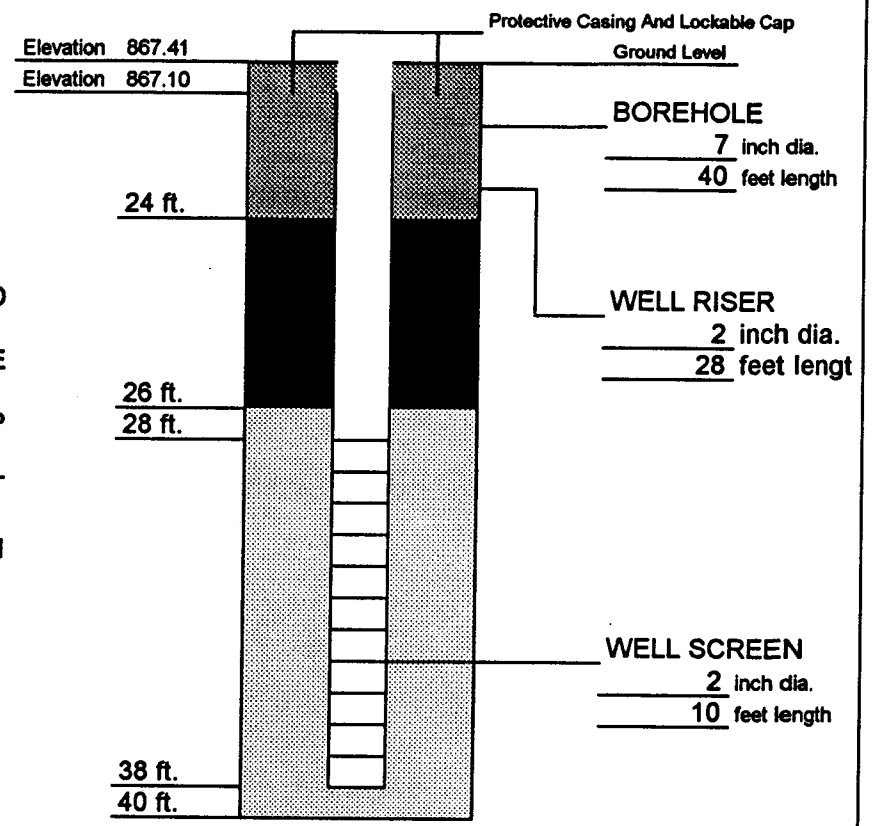
Driller: Pete Buell

Date: 10/31/93

GEOLOGIC LOG

depth(ft.)	lithology
23-26	SILTY CLAY
26-30	medium SAND
30-35	SILTY CLAY
35-37	SAND and GRAVEL
37-40	SILTY CLAY, trace Gravel

DEPTH



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*SEAL MATERIAL*
Surface: Cast Iron	Type: machine slotted PVC	Seal Type #1: Cement (0-1.5')
Monitor: PVC	Slot Size: 0.01 inch	Seal Type #2: Bentonite chips (1.5 - 7')
		Seal Type #3: Cement grout (7 to 24')
		Seal Type #4: Bentonite chips (24-26')

FILTER MATERIAL	*ROCK CORING*	*LEGEND*
Type: Global Filter Pack #5	Cored Interval: None	Cement/Bentonite Grout
Setting: 26-40 ft.	Core Diameter: None	Bentonite Seal
	Reamed Diameter None	Silica Sandpack

Client: GM LAD	Project Body Plant, Area 7	Project No.: E1-93-110
URS Consultants, Inc.	**Monitoring Well Construction Details**	**Well Number:** MWBP-10A

DRILLING SUMMARY

Geologist: David A. McMahon

Drilling Company: Geo-Tek, Inc.

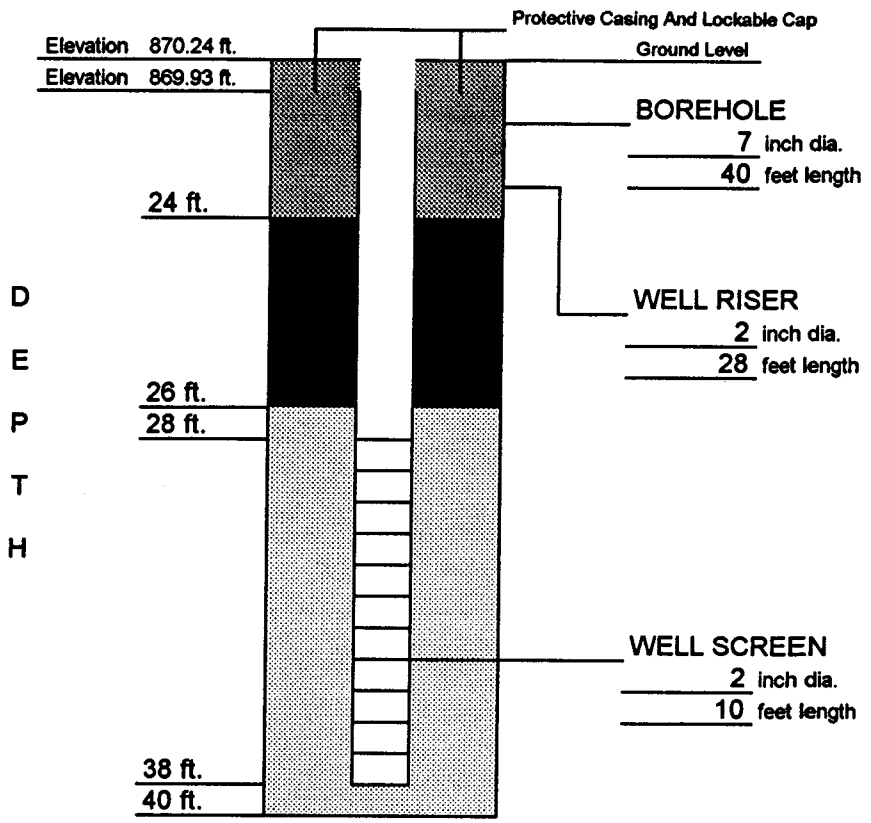
Driller: Pete Buell

Date: 10/30/93

GEOLOGIC LOG

depth(ft.)	lithology
26-27	SILTY CLAY
27-37	SAND and GRAVEL
37-40	SILTY CLAY, trace Gravel

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*SEAL MATERIAL*
Surface: Cast Iron	Type: machine slotted PVC	Seal Type #1: Cement (0-1.5')
Monitor: PVC	Slot Size: 0.01 inch	Seal Type #2: Bentonite chips (1.5 - 7')
		Seal Type #3: Cement grout (7 to 24')
		Seal Type #4: Bentonite chips (24-26')

FILTER MATERIAL	*ROCK CORING*	*LEGEND*
Type: Global Filter Pack #5	Cored Interval: None	Cement/Bentonite Grout
Setting: 26-40 ft.	Core Diameter: None	Bentonite Seal
	Reamed Diameter None	Silica Sandpack

Client: GM LAD	Project Body Plant, Area 7	Project No.: E1-93-110
URS Consultants, Inc.	**Monitoring Well Construction Details**	**Well Number:** MWBP-12A

DRILLING SUMMARY

Geologist: David A. McMahon

Drilling Company: Geo-Tek, Inc.

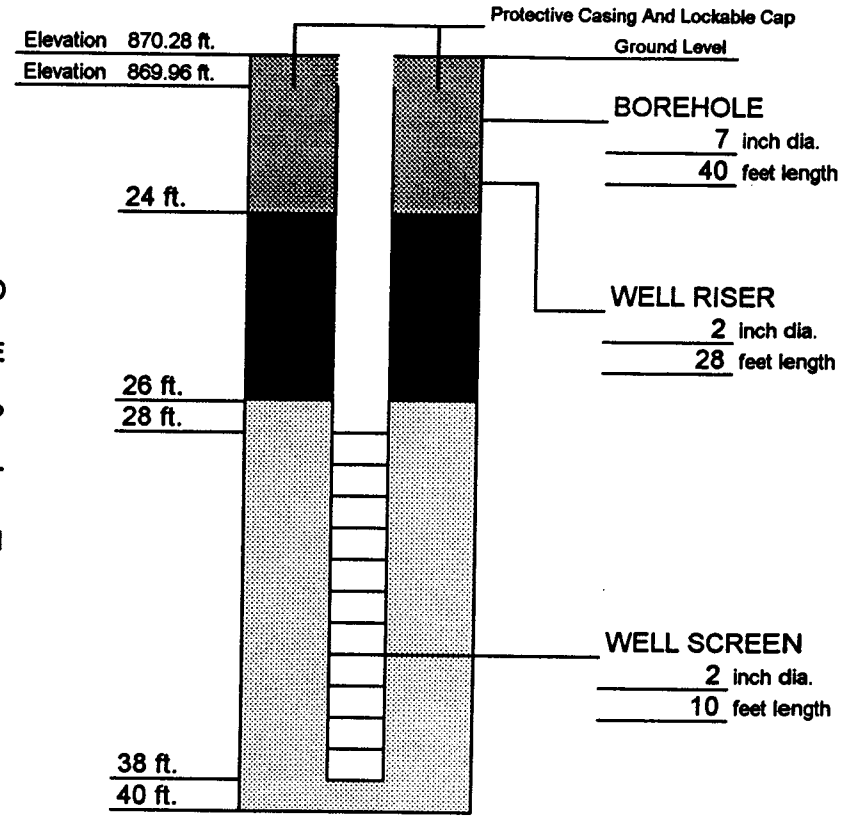
Driller: Pete Buell

Date: 10/31/93

GEOLOGIC LOG

depth(ft.)	lithology
23-25	medium SAND
28-29	SANDY CLAY
29-35	SILTY CLAY, trace Gravel
35-37'	SAND and Gravel
37-40'	SILTY CLAY, trace Gravel

DEPTH



WELL DESIGN

CASING MATERIAL

Surface: Cast Iron

Monitor: PVC

SCREEN MATERIAL

Type: machine slotted PVC

Slot Size: 0.01 inch

SEAL MATERIAL

Seal Type #1: Cement (0-1.5')

Seal Type #2: Bentonite chips (1.5 - 7')

Seal Type #3: Cement grout (7 to 24')

Seal Type #4: Bentonite chips (24-26')

FILTER MATERIAL

Type: Global Filter Pack #5

Setting: 26-40 ft.

ROCK CORING

Cored Interval: None

Core Diameter: None

Reamed Diameter None

LEGEND

Cement/Bentonite Grout

Bentonite Seal

Silica Sandpack

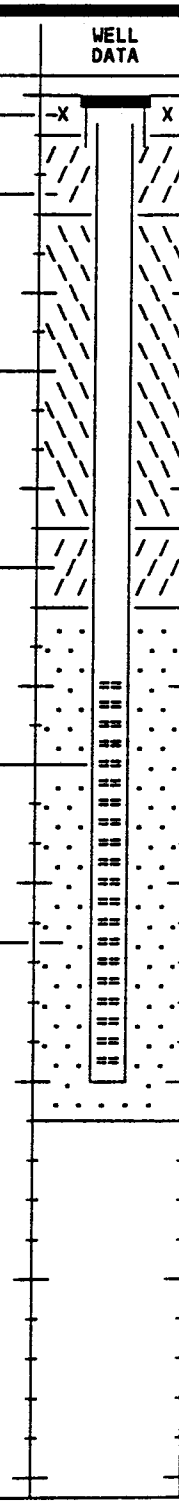
Client: GM LAD	Project Body Plant, Area 7	Project No.: E1-93-110
URS Consultants, Inc.	**Monitoring Well Construction Details**	**Well Number:** MWBP-13A

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-86	PROJECT NAME: GM-BOC - LANSING		BORING/WELL DESIGNATION: MWBP-10	BORING/WELL LOCATION:
DRILLING CONTRACTOR: P.S.I.		DRILLING METHOD: HOLLOW-STEM AUGER	BOREHOLE SIZE: 8.25 IN. / BOREHOLE DEPTH: 26 FT.	Please refer to Figure 5
DATE STARTED: 08-28-91	DATE COMPLETED: 08-28-91	GROUND ELEV.: - - FT. / MEASURING POINT ELEV: - - - FT.	WELL DEPTH: 25 FT.	
RIG: CME-55	DRILLER: M. BOND	HELPER: A. BABB	LOGGED BY: D. BELAN	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER	COMMENTS
0	CONCRETE (6 inches)				(ppm)	WELL COMPLETE BELOW GROUND WITH LOCKABLE PROTECTIVE COVER
						CONCRETE
						BENTONITE PELLETS
5	CLAY - gray-yellow, moderately plastic, soft, damp-moist.	4-6'	SS	1-2-1-2	BG	
	SANDY CLAY - black-brown, moderately plastic, soft.					BENTONITE SLURRY
10	CLAY - medium gray, moderately-highly plastic, soft, wet, mixed with fine sand at 10-11 feet.	9-11'	SS	1 for 1' 3-4	BG	
						BENTONITE CHIPS
15	CLAY - medium gray, slightly-moderately plastic, firm, damp-moist, some fine sand and silt.	14-16'	SS/L	1-2-4-4	2-4	
						2-INCH I.D., 10-FOOT LONG, 10 SLOT PVC WELL SCREEN
20	CLAY - medium gray, slightly-moderately plastic, stiff, damp-moist, several very thin moist silt layers.	19-21'	SS/L	2-4-6-7	2-5	
						SAND FILTER PACK
25	CLAY - gray, slightly plastic, very stiff, damp.	24-26'	SS	8-16-12-10	1-2	
	SAND - gray, very fine to fine grained, very firm, damp.					
	END OF BORING AT 26 FEET.					
30						
35						



NOTES: BG - BACKGROUND
SS - SPLIT SPOON
L - LABORATORY SAMPLE
N/A - NOT APPLICABLE

CR341

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-86	PROJECT NAME: GM-BOC - LANSING		BORING/WELL DESIGNATION: MWBP-11	BORING/WELL LOCATION:
DRILLING CONTRACTOR: P.S.I.	DRILLING METHOD: HOLLOW-STEM AUGER		BOREHOLE SIZE: 8.25 IN. / BOREHOLE DEPTH: 26 FT.	Please refer to Figure 5
DATE STARTED: 08-27-91	DATE COMPLETED: 08-27-91	GROUND ELEV.: - - FT. / MEASURING POINT ELEV: - - - FT.	WELL DEPTH: N/A FT.	
RIG: CME-55	DRILLER: M. BOND	HELPER: A. BABB	LOGGED BY: D. BELAN	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	CONCRETE (8 inches)						NO WELL INSTALLED
5	SAND - medium brown, fine-medium grained, dense, damp, some gravel.	4-6'	SS	8-18-25-36	BG		
10	SAND - brown, fine-coarse, very loose, wet, some gravel.	9-11'	SS/L	2-1-2-3	BG		
	SILTY CLAY - brown, soft, damp, trace fine gravel.						
15	CLAY - gray, non-plastic, very stiff, damp, trace gravel.	14-16'	SS	5-7-10-12	BG		
20	SAND - yellow-brown, very fine-fine grained, very dense, damp.	19-21'	SS	10-22-35-33	BG		
25	SAND - yellow-tan, very fine-fine grained, very dense, damp, banded.	24-26'	SS/L	18-32-35-50	BG		
	END OF BORING AT 26 FEET.						
30							
35							

NOTES: BG - BACKGROUND
SS - SPLIT SPOON
L - LABORATORY SAMPLE
N/A - NOT APPLICABLE

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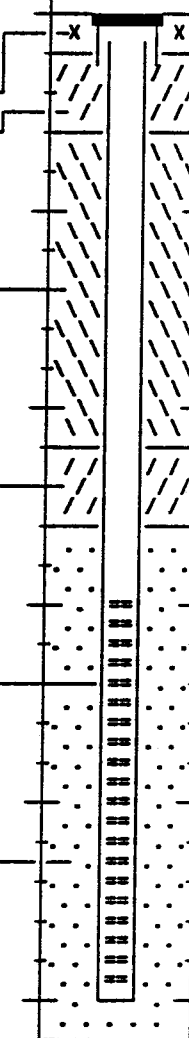
BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-86	PROJECT NAME: GM-BOC - LANSING		BORING/WELL DESIGNATION: MWBP-12	BORING/WELL LOCATION:
DRILLING CONTRACTOR: P.S.I.		DRILLING METHOD: HOLLOW-STEM AUGER	BOREHOLE SIZE: 8.25 IN. / BOREHOLE DEPTH: 26 FT.	Please refer to Figure 5
DATE STARTED: 08-27-91	DATE COMPLETED: 08-27-91	GROUND ELEV.: - - FT. / MEASURING POINT ELEV: - - - FT.	WELL DEPTH: 25 FT.	
RIG: CME-55	DRILLER: M. BOND	HELPER: A. BABB	LOGGED BY: D. BELAN	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER	COMMENTS
0	CONCRETE (8 inches)				(ppm)	WELL COMPLETE BELOW GROUND WITH LOCKABLE PROTECTIVE COVER
	GRAVEL AND SAND					CONCRETE
						BENTONITE PELLETS
5	CLAY - medium brown & gray, very fine grained, slightly-moderately plastic, firm, damp-moist, abundant gravel.	4-6'	SS	3-4-3-12	BG	
						BENTONITE SLURRY
10	SANDY CLAY - black, very fine grained, soft-firm, damp, silty, strong odor.	9-11'	SS/L	2-3-4-4	8-20	
	2" gray clay @ 11 feet.					BENTONITE CHIPS
15	CLAY - medium gray, slightly-moderately plastic, firm, moist, trace gravel, no odor.	14-16'	SS	2-3-3-5	BG	
						2-INCH I.D., 10-FOOT LONG, 10 SLOT PVC WELL SCREEN
20	CLAY - gray, slightly-moderately plastic, soft-firm, damp-moist, trace gravel, fine thin sand layers.	19-21'	SS/L	2-2-3-4	BG	
						SAND FILTER PACK
25	CLAY - gray, slightly-moderately plastic, stiff-very stiff, damp, trace gravel.	24-26'	SS	5-6-11-12	BG	
	END OF BORING AT 26 FEET.					
30						
35						

WELL DATA



NOTES: BG - BACKGROUND
SS - SPLIT SPOON
L - LABORATORY SAMPLE
N/A - NOT APPLICABLE

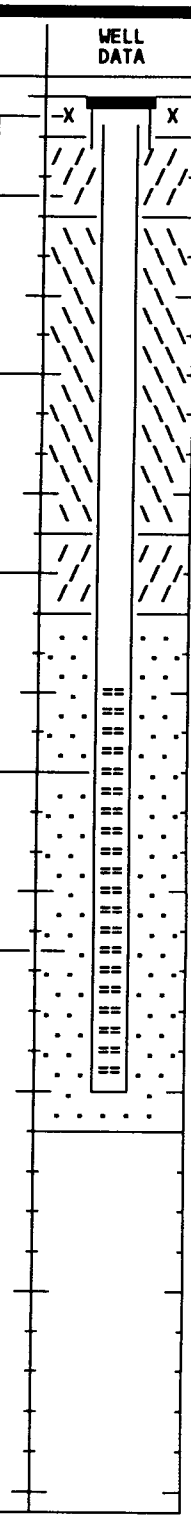
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BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-86	PROJECT NAME: GM-BOC - LANSING		BORING/WELL DESIGNATION: MWBP-13	BORING/WELL LOCATION: Please refer to Figure 5
DRILLING CONTRACTOR: P.S.I.	DRILLING METHOD: HOLLOW-STEM AUGER		BOREHOLE SIZE: 8.25 IN. / BOREHOLE DEPTH: 26 FT.	
DATE STARTED: 08-27-91	DATE COMPLETED: 08-27-91	GROUND ELEV.: - - FT. / MEASURING POINT ELEV: - - - FT.	WELL DEPTH: 25 FT.	
RIG: CME-55	DRILLER: M. BOND	HELPER: A. BABB	LOGGED BY: D. BELAN	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS
0	CONCRETE (8 inches)					WELL COMPLETE BELOW GROUND WITH LOCKABLE PROTECTIVE COVER
	SAND					CONCRETE
						BENTONITE PELLETS
5	CLAY - medium brown & gray, moderately plastic, stiff, damp, trace sand and fine gravel.	4-6'	SS	5-6-4-5	BG	
						BENTONITE SLURRY
10	CLAY - medium brown, slightly plastic, very stiff, damp, little sand.	9-11'	SS	5-8-10-8	BG	
	2" gray clay @ 11 feet, plastic, moist.					BENTONITE CHIPS
15	CLAY - medium to dark gray, slightly plastic, very stiff, damp, trace silt and very fine sand.	14-16'	SS	9-11-13-15	BG	
						2-INCH I.D., 10-FOOT LONG, 10 SLOT PVC WELL SCREEN
20	CLAY - medium gray, non-plastic, very stiff, damp. 3-4" silt zone @ 20 feet, wet.	19-21'	SS/L	5-10-15-14	BG	
						SAND FILTER PACK
25	SAND & SILT - medium to light brown, very fine grained, hard, damp.	24-26'	SS/L	8-16-24-32	BG	
	END OF BORING AT 26 FEET.					
30						
35						



NOTES: BG - BACKGROUND
SS - SPLIT SPOON
L - LABORATORY SAMPLE
N/A - NOT APPLICABLE

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MWBP-10

PROJECT:	GM-Lansing, Plant #6, Area 8
CLIENT:	GM-LAD
BORING CONTRACTOR:	Geo-Tek Inc.
SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION	868.23
DATE STARTED:	10/19/93
DATE FINISHED:	11/16/93
DRILLER:	Peter Buell
GEOLOGIST:	McMahon/Kovacs (EM)
REVIEWED BY:	David Frazier (URS)

GROUND WATER:

DATE	TIME	LEV	TYPE
11/16/93		37'	static

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								Concrete		
		S-1	CME		90	light brown		SAND	Fill	moist Hnu(1-5')=ND
5										
		S-2	CME		100					Hnu(5-10')=ND
						light brown		SILTY CLAY, trace Gravel	CL	moist
10						brown		SANDY CLAY, with abundant Sand stringers	SC	wet Hnu(10-15')=ND
		S-3	CME		90					
15										
		S-4	CME		90					Hnu(15-20")=ND
						grey		SILTY CLAY, trace Gravel	CL	wet
20										
		S-5	CME							Hnu(20-23')=ND
										Hnu(23-28')=ND
25		S-6	CME		90					
						grey		fine SAND	SP	dry
						brown		SILT, some fine Sand	ML	dry
						light brown		medium SAND	SP	dry
30		S-7	CME		100					Hnu(28-33')=ND
						grey		CLAY, some fine SAND	SC	moist
35		S-8	CME		80					Hnu(33-38')=ND
						grey		SILTY SAND	SM	very wet
						grey		fine SAND	SP	wet
						grey		Sandy CLAY	CL	moist
40								End of Boring 39 ft.		
42										

COMMENTS ND=non detect. Boring was drilled to 24 ft. on 10/19/93. Subsequently advanced to 38 ft. on 11/16/93.

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MWBP-11

PROJECT:	GM-Lansing, Plant #6, Area 8
CLIENT:	GM-LAD
BORING CONTRACTOR:	Geo-Tek Inc.
SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION	869.04
DATE STARTED:	10/20/93
DATE FINISHED:	10/20/93
DRILLER:	Peter Buell
GEOLOGIST:	David McMahon (EM)
REVIEWED BY:	David Frazier (URS)

GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								Concrete		
		S-1	CME		75	brown		SAND	Fill	dry Hnu(2-5')=ND
5		S-2	CME		85	brown		SILTY CLAY	CL	dry Hnu(5-10')=ND moist
10		S-3	CME		95	brown/ grey		SILTY SAND	SM	Hnu(10-15')=ND very wet
15		S-4	CME		95	grey		CLAY, trace Gravael	CL	wet Hnu(15-20')=ND
20								End of Boring 20 ft.		
25										
30										
35										
40										

COMMENTS ND = non detect

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MWBP-11A

PROJECT:	GM-Lansing, Plant #6, Area 8
CLIENT:	GM-LAD
BORING CONTRACTOR:	Geo-Tek Inc.
SHEET NO.	1 OF 1
JOB NO. :	E1-93-110
GROUND ELEVATION	869.14
DATE STARTED:	11/17/93
DATE FINISHED:	11/17/93
DRILLER:	Peter Buell
GEOLOGIST:	Michael Kovacs (EM)
REVIEWED BY:	David Frazier (URS)

GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME		
DIA.	4-1/4"	3.5"		
WT.				
FALL				

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1										
5										
10										
15										
20										started sampling @ 24 ft.
25		S-1	CME		90	grey		fine SAND	SP	dry
						grey		CLAY, some fine Sand	CL	moist
30		S-2	CME		100					
35		S-3	CME		100	grey		SILTY fine SAND	SM	very wet
						grey		SAND and GRAVEL	GM	moist
						grey		SANDY SILT, trace Clay	ML	wet moist
40								End of Boring 39 ft.		
42										

COMMENTS

PROJECT NO. E1-93-110

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MWBP-12

PROJECT: GM-Lansing, Plant #6, Area 8	SHEET NO. 1 OF 1
CLIENT: GM-LAD	JOB NO. : E1-93-110
BORING CONTRACTOR: Geo-Tek Inc.	GROUND ELEVATION 869.69
GROUND WATER:	DATE STARTED: 10/19/93
DATE / TIME / LEV / TYPE	DATE FINISHED: 11/16/93
	DRILLER: Peter Buell
	GEOLOGIST: McMahon/Kovacs (EM)
	REVIEWED BY: David Frazier (URS)

	TYPE	CAS.	SAMP.	CORE	TUBE
TYPE	HSA	CME			
DIA.	4-1/4"	3.5"			
WT.					
FALL					

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
1								Concrete		
		S-1	CME		65	brown		SAND	Fill	Hnu(1-4')=ND wet
5		S-2	CME		100	green/ grey		CLAY, trace Gravel, with fine Sand lenses	CL	Hnu(5-10')=ND
10		S-3	CME		35	yellow		SANDY SILT, with abundant Clay and Sand stringers	ML	very wet Hnu(10-15')=ND
15		S-4	CME		95	light grey		SILTY CLAY, trace Gravel	CL	dry Hnu(15-20')=ND
20		S-5	CME		90	light grey		fine to medium SAND	SM	Hnu(20-24')=ND dry
		S-6	CME		90			SANDY SILT	ML	
25						light grey		fine to medium SAND	SM	Hnu(23-28')=ND moist
30		S-7	CME		100	grey		SANDY CLAY	CL	Hnu(28-33')=ND moist
35		S-8	CME		60	grey		Silty fine SAND	SM	Hnu(33-38')=ND wet moist
40								END of Boring 38 ft.		
42										

COMMENTS ND=non detect. Boring was drilled to 24 ft. on 10/19/93. Subsequently advanced to 38 ft. on 11/16/93.

PROJECT NO. E1-93-110

DRILLING SUMMARY

Geologist: Mike Kovacs

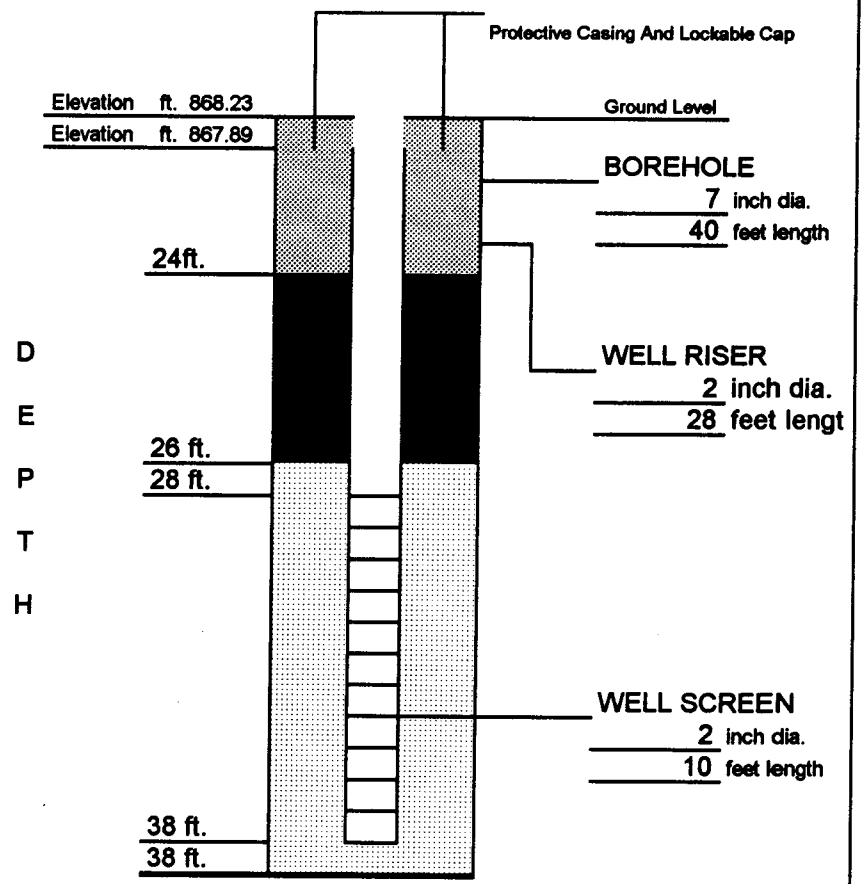
Drilling Company: Geo-Tek

Driller: Pete Buell

Date: 11/16/93

GEOLOGIC LOG

depth(ft.)	lithology
0-2	Reinforced Concrete
25-25 1/2	Fine Sand
25 1/2-30	Fine Sandy silt
30-35	Fine Sandy clay
35-38	Med. Sand and Gravel



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*SEAL MATERIAL*
Surface: Cast Iron	Type: sch. 40 slotted PVC	Seal Type #1: Cement-bentonite grout Setting: 0-24 ft.
Monitor: PVC	Slot Size: 0.010 inches	Seal Type #2: Bentonite pellets Setting: 24-26 ft.

FILTER MATERIAL	*ROCK CORING*	*LEGEND*
Type: medium to coarse sand	Cored Interval: None	Cement/Bentonite Grout
Setting: 26-38 ft.	Core Diameter: None	Bentonite Seal
	Reamed Diameter None	Silica Sandpack

Client: URS/ GM LAD	Project Body Plant, Area 8	Project No.: E1-93-110
Enviromatrix, Inc. Detroit, Michigan	**Monitoring Well Construction Details**	**Well Number:** MWBP-10

DRILLING SUMMARY

Geologist:
David A. McMahon

Drilling Company:
Geo-Tek

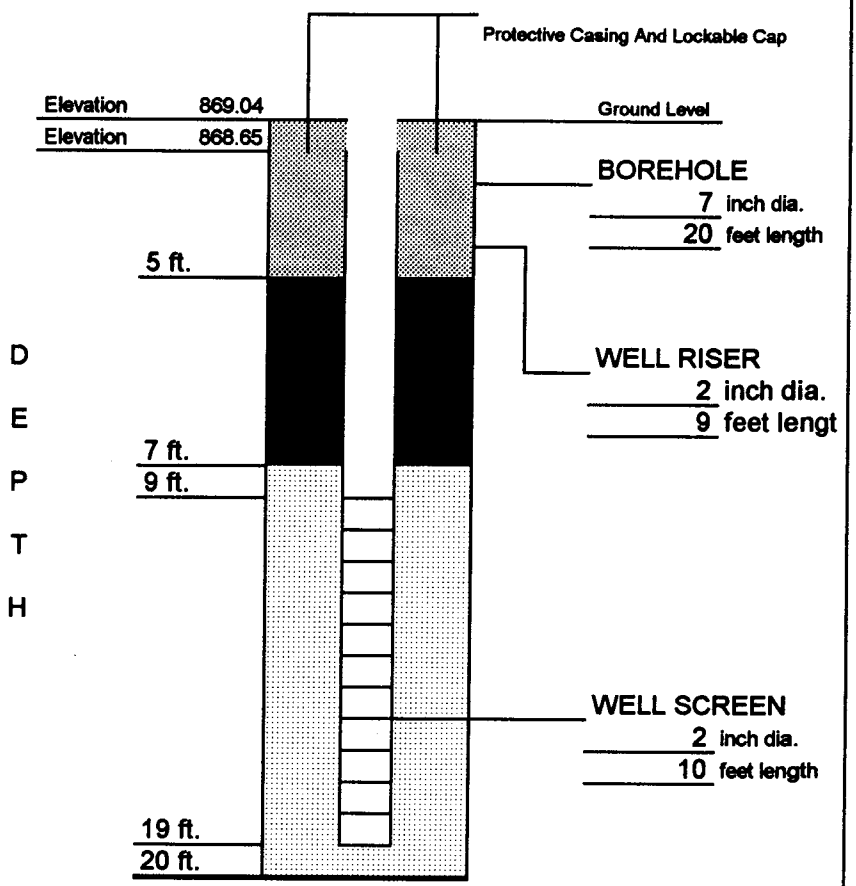
Driller:
Pete Buell

Date:
10/20/93

GEOLOGIC LOG

depth(ft.)	lithology
0-2	Reinforced Concrete
2-3	Fill Sand
3-10 1/2	Silty-Clay
!0 1/2-11	Fine Sand
11-20	Clay Till

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*SEAL MATERIAL*
Surface: Cast Iron	Type: sch. 40 slotted PVC	Seal Type #1: Cement-bentonite grout Setting: 0-5 ft.
Monitor: PVC	Slot Size: 0.010 inches	Seal Type #2: Bentonite pellets Setting: 5-7 ft.

FILTER MATERIAL	*ROCK CORING*	*LEGEND*
Type: medium to coarse sand	Cored Interval: None	Cement/Bentonite Grout
Setting: 7-20 ft.	Core Diameter: None	Bentonite Seal
	Reamed Diameter None	Silica Sandpack

Client: URS/ GM LAD	Project Body Plant, Area 8	Project No.: E1-93-110
Enviromatrix, Inc. Detroit, Michigan	**Monitoring Well Construction Details**	**Well Number:** MWBP-11

DRILLING SUMMARY

Geologist: David A. McMahon

Drilling Company: Geo-Tek

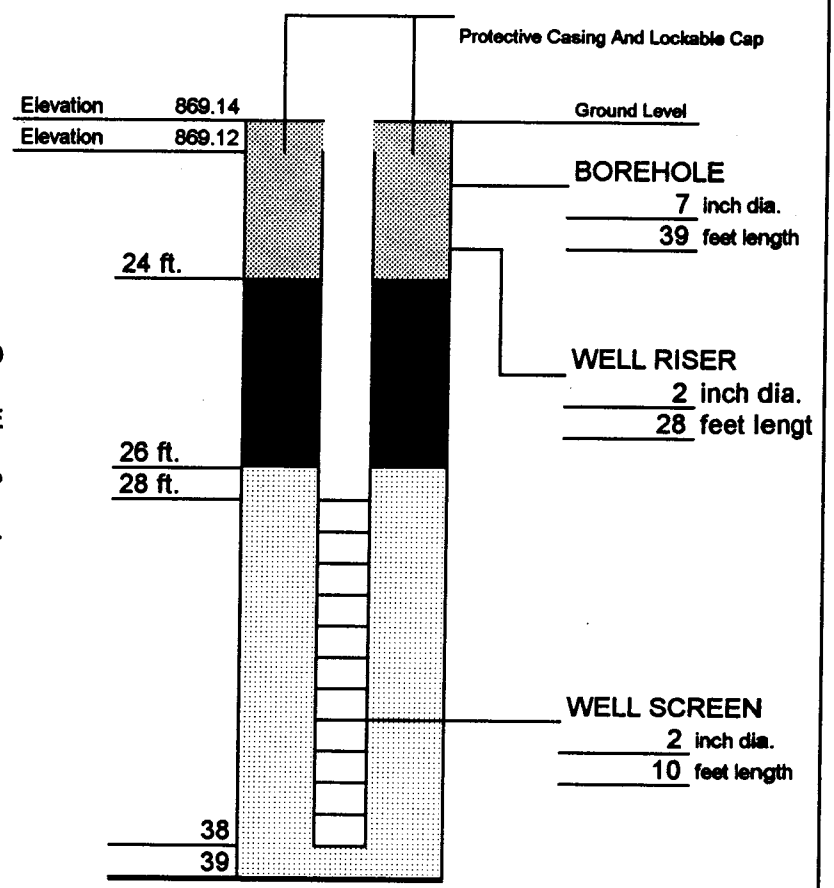
Driller: Pete Buell

Date: 10/31/93

GEOLOGIC LOG

depth(ft.)	lithology
25-28	Grey Silt-Clay
28-30	Sand
30-35	Alternating Silt-Clay-Sand
35-38	Gravel
38-39	Grey Clay Till

DEPTH



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*SEAL MATERIAL*
Surface: Cast Iron	Type: sch. 40 slotted PVC	Seal Type #1: Cement-bentonite grout Setting: 0-24 ft.
Monitor: PVC	Slot Size: 0.01 inches	Seal Type #2: Bentonite pellets Setting: 24-26 ft.

FILTER MATERIAL	*ROCK CORING*	*LEGEND*
Type: medium to coarse sand	Cored Interval: None	Cement/Bentonite Grout
Setting: 8-39 ft.	Core Diameter: None	Bentonite Seal
	Reamed Diameter None	Silica Sandpack

Client: URS/GM LAD	Project Body Plant, Area 8	Project No.: E1-93-110
Enviromatrix, Inc. Detroit, Michigan	**Monitoring Well Construction Details**	**Well Number:** MWBP-11A

DRILLING SUMMARY

Geologist: Mike Kovacs/McMahon

Drilling Company: Geo-Tek

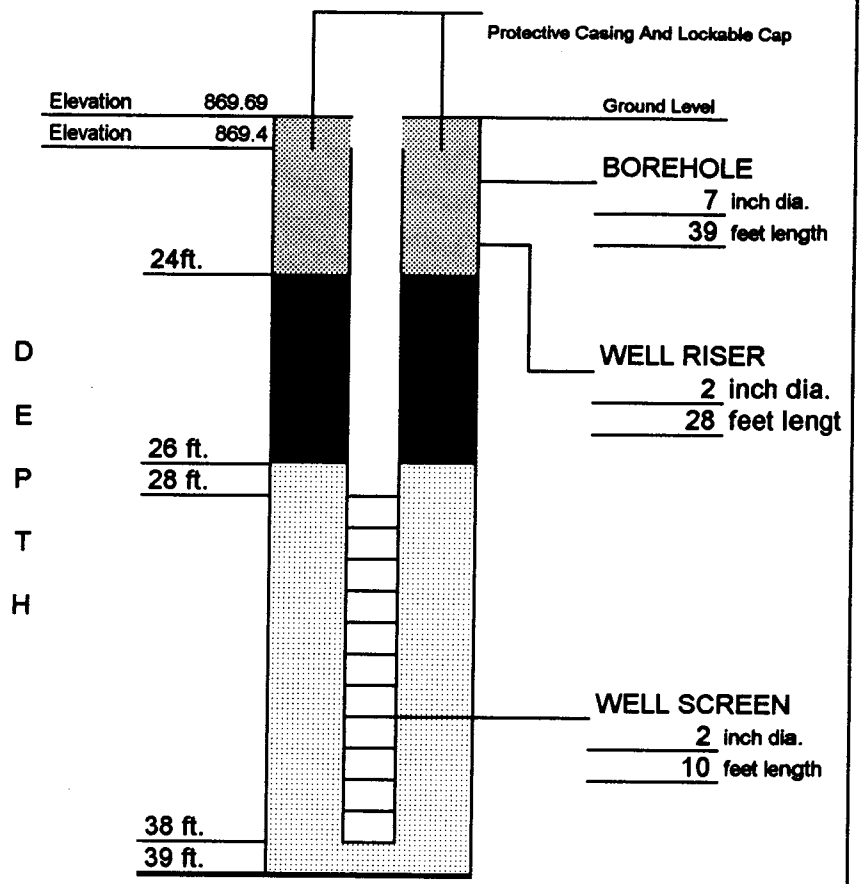
Driller: Pete Buell

Date: 11/16/93

GEOLOGIC LOG

depth(ft.)	lithology
	Reinforced
0-2	Concrete
2-5	Fill Sand
5-9 1/2	Mottled Clay
9 1/2-11 1/2	Sandy-Silt/Sand
	Water Saturate
11 1/2-21	Silty-Clay
21-25	Fine Sand
25-30	Fine Sandy-Silt
30-35	Fine Sandy-Cla
35-39	Med. Sand/Grav

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*SEAL MATERIAL*
Surface: Cast Iron	Type: sch. 40 slotted PVC	Seal Type #1: Cement-bentonite grout Setting: 0-24 ft.
Monitor: PVC	Slot Size: 0.010 inches	Seal Type #2: Bentonite pellets Setting: 24-26 ft.

FILTER MATERIAL	*ROCK CORING*	*LEGEND*
Type: Coarse Silica Sand	Cored Interval: None	Cement/Bentonite Grout
Setting: 26-39 ft.	Core Diameter: None	Bentonite Seal
	Reamed Diameter None	Silica Sandpack

Client: URS/ GM LAD	Project Body Plant, Area 8	Project No.: E1-93-110
Enviromatrix, Inc. Detroit, Michigan	**Monitoring Well Construction Details**	**Well Number:** MWBP-12

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450221.67
Easting: 13065297.35
Casing Elevation: NA

Borehole Depth: 12'
Surface Elevation: 870.92

Descriptions By: Wayne Patterson

Well/Boring ID: SA1-5

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
870	1	0 - 5 DP	5	0.0	ND	7.0-8.0	SP		10YR 5/6 Yellowish brown fine POORLY GRADED SAND (SP), loose, dry to moist, no odor, (fill).	
5										Boring backfilled with bentonite.
865	2	5 - 10 DP	4.5	0.0 0.0	ND	7.0-8.0 7.0-8.0				
10										
860	3	10-12 DP	2	0.0	ND	7.0-8.0	CL		10YR 5/2 Grayish brown LEAN CLAY (CL), few fine to coarse angular to subangular Sand, very stiff (3.5 TSF), low to medium dry strength, medium plasticity, medium toughness, no dilatancy, dry, no odor.	
15										
855										

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Remarks: Soil sample collected at 3-5' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
Duplicate collected

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450227.74
Easting: 13065274.66
Casing Elevation: NA

Borehole Depth: 11'
Surface Elevation: 870.89

Descriptions By: Wayne Patterson

Well/Boring ID: SA1-6

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
870									10YR 5/6 Yellowish brown fine POORLY GRADED SAND (SP), loose, dry to moist, no odor, (fill).	
	1	1-6 DP	2	0.0	ND	7.0-8.0				
5										Boring backfilled with bentonite.
865							SP			
	2	6-11 DP	2	0.0	ND	7.0-8.0				
10									SAA, wet. At 10-10.25' - SAA, 10YR 5/2 grayish brown	
860										
15										
855										

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Remarks: No soil sample collected
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 449773.42
Easting: 13065453.44
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 867.14

Descriptions By: Wayne Patterson

Well/Boring ID: SA3-1

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		CONCRETE	
	865	1	1 - 6 DP	3	0.1	ND	7.0-8.0	SP		10YR 4/3 Brown fine to coarse POORLY GRADED SAND (SP), dense, moist, (fill).	
					0.1		7.0-8.0				
5										10YR 5/2 Grayish brown becoming 10YR 4/3 brown at 7' SANDY LEAN CLAY (CL), little to some fine to coarse Sand, soft, moist, no odor, high plasticity, low to medium toughness, medium dry strength, roots in gray colored Clay (vertical fractures) from 5 - 7.'	Boring backfilled with bentonite.
	860	2	6 - 11 DP	4	0.4	ND	7.0-8.0	CL			
10					0.4		7.0-8.0				
	855	3	11 - 16 DP	4	0.0	ND	7.0-8.0				
15					0.0		7.0-8.0	CL		10YR 4/1 Dark Gray LEAN CLAY (CL), trace fine to coarse subangular Sand, medium stiff (1.5-2.0 TSF), medium to high plasticity, medium dry strength, medium toughness, no dilatancy, moist, no odor.	
	850										

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Remarks: Soil sample collected at 14-16' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 449755.09
Easting: 13065469.14
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 866.76

Descriptions By: Wayne Patterson

Well/Boring ID: SA3-2

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
865	1	1 - 6 DP	3	0.7	ND	7-8	SM		Dark yellowish brown (10YR 4/6), fine to coarse SILTY SAND (SM), trace fine, angular Gravel, moist, no odor, (fill).	
				0.4					Dark gray (10YR 4/1) with little yellowish brown (10YR 5/8) mottling, SANDY LEAN CLAY (CL), little to some fine to coarse, subangular Sand, soft to very soft (< or = 0.5 TSF), low to medium toughness, no dilatancy, medium dry strengthm medium to high plasticity, moist, no odor, (fill).	Boring backfilled with bentonite.
5										
860	2	6 - 11 DP	4	0.5	ND	7-8				
10				0.4			CL		At 10' bgs color is dark gray (10YR 4/1), (native).	
									At 11' bgs - wet.	
855	3	11 - 16 DP	4	0.3	ND	7-8				
15				0.3					At 15' bgs - stiff (3.5 TSF).	
850										

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 449760.23
Easting: 13065638.52
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 866.41

Descriptions By: Wayne Patterson

Well/Boring ID: SA4-1

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE.	
865	1	1 - 6 DP	3	0.3	ND	7-8	SP		Dark yellowish brown (10YR 4/6), fine, POORLY GRADED SAND, trace fine, subangular Gravel, dry to moist, loose, (fill).	
5				0.5						Boring backfilled with bentonite.
860	2	6 - 11 DP	2	0.2	ND	10-11				
10							GP		Dark gray (10YR 4/1) POORLY GRADED GRAVEL, mostly fine, angular Gravel, some fine to coarse, angular Sand, wet, loose, no odor, (Fill).	
855	3	11 - 16 DP	0.1	ND	Pos	ND				
15										
850										

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Project: 64430.203
Data File: SA4-1
Template: I:\rockware\logplot\logfiles\64430\Auger_well2003-LA.ldf
Date: 11/28/05

Date Start/Finish: 11/10/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 449772.91
Easting: 13065735.44
Casing Elevation: NA

Borehole Depth: 14'
Surface Elevation: 870.05

Descriptions By: Wayne Patterson

Well/Boring ID: SA4-3

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870							NA		CONCRETE	
	1	1 - 6 DP	4	5.5	ND	7.0 - 7.5			10YR 4/3 Brown fine POORLY GRADED SAND (SP), loose nonplastic, trace fine angular Gravel, dry, strong hydrocarbon odor (fill).	
5 865				4.3		7.0 - 7.5				Boring backfilled with bentonite.
	2	6-11 DP	4	9.1	Neg	7.0 - 7.5	SP		SAA, Strong odor, little fine subrounded Gravel, fine to coarse angular to subangular Sand.	
10 860				904		7.0 - 7.5				
	3	11-14 DP	2	1700	ND	7.0 - 7.5			SAA, Wet with product, strong hydrocarbon odor, few Silt.	
									Refusal	
15 855										

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for VOCs and metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above

Date Start/Finish: 11/10/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 449794.18
Easting: 130065769.65
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 874.01

Descriptions By: Wayne Patterson

Well/Boring ID: SA4-4

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description
							NA		CONCRETE
	1	1 - 6 DP	4	4.8	ND	7.0			10YR 4/4 Dark yellowish brown fine POORLY GRADED SAND (SP), trace fine subrounded Gravel, loose, dry (fill).
870									
5				3.3		7.0			
	2	6-11 DP	4	3.2	ND	7.0	SP		SAA, 10YR 5/8 Yellowish brown, no Gravel, medium dense, moist, no odor.
865									
10				6.5		7.0			SAA, 3" Black Slag, no odor.
	3	11-16 DP	3	3.7	ND	7.0			
860							CL		10YR 5/2 Grayish brown LEAN CLAY (CL), medium to high plasticity, medium dry strength, no dilatancy, medium toughness, moist, no odor, (fill).
15				6.1		7.0			At 15' - 2" Concrete.
							ML		10YR 2/1 Black SILT (ML), possible organics, moist, medium dense.

Well/Boring Construction

Boring backfilled with bentonite.

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Remarks: Soil sample collected at 14-16' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/10/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 449758.58
Easting: 13065778.90
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.82

Descriptions By: Wayne Patterson

Well/Boring ID: SA4-5

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870									CONCRETE.	
							NA		FILL, Concrete, Slag, Sand.	
	1	1 - 6 DP	4	0.5	ND	7			Dark yellowish brown (10YR 4/6), fine, POORLY GRADED SAND, trace fine, subangular Gravel, loose to medium dense, dry, (fill).	
5 / 865				0.1						Boring backfilled with bentonite.
	2	6-11 DP	5	0.3	ND	8	SP		SAA - Black (10Y 2/1) discolored soil, strong hydrocarbon odor.	
10 / 860				169						
	3	11-16 DP	3	151	ND	11			SAA - Dark gray brown (10YR 4/2), little Silt.	
15 / 855										

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for VOCs and metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above

Date Start/Finish: 11/10/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450028.87
Easting: 13065581.58
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.36

Descriptions By: Wayne Patterson

Well/Boring ID: SA5-1

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 5 DP	3	0.1	Neg	7.0	SP		10YR 4/4 Dark yellowish brown fine POORLY GRADED SAND (SP), trace fine subrounded Gravel, loose, dry to moist, no odor (fill).	
870				0.0		7.0				
5										Boring backfilled with bentonite.
	2	5 - 10 DP	4	0.0	ND	7.0	CL		10YR 4/2 Dark grayish brown LEAN CLAY (CL), trace fine Sand, trace fine subrounded Gravel, medium dense (2.0 TSF), medium plasticity, no dilatancy, low to medium toughness, low dry strength.	
865				0.3		7.0				
10										
860										
15										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Date Start/Finish: 11/10/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450001.17
Easting: 13065634.65
Casing Elevation: NA

Borehole Depth: 4'
Surface Elevation: 874.33

Descriptions By: Wayne Patterson

Well/Boring ID: SA5-4

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 4 DP	3	0.0	ND	7.5	SP		10YR 6/3 Pale Brown fine POORLY GRADED SAND (SP), loose, no odor, dry (fill).	Boring backfilled with bentonite.
870									Refusal, concrete.	
5										
865										
10										
860										
15										

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Remarks: No soil sample collected
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/10/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450105.15
Easting: 13065630.92
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 873.68

Descriptions By: Wayne Patterson

Well/Boring ID: SA5-5

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
									10YR 4/6 Dark yellow brown, fine, POORLY GRADED SAND (SP), dry, strong hydrocarbon odor (fill).	
870	1	0 - 5 DP	3	496	Neg	7.0				
5							SP			Boring backfilled with bentonite.
				310		7.0				
	2	5 - 10 DP	2		ND					
865				631		7.0				
10										
860										
15										
855										

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Remarks: Soil sample collected at 6-8' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Project: 64430.020
Data File: SA5-5
Template: :I\rockware\logplot\logfiles\template\Augerwell2005-LA.ldf
Date: 11/07/05

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450838.74
Easting: 13065801.39
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 869.75

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-1

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
	1	0 - 5 DP	2.5	0.4	ND	7.0	GP		GRAVEL (GP), wet (fill).	
									SAA, At 3 to 3.4' - 10YR 2/1 Black stained Gravel, some Organic Silt (OL), wet.	
							SP		10YR 4/4 dark yellowish brown fine POORLY GRADED SAND (SP), dense (>0.28 TSF), wet, no odor, (fill).	
865 5							GP		PEA GRAVEL (GP), wet (fill).	
				0.4		7.0				Boring backfilled with bentonite.
	2	5 - 10 DP	4	1.7	ND	7.0	CL		10YR 5/4 Yellowish brown LEAN CLAY (CL), few fine to coarse subangular Sand, very stiff to hard (>4.5 TSF), no dilatancy, medium dry strength, medium plasticity, medium toughness.	
									Becoming 10YR 5/4 grayish brown.	
860 10				1.5		7.0				
855 15										

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Remarks: Soil sample collected at 2.5-4.5' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450931.98
Easting: 13065755.16
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 869.80

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-2

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		CONCRETE.	
								GP		GRAVEL.	
		1	0 - 5 DP	2	0.5	ND	8.5				
								SP		10YR 4/4 Dark yellowish brown fine POORLY GRADED SAND (SP), dense (>0.28 TSF), moist, no odor, (fill).	
5	865										
										10YR 4/2 Dark grayish brown GRAVELLY CLAY (CL), some fine subangular to subrounded Gravel, few fine to coarse subangular Sand, soft, low toughness, medium plasticity, low dry strength, no dilatancy, moist (fill).	Boring backfilled with bentonite.
		2	5 - 10 DP	4	1.2	ND	12.5	CL		10YR 5/4 Yellowish brown LEAN CLAY (CL), few fine to coarse subangular Sand, very stiff (>4.5 TSF), no dilatancy, medium dry strength, medium plasticity, medium toughness (fill).	
					0.7		11.5				
10	860										
15	855										

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Remarks: Soil sample collected at 4-6' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450979.35
Easting: 13065728.22
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 869.79

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-3

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		CONCRETE.	
								GP		GRAVEL (GP).	
		1	0 - 5 DP	2	0.9	ND	7.0-7.5				
								SP		10YR 4/3 Brown fine to coarse POORLY GRADED SAND (SP), (fill).	
5	865							CL		10YR 4/2 Dark grayish brown GRAVELLY CLAY (CL), some fine subangular to subrounded Gravel, few fine to coarse subangular Sand, soft, low toughness, medium plasticity, low dry strength, no dilatancy, moist (fill).	Boring backfilled with bentonite.
		2	5 - 10 DP	3	0.8	ND	7.0-7.5				
								OH		10YR 3/1 Very dark gray ORGANIC CLAY (OH), trace roots/vegetation throughout, dry to moist, peaty odor, no dilatancy, medium stiff to stiff (1.25 TSF), medium plasticity, low dry strength, low to medium toughness.	
10	860				1.2		7.0-7.5	CL		10YR 5/4 Yellowish brown LEAN CLAY, few fine to coarse subangular Sand, very stiff (>4.5 TSF), no dilatancy, medium dry strength, medium plasticity, medium toughness.	
15	855										

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Remarks: Soil sample collected at 3-5' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451036.54
Easting: 13065699.32
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 868.24

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-4

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE.	
							GP		GRAVEL (GP).	
							SP		10YR 4/4 fine to medium POORLY GRADED SAND (SP) (fill).	
	1	0 - 5 DP	3		Neg		SM		10YR 2/1 Black fine to coarse SILTY SAND with GRAVEL (SM), strong odor, moist, nonplastic, low toughness, rapid dilatancy, low dry strength (fill).	
865				323		7.0-7.5			10YR 4/1 Dark gray with 10YR 6/1 Gray mottling LEAN CLAY (CL), few fine to coarse subangular Sand, very stiff to hard (>4.5 TSF), medium plasticity, medium dry strength, medium toughness, no dilatancy, moist (fill).	
5										Boring backfilled with bentonite.
							CL			
	2	5 - 10 DP	2	721	Neg	7.0-7.5				
860				803		7.0-7.5			SAA, Some black staining, strong odor, moist.	
10										
855										
15										
850										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for VOCs and metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451057.20
Easting: 13065638.97
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 867.96

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-5

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE.	
865	1	0 - 5 DP	3	1.4	ND	7.0	SP		10YR 5/4 Yellowish brown fine to medium POORLY GRADED SAND (SP), dense (>0.28 TSF), moist, no odor, (fill).	
5				2.4		7.0	GW		10YR 5/4 Yellowish brown fine WELL GRADED GRAVEL with SAND (GW), mostly fine subangular Gravel, little fine to coarse subangular Sand, few Silt, dense, moist, nonplastic, low toughness, rapid dilatancy, low dry strength (fill).	Boring backfilled with bentonite.
860	2	5 - 10 DP	4	0.7	ND	7.0			SAA, Wet.	
10				1.8		7.0	CL		10YR 5/1 Gray and 10YR 5/4 dark yellowish brown mottled LEAN CLAY (CL), few fine to coarse subangular Sand, stiff (2.5 TSF), dry to moist, medium to high dry strength, medium plasticity, medium toughness (fill).	
855										
15										
850										

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Remarks: Soil sample collected at 3-5' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451032.16
Easting: 13065599.53
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 868.17

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-6

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE.	
865	1	0 - 5 DP	3	1.1	ND	7.0	SP		10 YR 5/4 Yellowish brown fine to medium POORLY GRADED SAND (SP), trace Silt, dense (>0.28 TSF), moist to wet, no odor, (fill).	
5				0.3		7.0			10YR 2/1 Black ORGANIC CLAY (OH), trace roots/vegetation throughout, dry to moist, peaty odor, no dilatancy, medium stiff to stiff (1.25 TSF), medium plasticity, low dry strength, low to medium toughness.	Boring backfilled with bentonite.
860	2	5 - 10 DP	4	1.3	ND	7.0	OH			
				1.4		7.0				
10										
855										
15										
850										

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Remarks: Soil sample collected at 4-6' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450913.62
Easting: 13065617.61
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 869.76

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-7

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0							FL		GRAVEL.	
				1.6		6.5-7.0			COAL (fill).	
	1	0 - 5 DP	4		ND				10YR 4/3 Brown and 10YR 6/1 Gray mottled LEAN CLAY (CL), trace fine to coarse subangular Sand, trace fine subangular Gravel, medium stiff (2.5 TSF), no dilatancy, medium toughness, medium plasticity, medium dry strength, dry to moist, no odor (fill).	
				1.0		6.5-7.0				
865 5									SAA, At 4.5 to 6' - Some 10YR 3/1 very dark gray coloration, possible organics.	
				1.8		6.5-7.0	CL			Boring backfilled with bentonite.
				0.9		6.5-7.0				
	2	5 - 10 DP	5		ND				SAA, No mottling.	
				0.9		6.5-7.0				
860 10										
855 15										

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Remarks: Soil sample collected at 4-6' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Project: 64430.203
Data File: SA6-7
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/28/05

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450844.39
Easting: 13065625.78
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 869.90

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-8

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
									Gravel	
				0.8		7.0	NA		FILL - coal, wood, some lean Clay, some 10YR 5/8 Yellowish brown fine Sand.	
	1	0 - 5 DP	4.5		Neg					
				1.5		7.0			10YR 3/1 Very dark gray LEAN CLAY (CL), trace fine to coarse subangular Sand, medium stiff (0.75 TSF), low toughness, low dry strength, low to medium plasticity, moist, no odor, possible natural organics, (fill).	
5 865				1.0		7.0			SAA - 10YR 5/4 Yellowish brown, trace fine subangular Gravel, stiff (2.0 TSF), no dilatancy, medium plasticity, medium dry strength, dry to moist, no odor.	Boring backfilled with bentonite.
	2	5 - 10 DP	5	1.1	ND	7.0	CL			
10 860				1.3		7.0				
15 855										

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Remarks: Soil sample collected at 3-5' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450789.45
Easting: 13065655.56
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 870.37

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-9

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870							NA		Gravel.	
				0.6		7.0			Coal.	
	1	0 - 5 DP	5		ND				10YR 4/4 Dark yellowish brown FAT CLAY (CH), few fine to coarse subangular Sand, medium to high toughness, high dry strength, very stiff (4.0 TSF), moist, no odor (fill).	
				0.2		7.0			SAA, At 1.2' - Vertical fractures with 10YR 6/2 light brownish gray coloring.	
5 865				0.1		7.0	CH			Boring backfilled with bentonite.
	2	5 - 10 DP	5	0.3	ND	7.0			SAA, No gray coloring.	
				0.8		7.0				
10 860										
15 855										

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Remarks: Soil sample collected at 6-8' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Project: 64430.203
Data File: SA6-9
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/28/05

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450738.33
Easting: 13065687.32
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.05

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-10

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870							GP		Gravel (GP).	
				0.2		7.0-7.5			10YR 4/4 Dark yellowish brown FAT CLAY (CH), few fine to coarse subangular Sand, trace fine subangular Gravel, high plasticity, medium to high toughness, high dry strength, very stiff (4.0 TSF), dry to moist, no odor (fill).	
	1	1 - 6 DP	5		ND				SAA, At 1 to 3' - little 10YR 2/2 very dark brown coloring, some angular to subangular Gravel.	
				0.2		7.0-7.5	CH			
5 865				0.1		7.0-7.5				Boring backfilled with bentonite.
				0.2		7.0-7.5				
	2	6 - 11 DP	5	0.3	ND	7.0-7.5			10 YR 4/1 Dark gray LEAN CLAY (CL), few fine to coarse subangular Sand, trace fine subangular Gravel, medium stiff (0.75 TSF), no dilatancy, high plasticity, medium toughness, medium dry strength, moist, no odor.	
10 860				0.2		7.0-7.5				
				0.4		7.0-7.5	CL			
	3	11 - 16 DP	4		ND					
15 855				0.2		7.0-7.5				

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/4/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450720.18
Easting: 13065749.28
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 871.07

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-11

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870	1	0 - 5 DP	4	0.4	ND	7.0-7.5	CL		10YR 5/4 Yellowish brown LEAN CLAY (CL), few fine to coarse subangular Sand, trace fine subangular Gravel, very stiff (3.5 - 4.0 TSF), no dilatancy, medium to high plasticity, medium toughness, medium dry strength, moist, no odor.	
				0.3		7.0-7.5				
5 865	2	5 - 10 DP	5	0.1	ND	7.0-7.5			SAA, Occasional lense of wet Silt.	Boring backfilled with bentonite.
				0.5		7.0-7.5				
10 860										
15 855										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/4/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450756.66
Easting: 13065810.44
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 872.29

Descriptions By: Wayne Patterson

Well/Boring ID: SA6-12

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
870	1	0 - 5 DP	3	0.4	ND	7.5			10YR 4/3 Brown SANDY LEAN CLAY (CL), little fine to coarse angular to subangular Sand, trace fine subrounded Gravel, soft to medium stiff (1.0 TSF), no dilatancy, medium dry strength, medium to high toughness, medium plasticity, dry to moist, no odor (fill).	
5				0.6		7.5	CL			Boring backfilled with bentonite.
865	2	5 - 10 DP	5	0.6	ND	10.5			10YR 4/4 Dark yellowish brown and 10YR 6/1 Gray mottled, very stiff to hard (>4.5 TSF), dry.	
				0.4		12				
10										
860										
15										
855										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/8/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450612.68
Easting: 13066166.33
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 871.25

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-1

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
870									FILL - wood and Sandy Clay.	
	1	1 - 6 DP	4.5	0.0	ND	6-7			10YR 4/1 Dark gray LEAN CLAY (CL), few fine-coarse angular Sand, trace fine angular-subangular Gravel, stiff-very stiff (1.5-3.0 TSF), medium plasticity, medium-high toughness, medium dry strength, no dilatancy, dry-moist, no odor, fill.	
				0.0		6-7				
5				0.5						Boring backfilled with bentonite.
865						6-7				
	2	6-11 DP	4.0	0.0	ND	6-7	CL		SAA, color becomes 10YR 6/4 Light yellowish brown.	
10				0.0		6-7			SAA, 1" lense fine-coarse POORLY GRADED SILTY SAND (SM), wet. SAA, color is 10YR 4/6 Red, hard (>4.5 TSF), no odor.	
860						6-7			SAA, becomes 10YR 4/1 Dark gray in color.	
	3	11-16 DP	4.0	0.0	ND	6-7				
15				0.0						
855										

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/8/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450611.77
Easting: 13066092.87
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 871.31

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-2

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT	
870	1	1 - 6 DP	4	0.0	ND	7.0	CL		10YR 4/4 Dark yellowish brown LEAN CLAY (CL), few fine-coarse subangular Sand, trace fine subangular Gravel, medium-high plasticity, medium dry strength, stiff (2.75 TSF), no dilatancy, medium toughness dry-moist, no odor, fill, lenses of Sandy Clay throughout up to 4" thick.	
				0.0		7.0				
5										Boring backfilled with bentonite.
865	2	6-11 DP	5	0.0	ND	7.0				
				0.0		7.0				
10				0.1		7.0			SAA, color becomes 10YR 4/1 Dark gray, native	
860	3	11-16 DP	4	0.0	ND	7.0			SAA, soft, wet	
				0.0		7.0				
15										
855										

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Remarks: Soil sample collected at 4-6' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/8/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450614.20
Easting: 13066022.14
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 871.10

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-3

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT	
870									Gravel aggregate (GP), railroad bedding, fill, wet.	
	1	1 - 6 DP	3	ND	ND	7.0	GP			
				0.0		7.0				
5									10YR 4/4 Dark yellowish brown LEAN CLAY (CL), few fine-coarse subangular Sand, trace fine subangular Gravel, medium-high plasticity, medium dry strength, stiff (2.75 TSF), dilatancy - some, medium toughness, dry-moist, no odor, fill.	Boring backfilled with bentonite.
865				ND		7.0				
	2	6-11 DP	4	0.0	ND	7.0			SAA, color becomes 10YR 4/1 Dark gray.	
10				0.0		7.0	CL			
860										
	3	11-16 DP	4	0.0	ND	7.0			SAA, wet, soft	
				0.0		7.0				
15										
855										

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Remarks: Soil sample collected at 7-9' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/8/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450616.23
Easting: 13065951.38
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 871.22

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-4

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT	
870	1	1 - 6 DP	3	1.4	ND	6 - 7.0'	CL		10YR 4/2 Dark gray brown SANDY LEAN CLAY with GRAVEL (CL), some fine-coarse Sand, little angular fine Gravel, few Coal, moist, no odor, soft, high plasticity, medium toughness, low-medium dry strength, no dilatancy, (fill).	
				0.1		6 - 7.0'			SAA, Color becomes very dark gray 10YR 3/1	
5										Boring backfilled with bentonite.
865	2	6-11 DP	5	0.3	ND	6 - 7.0'	CL		10YR 4/4 Dark yellow brown LEAN CLAY (CL), few fine-coarse angular-subangular Sand, trace fine angular-subangular Gravel, stiff- very stiff (2.75 TSF), medium-high plasticity, medium toughness, low-medium dry strength, no dilatancy, dry to moist, no odor, (fill).	
				0.0		6 - 7.0'				
10				0.0		6 - 7.0'			SAA, wet, soft	
860	3	11-16 DP	4	0.1	ND	6 - 7.0'			SAA, 10YR 4/1 Dark gray in color,.	
				0.1		6 - 7.0'				
15										
855										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Project: 64430.020
Data File: SA7-4
Template: :I\rockware\logplot\logfiles\template\Augerwell2005-LA.ldf
Date: 11/14/05

Date Start/Finish: 11/7/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450682.72
Easting: 13065906.56
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 874.39

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-5

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT over CONCRETE	
				0.0		7.0-7.5	SP		10YR 4/4 Dark yellowish brown fine POORLY GRADED SAND (SP), 0.26 TSF, moist, no odor, nonplastic, low dry strength, low toughness, rapid dilatancy (fill).	
	1	1 - 6 DP	3		ND					
870				0.0		7.0-7.5			10YR 4/4 Dark yellowish brown LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine subrounded Gravel, very stiff (3.5 TSF), high plasticity, no dilatancy, medium toughness, medium dry strength.	
5										Boring backfilled with bentonite.
	2	6-11 DP	4	0.0	ND	7.0-7.5	CL			
865										
10										
	3	11-16 DP	5	0.0	ND	7.0-7.5				
				0.0		7.0-7.5				
860										
15				0.0		7.0-7.5			Becoming 10YR 4/1 Dark gray in color.	

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Remarks: Soil sample collected at 12 - 14' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Date Start/Finish: 11/7/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450734.39
Easting: 13065912.92
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 874.37

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-6

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT over CONCRETE	
	1	1 - 6 DP	1	0.1	Neg	7.0-7.5	CL		10YR 4/3 Brown LEAN CLAY (CL), few fine to coarse angular Sand, trace fine angular Gravel, little Coal, moist, no odor, slow dilatancy, low toughness, high plasticity, medium dry strength, occasional 10YR 2/1 black staining throughout (fill).	
870 5										
	2	6-11 DP	2	0.1	Neg	7.0-7.5			10YR 5/2 Grayish brown in color.	
865 10										Boring backfilled with bentonite.
	3	11-16 DP	4	0.1	ND	7.0-7.5			10YR 5/3 Brown LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine angular to subangular Gravel, moist, no odor, no dilatancy, medium toughness, medium plasticity, medium dry strength.	
860 15				0.0		7.0-7.5				

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Remarks: Soil sample collected at 14 - 16' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Project: 64430.203
Data File: SA7-6
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/30/05

Date Start/Finish: 11/7/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450759.74
Easting: 13066025.10
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.28

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-7

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870									GRAVEL (GP), railroad bedding (fill).	
	1	1 - 6 DP	4	0.0	ND	7.0-7.5	GP			
				0.2		7.0-7.5			10YR 5/4 Yellowish brown LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine angular Gravel, very stiff (4.25 TSF), dry to moist, no odor, medium to high plasticity, no dilatancy, medium toughness, medium dry strength.	
5 865										Boring backfilled with bentonite.
	2	6-11 DP	3	0.0	ND	7.0-7.5	CL			
				0.1		7.0-7.5				
10 860									SAA, Wet.	
	3	11-16 DP	4	0.0	ND	7.0-7.5			SAA, Soft, becoming 10YR 4/1 Dark gray.	
15 855				0.1		7.0-7.5				

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Project: 64430.203
Data File: SA7-7
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/30/05

Date Start/Finish: 11/7/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450758.06
Easting: 13066076.76
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.15

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-8

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870									GRAVEL (GP), railroad bedding (fill).	
				0.5		ND	GP			
	1	1 - 6 DP	5	0.5	ND	7.0-7.5			10YR 4/4 Dark yellowish brown LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine angular Gravel, moist, no odor, medium plasticity, medium toughness, medium dry strength, no dilatancy, medium stiff (1.0 TSF) (fill).	
5 865				0.1		7.0-7.5				Boring backfilled with bentonite.
				0.0		7.0-7.5				
	2	6-11 DP	5	0.1	ND	7.0-7.5	CL			
10 860				0.2		7.0-7.5			SAA, Wet.	
				0.4		7.0-7.5				
	3	11-16 DP	4.5	0.4	ND	7.0-7.5			SAA, Soft, becoming 10YR 4/1 Dark gray.	
15 855										

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Remarks: Soil sample collected at 10-12' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Date Start/Finish: 11/7/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450742.25
Easting: 13066151.13
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 873.04

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-9

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
									10YR 6/4 Light yellowish brown fine POORLY GRADED SAND (SP), 0.20 TSF, dry, no odor, (fill).	
870	1	1 - 6 DP	4	0.0	ND	7.0-7.5	SP			
				0.1		7.0-7.5				
5									SAA, Wet	Boring backfilled with bentonite.
	2	6-11 DP	5	0.0	ND	7.0-7.5			SAA, At 7-9' - Very dark gray discoloration, no odor, few fibers of unknown origin.	
865				0.1		7.0-7.5			10YR 4/4 Dark yellowish brown and 10YR 6/1 Gray mottled LEAN CLAY (CL), few fine to coarse subangular Sand, trace fine angular to subangular Gravel, medium stiff (1.0 TSF), medium to high plasticity, medium toughness, medium dry strength, no dilatancy, dry to moist, no odor.	
10										
	3	11-16 DP	3	0.1	ND	7.0-7.5	CL			
860				0.0		7.0-7.5				
15									SAA, Becoming 10YR 4/1 Dark gray in color.	
855										

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Remarks: Soil sample collected at 7-9' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Date Start/Finish: 11/7/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: NA

Descriptions By: Wayne Patterson

Well/Boring ID: SA7-10

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT over CONCRETE.	
				0.0		ND			10YR 4/4 Dark yellowish brown AND 10yr 6/1 Gray mottled LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine angular to subangular Gravel, very stiff to hard (4.25 TSF) dry, medium plasticity, no odor, medium dry strength, no dilatancy, medium toughness (fill).	
	1	1 - 6 DP	5	0.0	ND	8.5				
5 -5				0.0		7.5				Boring backfilled with bentonite.
				0.1		9.5				
	2	6-11 DP	5		ND					
				0.0		9.5	CL			
10-10				0.0		10.0				
									SAA, Wet.	
				0.0		10.0				
									SAA, Soft, becoming 10YR 4/1 Dark gray.	
	3	11-16 DP	4.5		ND					
				0.0		10.0				
15-15										

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Remarks: Soil sample collected at 10-12' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450791.69
Easting: 13065909.85
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 873.48

Descriptions By: Wayne Patterson

Well/Boring ID: SA8-1

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		ASPHALT over Concrete	
		1	1 - 6 DP	2.5	0.4	ND	8.0			10YR 4/6 Dark yellowish brown LEAN CLAY (CL), few fine-coarse angular Sand, trace fine angular Gravel, medium stiff (1.0 TSF), moist, no odor, no dilatancy, low-medium dry strength, medium plasticity, low-medium toughness, (fill).	
870											
5											Boring backfilled with bentonite.
					0.4		12.0				
865		2	6-11 DP	5	0.4	ND	12.0	CL			
10					0.2		12.0				
										SAA, 3" lense of very soft, wet Silt.	
										SAA, Color becomes 10YR 4/1 Dark gray, Sand and Gravel, subangular-angular.	
860		3	11-16 DP	5	0.3	ND	12.0				
15					0.3						
855											

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450848.35
Easting: 13065908.86
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 871.86

Descriptions By: Wayne Patterson

Well/Boring ID: SA8-2

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		CONCRETE	
								SP		Fine-coarse POORLY GRADED SAND (SP), fill.	
	870	1	1 - 6 DP	4	0.6	ND	ND	CL		10YR 4/6 Dark yellow brown LEAN CLAY (CL), few fine-coarse angular Sand, trace fine angular-subanglur Gravel, soft, wet, no odor, dilatancy - none, high plasticity, low-medium toughness, medium dry strength, fill.	
5					0.5						Boring backfilled with bentonite.
	865	2	6-11 DP	5	0.6	ND	ND				
10					0.4					SAA, color becomes 10YR 4/1, Dark gray, dry-moist, few Silt, stiff (2.0 TSF)	
	860	3	11-16 DP	3.5	0.4	ND	ND				
15					0.4						
	855										

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Remarks: Soil sample collected at 14-16' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
ND = not done
SAA = same as above

Date Start/Finish: 11/8/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450860.34
Easting: 13065942.97
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 871.77

Descriptions By: Wayne Patterson

Well/Boring ID: SA8-3

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT over Concrete	
870	1	1 - 6 DP	4	4.9	ND	6-7			10YR 4/4 Dark yellowish brown with some 10YR 6/1 gray vertical fractures LEAN CLAY (CL), trace fine-coarse angular-subangular Sand, stiff-very stiff (2.0-3.0 TSF), dry-moist, no odor, medium plasticity, medium-high toughness, no dilatancy, medium dry strength, fill.	
				5.2		6-7				
5				3.5						Boring backfilled with bentonite.
865	2	6-11 DP	4	3.0	ND	6-7	CL		SAA, no gray coloring, becoming soft, moist, trace fine subrounded Gravel.	
10				2.7		6-7				
860	3	11-16 DP	4	4.2	ND	6-7			SAA, 10YR 4/1 Dark gray, soft, moist,-wet, native.	
15				3.4		6-7				
855										

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Remarks: Soil sample collected at 14-16' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/8/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450858.84
Easting: 13066134.76
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 871.66

Descriptions By: Wayne Patterson

Well/Boring ID: SA8-5

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT over Concrete	
870	1	1 - 6 DP	2	3.2	ND	6-7 6-7	CL		10YR 4/4 Dark yellow brown and 10YR 4/1 Dark gray mottled LEAN CLAY with SAND (CL), little fine-coarse angular Sand, trace fine angular-subangluar Gravel, soft-medium stiff (<1.0 TSF), dry-moist, no odor, high plasticity, medium dry strength, no dilatancy, medium toughness, (fill).	Boring backfilled with bentonite.
5										
865	2	6-11 DP	5	8.7 6.6 4.7	ND	6-7 6-7 6-7			SAA, Very dark gray 10YR 3/1 coloration. SAA, 10YR 4/4 Dark yellow brown.	
10										
860	3	11-16 DP	5	5.6 4.8	ND	6-7 6-7			SAA, 10YR 4/1 Dark gray.	
15										
855										

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Remarks: Soil sample collected at 7-9' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/7/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450808.13
Easting: 13066149.41
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.46

Descriptions By: Wayne Patterson

Well/Boring ID: SA8-6

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
	870							NA		ASPHALT over CONCRETE.	
		1	0 - 6 DP	4	0.0	ND	9.5	CL		10YR 4/4 Dark yellowish brown and 10YR 6/1 Gray mottled LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine angular to subangular Gravel, medium stiff - stiff (0.5 - 1.5 TSF), dry, no odor, low to medium dry strength, medium plasticity, no dilatancy, medium toughness (fill).	
					0.0		9.5				
5	865										Boring backfilled with bentonite.
		2	6-11 DP	5	0.1	ND	11.0				
					0.0		8.5-9.0			SAA, Becoming 10YR 4/1 Dark gray.	
10	860				0.1		8.5-9.0				
		3	11-16 DP	5	0.0	ND	8.5-9.0				
					0.0		8.5-9.0			SAA, Soft, moist to wet.	
15	855				0.0		8.5-9.0				

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Remarks: Soil sample collected at 12-14' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Date Start/Finish: 11/8/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450718.40
Easting: 13066194.67
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 871.76

Descriptions By: Wayne Patterson

Well/Boring ID: SA9-2

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870							NA		ASPHALT over Concrete	
	1	0 - 5 DP	4	4.5	ND	6-7			10YR 4/3 Brown and 10YR 6/1 Gray mottled LEAN CLAY WITH SAND (CL), little fine-coarse subangular Sand, trace fine subangular-subrounded Gravel, very stiff becoming stiff (2.25-4.0 TSF), medium-high plasticity, medium dry strength, medium toughness, no dilatancy, no odor, dry becoming moist with depth, fill.	
				4.8		6-7				
5							CL			Boring backfilled with bentonite.
865				4.7		6-7				
	2	5-10 DP	5	4.1	ND	6-7				
10				5.2						
860										
15										
855										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450769.56
Easting: 13065588.38
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.01

Descriptions By: Wayne Patterson

Well/Boring ID: SA10-2

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		Gravel	
	1	1 - 6 DP	3	0.5	ND	7.0	SP		10YR 4/4 Dark yellowish brown fine POORLY GRADED SAND (SP), very dense (>0.28 TSF), dry, no odor, (fill).	
				0.6		9.0				
5 865									SAA - 10YR 3/6 Dark yellowish brown, loose to medium dense (0.23 TSF), wet, no odor.	Boring backfilled with bentonite.
	2	6 - 11 DP	5	1.1	ND	9.0				
				1.1		10.5	SP			
10 860				1.0		7.5				
	3	11 - 16 DP	5	0.7	ND	7.5			SAA - At 12 to 13' - Wet.	
				0.6		7.5				
15 855				0.7		7.5	CL		10YR 4/3 Brown LEAN CLAY (CL), few fine to coarse subangular Sand, trace fine subangular Gravel, medium stiff (1.75 TSF), moist, no odor, no dilatancy, high plasticity, medium dry strength, medium toughness.	

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Remarks: Soil sample collected at 2-4' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/7/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450740.62
Easting: 13065856.05
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 874.06

Descriptions By: Wayne Patterson

Well/Boring ID: SA10-3

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		CONCRETE	
								SP		10YR 4/4 Dark yellowish brown fine POORLY GRADED SAND (SP) (fill).	
		1	1 - 6 DP	4.5	0.2	ND	7.0	CL		10YR 4/2 Dark grayish brown with 10YR 6/1 Gray mottling LEAN CLAY (CL), trace fine to coarse angular to subangular Sand, high plasticity, stiff to very stiff (3.0-3.5 TSF), medium dry strength, no dilatancy, medium toughness, dry to moist, no odor (fill).	
	870				0.1		7.0				
5											Boring backfilled with bentonite.
		2	6-11 DP	5	0.4	ND	7.0			SAA, Trace fine subangular Gravel, stiff (2.0 TSF), moist, no mottling.	
	865				0.4		7.0				
10											
		3	11-16 DP	4	0.5	ND	7.0			SAA, Becoming 10YR 4/1 Dark gray.	
	860										
15					0.0		7.0				

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Remarks: Soil sample collected at 14 - 16' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Date Start/Finish: 11/4/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450742.21
Easting: 13065886.18
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 874.08

Descriptions By: Wayne Patterson

Well/Boring ID: SA10-4

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		ASPHALT	
		1	1 - 6 DP	3	1.6	ND	ND	SP		2.5YR 6/2 Light brownish gray fine POORLY GRADED SAND (SP), dense (>0.28 TSF), moist, nonplastic, rapid dilatancy.	
5	870				1.8			GP		10YR 3/2 Very dark grayish brown PEA GRAFVEL, moist to wet (fill).	Boring backfilled with bentonite.
										Void, wet.	
		2	6-11 DP	0	NR	NR	6-7				
10	865										
		3	11-16 DP	0	NR	NR	ND				
15	860										

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
NR = no recovery

Date Start/Finish: 11/4/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450742.21
Easting: 13065886.18
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 874.08

Descriptions By: Wayne Patterson

Well/Boring ID: SA10-4R

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		ASPHALT	
					ND		7.0			10YR 4/4 Dark yellowish brown SANDY LEAN CLAY (CL), little fine to coarse subangular Sand, medium stiff (O.5 TSF), medium to high dry strength, no dilatancy, medium to high plasticity, medium toughness, little coal beneath asphalt (fill).	
		1	1 - 6 DP	4	0.7	ND	7.0				
	870										
5					0.7		7.0			SAA, 10YR 5/3 Light olive brown, very stiff (>4.5 TSF), little mottling with 10YR 6/1 Gray coloring.	Boring backfilled with bentonite.
					0.4		7.0				
		2	6-11 DP	5		ND		CL			
	865				0.3		7.0				
10											
					0.4		7.0				
					0.2		7.0				
		3	11-16 DP	5		ND					
	860										
15					0.2		7.0				

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Remarks: Soil sample collected at 8 - 10' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square feet

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450886.41
Easting: 13066568.27
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.35

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-1

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 5 DP	3	0.9	Neg	7.5	CL		10YR 5/3 Brown LEAN CLAY (CL), few fine to coarse subangular Sand, trace fine subangular Gravel, very stiff (3.5 TSF), moist, no odor, no dilatancy, medium toughness, high plasticity (fill).	
870									At 3 to 5' - 10YR 2/2 Very dark brown coloring, trace wood debris, possible organics.	
5										Boring backfilled with bentonite.
	2	5 - 10 DP	4	1.0	ND	8.0	SW		10YR 4/4 Dark yellowish brown fine to coarse WELL GRADED SAND (SW), increasing grain size with depth, 0.21 TSF, dry, no odor, (fill).	
865				1.3		8.0	CL		10YR 5/3 Brown LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, trace fine subangular Gravel, very stiff (2.75 TSF), no dilatancy, high plasticity, medium toughness, medium dry strength, moist, no odor.	
10										
860										
15										

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Remarks: Soil sample collected at 3-5' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Project: 64430.203
Data File: SA11-1
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/28/05

Date Start/Finish: 11/1/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: NA

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-1B

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0							NA		CONCRETE	
									Black 10YR 2/1 Clay, fill.	
				3.4		6.5 - 7.0			10YR 4/3 Brown and 10YR 4/2 Dark gray brown mottled LEAN CLAY (CL), few fine-coarse subangular Sand, trace fine subangular Gravel, dry-moist, stiff (2.5 TSF), no dilatancy, medium toughness, medium dry strength, medium plasticity, no odor (fill).	
	1	0 - 5 DP	5		ND					
				3.0		6.5 - 7.0			10YR 4/4 Dark yellow brown with 10YR 6/1 gray colored vertical fractures, LEAN CLAY (CL), few fine-coarse subangular Sand, trace fine subangular Gravel, very stiff-hard, (>4.5 TSF) dry-moist, no odor, no dilatancy, medium toughness, high dry strength, medium plasticity.	
5 -5				3.3		6.5 - 7.0	CL			Boring backfilled with bentonite.
	2	5 - 10 DP	5	1.1	ND	6.5 - 7.0			SAA, no gray vertical coloring.	
				3.7		6.5 - 7.0				
10 -10										
15 -15										

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Remarks: Soil sample collected at 6-8' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/1/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450965.34
Easting: 13066578.54
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.35

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-2

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 5 DP	2	2.3	Neg	6.5 - 7.0	SM		10YR 3/4 Dark yellowish brown SANDY SILT (SM), some fine-medium subangular Sand, trace fine subangular Gravel, rapid dilatancy, nonplastic, low toughness, low dry strength, dry, no odor, little black staining at 4.0' and 4.5', loose, fill.	
870				1.2		6.5 - 7.0				
5										Boring backfilled with bentonite.
	2	5 - 10 DP	4	1.6	Neg	6.5 - 7.0	CL		10YR 4/3 Brown and 10YR 5/6 yellowish brown mottled LEAN CLAY (CL), medium plasticity, no dilatancy, high dry strength, medium toughness, dry-moist, no odor, medium stiff.	
				2.4		6.5 - 7.0				
865							SP		10YR 6/11 Light yellowish brown very fine POORLY GRADED SAND (SP), loose, dry, no odor.	
10							CL		10YR 4/3 Brown LEAN CLAY (CL), few fine-coarse subangular Sand, medium dry strength, no dilatancy, medium plasticity, medium toughness, stiff (3.0 TSF), dry-moist, no odor, native.	
860										
15										

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Remarks: Soil sample collected at 6-8' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 10/31/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451030.73
Easting: 13066578.13
Casing Elevation: NA

Borehole Depth: 7.5
Surface Elevation: 874.27

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-3

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 5 DP	2.5	0.8 0.8	ND	ND	SP		10YR 4/3 Brown fine POORLY GRADED SAND (SP), loose-medium dense, dry, no odor, trace Silt, (fill).	Boring backfilled with bentonite.
870 5	2	5 - 7.2' DP	2	1.3	ND	ND			Refusal	
865 10										
860 15										

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Remarks: Soil sample collected at 5.5-7.5' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done

Date Start/Finish: 10/31/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451111.51
Easting: 13066575.15
Casing Elevation: 874.32

Borehole Depth: 10'
Surface Elevation: NA

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-4

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
				4.1		6.5 - 7.0			10YR 4/6 Dark yellowish brown LEAN CLAY (CL), trace fine-coarse subangular sand, stiff (3.5 TSF), medium dry strength, no dilatancy, medium toughness, dry, no odor, (fill).	
	1	0 - 5 DP	4.5		ND					
				2.1		6.5 - 7.0			10 YR 5/4 Yellowish brown with 10YR 6/1 gray mottling LEAN CLAY (CL), trace fine-coarse subangular Sand, very stiff (>4.5 TSF), dry, no odor, no dilatancy, medium toughness, medium dry strength, medium plasticity.	
870										
5				3.5		6.5 - 7.0	CL			Boring backfilled with bentonite.
	2	5 - 10 DP	5.0	1.7	ND	6.5 - 7.0				
									10YR 4/4 Dark yellowish brown LEAN CLAY (CL), trace medium-coarse subangular Sand, very stiff (3.5 TSF) dry, no odor, high dry strength, high plasticity, no dilatancy.	
865				1.7		6.5 - 7.0				
10										
860										
15										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 10/31/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451187.49
Easting: 13066569.90
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.33

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-5

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
				5.4		6.5 - 7.0			10YR 5/4 Yellowish brown LEAN CLAY (CL), trace fine-coarse angular Sand, moist, no dilatancy, high dry strength, low toughness, high plasticity soft, (1.0 TSF), no odor. (fill).	
	1	0 - 5 DP	4.5		ND					
				2.5		6.5 - 7.0			10 YR 5/4 Yellowish brown with 10YR 6/1 gray bertical fractures LEAN CLAY (CL), trace fine-coarse subrounded Sand, medium toughness, medium dry strength, low plasticity, dry, no odor, hard (>4.5 TSF).	
870										
5				3.5		6.5 - 7.0	CL			Boring backfilled with bentonite.
				2.2		6.5 - 7.0				
	2	5 - 10 DP	5.0		ND				10YR 5/4 Yellowish brown LEAN CLAY (CL), trace fine-coarse subangular Sand, moist, high dry strength, no dilatancy, high toughness, high plasticity, no odor, 1" Sand lense at 8', stiff (2.5TSF). (native)	
865				3.6		6.5 - 7.0				
10										
860										
15										

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Remarks: Soil sample collected at 0.7-2.7' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 10/31/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451264.74
Easting: 13066568.68
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.36

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-6

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
				2.4		6.5 - 7.0	ML		10YR 4/4 Dark yellowish brown SILT (ML), nonplastic, low dry strength, at 2.5', cobble or coarse Gravel.	
	1	0 - 5 DP	5	1.3	ND	6.5 - 7.0			10 YR 4/4 Dark yellowish brown LEAN CLAY (CL), trace fine-coarse angular-subangular Sand, medium plasticity, medium toughness, no dilatancy, medium dry strength, stiff.	
870										
5				2.2		6.5 - 7.0				Boring backfilled with bentonite.
							CL		SAA, 10YR 4/4 Dark yellow brown fine poorly graded Sand (SP), dense, dry, no odor.	
	2	5 - 10 DP	4.5	1.7	ND	6.5 - 7.0			SAA, Trace fine subangular Gravel	
865				1.6		6.5 - 7.0				
10										
860										
15										

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Remarks: Soil sample collected at 2-4' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 10/31/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: NA

Northing: 451337.49
Easting: 13066570.16
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.32

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-7

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 5 DP	4.0	1.5	ND	6.5 - 7.0 6.5 - 7.0	ML		10YR 4/4 Dark yellowish brown SILT (ML), dry, no odor, some fine Sand (3" thick) at surface, stiff (2.5 TSF), nonplastic. (fill).	
870										
5									10 YR 5/6 Yellowish brown with 10YR 6/1 gray mottling LEAN CLAY (CL), few fine-coarse angular Sand, trace fine angular Gravel, very stiff, dry, no odor, medium toughness, medium plasticity, no dilatancy.	Boring backfilled with bentonite.
	2	5 - 10 DP	5.0	1.5	ND	6.5 - 7.0 6.5 - 7.0	CL		10YR 4/4 Dark yellowish brown LEAN CLAY (CL), trace fine-coarse angular-subangular Sand, trace fine subangular-subrounded Gravel, stiff, damp, no odor, interbedded with fine Poorly Graded Sand (SP) lenses up to 3" thick, medium density, dry, no odor, medium toughness, medium plasticity, no dilatancy.	
865										
10										
860										
15										

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Remarks: Soil sample collected at 4-6' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 10/31/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451412.20
Easting: 13066564.37
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.34

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-8

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
						6.5 - 7.0	ML		10YR 4/4 Dark yellowish brown SILT (ML), dry, no odor, some fine Sand at surface, stiff (2.5 TSF) , nonplastic, (fill).	
870 5	1	0 - 5 DP	5	1.0	Neg	6.5 - 7.0	CL		10YR 5/6 Yellowish brown with 10YR 6/1 gray mottling, LEAN CLAY (CL), few fine-coarse angular Sand, trace fine angular Gravel, stiff, dry, no odor, medium toughness, medium plasticity, no dilatancy.	Boring backfilled with bentonite.
	2	5 - 10 DP	4.3	1.0	Neg	6.5 - 7.0			10YR 4/4 Brown LEAN CLAY (CL), few fine-coarse angular Sand, trace fine angular Gravel, stiff, moist, no odor, medium toughness, medium plasticity, no dilatancy.	
865 10										
860 15										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450879.55
Easting: 13066640.36
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.30

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-9

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
				5.3		6.5-7.0			10YR 4/4 Dark yellowish brown LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, trace fine subangular Gravel, very stiff (3.5 TSF), high dry strength, medium to high toughness, high plasticity, dry to moist, no odor, fill.	
	1	0 - 5 DP	4.7		ND					
				4.3		6.5-7.0			SAA, At 0.75 to 1.5' - mottling with 10YR 4/3 brown.	
870									SAA, At 1.5 to 5.0' - No mottling, occassional vertical fractures with 10YR 6/1 Gray coloring.	
5				4.4		6.5-7.0	CL			Boring backfilled with bentonite.
				4.7		6.5-7.0				
	2	5 - 10 DP	5		ND					
865				3.6		9.0				
10										
860										
15										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450960.62
Easting: 13066643.90
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.30

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-10

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
870	1	0 - 5 DP	2	4.3	ND	7.5	CL		10YR 4/4 Dark yellowish brown with 10YR 2/2 very dark brown mottling LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, trace fine subangular Gravel, stiff to very stiff (2.5 TSF), no dilatancy, medium dry strength, medium toughness, medium plasticity, dry to moist, no odor, (fill).	
5										Boring backfilled with bentonite.
	2	5 - 10 DP	4	1.4	ND	8.0				
865				1.3		8.0			SAA - 10YR 4/3 Brown, very stiff to hard (>4.5 TSF), medium to high dry strength.	
10										
860										
15										

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Remarks: Soil sample collected at 3-5' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/1/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451032.36
Easting: 13066648.94
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.31

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-11

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
				0.4		7.0			10YR 4/4 Dark yellow brown and 10YR 4/2 dark gray brown mottled LEAN CLAY (CL), few fine-coarse subangular Sand, trace fine subangular Gravel, dry-moist, stiff (1.75 TSF), no dilatancy, medium toughness, medium dry strength, medium plasticity, no odor, fill.	
	1	0 - 5 DP	5		ND					
				1.3		7.0			10YR 4/4 Dark yellow brown LEAN CLAY (CL), 10YR 6/1 gray colored vertical fractures, few fine-coarse subangular Sand, trace fine subangular Gravel, very stiff (>4.5 TSF), no dilatancy, medium toughness, high dry strength, medium plasticity.	
870										
5				1.0		7.0	CL			Boring backfilled with bentonite.
				2.2		7.0				
	2	5 - 10 DP	5		ND				SAA, no gray colored vertical coloring.	
865				1.8		7.0				
10										
860										
15										

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Remarks: Soil sample collected at 4-6' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: DRAFT
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451111.41
Easting: 13066649.05
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.12

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-12

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0							NA		CONCRETE	
	1	0 - 5 DP	4.7	3.7	ND	7.0	CL		10YR 5/6 Yellowish brown with 10YR 6/1 gray mottling LEAN CLAY (CL), trace fine subangular Sand, dry-moist, medium stiff (0.75 TSF), no dilatancy, high dry strength, medium toughness, high plasticity, no odor (fill).	
870				2.5		7.0				
5				2.4		7.0				Boring backfilled with bentonite.
	2	5 - 10 DP	5	1.4	ND	7.0			10YR 5/4 Yellowish brown LEAN CLAY with SAND (CL), little fine-coarse subangular Gravel, trace fine subangular Gravel, medium stiff (0.75 TSF), no dilatancy, low toughness, medium dry strength, medium plasticity, moist, no odor.	
865				1.5		7.0				
10										
860										
15										

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Remarks: Soil sample collected at 2-4' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Project: 64430.020
Data File: SA11-12
Template: :I\rockware\logplot\logfiles\template\Auger_well2003-LA.ldf
Date: 11/09/05

Date Start/Finish: 11/1/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451263.66
Easting: 13066650.40
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.24

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-14

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 5 DP	3	2.2	ND	6.5 - 7.0	SM		10YR 5/4 Yellowish brown fine POORLY GRADED SAND with SILT (SM), trace Silt, medium dense, dry, no odor, (fill).	
870				0.9		6.5 - 7.0			10YR 4/4 Dark yellowish brown SANDY LEAN CLAY (CL), some fine-coarse subangular Sand, trace fine subangular Gravel, no dilatancy, high toughness, high plasticity, medium dry strength, stiff (2.5 TSF), dry-moist, no odor.	
5										Boring backfilled with bentonite.
	2	5 - 10 DP	4.5	2.0	ND	6.5 - 7.0	CL			
865				2.9		6.5 - 7.0				
10										
860										
15										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/1/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451340.38
Easting: 13066651.77
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.24

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-15

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 5 DP	5	0.5	ND	6.5 - 7.0	CL		10YR 4/4 Dark yellowish brown SANDY LEAN CLAY (CL), few vertical fractions with 10YR 6/1 gray coloring, some fine-coarse subangular Sand, trace fine subangular Gravel, no dilatancy, medium-high toughness, high dry strength, medium-high plasticity, dry-moist, no odor, very stiff-hard (>4.5 TSF).	
				1.2		6.5 - 7.0			10YR 4/4 Dark yellowish brown SANDY LEAN CLAY (CL), no vertical fractures, trace fine angular Gravel, dry, medium dense (3.0 TSF).	
870										
5										
	2	5 - 10 DP	4.5	1.3	ND	6.5 - 7.0			at 6.5' a 3" lense of fine-coarse angular-subangular WELL GRADED SAND (SW), trace fine, angular Gravel, dry, medium dense (3.0TSF).	Boring backfilled with bentonite.
							SW			
				1.5		6.5 - 7.0	CL		10YR 4/4 Dark yellowish brown SANDY LEAN CLAY (CL), no vertical fractures, trace fine angular Gravel, dry, medium dense (3.0 TSF).	
865				1.2		6.5 - 7.0				
10										
860										
15										

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Remarks: Soil sample collected at 0-2' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
Duplicate collected
TSF = tons per square foot

Date Start/Finish: 11/1/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451410.75
Easting: 13066652.48
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.30

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-16

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
				2.3		6.5 - 7.0			10YR 4/4 Dark yellowish brown LEAN CLAY (CL), trace fine subangular Gravel, stiff (1.5 TSF), dry -moist, no odor, no dilatancy, medium-dry strength, medium toughness, medium plasticity.	
	1	0 - 5 DP	4.3		ND					
				2.2		6.5 - 7.0			10YR 5/6 Yellowish brown SANDY LEAN CLAY (CL), some fine-coarse subangular Sand, trace fine subangular Gravel, no dilatancy, medium toughness, medium plasticity, medium dry strength, stiff (3.0 TSF), dry-moist, no odor, increasing amount of Sand at 8.0'.	
870										
5				2.8		6.5 - 7.0	CL			Boring backfilled with bentonite.
	2	5 - 10 DP	5	2.7	ND	6.5 - 7.0				
865				1.2		6.5 - 7.0				
10										
860										
15										

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Remarks: Soil sample collected at 2-4' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/1/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450988.17
Easting: 13066664.96
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.32

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-17

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
						6.5-7.0			Void space.	
	1	0 - 5 DP	2	1.1	ND	6.5-7.0	GP		10YR 4/3 Brown fine subrounded POORLY GRADED GRAVEL (GP) (Pea Gravel), moist, no odor, loose, (fill).	
870										
5				3.2		6.5-7.0				Boring backfilled with bentonite.
	2	5 - 10 DP	5	1.1	ND	6.5-7.0	CL		10YR 4/4 Dark yellowish brown and 10YR 6/1 gray in vertical fractures LEAN CLAY (CL), hard (>4.5 TSF), no dilatancy, high toughness, high dry strength, high plasticity, dry-moist, no odor.	
865				1.1		6.5-7.0			10YR 4/4 Dark yellow brown and 10YR 6/1 no vertical fractures LEAN CLAY (CL), no vertical fractures or gray coloring, trace fine subangular Sand, stiff (2.5 TSF), moist, no odor.	
10										
860										
15										

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Remarks: Soil sample collected at 4-6' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/1/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451025.52
Easting: 13066675.20
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.29

Descriptions By: Wayne Patterson

Well/Boring ID: SA11-18

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0							NA		CONCRETE	
									10YR 2/1 Black SLAG, fill.	
				3.4		6.5-7.0			10YR 4/3 Brown and 10YR 4/2 Dark grayish brown mottled LEAN CLAY (CL), few fine to coarse subangular Sand, trace fine subangular Gravel, dry to moist, stiff (2.5 TSF), no dilatancy, medium toughness, medium dry strength, medium plasticity, no odor, (fill).	
	1	0 - 5 DP	5		ND					
				3.0		6.5-7.0			SAA - At 2.5' bgs 10 YR 4/4 Dark yellowish brown with 10YR 6/1 Gray colored vertical fractures, very stiff to hard (> 4.5 TSF), high dry strength.	
870										
5				3.3		6.5-7.0	CL			Boring backfilled with bentonite.
				1.1		6.5-7.0				
	2	5 - 10 DP	5		ND				SAA - No Gray vertical coloring.	
865				3.7		6.5-7.0				
10										
860										
15										

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Remarks: Soil sample collected at 6-8' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451122.37
Easting: 13065956.72
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 869.92

Descriptions By: Wayne Patterson

Well/Boring ID: SA12-1

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		ASPHALT over CONCRETE.	
					0.5		7.5-8.0	SP		10YR 5/4 Yelllowish brown fine angular to subangular POORLY GRADED SAND (SP), 0.11 TSF, dry, no odor (fill).	
		1	1 - 6 DP	5		Neg	7.5-8.0			10YR 4/3 Brown LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, trace fine subangular Gravel, very stiff to hard (>4.5 TSF), no dilatancy, medium to high dry strength, medium toughness, medium to high plasticity, dry, no odor.	
5	865				0.9						
					0.2		7.5-8.0				Boring backfilled with bentonite.
					0.2		7.5-8.0	CL			
		2	6 - 11 DP	3		ND					
10	860				0.9		7.5-8.0			10YR 3/1 Very dark gray SANDY FAT CLAY (CH), some fine to coarse subangular Sand, moist, no odor, high dry strength, no dilatancy, high toughness, soft.	
					1.4		7.5-8.0	CH			
		3	11 - 16 DP	5	1.3	ND	7.5-8.0				
15	855				1.3		7.5-8.0	CL		10YR 4/3 Brown LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, very stiff (2.25 TSF), no dilatancy, medium to high dry strength, high plasticity, medium toughness, dry to moist, no odor.	

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451152.76
Easting: 13065975.25
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.43

Descriptions By: Wayne Patterson

Well/Boring ID: SA12-2

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870							NA		ASPHALT over CONCRETE.	
							SP		10YR 5/4 Yellowish brown fine angular to subangular POORLY GRADED SAND (SP), dry, no odor, (fill).	
	1	1 - 6 DP	5	1.0	Neg	7.5-8.0				
				0.9		7.5-8.0	CL		10YR 3/1 Very dark gray LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, trace fine subangular Gravel, very stiff to hard (>4.5 TSF), no dilatancy, medium to high dry strength, medium toughness, medium to high plasticity, dry, no odor.	
5 865				0.8		7.5-8.0				Boring backfilled with bentonite.
	2	6 - 11 DP	1	0.6	ND	7.5-8.0				
10 860							CH		10YR 3/1 Very dark gray SANDY FAT CLAY (CH), fine to coarse subangular Sand, wet, no odor, high dry strength, no dilatancy, high toughness, soft.	
	3	11 - 16 DP	5	0.6	ND	7.5-8.0	CL		10YR 4/3 Brown fine to medium subangular POORLY GRADED SILTY SAND interbedded with LEAN CLAY with SAND (SM/CL), Sand is 0.12 TSF, nonplastic, no dry strength, low toughness, wet, no odor, Clay is SAA at 2.8 to 10.5'.	
				0.8		7.5-8.0				
15 855				0.3		7.5-8.0				

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Remarks: Soil sample collected at 10-12' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451123.37
Easting: 13065990.71
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.47

Descriptions By: Wayne Patterson

Well/Boring ID: SA12-3

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870							NA		ASPHALT over CONCRETE.	
	1	1 - 6 DP	3	0.6	ND	8.0	SM		10YR 3/4 Dark yellowish brown fine to medium POORLY GRADED SAND with SILT (SM), little Silt, (0.27 TSF), moist, no odor, (fill).	
				0.7		8.0				
5 865										Boring backfilled with bentonite.
	2	6 - 11 DP	4	0.2	ND	8.0	CL		10YR 3/1 Very dark gray LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, trace fine subangular Gravel, soft (0.25 TSF), no dilatancy, medium dry strength, medium toughness, high plasticity, moist, no odor.	
10 860				3.2		8.0				
	3	11 - 16 DP	5	0.4	ND	8.0			SAA, At 12 to 13' - Wet.	
				0.9		8.0			SAA, becomes brown, medium stiff (0.75 TSF).	
15 855				0.4		8.0				

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Remarks: Soil sample collected at 10-12' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/3/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451099.34
Easting: 13065975.00
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.41

Descriptions By: Wayne Patterson

Well/Boring ID: SA12-4

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870							NA		ASPHALT over CONCRETE.	
	1	1 - 6 DP	5	0.7	ND	7.0-7.5	CL		10YR 4/2 Dark grayish brown LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, trace fine angular to subangular Gravel, stiff (2.25 TSF), no dilatancy, high plasticity, medium to high dry strength, medium toughness, dry, no odor (fill).	
				1.8		7.0-7.5			SAA, At 1 to 3' - little 10YR 2/2 very dark brown coloring, some angular to subangular Gravel.	
5 865				0.8		7.0-7.5			10YR 5/2 Grayish brown LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, trace fine subangular Gravel, very stiff to hard (>4.5 TSF), no dilatancy, medium plasticity, medium toughness, high dry strength, dry to moist, no odor.	Boring backfilled with bentonite.
	2	6 - 11 DP	2	NA	ND	NA				
				NA		NA				
10 860				5.2		7.0-7.5	CL			
	3	11 - 16 DP	5	383	Pos	7.0-7.5				
				10.3		7.0-7.5			SAA, becomes brown, high plasticity, medium to dry strength, moist, no odor.	
15 855				0.7		7.0-7.5				

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Remarks: Soil sample collected at 11-13' below ground surface and analyzed for VOCs, SVOCs, and metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Project: 64430.203
Data File: SA12-4
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/28/05

Date Start/Finish: 11/8/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451317.01
Easting: 13066141.29
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 869.60

Descriptions By: Wayne Patterson

Well/Boring ID: SA13-1

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		CONCRETE	
					5.6		6-7	SP		10YR 4/6 Dark yellowish brown fine-coarse POORLY GRADED SAND (SP), trace fine subangular Gravel, trace Silt, dry, no odor, (fill).	
		1	1 - 6 DP	3		ND					
	865				6.0		6-7				
5											Boring backfilled with bentonite.
							6-7				
		2	6-11 DP	4	1.0	ND	6-7			SAA, 4" Asphalt SAA, Pea Gravel, some Clay, fill.	
	860				0.7		6-7				
10											
							6-7	SP GP		SAND and GRAVEL (SP/GP), very little recovery, very soft, wet.	
		3	11-16 DP	0.1	ND	ND					
	855						6-7				
15											

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Remarks: Soil sample collected at 7-9' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above

Date Start/Finish: 11/8/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451320.56
Easting: 13066154.32
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 869.77

Descriptions By: Wayne Patterson

Well/Boring ID: SA13-2

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
								NA		CONCRETE	
		1	0 - 6 DP	2	0.5	ND	6-7 6-7	SP		10YR 4/6 Dark yellowish brown fine-coarse POORLY GRADED SAND (SP), trace fine subangular Gravel, trace Silt, dry, no odor (fill).	
5	865										
		2	6-11 DP	3	0.7 0.5	ND	6-7 6-7 6-7			SAA, 4" Asphalt SAA, Pea Gravel, some Clay, fill.	Boring backfilled with bentonite.
10	860										
		3	11-16 DP	0		ND	6-7 6-7	SP/GP		SAND and GRAVEL (SP/GP), very little recovery, very soft, wet.	
15	855										

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Remarks: Soil sample collected at 9-11' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451320.56
Easting: 13066154.32
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 869.77

Descriptions By: Wayne Patterson

Well/Boring ID: SA14-1

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
									2.5Y 6/4 Light yellowish brown fine POORLY GRADED SAND (SP), loose, nonplastic, dry, no odor, (fill).	
	1	0 - 5 DP	3.5	5.0	Neg	7.0-8.0				
				5.1		7.0-8.0				
865 5							SP			Boring backfilled with bentonite.
	2	5 - 10 DP	4	5.7	Neg	7.0-8.0				
				5.5		7.0-8.0			SAA, 10YR 5/3 Brown, few Clay, trace fine angular Gravel.	
860 10										
855 15										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/4/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450682.58
Easting: 13065764.98
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 870.90

Descriptions By: Wayne Patterson

Well/Boring ID: SA20-1

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870							NA		CONCRETE.	
							GP		GRAVEL (GP).	
	1	1 - 6 DP	3	0.3	ND	7.0-7.5	CL		10YR 4/4 Dark yellowish brown and 10YR 6/1 Gray mottled LEAN CLAY (CL), trace fine to coarse angular to subangular Sand, trace fine angular to subangular Gravel, soft, moist, no odor, high plasticity, low to medium toughness, medium dry strength, no dilatancy, trace coal in top 1' (fill).	
5									SAA, At 4' - Wet.	Boring backfilled with bentonite.
865				0.9		7.0-7.5				
	2	6-11 DP	5	0.5	ND	7.0-7.5	SM		2.5Y 4/3 Olive brown fine to coarse angular to subangular SILTY SAND (SM), decreasing grain size with depth, dense (>0.28 TSF), wet, no odor.	
10										
860				0.6		7.0-7.5				
	3	11-16 DP	5	0.5	ND	7.0-7.5				
15				0.8		7.0-7.5				
855										

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Remarks: Soil sample collected at 4-6' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Project: 64430.203
Data File: SA20-1
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/29/05

Date Start/Finish: 11/4/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450655.65
Easting: 13065820.29
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 871.74

Descriptions By: Wayne Patterson

Well/Boring ID: SA20-2

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE.	
870	1	1 - 6 DP	5	0.6	ND	9.5			10YR 4/4 Dark Yellowish brown LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine subrounded Gravel, stiff (1.25 TSF), becoming very stiff (4.0 TSF) at 9', medium dry strength, medium to high toughness, med to high plasticity, no dilatancy, dry to moist, no odor, some mottling with 10YR 6/1Gray down to 11' (fill).	
				0.8		9.5				
5										Boring backfilled with bentonite.
865	2	6-11 DP	4	1.7	ND	9.5	CL			
				0.6		9.5				
10										
860	3	11-16 DP	4	0.7	ND	8.5				
				0.5		8.5			SAA, Color becomes 10YR 4/1 Dark gray, moist.	
15										
855										

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Remarks: Soil sample collected at 14-16' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/4/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450709.07
Easting: 13065797.28
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 871.23

Descriptions By: Wayne Patterson

Well/Boring ID: SA20-3

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
									Gravel.	
870	1	1 - 6 DP	2	0.5	ND	6.5-7.0	SM		10YR 4/4 Dark Yelllowish brown fine to coarse angular to subangular SILTY SAND (SM), dense to very dense (>0.28 TSF), moist, no odor, (fill).	
5										Boring backfilled with bentonite.
865	2	6-11 DP	3	0.7	ND	6.5-7.0				
				0.7		6.5-7.0	CL		10YR 4/1 Dark gray LEAN CLAY with SAND (CL), little fine to coarse angular to subangular Sand, soft, moist, no odor, no dilatancy, medium to high plasticity, low to medium toughness, medium dry strength (fill).	
10										
860	3	11-16 DP	4.5	0.4	ND	6.5-7.0				
									SAA, 10YR 4/3 Brown coloring.	
15				0.2		6.5-7.0			SAA, Medium stiff (1.0 TSF).	
855										

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Remarks: Soil sample collected at 7-9' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/4/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450676.25
Easting: 13065859.63
Casing Elevation: NA

Borehole Depth: 16'
Surface Elevation: 873.72

Descriptions By: Wayne Patterson

Well/Boring ID: SA20-4

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT.	
	1	1 - 6 DP	4	0.7 1.0	ND	6.5-7.0 9.5	SW		10YR 4/4 Dark yellowish brown fine to coarse angular to subangular WELL GRADED SAND (SW), trace Silt, dry to moist, no odor, dense to very dense (>0.28 TSF), (fill).	Boring backfilled with bentonite.
870 5	2	6-11 DP	5	1.4 1.4 13.3	Neg	ND 8.5 10.5			SAA, Moist to wet, some Wood, mostly Gravel, little 10YR 2/1 Black staining.	
865 10	3	11-16 DP	4	9.2 1.6	ND	7.5 7.5	CL		10YR 4/4 Dark yellowish brown LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine subrounded Gravel, very stiff (4.0 TSF), medium dry strength, medium to high toughness, medium to high plasticity, no dilatancy, dry to moist, no odor (fill).	
860 15										
855										

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Remarks: Soil sample collected at 10-12' below ground surface and analyzed for VOCs and metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450789.80
Easting: 13066446.03
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.27

Descriptions By: Wayne Patterson

Well/Boring ID: SA22-2

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
				4.5		6.5-7.0	CL		10YR 4/4 Dark yellowish brown LEAN CLAY with SAND (CL), little fine to coarse subangular Sand, trace fine subangular Gravel, stiff (>4.5 TSF), medium to high dry strength, medium toughness, medium to high plasticity, dry, no odor, fill.	
	1	0 - 5 DP	4.5		Neg					
				4.1		6.5-7.0			SAA, At 3 to 4' - 10YR 2/2 Very dark brown coloring.	
870										
5				2.7		6.5-7.0			SAA, At 5.2 to 5.5' - Mostly fine angular Sand.	Boring backfilled with bentonite.
									SAA, At 6 to 6.5' - 5YR 4/3 Reddish brown coloring.	
				4.1		6.5-7.0				
	2	5 - 10 DP	5		ND					
865				3.5		6.5-7.0				
10										
860										
15										

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Remarks: Soil sample collected at 2-4' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/2/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450854.99
Easting: 13066462.71
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.25

Descriptions By: Wayne Patterson

Well/Boring ID: SA22-3

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
				3.4		6.5-7.0			10YR 4/3 Brown SANDY LEAN CLAY (CL), some fine to coarse subangular Sand, trace fine subangular Gravel, very stiff to hard (> 4.5 TSF), dry, no odor, no dilatancy, high dry strenth, medium toughness, medium plasticity, fill.	
	1	0 - 5 DP	4.5		Neg					
				4.2		6.5-7.0	CL		SAA, At 2 - 3' - 10YR 2/2 Very dark brown coloring.	
870										
5				3.2		6.5-7.0				Boring backfilled with bentonite.
									10YR 6/4 Light yellowish brown SILT (ML), 3.5 TSF, dry to moist, no odor, medium to high dry strength, low toughness, low plasticity.	
				5.2		6.5-7.0				
	2	5 - 10 DP	5		ND		ML			
865				4.4		6.5-7.0				
10										
860										
15										

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Remarks: Soil sample collected at 2-4' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/10/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450333.68
Easting: 13066146.50
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.30

Descriptions By: Wayne Patterson

Well/Boring ID: SA26-3

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
870 5	1	0 - 6 DP	3	0.0	ND	6.5-7.0	SP		10YR 4/4 Dark yellowish brown fine POORLY GRADED SAND (SP), loose, moist, no odor, (fill).	Boring backfilled with bentonite.
									Refusal, concrete.	
865 10										
860 15										

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Remarks: Soil sample collected at 3-5' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450474.87
Easting: 13066065.62
Casing Elevation: NA

Borehole Depth: 4'
Surface Elevation: 874.43

Descriptions By: Wayne Patterson

Well/Boring ID: SA28-1

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 4 DP	3	6.5	Neg	13	ML		10YR 3/1 Dark gray SILT (ML), wet, no odor, nonplastic, slow dilatancy, low dry strength, low toughness, (fill). Refusal, concrete over wood.	Boring backfilled with bentonite.
870 5										
865 10										
860 15										

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Remarks: No soil sample collected
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450507.84
Easting: 13066047.70
Casing Elevation: NA

Borehole Depth: 3'
Surface Elevation: 874.34

Descriptions By: Wayne Patterson

Well/Boring ID: SA28-2

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 3 DP	3	3.7	Neg	13	ML		10YR 3/1 Dark gray SILT (ML), wet, no odor, nonplastic, slow dilatancy, low dry strength, low toughness, (fill).	Boring backfilled with bentonite.
									Refusal, concrete over wood.	
870										
5										
865										
10										
860										
15										

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Remarks: No soil sample collected
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450578.47
Easting: 13066072.49
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.41

Descriptions By: Wayne Patterson

Well/Boring ID: SA28-3

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 5 DP	3	5.0	Neg	7.0-8.0			10YR 4/6 Dark yellowish brown fine POORLY GRADED SAND (SP), loose (0.125 TSF), (fill).	
870				5.1		7.0-8.0				
5							SP		10YR 4/3 Brown LEAN CLAY (CL), few fine to coarse subangular to subrounded Sand, trace subangular to subrounded Gravel, very stiff to hard (>4.5 TSF), medium dry strength, medium plasticity, medium toughness, no dilatancy (fill).	Boring backfilled with bentonite.
	2	5 - 10 DP	4	5.7	Neg	7.0-8.0			SAA, 10YR 5/3 Brown, few Clay, trace fine angular Gravel.	
865				5.5		7.0-8.0				
10										
860										
15										

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Remarks: No soil sample collected
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: NA

Descriptions By: Wayne Patterson

Well/Boring ID: SA29-2

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0							NA		CONCRETE	
							SP		10YR 5/3 Brown fine POORLY GRADED SAND (SP), loose to medium dense, dry, no odor, (fill).	
	1	0 - 5 DP	2.5	7.9	ND	7.0-7.5			10YR 5/3 Brown LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine subangular Gravel, very stiff (>4.5 TSF), becoming medium stiff (2.0 TSF), medium to high plasticity, medium dry strength, medium to high toughness, no dilatancy, (fill).	
				8.6		7.0-7.5				
5 -5										Boring backfilled with bentonite.
				8.6		7.0-7.5	CL		SAA, At 6.0-6.5' - 10YR 2/1 Black Slag.	
	2	5 - 10 DP	3		ND					
				8.4		7.0-7.5				
10 10										
15 15										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450349.73
Easting: 13065966.04
Casing Elevation: NA

Borehole Depth: 7'
Surface Elevation: 874.40

Descriptions By: Wayne Patterson

Well/Boring ID: SA29-3

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
									Weathered Concrete, Gravel, weak (fill).	
	1	0 - 5 DP	4	ND	ND	7.0-7.5	SW			
870						7.0-7.5			aT 4 - 4.5' - 10YR 4/3 Brown fine to coarse WELL GRADED SAND (SW), dry, no odor, (fill).	
5										Boring backfilled with bentonite.
	2	5 - 7 DP	1	ND	ND	7.0-7.5				
									Refusal.	
865										
10										
860										
15										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450528.02
Easting: 13066007.04
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 874.40

Descriptions By: Wayne Patterson

Well/Boring ID: SA32-1

DRAFT

Client: General Motors Corporation

Location: Lansing Plant #6

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 5 DP	4	6.9 8.7	ND	8 8	SW		10YR 6/4 Light yellowish brown SAND (SW), trace fine subangular Gravel, loose, dry, no odor, (fill).	
870 5	2	5 - 10 DP	5	8.3 8.6 8.4	ND	11 11 12	CL		10YR 5/4 Yellowish brown LEAN CLAY (CL), few fine to coarse angular to subangular Sand, trace fine subangular Gravel, very stiff to hard (>4.5 TSF), dry, no odor, medium dry strength, medium plasticity, medium toughness, no dilatancy, (fill).	Boring backfilled with bentonite.
865 10										
860 15										

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Remarks: Soil sample collected at 8-10' below ground surface and analyzed for metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/9/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450569.55
Easting: 13066007.81
Casing Elevation: NA

Borehole Depth: 4'
Surface Elevation: 874.38

Descriptions By: Wayne Patterson

Well/Boring ID: SA32-2

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		CONCRETE	
	1	0 - 4 DP	3	5.0	Neg	8.0	SW		10YR 4/6 Dark yellowish brown fine to coarse WELL GRADED SAND (SW), loose, dry, no odor, some 10YR 3/1 very dark gray coloration 8" to 2', (fill).	Boring backfilled with bentonite.
870									Refusal, asphalt over concrete.	
5										
865										
10										
860										
15										

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Remarks: No soil sample collected
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451602.75
Easting: 13065731.44
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 862.93

Descriptions By: Wayne Patterson

Well/Boring ID: SA34-1

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
860							NA		ASPHALT	
	1	0 - 5 DP	3	0.4	ND	7.0 - 8.0			10YR 4/4 Dark yellowish brown and 10YR 5/8 yellowish brown mottled LEAN CLAY (CL), medium plasticity, low to medium dry strength, low to medium toughness, no dilatancy, stiff to very stiff (2.0-2.5 TSF), dry to moist, no odor (fill).	
				0.5		7.0 - 8.0			SAA, trace fine angular to subangular Gravel.	
5							CL		SAA, trace to few fine to coarse subangular Sand, no mottling.	Boring backfilled with bentonite.
	2	5 - 10 DP	4	0.3	ND	7.0 - 8.0				
855				0.0		7.0 - 8.0				
10										
850										
15										
845										

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Remarks: Soil sample collected at 3-5' below ground surface and analyzed for metals.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451750.23
Easting: 13065679.80
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 860.64

Descriptions By: Wayne Patterson

Well/Boring ID: SA34-2

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
860							NA		ASPHALT	
				0.4		7.0-8.0	ML		10YR 2/1 Black SILT (ML), few fine angular Gravel and fine to coarse angular Sand, loose, moist, no odor, nonplastic, low dry strength, slow dilatanacy	
	1	0 - 5 DP	3.5		ND				10YR 4/1 Dark gray becoming 10YR 5/6 Yellowish brown at 4' fine to coarse predominantly fine WELL GRADED SAND (SW), medium dense, moist, no odor.	
				0.5		7.0-8.0				
5							SW			Boring backfilled with bentonite.
855										
				0.3		7.0-8.0				
	2	5 - 10 DP	4		ND					
				0.0		7.0-8.0	ML		10YR 5/6 Yellowish brown SILT (ML), medium dense, wet, no odor, nonplastic, low dry strength, low toughness, slow dilatancy.	
10										
850										
15										
845										

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Remarks: No soil sample collected.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451591.22
Easting: 13065982.75
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 860.04

Descriptions By: Wayne Patterson

Well/Boring ID: SA34-3

Client: General Motors Corporation

Location: Lansing Plant #6

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 860							NA		ASPHALT	
	1	0 - 5 DP	4	0.8	ND	7.0-8.0	CL		10YR 4/1 Dark gray and 10YR 5/8 Yellowish brown mottled LEAN CLAY (CL), trace fine to medium subangular Sand, very stiff to hard (>4.5 TSF), no dilatancy, medium to high toughness, medium plasticity, medium dry strength, dry, no odor (fill).	
				0.5		7.0-8.0			SAA, 10YR 5/8 Yellowish brown LEAN CLAY as above.	
5 855										Boring backfilled with bentonite.
	2	5 - 10 DP	4	0.1	ND	7.0-8.0			SAA, Some mottling with 10YR 4/4 dark yellowish brown.	
				0.0		7.0-8.0				
10 850										
15 845										

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Remarks: No soil sample collected.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451699.87
Easting: 13066026.14
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 859.21

Descriptions By: Wayne Patterson

Well/Boring ID: SA34-4

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT	
	1	0 - 5 DP	3	0.9	ND	7.0-8.0	CL		10YR 4/1 Dark gray and 10YR 5/8 Yellowish brown mottled LEAN CLAY (CL), stiff (3.0 TSF), no dilatancy, medium toughness, low to medium plasticity, medium dry strength, dry to moist, no odor (fill).	
				1.2		7.0-8.0				
855										
5										Boring backfilled with bentonite.
	2	5 - 10 DP	4	0.9	ND	7.0-8.0	SP		10YR 7/2 Light gray fine to medium POORLY GRADED SAND (SP), moist, medium dense.	
				0.1		7.0-8.0			SAA, 2" lense of light gray Clay as at 6 - 7' Fine to coarse Sand	
850										
10										
845										
15										

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Remarks: No soil sample collected.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
TSF = tons per square foot

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451432.89
Easting: 13065643.92
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 865.72

Descriptions By: Wayne Patterson

Well/Boring ID: SA34-5

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT	
	1	0 - 5 DP	4	0.0	ND	7.0-8.0	CL		10YR 4/6 Dark yellowish brown and 10YR 4/1 Dark gray mottled LEAN CLAY (CL), fine to coarse subangular Sand, trace fine subangular Gravel, moist, no odor, medium stiff (1.75 TSF), medium plasticity, low to medium dry strength, medium toughness, no dilatancy, (fill).	
855				0.0		7.0-8.0			10YR 4/6 Dark yellowish brown LEAN CLAY (CL), few fine to coarse subangular Sand, very stiff (3.5 TSF), medium dry strength, medium plasticity, no dilatancy, medium to high toughness.	Boring backfilled with bentonite.
5										
	2	5 - 10 DP	4	0.0	ND	7.0-8.0	CL			
850				0.1		7.0-8.0				
10										
845										
15										

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Remarks: No soil sample collected
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Date Start/Finish: 11/11/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 451357.27
Easting: 13065842.38
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 863.86

Descriptions By: Wayne Patterson

Well/Boring ID: SA34-6

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT	
	1	0 - 5 DP	2	1.3	ND	12-13	ML		10YR 3/1 Very dark gray SILT (ML), few Clay, few fine to coarse angular Sand, trace fine angular Gravel, nonplastic, dry, no odor, low dry strength, low toughness, (fill).	
855										
5									Gley 1 8/ White SILT (ML), very soft, wet, slight odor, nonplastic, low toughness, low dry strength, possible paint sludge?	Boring backfilled with bentonite.
	2	5 - 10 DP	4	67	ND	12-13	ML			
									At 9.0' - SAA, 2" lense of Gravelly Silt (ML), fine angular Gravel.	
850				3.5		12-13	OL/OH		10YR 2/2 Very dark brown PEAT (OL/OH), roots, vegetation, organic odor, (native).	
10										
845										
15										

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Remarks: Soil sample collected 6 - 8' below ground surface and analyzed for VOCs and metals
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above

Project: 64430.203
Data File: SA34-6
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/28/05

Date Start/Finish: 11/14/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 449860.49
Easting: 13065267.70
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 868.99

Descriptions By: Wayne Patterson

Well/Boring ID: SA34-7

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
							NA		ASPHALT	
	1	0 - 5 DP	4	1.3	ND	7.0	GP		10YR 4/3 Dark yellowish brown POORLY GRADED GRAVEL (GP), some fine to coarse angular to subangular Sand, mostly fine to coarse angular to subangular Gravel, trace Concrete, loose, dry, no odor, (fill).	
865				0.2		7.0			10YR 4/4 Dark yellowish brown and 10YR 6/1 Gray mottled LEAN CLAY (CL), trace fine to coarse subangular Sand, trace fine angular to subangular Gravel, medium high plasticity, stiff to very stiff (2.5-3.0 TSF), medium dry strength, medium toughness, no dilatancy, moist, no odor, (fill).	
5										Boring backfilled with bentonite.
	2	5 - 10 DP	5	0.6	ND	7.0	CL		SAA, no mottling with gray color	
860				0.8		7.0				
10				0.7		7.0				
855										
15										

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Remarks: No soil sample collected.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Project: 64430.203
Data File: SA34-7
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/28/05

Date Start/Finish: 11/14/05
Drilling Company: Altech
Driller's Name: Johnny Davis
Drilling Method: Direct Push
Rig Type: 6610 DT
Auger Size: NA
Sampler Size: 5' macrocore

Northing: 450005.72
Easting: 13065125.00
Casing Elevation: NA

Borehole Depth: 10'
Surface Elevation: 870.17

Descriptions By: Wayne Patterson

Well/Boring ID: SA34-8

Client: General Motors Corporation

Location: Lansing Plant #6

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	pH Value	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
870							NA		ASPHALT	
	1	0 - 5 DP	4	1.3	ND	7.0			10YR 4/4 Dark yellowish brown LEAN CLAY (CL), occasional vertical fractures with 10YR 6/1 Gray coloring, trace fine to coarse angular to subangular Sand, trace fine angular to subangular Gravel, very stiff to hard (3.0->4.5 TSF), medium plasticity, low to medium dry strength, no dilatancy, medium toughness, dry to moist, no odor, (fill).	
				0.6		7.0				
5 865							CL			Boring backfilled with bentonite.
									SAA, no mottling	
	2	5 - 10 DP	4	0.6	ND	7.0				
				0.5		7.0			SAA, moist, occasional Silt lenses	
10 860										
15 855										

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Remarks: No soil sample collected.
NA = not applicable
DP = direct push
Neg = negative
Pos = positive
ND = not done
SAA = same as above
TSF = tons per square foot

Project: 64430.203
Data File: SA34-8
Template: I:\rockware\logplot\logfiles\64430\Augerwell2005-LA.ldf
Date: 11/28/05

SOIL AND MATERIALS ENGINEERS, INC

JOB NAME: Gate 4 Gasoline Tank
JOB LOCATION: Lansing, Michigan
CLIENT: GM – SCG

GEO/ENG: KLC REVIEWED BY: KLC
DATE: 1-6-96
JOB NUMBER: LE-24815

BORING SB-3
SHEET: 1

WELL DIAGRAM

DRILLER: T & T Drilling RIG: Earth Probe

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE, NUMBER & INTERVAL	CHEMICAL SAMPLE	PID READING (ppm)
0		0.12 Feet asphalt – concrete to 0.92 feet			
		Fine to medium sand –little gravel – brown – moist (SP/Fill)	MS		NR
5		Clayey sand – sandy clay – little gravel – dark brown (SC-CL)	MS		NR
10		Sandy clay – trace gravel and wood pieces – mottled dark brown and olive brown (CL)	MS		11.6
		Peat – black – some odor (PT)	MS		45.4
15		Silty organic clay (marl) – grayish brown – very soft (OH)	MS		5.2
		Sandy silt – brown –wet (SM)	LB		4.8
20		End of Boring at 19.5 Feet			

MOISTURE CONTENT % – ◆
0 10 20 30 40 50
0 1 2 3 4 5
HAND PENTROMETER TEST (TSF) – ▽
STANDARD PENETRATION (BLOWS/FT) – O
0 10 20 30 40 50

WATER LEVEL OBSERVATIONS
▼ GROUNDWATER ENCOUNTERED DURING DRILLING
▽ GROUNDWATER AFTER DRILLING

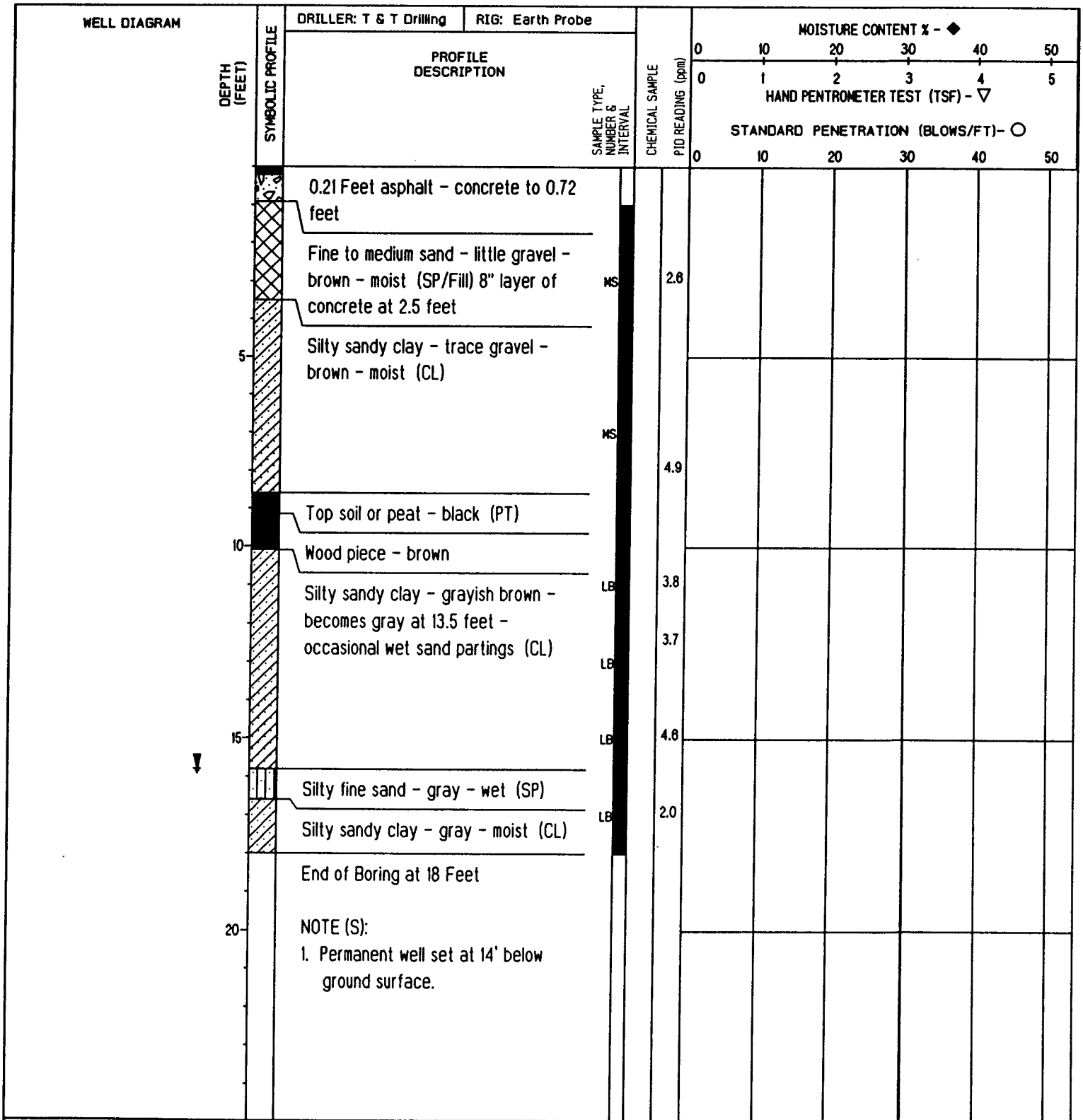
NOTES:
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2. NR = NO RESPONSE FROM PID
3. NA = NOT ANALYZED

SOIL AND MATERIALS ENGINEERS, INC

JOB NAME: Gate 4 Gasoline Tank
JOB LOCATION: Lansing, Michigan
CLIENT: GM – SCG

GEO/ENG: KLC REVIEWED BY: KLC
DATE: 1-14-96
JOB NUMBER: LE-24815

BORING SB-4
SHEET: 1



WATER LEVEL OBSERVATIONS

▼ GROUNDWATER ENCOUNTERED DURING DRILLING
▽ GROUNDWATER AFTER DRILLING

NOTES:
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2. NR = NO RESPONSE FROM PID
3. NA = NOT ANALYZED

SOIL AND MATERIALS ENGINEERS, INC

JOB NAME: Gate 4 Gasoline Tank
JOB LOCATION: Lansing, Michigan
CLIENT: GM – SCG

GEO/ENG: KLC REVIEWED BY: KLC
DATE: 1-14-96
JOB NUMBER: LE-24815

BORING SB-5
SHEET: 1

WELL DIAGRAM

DRILLER: T & T Drilling RIG: Earth Probe

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE, NUMBER & INTERVAL	CHEMICAL SAMPLE	PID READING (ppm)
		0.16 Feet asphalt – concrete to 0.81 feet			
		Fine to medium sand – little gravel – brown – moist (SP/Fill)	MS		3.5
5			MS		3.2
		Rail Road ballast gravel (Fill)			
		Silty fine to medium sand – Brown – wet (SP/Fill)			
10			MS		3.8
		Silty sandy clay – Mottled brown and olive (CL)			
15			MS		3.1
		Silty organic clay (marl) – light gray – moist (OH)			
		Fine to medium Sand – little silt – wet (SP)	LB		NR
20		End of Boring at 19 Feet			

MOISTURE CONTENT % – ◆
0 10 20 30 40 50
HAND PENTROMETER TEST (TSF) – ▽
0 1 2 3 4 5
STANDARD PENETRATION (BLOWS/FT) – ○
0 10 20 30 40 50

WATER LEVEL OBSERVATIONS
▼ GROUNDWATER ENCOUNTERED DURING DRILLING
▽ GROUNDWATER AFTER DRILLING

NOTES:
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2. NR = NO RESPONSE FROM PID
3. NA = NOT ANALYZED

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-86	PROJECT NAME: BODY PLANT WEST TANK FARM		BORING/WELL DESIGNATION: SS-1	BORING/WELL LOCATION:
DRILLING CONTRACTOR: ABB ENVIRONMENTAL SERVICES, INC.	DRILLING METHOD: HAND AUGER		BOREHOLE SIZE: 3 IN.	BOREHOLE DEPTH: 6 FT.
DATE STARTED: 01-11-92	DATE COMPLETED: 01-11-92	GROUND ELEV.: - - FT.	MEASURING POINT ELEV: - - FT.	WELL DEPTH: - - FT.
RIG: - -	DRILLER: J. WAMPUSYC	HELPER: C. KIELTY	LOGGED BY: J. WAMPUSYC	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	CONCRETE					BOREHOLE FILLED TO THE SURFACE WITH CUTTINGS UPON COMPLETION	NO WELL INSTALLED
	SAND - brown, medium-coarse grained, trace-some fine gravel, trace clay, wet at 3 feet						
2.5					BG		
		SS-1 (3'-4')	HA-LAB		BG		
	SANDY CLAY - gray-brown, black organic material, fine grained				BG		
5	SAND - brown, fine-coarse grained, some fine gravel, wet				BG		
7.5							
10							
12.5							
15							
17.5							

NOTES: HA-LAB - HAND AUGER SAMPLE SENT TO LABORATORY FOR ANALYSIS
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-86	PROJECT NAME: BODY PLANT WEST TANK FARM		BORING/WELL DESIGNATION: SS-2	BORING/WELL LOCATION:
DRILLING CONTRACTOR: ABB ENVIRONMENTAL SERVICES, INC.		DRILLING METHOD: HAND AUGER	BOREHOLE SIZE: 3 IN.	BOREHOLE DEPTH: 6 FT.
DATE STARTED: 01-11-92	DATE COMPLETED: 01-11-92	GROUND ELEV.: - - FT.	MEASURING POINT ELEV: - - FT.	WELL DEPTH: - - FT.
RIG: - -	DRILLER: J. WAMPUSYC	HELPER: C. KIELTY	LOGGED BY: J. WAMPUSYC	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	CONCRETE					BOREHOLE FILLED TO THE SURFACE WITH CUTTINGS UPON COMPLETION	NO WELL INSTALLED
	SAND - brown, medium-coarse grained, trace-some fine grained, moist						
	SILTY CLAY - gray, plastic						
2.5	SAND - brown, fine-medium grained, some clay, moist, wet at 3 feet				BG		
	SAND - brown, fine-medium grained, wet	SS-2 (3'-4')	HA-LAB		BG		
	CLAY - gray/brown, plastic, some silt, some fine grained sand and gravel, moist-wet				BG		
5	CLAYEY SAND - brown, medium grained, some fine gravel, moist				BG		
7.5							
10							
12.5							
15							
17.5							

NOTES: HA-LAB - HAND AUGER SAMPLE SENT TO LABORATORY FOR ANALYSIS
BG - BACKGROUND

BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 5698-86	PROJECT NAME: BODY PLANT WEST TANK FARM	BORING/WELL DESIGNATION: SS-3	BORING/WELL LOCATION:
DRILLING CONTRACTOR: ABB ENVIRONMENTAL SERVICES, INC.	DRILLING METHOD: HAND AUGER	BOREHOLE SIZE: 3 IN.	BOREHOLE DEPTH: 6 FT.
DATE STARTED: 01-11-92	DATE COMPLETED: 01-11-92	GROUND ELEV.: - - FT.	MEASURING POINT ELEV: - - FT.
			WELL DEPTH: - - FT.
RIG: - -	DRILLER: J. WAMPUSYC	HELPER: C. KIELTY	LOGGED BY: J. WAMPUSYC

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS	WELL DATA
0	CONCRETE					BOREHOLE FILLED TO THE SURFACE WITH CUTTINGS UPON COMPLETION	NO WELL INSTALLED
	FILL - dark brown, gravel and sand						
	SANDY CLAY - brown, some fine gravel, plastic						
2.5	CLAYEY SAND - brown, fine-medium grained, trace-some fine gravel, moist				BG		
	CLAY - brown/gray, mottled, some fine sand, gravel, and silt, plastic				BG		
		SS-3 (4'-5')	HA-LAB		BG		
5	SANDY CLAY - brown, fine-meduim grained, trace-some fine gravel, moist						
		SS-3 (5'-6')	HA-LAB		BG	DUPLICATE SAMPLE COLLECTED	
	CLAYEY SAND - brown/gray, mottled, fine-medium grained, trace-some fine gravel, moist						
7.5							
10							
12.5							
15							
17.5							

NOTES: HA-LAB - HAND AUGER SAMPLE SENT TO LABORATORY FOR ANALYSIS
BG - BACKGROUND

Log of Well VEW-1

Plant #6 Tanks 1-4
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *8*
Date Started: *1/16/95* **Date Completed:** *1/16/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #6 Tanks 1-4

Log of Well VEW-1

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	PID or FID (ppm) Values	PID or FID (ppm) Profile	Soil/Rock Description and Comments	USCS Classification	Lithologic Log	Well Construction	Elevation (ft.)
0					**Concrete**			flush mount; cement	
2	6 5 6 3 1	30%	0		**Sand** with some gravel, moist, brown, 10YR5/3	SM		4-inch PVC casing	
4	1 2 2 1 1	20%	0						
6	6 5 4 6 3	60%	23		**Clay** olive green color, moist, plastic	CL		hydrated granular bentonite	
8	3 5 6 5 3	30%	35		**Sand** blackish color, medium grained, saturated, some clay	SP		4-inch PVC screen; filter sand	
10	3 3 3 3 3	60%	10		**Clay** trace sand, wet, soft, plastic	CL			
12					End of Boring				
14									
16									
18									
20									

Environmental Science & Engineering, Inc.

Log of Well VEW-2

Plant #6 Tanks 1-4

Lansing, Michigan

Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *13*
Date Started: *3/19/95* **Date Completed:** *3/19/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #6 Tanks 1-4

Log of Well VEW-2

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0			**Concrete**			flush mount; cement		
2	22	60%	**Sand** with some gravel, moist, brown, loose	SM		4-inch PVC casing; hydrated granular bentonite		
4	19	60%						
6	20	50%	**Clay** gray, moist, plastic, trace sand	CL		4-inch PVC screen; filter sand		
8	22	60%						
10								
12			End of Boring					
14								
16								
18								
20								

Environmental Science & Engineering, Inc.

Log of Well VEW-3

Plant #6 Tanks 1-4

Lansing, Michigan

Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *13*
Date Started: *3/19/95* **Date Completed:** *3/19/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Environmental Science & Engineering, Inc.

Plant #6 Tanks 1-4

Log of Well VEW-3

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0			**Concrete**			flush mount; cement		
2	20	60%	**Sand** with some gravel, moist, brown, loose	SM		4-inch PVC casing; hydrated granular bentonite		
4	27	60%						
6	14	30%	**Clay** gray, moist, plastic, trace sand	CL		4-inch PVC screen; filter sand		
8	14	70%						
10			End of Boring					
12								
14								
16								
18								
20								

Environmental Science & Engineering, Inc.

Log of Well VEW-4

Plant #6 Tanks 1-4
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *13*
Date Started: *3/19/95* **Date Completed:** *3/19/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #6 Tanks 1-4

Log of Well VEW-4

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0			**Concrete**			flush mount; cement		
2	20	80%	**Sand** with some gravel, moist, brown, loose	SM		4-inch PVC casing; hydrated granular bentonite		
4	32	100%	**Clay** brown, moist, plastic, trace sand	CL				
6	18	40%	**Sand** brown, trace gravel, wet, trace clay	SM		4-inch PVC screen; filter sand		
8	18	85%						
10								
12			End of Boring					
14								
16								
18								
20								

Environmental Science & Engineering, Inc.

Log of Well VEW-5

Plant #6 Tanks 1-4
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *13*
Date Started: *3/19/95* **Date Completed:** *3/19/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #6 Tanks 1-4

Log of Well VEW-5

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0			**Concrete**			flush mount; cement		
2	46	60%	**Sand** with some gravel, moist, brown to black, loose	SM		4-inch PVC casing		
4	32	100%	**Clay** brown, moist, plastic, some sand and gravel	CL		hydrated granular bentonite		
6			**Sand** brown, trace gravel, wet	SM				
8	17	90%	**Clay** black, moist, plastic, some sand small sand lens at 9.5 feet bgl	CL		filter sand		
10	16	90%				4-inch PVC screen		
12			End of Boring					
14								
16								
18								
20								

Environmental Science & Engineering, Inc.

Log of Well VEW-6

Plant #6 Tanks 1-4
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *13*
Date Started: *3/26/95* **Date Completed:** *3/26/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #6 Tanks 1-4

Log of Well VEW-6

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0			**Concrete**			flush mount; cement	Storm Sewer 5 feet to the south	
2	16	50%	**Sand** with some gravel, moist, brown, loose	SM		4-inch PVC casing; hydrated granular bentonite		
4	19	60%	**Clay** brown, moist, plastic, some sand and gravel	CL				
6	13	30%						
8	9	80%	**Sand** gray, trace gravel, wet	SM		4-inch PVC screen; filter sand		
10	6	100%	**Clay** gray, moist, plastic, some sand	CL				
12			End of Boring					
14								
16								
18								
20								

Log of Well VEW-7

Plant #6 Tanks 1-4
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *13*
Date Started: *3/26/95* **Date Completed:** *3/26/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #6 Tanks 1-4

Log of Well VEW-7

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0			**Concrete**			flush mount; cement		
2	27	60%	**Sand** with some gravel, dry, brown, loose	SM		4-inch PVC casing; hydrated granular bentonite	36" storm sewer pipe 3 feet to the east at 4 feet bgl	
4		40%						
6	13	40%	**Clay** brown, moist, plastic, some sand and gravel	CL				
8			**Sand** black, trace gravel, wet	SM		4-inch PVC screen; filter sand		
10	8	60%	**Clay** gray, wet, soft, plastic, trace sand	CL				
12	6	90%	End of Boring					
14								
16								
18								
20								

Log of Well VEW-8

Plant #6 Tanks 1-4
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *13*
Date Started: *3/26/95* **Date Completed:** *3/26/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #6 Tanks 1-4

Log of Well VEW-8

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0			**Concrete**			flush mount; cement		
2			**Clay** brown, moist, plastic, some sand and gravel					
4	16	80%				4-inch PVC casing; hydrated granular bentonite		
6	13		Soil color is black from 6 to approximately 8 feet bgl Soil color after 8 feet is gray	CL				
8	6	70%						
10	9	80%				4-inch PVC screen; filter sand		
12			End of Boring					
14								
16								
18								
20								

Log of Well VEW-9

Plant #6 Tanks 1-4
Lansing, Michigan
Project Number: 4694-197

Client: *General Motors Coporation*	
Drilling Company: *ESE*	
Drilling Rig: *Hurricane*	**Drilling Method:** *Hollow Stem Auger*
Soil Sampling Device: *Split Spoon*	**Borehole Diameter (in.):** *13*
Date Started: *3/26/95* **Date Completed:** *3/26/95*	**Total Depth Drilled (ft.):** *12*
Apparent Depth to Saturation While Drilling (ft. bgl): *8*	**Ground Elevation (ft.):**

Completion Information

Screened Interval (ft. bgl): *7-12*	**Filter Pack Interval (ft. bgl):** *6-12*
Screen Length (ft.): *5*	**Filter Pack Type:** *Filter Sand*
Bottom Cap Length (ft.): *0.25*	**Upper Seal Interval (ft. bgl):** *0-1*
Screen Type: *PVC*	**Upper Seal Type:** *Cement*
Screen Slot Size/Dia. (in.): *0.010/4*	**Lower Seal Interval (ft. bgl):**
Total Casing (ft.): *6.5*	**Lower Seal Type:**
Casing Type/Dia. (in.): *PVC/4*	**Grout Interval (ft. bgl):** *1-6*
Top of Casing Elevation (ft.):	**Grout Type:** *Hydrated Granular Bentonite*
Survey Datum:	**Protective Casing Type:** *Flush Mount*

Explanation & Comments

Plant #6 Tanks 1-4

Log of Well VEW-9

Depth (feet bgl)	Blow Counts	Sample Recovery (%)	Soil/Rock Description	USCS Classification	Lithologic Log	Well Construction	Comments	Elevation (ft.)
0			**Concrete**			flush mount; 4-inch PVC casing; 4-inch PVC screen; hydrated granular bentonite cement; filter sand		
2	14		**Sand** brown, dry, loose, some gravel	SM				
4								
6	11							
8	20		**Clay** brown, moist, plastic, some sand and gravel	CL				
10	13		**Sand** black, wet	SM				
12	14		**Clay** brown to black, saturated, some sand, plastic	CL				
14			End of Boring					
16								
18								
20								

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Appendix K

Earth Metal Analytical Data Tables

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: Sample Depth(ft BGS): Date Collected:	Units	DRAIN #1 04/10/90	DRAIN #1 07/31/90	DRAIN #1 08/22/90	DRAIN #1 10/02/90	DRAIN #1 11/16/90	DRAIN #1 12/18/90	DRAIN #1 01/15/91	DRAIN #1 04/19/91	DRAIN #1 05/01/91	DRAIN #1 05/29/91	DRAIN #1 06/06/91	DRAIN #1 06/20/91	DRAIN #1 07/10/91
Inorganics														
Aluminum	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	5.2	14	9.4	14	4.2	4.4	4.9	15	2.5	15	1.5	5.5	1.4
Magnesium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered														
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	DRAIN #1 08/14/91	DRAIN #1 08/29/91	DRAIN #1 09/12/91	DRAIN #1 09/26/91	DRAIN #1 10/10/91	DRAIN #1 10/24/91	DRAIN #1 11/07/91	DRAIN #1 12/05/91	DRAIN #1 01/09/92	DRAIN #1 02/21/92	DRAIN #1 05/14/92	DRAIN #1 06/25/92	DRAIN #1 08/06/92
Inorganics														
Aluminum	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	7.4	1.6	13	6.8	26	4.6	4	3.7	3	0.26	0.39	6.5	0.87
Magnesium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered														
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: Sample Depth(ft BGS): Date Collected:	Units	DRAIN #1 09/03/92	DRAIN #1 10/08/92	DRAIN #1 11/05/92	DRAIN #1 12/01/92	DRAIN #1 01/06/93	DRAIN #1 02/04/93	DRAIN #1 03/04/93	DRAIN #1 04/13/93	DRAIN #1 05/06/93	DRAIN #1 06/02/93	DRAIN #1 07/14/93	DRAIN #1 08/13/93	DRAIN #1 09/16/93
Inorganics														
Aluminum	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	1.7	27	150	30	6.5	13	19	1	32	7.1	33	2	4
Magnesium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered														
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	DRAIN #1 10/19/93	DRAIN #1 11/09/93	DRAIN #1 11/29/93	DRAIN #1 12/21/93	DRAIN #1 01/24/94	DRAIN #1 02/01/94	DRAIN #1 03/04/94	DRAIN #1 03/14/94	DRAIN #1 03/30/94	DRAIN #1 04/21/94	DRAIN #1 05/18/94	DRAIN #1 06/27/94	DRAIN #1 07/20/94
Inorganics														
Aluminum	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	5.6	6.4	1.1	1.5	0.66	6.4	4.5	31	1.6	1.4	1.5	1.2	5.2
Magnesium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered														
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: Sample Depth(ft BGS): Date Collected:	Units	DRAIN #1 08/10/94	DRAIN #1 09/25/94	DRAIN #1 10/19/94	DRAIN #1 11/10/94	DRAIN #1 12/07/94	DRAIN #1 01/10/95	DRAIN #1 02/10/95	DRAIN #1 03/22/95	DRAIN #1 04/20/95	DRAIN #1 05/04/95	DRAIN #1 06/02/95	DRAIN #1 07/12/95	DRAIN #1 08/04/95
Inorganics														
Aluminum	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	15.1	0.3	0.43	12	0.85	26	3.5	0.06	0.11	0.43	0.24	0.15	0.07
Magnesium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered														
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: Sample Depth(ft BGS): Date Collected:	Units	DRAIN #1 09/01/95	DRAIN #1 10/03/95	DRAIN #1 11/09/95	DRAIN #1 12/06/95	DRAIN #1 05/05/96	DRAIN #1 06/04/96	DRAIN #1 10/10/96	DRAIN #1 08/29/98	DRAIN #1 03/20/99
Inorganics										
Aluminum	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	0.56	0.1	0.12	0.27	0.34	0.09	3.8	0.34	0.42
Magnesium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered										
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	DRAIN #1 06/25/99	DRAIN #1 08/14/99	DRAIN #1 09/11/99	DRAIN #1 10/30/99	DRAIN #1 12/04/99	DRAIN #1 01/29/00	DRAIN #1 03/18/00	DRAIN #1 04/29/00	DRAIN #1 05/20/00
Inorganics										
Aluminum	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	1.1	0.57	0.23	0.28	0.25	0.59	0.39 [0.36]	0.05	4.7
Magnesium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered										
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	0.34	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	DRAIN #1 06/24/00	DRAIN #1 07/29/00	DRAIN #1 09/09/00	DRAIN #1 10/07/00	DRAIN #1 11/13/00	DRAIN #1 12/09/00	DRAIN #1 01/20/01	DRAIN #1 03/24/01	DRAIN #1 05/25/01	DRAIN #1 06/18/01	DRAIN #1 07/26/01	DRAIN #1 08/27/01
Inorganics													
Aluminum	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	14	1.9	0.1	0.36	0.11	1.34	0.76	0.59	0.76	0.35	1.65	0.12
Magnesium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered													
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	DRAIN #1 02/11/02	DRAIN #1 04/27/02	DRAIN #1 03/29/03	DRAIN #1 07/29/03	DRAIN #1 10/11/03	DRAIN #1 11/19/04	DRAIN #1 06/29/05	MW-02-01 11/25/02	MW-02-01 03/27/03	MW-02-01 07/29/03
Inorganics											
Aluminum	mg/L	NA	NA	NA	0.01 U	0.057	0.048	0.05 U	NA	NA	0.63
Calcium	mg/L	NA	NA	NA	308	282	271	465	NA	NA	105
Iron	mg/L	1.01	0.41	0.52	0.27	0.33	0.53	0.83	2.46 [3.4]	14.6 [24.9]	1.71
Magnesium	mg/L	NA	NA	NA	29.1	26	27.1	44.9	NA	NA	35.9
Potassium	mg/L	NA	NA	NA	24.5 J	22.2	24.5	29.7	NA	NA	1.73 J
Sodium	mg/L	NA	NA	NA	551	519	490	513	NA	NA	13.2
Inorganics-Filtered											
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	NA	0.055	0.05 U	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	NA	258	472	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	NA	0.74	0.77	NA	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	NA	25.9	44.2	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	NA	22.7	29.6	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	NA	466	524	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID:		MW-02-01	MW-02-01	MW-02-01	MW-02-02	MW-02-02	MW-02-02	MW-02-02	MW-02-02	MW-02-03	MW-02-03
Sample Depth(ft BGS):											
Date Collected:	Units	10/09/03	10/26/04	06/15/05	11/25/02	03/27/03	10/08/03	10/28/04	06/22/05	11/25/02	03/27/03
Inorganics											
Aluminum	mg/L	0.846 [1.03]	8.98	0.273	NA	NA	1.25	2.56	0.36	NA	NA
Calcium	mg/L	111 [113]	187	87.4	NA	NA	274	404	301	NA	NA
Iron	mg/L	3.61 [4.28]	26.8	5.26	15.8	11.6	4.56	18.2	2.04	6.06	4.37
Magnesium	mg/L	37.1 [37.6]	67.5	30.8	NA	NA	96.4	141	104	NA	NA
Potassium	mg/L	1.67 [1.36]	4.77	8.47	NA	NA	3.95	7.61	5 U	NA	NA
Sodium	mg/L	11.2 [10.9]	10.7 U	17.3	NA	NA	163	196	175	NA	NA
Inorganics-Filtered											
Aluminum (Dissolved)	mg/L	0.005 U [0.005 U]	0.054	0.011	NA	NA	0.007	0.017 U	0.05 U	NA	NA
Calcium (Dissolved)	mg/L	98.4 [101]	99.5	83.3	NA	NA	258	331	301	NA	NA
Iron (Dissolved)	mg/L	0.79 [0.76]	0.49	1.63	NA	NA	0.76	1.02	1.44	NA	NA
Magnesium (Dissolved)	mg/L	32.4 [33.2]	34	30.4	NA	NA	88.6	115	104	NA	NA
Potassium (Dissolved)	mg/L	1.37 [1.05]	3.6	7.45	NA	NA	3.68	6.36	5 U	NA	NA
Sodium (Dissolved)	mg/L	10.5 [11]	10.4 U	16	NA	NA	161	193	175	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	MW-02-03 07/28/03	MW-02-03 10/08/03	MW-02-03 11/01/04	MW-02-03 06/21/05	MW-02-04 11/25/02	MW-02-04 03/27/03	MW-02-04 07/28/03	MW-02-04 10/09/03	MW-02-04 11/01/04	MW-02-04 06/20/05	MW-04-01 10/25/04
Inorganics												
Aluminum	mg/L	0.49 [0.45]	0.144	0.46	0.074	NA	NA	0.9	0.408	0.105	0.102	0.058 U
Calcium	mg/L	236 [229]	235	271	260	NA	NA	380	390	320	325	128
Iron	mg/L	4.81 [4.82]	4.16	8.76	4.52	2.61	7.68	5.05	4	5.42	6.36	1.36
Magnesium	mg/L	87.8 [84.8]	84.8	103	100	NA	NA	135	139	117	121	44.2
Potassium	mg/L	1.97 J [1.88 J]	1.7	2.97	2.51	NA	NA	3.74 J	3.5	6.18	4.15	3.55
Sodium	mg/L	13.5 [13]	12.8	16.6 U	39.5	NA	NA	146	153	185	229	7.04 U
Inorganics-Filtered												
Aluminum (Dissolved)	mg/L	NA	0.005 U	0.011 U	0.01	NA	NA	NA	0.005	0.013 U	0.01 U	0.02 U
Calcium (Dissolved)	mg/L	NA	241	235	261	NA	NA	NA	375	319	320	127
Iron (Dissolved)	mg/L	NA	3.66	4.14	4.3	NA	NA	NA	1.49	2.93	4.26	1.23
Magnesium (Dissolved)	mg/L	NA	87.9	86.5	100	NA	NA	NA	134	117	118	44.4
Potassium (Dissolved)	mg/L	NA	1.77	2.75	2.71	NA	NA	NA	3.38	6.72	3.98	3.67
Sodium (Dissolved)	mg/L	NA	13.2	16.1	39.3	NA	NA	NA	147	183	223	7.16 U

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	MW-04-01 06/15/05	MW-04-02 10/26/04	MW-04-02 06/22/05	MW-04-03 10/28/04	MW-04-03 06/21/05	MW-04-04 10/27/04	MW-04-04 06/13/05	MW-88-1 10/10/03	MW-88-1 10/27/04	MW-88-1 06/14/05	MW-91-1 03/21/00	MW-91-1 05/03/02
Inorganics													
Aluminum	mg/L	0.32	0.025 U	0.05 U	0.015 U	0.153	0.817 [0.186]	0.338	0.019	0.041 U	0.098	NA	NA
Calcium	mg/L	127	123	161	168	146	172 [166]	167	140	137	134	NA	NA
Iron	mg/L	1.76	4.16	2.96	5.14	6.59	11 [5.2]	5.41	1.49	1.8	1.39	0.92	0.37
Magnesium	mg/L	46.7	34.6	43.3	48.5	47.6	45.2 [42.8]	42.1	51.5	52.5	50.5	NA	NA
Potassium	mg/L	4.37	5.54	5 U	5.33	4.54	6.07 [5.8]	6.16	2.35	3.05	3.28	NA	NA
Sodium	mg/L	9.15	44.2	76.2	69	57.5	74.4 [73]	72.4	12.1	12.7 U	12.1	NA	NA
Inorganics-Filtered													
Aluminum (Dissolved)	mg/L	0.013	0.011 U	0.05 U	0.03 U	0.01 U	0.014 U [0.023 U]	0.01 U	NA	0.017 U	0.01 U	NA	NA
Calcium (Dissolved)	mg/L	125	124	161	165	149	167 [165]	167	NA	136	132	NA	NA
Iron (Dissolved)	mg/L	0.76	4.18	2.63	5.02	6.28	4.03 [3.95]	3.51	NA	1.39	0.56	NA	NA
Magnesium (Dissolved)	mg/L	44.6	35	43.3	48.1	46.8	42.2 [42.7]	42.1	NA	49.8	50.1	NA	NA
Potassium (Dissolved)	mg/L	4.09	5.45	5 U	5.09	4.36	5.84 [5.68]	6.72	NA	3.51	3.19	NA	NA
Sodium (Dissolved)	mg/L	8.98	43.9	76.2	69.2	57.6	73.6 [74.6]	73	NA	11.5 U	12.2	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	MW-91-1 11/25/02	MW-91-1 03/28/03	MW-91-1 07/29/03	MW-91-1 10/08/03	MW-91-1 10/29/04	MW-91-1 06/20/05	MW-91-2 03/18/00	MW-91-2 05/03/02	MW-91-2 11/25/02	MW-91-2 03/28/03
Inorganics											
Aluminum	mg/L	NA	NA	0.28	0.069	0.911	0.109	NA	NA	NA	NA
Calcium	mg/L	NA	NA	163	115	120	65.2	NA	NA	NA	NA
Iron	mg/L	4.95	1.51	1.67	0.92	2.81	0.88	1.35	2.54 [0.4]	8.96	2.36
Magnesium	mg/L	NA	NA	57.9	38.3	39.8	15.7	NA	NA	NA	NA
Potassium	mg/L	NA	NA	2.61 J	2.98	2.87	4.8	NA	NA	NA	NA
Sodium	mg/L	NA	NA	20.5	16.4	15.3	17.5	NA	NA	NA	NA
Inorganics-Filtered											
Aluminum (Dissolved)	mg/L	NA	NA	NA	NA	0.025 U	0.01 U	NA	NA	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	NA	NA	114	63.1	NA	NA	NA	NA
Iron (Dissolved)	mg/L	NA	NA	NA	NA	0.46	0.19	NA	NA	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	NA	NA	38	15.7	NA	NA	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	NA	NA	2.83	4.32	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	NA	NA	15.3 U	17.4	NA	NA	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	MW-91-2 07/29/03	MW-91-2 10/08/03	MW-91-2 11/01/04	MW-91-2 06/24/05	MW-91-3 03/27/03	MW-91-3 10/09/03	MW-91-3 11/01/04	MW-91-3 06/22/05	MW-91-4 03/28/03	MW-91-4 10/10/03
Inorganics											
Aluminum	mg/L	0.01 U	0.047	0.384 [0.385]	0.05	NA	0.125	0.443	0.09 [0.08]	NA	0.182 [0.186]
Calcium	mg/L	164	165	170 [169]	164	NA	131	122	121 [118]	NA	191 [192]
Iron	mg/L	1.94	2.18	5.08 [5.2]	3	1.5	1.78	2.9	2.12 [1.98]	5.99 [6.31]	5.51 [5.4]
Magnesium	mg/L	59.2	56.9	58 [57.7]	52.3	NA	44.7	41.7	41.5 [41.7]	NA	49.3 [49.5]
Potassium	mg/L	2.33 J	2.04	3.04 [2.93]	5 U	NA	4.47	4.74	5 U [5 U]	NA	4.94 [4.89]
Sodium	mg/L	20.5	19.7	18.9 U [18.7 U]	19	NA	8.58	7.9 U	7.64 [7.81]	NA	77.3 [78.1]
Inorganics-Filtered											
Aluminum (Dissolved)	mg/L	NA	NA	0.012 U [0.016 U]	0.05 U	NA	NA	0.006 U	0.05 U [0.05 U]	NA	NA
Calcium (Dissolved)	mg/L	NA	NA	158 [158]	162	NA	NA	119	121 [118]	NA	NA
Iron (Dissolved)	mg/L	NA	NA	2.19 [2.08]	2.07	NA	NA	0.32	1.23 [1.2]	NA	NA
Magnesium (Dissolved)	mg/L	NA	NA	54.9 [54.8]	51.1	NA	NA	41.8	41.5 [41.7]	NA	NA
Potassium (Dissolved)	mg/L	NA	NA	2.88 [2.8]	5 U	NA	NA	4.5	5 U [5 U]	NA	NA
Sodium (Dissolved)	mg/L	NA	NA	19 [19.3]	18.8	NA	NA	8.65 U	7.64 [7.81]	NA	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-1
GM Lansing Plant 3
Groundwater Earh Metal Analytical Results

Location ID: / Sample Depth(ft BGS): / Date Collected:	Units	MW-91-4 10/27/04	MW-91-4 06/14/05	MW-91-5 03/28/03	MW-91-5 10/09/03	MW-91-5 10/26/04	MW-91-5 06/24/05	MW-91-6 03/29/03	MW-91-6 10/10/03	MW-91-6 10/28/04	MW-91-6 06/23/05	MW-93-2 03/18/00
Inorganics												
Aluminum	mg/L	0.328	0.217	NA	0.022	0.037 U	0.1 [0.11]	NA	0.028	0.666	0.05 U	NA
Calcium	mg/L	178	168	NA	116	131	127 [128]	NA	216	143	181	NA
Iron	mg/L	7.02	6.11	4.74	4.56	4.44	4.93 [4.74]	15.3	17.4	18.4	15.7	0.69 [0.77]
Magnesium	mg/L	48.6	45	NA	42.8	45.3	42.7 [43.3]	NA	67.3	53.3	59.2	NA
Potassium	mg/L	14.8	12.4	NA	3.24	2.68	5 U [5 U]	NA	1.93	2.61	5 U	NA
Sodium	mg/L	85.5	87.3	NA	32.4	33.4	31.4 [31.3]	NA	58.4	51.3	41.2	NA
Inorganics-Filtered												
Aluminum (Dissolved)	mg/L	0.022 U	0.087	NA	NA	0.015 U	0.05 U [0.05 U]	NA	NA	0.02 U	0.05 U	NA
Calcium (Dissolved)	mg/L	176	165	NA	NA	128	127 [128]	NA	NA	152	181	NA
Iron (Dissolved)	mg/L	5.83	5.62	NA	NA	3.7	2.82 [2.82]	NA	NA	11.1	14.1	NA
Magnesium (Dissolved)	mg/L	48.7	44.1	NA	NA	46	42.7 [43.3]	NA	NA	55.6	59.2	NA
Potassium (Dissolved)	mg/L	14.2	12.5	NA	NA	2.9	5 U [5 U]	NA	NA	2.8	5 U	NA
Sodium (Dissolved)	mg/L	84.9	84.9	NA	NA	34.8	31.4 [31.3]	NA	NA	51.1	41.2	NA

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-2
GM Lansing Plant 6
Groundwater Earth Metal Analytical Results

Location ID:		MW-02-01	MW-02-01	MW-02-01	MW-02-02	MW-02-02	MW-02-02	MW-02-03	MW-02-03	MW-02-03
Sample Depth():										
Date Collected:	Units	08/19/03	09/15/03	11/11/04	08/19/03	09/16/03	11/11/04	08/19/03	09/17/03	11/11/04
Inorganics										
Aluminum	mg/L	NA	0.34	2.49 [2.11]	NA	1.59	4.82	NA	1.87 [0.95]	0.351
Calcium	mg/L	NA	164	236 [228]	NA	191	1,740	NA	363 [384]	898
Iron	mg/L	NA	1.27	10.2 [8.73]	NA	3.78	29.7	NA	11.4 [9.94]	4.7
Magnesium	mg/L	NA	88.7	104 [102]	NA	106	655	NA	148 [149]	232
Potassium	mg/L	NA	4.96	2.47 [2.47]	NA	3.7	8.21	NA	6.43 [6.14]	8.36
Sodium	mg/L	NA	194	139 [136]	NA	40.3	42	NA	170 [170]	214
Inorganics-Filtered										
Aluminum (Dissolved)	mg/L	0.01 U	0.01 U	0.039 [0.03]	0.01 J	0.01 U	0.036	0.01 J	0.01 U [0.01]	0.029
Calcium (Dissolved)	mg/L	162	131	149 [146]	185	168	203	350	326 [238]	437
Iron (Dissolved)	mg/L	0.33	0.28	0.37 [0.39]	1.26	0.32	0.47	5.05	0.65 [0.48]	3.87
Magnesium (Dissolved)	mg/L	87.8	85.4	74.3 [73.5]	97.6	103	108	137	142 [139]	174
Potassium (Dissolved)	mg/L	4.82	4.56	2.35 [1.06]	2.84	2.74	5.12	5.29	5.46 [5.86]	7.3
Sodium (Dissolved)	mg/L	190	189	126 [128]	31.8	39.9	40.9	165	166 [167]	221

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-2
GM Lansing Plant 6
Groundwater Earth Metal Analytical Results

Location ID: / Sample Depth(): / Date Collected:	Units	MW-03-01 08/20/03	MW-03-01 09/16/03	MW-03-01 11/09/04	MW-03-02 08/20/03	MW-03-02 09/17/03	MW-03-02 11/09/04	MW-03-03 08/20/03	MW-03-03 09/16/03	MW-03-03 11/10/04
Inorganics										
Aluminum	mg/L	NA	4.75	2.2	NA	1.55	1.1	NA	0.58	1.61
Calcium	mg/L	NA	646	709	NA	403	391	NA	199	182
Iron	mg/L	NA	20.3	27.2	NA	11.6	5.5	NA	11.3	8.83
Magnesium	mg/L	NA	245	271	NA	164	154	NA	69.9	55.3
Potassium	mg/L	NA	8.24	6.83	NA	8.04	4.98	NA	14.7	4.78
Sodium	mg/L	NA	1,210	953	NA	294	334	NA	724	447
Inorganics-Filtered										
Aluminum (Dissolved)	mg/L	0.01 J [0.01 J]	0.05	0.017	0.01 U	0.01 U	0.019	0.01 U	0.01	0.029
Calcium (Dissolved)	mg/L	613 [611]	549	588	322	297	363	310	123	146
Iron (Dissolved)	mg/L	5.72 [5.67]	1.23	5.08	0.39	0.59	1.85	8.97	0.28	4.89
Magnesium (Dissolved)	mg/L	230 [232]	230	228	129	132	145	102	70.1	44.1
Potassium (Dissolved)	mg/L	6.72 [6.78]	6.78	7.1	8.51	7.7	4.92	13.7	10	4.41
Sodium (Dissolved)	mg/L	1,160 [1,160]	1,170	1,100	287	285	345	898	744	444

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-2
GM Lansing Plant 6
Groundwater Earth Metal Analytical Results

Location ID: / Sample Depth(): / Date Collected:	Units	MW-03-04 08/19/03	MW-03-04 09/17/03	MW-03-04 11/10/04	MW-03-05 08/19/03	MW-03-05 09/16/03	MW-03-05 11/10/04	MW-03-06 08/19/03	MW-03-06 09/16/03	MW-03-06 11/11/04
Inorganics										
Aluminum	mg/L	NA	0.1	1.98 [1.92]	NA	0.48	1.58	NA	0.34	0.892
Calcium	mg/L	NA	160	225 [232]	NA	764	902	NA	339	604
Iron	mg/L	NA	4	9.63 [9.89]	NA	13.8	22.8	NA	4.99	3.69
Magnesium	mg/L	NA	62.8	92.1 [92]	NA	304	282	NA	151	224
Potassium	mg/L	NA	1.68	5.16 [5]	NA	8.8	10.3	NA	6.23	8.13
Sodium	mg/L	NA	23.9	31.4 [31.3]	NA	1,430	3,150	NA	581	1,220
Inorganics-Filtered										
Aluminum (Dissolved)	mg/L	0.01 J	0.01	0.022 [0.025]	0.01 U	0.04	0.018	0.01 J	0.07	0.028
Calcium (Dissolved)	mg/L	159	146	177 [181]	737	698	853	479	325	558
Iron (Dissolved)	mg/L	2.61	0.25	3.29 [3.25]	11.3	1.47	13.5	0.87	0.66	0.84
Magnesium (Dissolved)	mg/L	61.7	61.7	73.1 [73.1]	296	302	265	195	144	220
Potassium (Dissolved)	mg/L	1.81	1.39	4.82 [4.38]	8.31	10	10.5	8.13	5.95	8.49
Sodium (Dissolved)	mg/L	23.3	23.5	30.7 [31.2]	1,250 J	1,440	3,080	901	547	1,210

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-2
GM Lansing Plant 6
Groundwater Earth Metal Analytical Results

Location ID: / Sample Depth(): / Date Collected:	Units	MW-03-07 08/19/03	MW-03-07 09/15/03	MW-03-07 11/09/04	MW-03-08 08/19/03	MW-03-08 09/15/03	MW-03-08 11/11/04	MW-04-01 11/09/04	MW-04-04 11/08/04
Inorganics									
Aluminum	mg/L	NA	0.37 [0.48]	1.63	NA	0.12	0.203	0.253	11.6
Calcium	mg/L	NA	101 [103]	158	NA	111	115	2,560	200
Iron	mg/L	NA	2.37 [2.82]	15.9	NA	2.65	0.92	3.19	215
Magnesium	mg/L	NA	44.8 [45.2]	63.6	NA	56.3	54.7	104	75.4
Potassium	mg/L	NA	2.36 [2.3]	3.46	NA	3.41	2.17	20.4	9.2
Sodium	mg/L	NA	28.3 [28.1]	31.6	NA	22	28.7	68.1	19.6
Inorganics-Filtered									
Aluminum (Dissolved)	mg/L	0.01 J [0.01 J]	0.01 U [0.01 U]	0.025	0.01 U	0.01 U	0.029	0.826	0.022
Calcium (Dissolved)	mg/L	103 [104]	101 [40.5]	108	114	115	116	116	127
Iron (Dissolved)	mg/L	0.85 [0.81]	0.19 [0.08]	0.29	0.53	0.24	0.27	2.77	0.21
Magnesium (Dissolved)	mg/L	44.1 [45]	43.9 [43.3]	46.9	55.4	57.1	54	50.1	54.5
Potassium (Dissolved)	mg/L	2.1 [2.11]	1.94 [1.93]	3.51	3.2	3.21	2.37	11	7.16
Sodium (Dissolved)	mg/L	26.5 [26.6]	28.2 [28.6]	32.4	21.7	22.7	27.8	57.6	19

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-2
GM Lansing Plant 6
Groundwater Earth Metal Analytical Results

Location ID: / Sample Depth(): / Date Collected:	Units	MW-04-05 11/09/04	MW-04-06 11/09/04	SME-MW-1 03/21/96	SME-MW-1 08/19/03	SME-MW-1 09/17/03	SME-MW-2 03/21/96	SME-MW-2 08/19/03	SME-MW-2 09/16/03	SME-MW-2 11/11/04
Inorganics										
Aluminum	mg/L	11.7	1.67	NA	NA	3.7	NA	NA	5.63	9.61
Calcium	mg/L	1,020	129	NA	NA	539	NA	NA	199	1,040
Iron	mg/L	52.4	7.96	NA	NA	6.27	NA	NA	11.1	44.8
Magnesium	mg/L	351	16.8	235	NA	166	53.4	NA	85.4	415
Potassium	mg/L	12.9	387	25.8	NA	6.24	6.11	NA	4.95	6.9
Sodium	mg/L	2,510	928	1,530	NA	99.9	148	NA	30.9	26.9
Inorganics-Filtered										
Aluminum (Dissolved)	mg/L	0.019	0.319	NA	0.01 U	0.01 U	NA	0.01 U	0.01	0.032
Calcium (Dissolved)	mg/L	547	67.5	NA	293	242	NA	160	152	166
Iron (Dissolved)	mg/L	3.56	0.25	NA	6.94	0.46	NA	0.2	0.35	0.48
Magnesium (Dissolved)	mg/L	164	1 U	NA	99.7	100	NA	69	70.8	75.2
Potassium (Dissolved)	mg/L	11.4	397	NA	4.45	4.49	NA	2.65	2.9	4.16
Sodium (Dissolved)	mg/L	2,410	964	NA	96.7	95.7	NA	26.9	30	27.5

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected

Table K-2
GM Lansing Plant 6
Groundwater Earth Metal Analytical Results

Location ID: Sample Depth(): Date Collected:	Units	SME-MW-3 03/21/96	SME-MW-4 03/21/96	SME-MW-4 08/19/03	SME-MW-4 09/17/03	SME-MW-4 11/10/04
Inorganics						
Aluminum	mg/L	NA	NA	NA	1	17.6
Calcium	mg/L	NA	NA	NA	288	617
Iron	mg/L	NA	NA	NA	7.91	50.9
Magnesium	mg/L	58.4	58.4	NA	92	196
Potassium	mg/L	6.92	9.45	NA	4.05	6.14
Sodium	mg/L	146	324	NA	113	96.2
Inorganics-Filtered						
Aluminum (Dissolved)	mg/L	NA	NA	0.01 U	0.04	0.036
Calcium (Dissolved)	mg/L	NA	NA	275	240	261
Iron (Dissolved)	mg/L	NA	NA	4.14	0.48	4.46
Magnesium (Dissolved)	mg/L	NA	NA	84.8	87.1	83
Potassium (Dissolved)	mg/L	NA	NA	3.75	3.78	3.9
Sodium (Dissolved)	mg/L	NA	NA	111	110	98.7

Lab Qualifiers	Definition
J	Estimated Value
U	Not Detected