



BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Transmitted Via FedEx

October 12, 2001

Mr. Allan Brouillet
Environmental Response Division
Michigan Department of Environmental Quality
Saginaw Bay District
503 North Euclid Street
Bay City, MI 48706

Re: Annual Progress Report – October 2000 to September 2001
General Motors Corporation Saginaw Malleable Iron Plant Property and
REALM, Inc. Green Point Landfill and Drum Remediation Area
Saginaw, Michigan
BBL Project #: 0276 276.08 #2.06

Dear Mr. Brouillet:

This progress report presents a summary of the work activities conducted during the period from October 2000 through September 2001 for the above-referenced site, and a summary of the work activities anticipated for the following 12 months. This report was prepared in accordance with the requirements specified in the Consent Judgment executed between the Michigan Department of Environmental Quality (MDEQ), the Michigan Attorney General's Office, the General Motors Corporation (GM), and Waste Management Inc. (WMI), that was entered by the State of Michigan Circuit Court on March 16, 1998. The submittal date for the annual report was set to October 15, in a letter dated October 22, 1999 (Brouillet, A., October 1999).

Significant RI/FS Activities and Correspondence

The following is a summary of the significant Remedial Investigation/Feasibility Study (RI/FS) activities and correspondence completed during the period from October 1, 2000 through September 30, 2001.

Deliverables Submitted (Tables 10-1 and 10-2 of the MDEQ-Approved RI/FS Work Plan [October 1997])

Schedule Tables 10-1 and 10-2 for the *RI/FS Work Plan* (BBL, October 1997; revised January 1998) have been updated to reflect actual submittal dates, and are included as attachments. [All deliverables have been submitted to MDEQ on or before the deliverable due dates specified in the MDEQ-approved October 1997 *RI/FS Work Plan* (schedule tables revised January 1998).]

- Monthly reports have been transmitted to the MDEQ as specified in the RI/FS Work Plan (see references).
- The annual report for October 1999 through September 2000 was submitted to the MDEQ on October 12, 2000 (BBL, October 2000).
- The RI Report was transmitted as a "Revised Draft" to the MDEQ on November 25, 2000.

Key Correspondence

- A letter dated November 13, 2000 was sent from Ms. Brenda Brouillet (MDEQ) to Ms. Cheryl Hiatt (GM), presenting the results of Saginaw River sediment sampling completed by the MDEQ.
- The RI Report was transmitted as a "Revised Draft" to the MDEQ on November 28, 2000.
- The August 2000 quarterly groundwater monitoring report for the former UST #7 area, dated December 13, 2000, was submitted to the MDEQ.
- A letter dated January 24, 2001 was sent from Mr. Allan Brouillet (MDEQ) to Ms. Cheryl Hiatt (GM), agreeing to extend the deadline for submittal of a response to the MDEQ's November 13, 2000 letter, which presented the results of MDEQ Saginaw River sediment sampling activities.
- GM received a package of analytical laboratory backup data for the sediment samples collected by MDEQ from the Saginaw River in February 2001.
- Two letters dated March 8, 2001 were sent to the MDEQ, which present GM's response to the MDEQ's November 13, 2000 letter regarding MDEQ's Saginaw River sediment sampling data. Responses to the November 13, 2001 MDEQ correspondence were submitted both by Dykema Gossett, and BBL on behalf of GM.
- A work plan, dated April 13, 2001, was transmitted to the MDEQ by Exponent. The work plan describes the proposed approach to complete an evaluation of potential ecological exposure pathways and risk to ecological receptors in response to the detection of PCBs in Saginaw River sediment adjacent to the site.
- The combined October 2000 and March 2001 quarterly groundwater monitoring report for the former UST #7 area, dated June 4, 2001, was submitted to the MDEQ.
- GM received a letter from the MDEQ dated July 5, 2001, that provided approval of the Revised Draft Remedial Investigation Report (BBL, November 2000).
- A letter was sent to the MDEQ on behalf of GM and WMI (BBL, August 8, 2001), that provided clarification of the Feasibility Study submittal date and cover inserts for the RI Report marked "Final."
- GM and WMI received a letter from MDEQ dated August 23, 2001, that acknowledges the January 5, 2002 Feasibility Study submittal date.
- The May 2001 quarterly groundwater monitoring report for the former UST #7 area, dated September 17, 2001, was submitted to the MDEQ.

Supplemental RI/FS Sampling Activities

- Groundwater samples were collected for PCB analysis from four monitoring wells (MW-112WT, B-7R, MW-111WT, and MW-114WT) located along the Saginaw River. An attempt was made to collect a sample from monitoring well MW-110WT; however, the well was found to be damaged by tree roots, and is scheduled to be replaced. Quality Control review of the groundwater analytical data was completed in June 2001. The data report was submitted with the June 2001 monthly report and is presented in Table 1.

Supplemental Groundwater Investigation Activities North of the Drum Remediation Area

- An additional test pit program was completed in the area north of the former Drum Remediation Area hillock on October 10, 2000. The test pits were completed to trace the path of the drainage tile discovered during a previous test pit program completed in August 2000. The pipe was surveyed and found to drain eastward onto the Green Point Site from neighboring property (former Ruben Schultz junkyard). Water samples were obtained from the drainage tile at the upstream end of the pipe at the property boundary and also from a location east of monitoring well TWW-1. These data are included in the RI Report, dated July 2001.

Former Underground Storage Tank (UST) #7 Area

- The tenth and eleventh rounds of sampling were performed in October 2000 and March 2001. A letter report was submitted to the MDEQ on June 4, 2001 (BBL, June 2001), which summarized the results of these sampling events.
- The twelfth round of sampling was performed in May 2001. A letter report was submitted to the MDEQ on September 17, 2001 (BBL, September 2001), that summarized the results of the sampling event.

Sewer Activities

Compliance monitoring continued at CFD-02 and discussions were held periodically with Delphi Automotive Systems regarding possible separation of Saginaw Malleable Iron's sewer systems from those of Steering Gear Plant 2.

Engineered Water Conveyance System Ditches

- Filling of the north-south engineered water conveyance system ditch was completed in August 2001.

Quench Pit Bailing Program

- Monitoring wells installed in the Quench Pit area containing LNAPL are bailed on a daily basis during the work week by a GM disposal contractor.

LNAPL Recovery System

- The LNAPL recovery system did not operate during October 2000 due to troubleshooting and repair of the system.
- System modifications made to the LNAPL recovery system during December 2000 resulted in a significant increase in LNAPL recovery. Based on an increase in LNAPL recovery during November 2000 at RW-4 in response to lowering of the recovery pump to increase drawdown, the pumps at recovery wells RW-1, RW-2, and RW-3 were also lowered, and the total discharge from the three additional wells was routed to the oil/water separator (rather than routing LNAPL directly to the totes).
- During changeout of the system carbon at the end of January 2001, a shutoff valve malfunction caused some overflow from the oil/water separator in the secondary containment area of the building. The water in the containment area was pumped back into the LNAPL treatment system, and some cleanup activities continued into February 2001.

- The installation of an alternative pump system at RW-1 in June 2001 has resulted in a significant improvement in the rate of LNAPL recovery, as reflected in the recovery volumes shown in the following table.

The cumulative oil recovery and groundwater treatment statistics are as follows:

Operation	Approximate Volume of Oil Recovered (Gallons) ¹	Approximate Volume of Groundwater Treated (Gallons)
LNAPL System Total through September 28, 2001	2,431	1,540,296
Total hand bailed in 1996 and 1997	710	None
Repair of 42-inch line (recovery from abandoned 30-inch line)	5,000+	Specific amount unknown
Repair (slip lining) of 42-inch storm sewer line	approximately 3,000+	Specific amount unknown
Totals:	11,141+	1,540,296

Note:¹ This total may include some water that is drawn through the LNAPL recovery lines under certain conditions of rapid water table fluctuation.

- Groundwater and LNAPL elevation measurements are made on a monthly basis in the vicinity of the LNAPL recovery system to monitor LNAPL distribution. Table 2 includes the LNAPL and groundwater measurement data.

Green Point Landfill

- An inspection of the Green Point Landfill cap was completed on November 20, 2000. The Post-Closure Cap Inspection Forms completed during the August 2000 and November 2000 field inspections were submitted in the December 2000 monthly report.
- An inspection of the Green Point Landfill cap was completed on June 28, 2001. No problems with the cap were identified. The inspection report was submitted with the June 2001 monthly report.
- The annual Green Point Landfill groundwater-sampling event was completed on June 27-29, 2001, and the data are included in Tables 3 and 4.

Meetings

- A meeting between GM, the MDEQ, and BBL was held on March 7, 2001 at the MDEQ Saginaw Bay District office in Bay City. The results of supplemental RI investigation activities were summarized, and the project status was discussed.

Anticipated RI/FS Activities


The following activities are anticipated to be completed during the period from October 2001 through September 2002:

- Continued operation of the LNAPL Recovery/Groundwater Treatment System.
- Continued manual bailing of LNAPL in the Quench Pit Area.
- Replacement of two damaged monitoring wells; X-10A (located south of the Green Point Landfill), and MW-110WT (located along the Saginaw River).

- Installation of a new water table monitoring well between monitoring well MW-112WT and the Saginaw River to establish a new groundwater/surface water interface groundwater monitoring point.
- Semi-annual groundwater sampling activities at the Former UST #7 Area.
- Cap inspections of the Green Point Landfill (tentatively scheduled for October 2001, January 2002, April 2002, and July 2002).
- Green Point Landfill Environmental Monitoring Program Spring 2002 groundwater sampling event (tentatively scheduled for May 2002).
- Submittal of the Draft Feasibility Study on or before January 4, 2001.
- Submittal of the Final Feasibility Study within 90 days of receiving comments from the MDEQ on the Draft FS Report.

Sincerely,

BLASLAND, BOUCK & LEE, INC.


Lisa R. Coffey, P.G.
Manager, Hydrogeology

JAS/plf
Attachments

cc: John Fordell Leone, Esq., Assistant Attorney General
Ms. Susan Kaelber-Matlock, MDEQ
Anthony Thrubis, Esq., GM Legal Staff
David Tripp, Esq., Dykema Gossett
Ms. Katie Moertl, Attorney at Law, Quarles & Brady
Ms. Cheryl Hiatt/Mr. Edward Peterson, GM Remediation Team
Mr. James Forney, Waste Management, Inc.
Mr. Phil Mazor, Waste Management, Inc.
Mr. Jeff Jatzak/Mr. Joseph Toth, GM SMI
Mr. Christopher J. Canonica, P.E., Blasland, Bouck, & Lee, Inc.
Mr. Michael J. Gefell, P.G., Blasland, Bouck, & Lee, Inc.

Annual Progress Report – References

General Motors Corporation Saginaw Malleable Iron Plant Property and REALM, Inc. Green Point Landfill and Drum Remediation Area

- Blasland, Bouck & Lee, Inc. (BBL), October 1997. General Motors Corporation Saginaw Malleable Iron Plant, Green Point Landfill and Drum Remediation Area, Saginaw, Michigan, *Remedial Investigation/Feasibility Study Work Plan*, October 1997; schedule tables revised January 1998.
- Blasland, Bouck & Lee, Inc. (BBL), October 2000. *Environmental Monitoring Program Annual Report, Green Point Landfill, Saginaw, Michigan, October 2000*. October 4, 2000.
- Blasland, Bouck & Lee, Inc. (BBL), October 2000a. *Annual Progress Report – October 1999 to September 2000, General Motors Corporation Saginaw Malleable Iron Plant Property and REALM, Inc. Green Point Landfill and Drum Remediation Area, Saginaw, Michigan*. October 12, 2000.
- Blasland, Bouck & Lee, Inc. (BBL), December 1999. *Supplemental Investigation North of the Former Hillock Portion of the Drum Remediation Area*. December 9, 1999.
- Blasland, Bouck & Lee, Inc. (BBL), October 2000. *Monthly Report #70 (September 2000)*, October 12, 2000.
- Blasland, Bouck & Lee, Inc. (BBL), November 2000. *Monthly Report #71 (October 2000)*, November 9, 2000.
- Blasland, Bouck & Lee, Inc. (BBL), November 2000a. Report to MDEQ. Subject: *GM SMI Plant Property and REALM Green Point Landfill and DRA Property RI Report, Saginaw, Michigan*, November 28, 2000.
- Blasland, Bouck & Lee, Inc. (BBL), December 2000a. *Monthly Report #72 (November 2000)*, December 15, 2000.
- Blasland, Bouck & Lee, Inc. (BBL), January 2001. *Monthly Report #73 (December 2000)*, January 11, 2001.
- Blasland, Bouck & Lee, Inc. (BBL), February 2001. *Monthly Report #74 (January 2001)*, February 15, 2001.
- Blasland, Bouck & Lee, Inc., (BBL), March 2001, Letter to MDEQ, Subject: *GM SMI Plant and REALM Inc. Green Point Landfill and DRA; Consent Judgment #98-22686-CE-2; Response to November 13, 2001 MDEQ correspondence*. March 8, 2001.
- Blasland, Bouck & Lee, Inc., (BBL), March 2001a, *Monthly Report #75 (February 2001)*, March 14, 2001.
- Blasland, Bouck & Lee, Inc., (BBL), April 2001, *Monthly Report #76 (March 2001)*, April 12, 2001.
- Blasland, Bouck & Lee, Inc., (BBL), May 2001, *Monthly Report #77 (April 2001)*, May 14, 2001.
- Blasland, Bouck & Lee, Inc. (BBL), June 2001. *Tenth Quarterly Groundwater Monitoring Report, Interim Response Action, Former UST #7 Area, General Motors Corporation Saginaw Malleable Iron Plant, Saginaw, Michigan*. June 4, 2000.
- Blasland, Bouck & Lee, Inc., (BBL), June 2001, *Monthly Report #78 (May 2001)*, June 13, 2001.

Annual Progress Report – References

General Motors Corporation Saginaw Malleable Iron Plant Property and REALM, Inc. Green Point Landfill and Drum Remediation Area

- Blasland, Bouck & Lee, Inc., (BBL), July 2001, *Monthly Report #79 (June 2001)*, July 13, 2001.
- Blasland, Bouck & Lee, Inc., (BBL), August 2001, Letter to MDEQ, Subject: *GM SMI Plant Property and REALM Green Point Landfill and DRA Property Remedial Investigation Report and Feasibility Study*, August 8, 2001.
- Blasland, Bouck & Lee, Inc., (BBL), August 2001a, *Monthly Report #80 (July 2001)*, August 14, 2001.
- Blasland, Bouck & Lee, Inc. (BBL), September 2001. *Eleventh Quarterly Groundwater Monitoring Report, Interim Response Action, Former UST #7 Area, General Motors Corporation Saginaw Malleable Iron Plant, Saginaw, Michigan*. September 17, 2001.
- Blasland, Bouck & Lee, Inc., (BBL), September 2001, *Monthly Report #81 (August 2001)*, September 14, 2001.
- Brouillet, Allan C. (MDEQ), January 2001. Letter to GM, Subject: *GW SMI Saginaw River sediment sample results, Consent Judgment No. 98-22686-CE-2*. January 24, 2001.
- Brouillet, Brenda J. (MDEQ), November 2000. Letter to GM, Subject: *GM SMI, Saginaw River sediment sample results, Consent Judgment No. 98-22686-CE-2*. November 13, 2000.
- Brouillet, Brenda J. (MDEQ), July 2001. Letter to GM, Subject: *GM SMI/Green Point Landfill Revised Draft Remedial Investigation Report, Final Remedial Investigation Report Approval Consent Judgment No. 98-22686-CE-2*. July 5, 2001.
- Brouillet, Brenda J. (MDEQ), August 2001. Letter to GM, Subject: *Acknowledgment of January 2002 Feasibility Study submittal date*, August 23, 2001.
- Brouillet, Brenda J. (MDEQ), July 2001. Letter to GM, Subject: *Approval of the Revised Draft Remedial Investigation Report*, July 5, 2001.
- Exponent, April 2001, Report to MDEQ, Subject: *Proposed approach to complete an evaluation of potential ecological exposure pathways and risk to ecological receptors in response to the detection of PCBs in Saginaw River sediment adjacent to the site*. April 13, 2001.
- Tripp, David L. (Dykema Gossett), March 2001. Letter to MDEQ, Subject: *Response to legal aspects of the November 13, 2001 MDEQ correspondence regarding MDEQ's sediment sampling data*. March 8, 2001.

TABLE 10-1

**SCHEDULE FOR GREEN POINT LANDFILL CLOSURE
AND SUBMITTAL OF MAJOR DELIVERABLES TO THE MDEQ**

**GENERAL MOTORS CORPORATION
SAGINAW MALLEABLE IRON PLANT PROPERTY
AND
REALM, INC.
GREEN POINT LANDFILL AND DRUM REMEDIATION AREA
SAGINAW, MICHIGAN**

Deliverable	Submittal and Completion Schedule ***
1. Monthly Reports	Within 15 days of end of month for which report has been prepared; starting from end of first month following entry of Consent Judgment.
2. Work Plan to Complete Supplemental Phase II Investigation at Former Tank #7	Work Plan was transmitted on February 9, 1996. [COMPLETED]
3. Draft RI Report	Report was submitted to MDEQ on January 21, 1999. [COMPLETED]
4. Final RI Report	Within 120 days of receiving comments from MDEQ on Draft RI Report. [COMPLETED]
5. Draft FS Report	Within 6 months of MDEQ approval of Final RI Report.
6. Final FS Report	Within 90 days of receiving comments from MDEQ on Draft FS Report.
7. Green Point Landfill Combined Conceptual Engineering and 35% Design Report (including Subgrade Plan)	Report was submitted to MDEQ on February 5, 1996. [COMPLETED]
8. Green Point Landfill 90% Design Report	Report was submitted to MDEQ on October 28, 1997. [COMPLETED]
9. Green Point Landfill Final Design Report	Report was submitted to MDEQ in January 1998. [COMPLETED]
10. Green Point Landfill Subgrade Construction	Subgrade construction was completed in July 1997. [COMPLETED]
11. Green Point Landfill Cap Construction **	Cap construction was completed January 26, 2000. [COMPLETED]
12. Green Point Landfill "As-Built" Drawings	Green Point Landfill "As-Built" drawings were transmitted to the MDEQ on January 26, 2000 as part of the Final Cover System Certification Report [COMPLETED]
13. Draft RAP	Within 7 months of MDEQ approval of Final FS Report.
14. Final RAP	Within 120 days of receiving comments from MDEQ on Draft RAP.

Notes:

** Landfill cap construction consists of all remedial activities required in the final design for the landfill.

*** Transmittal dates refer to the dates that deliverables were sent out from preparers, and do not indicate the dates that deliverables were received by the MDEQ.

TABLE 10-2

SCHEDULE FOR SUBMITTAL OF OTHER DELIVERABLES TO THE MDEQ

GENERAL MOTORS CORPORATION
SAGINAW MALLEABLE IRON PLANT PROPERTY
AND
REALM, INC.
GREEN POINT LANDFILL AND DRUM REMEDIATION AREA
SAGINAW, MICHIGAN

Deliverable ¹	RI/FS Work Plan Section	Submittal and Completion Schedule ²
1. Plan to determine representative background concentrations in groundwater of hazardous substances of interest.	Section 1.3	Plan was transmitted to the MDEQ on April 17, 1996. [COMPLETED]
2. Sewer Map	Section 7.6	The site sewer map was transmitted to the MDEQ on February 17, 1995. [COMPLETED]
3. Buried Utility Maps² (including updated sewer map and invert elevations of key manholes).	Section 7.4	The buried utility maps were transmitted to the MDEQ on September 4, 1998. [COMPLETED]
4. Analytical Monitoring Plan for SMI Sewer System. This plan will be based on the buried utility maps and analytical results of POTW monitoring program and other sewer samples.	Section 7.6	Plan was transmitted to the MDEQ by CRA on February 3, 1997. [COMPLETED]
5. Report presenting the results of the Perimeter Geophysical Survey.	Section 7.1	Report was transmitted to the MDEQ on June 23, 1995. [COMPLETED]
6. Letter Report summarizing results of temporary monitoring well sampling around perimeter of SMI Plant building and site, and recommendations, if appropriate, for the installation of permanent monitoring wells.	Section 7.2.1	Letter report was transmitted to the MDEQ on August 30, 1995. [COMPLETED]
7. Transmittal of summary tables of analytical data collected during six-month POTW Sampling Program to the MDEQ.	Section 7.6	Data summary tables were transmitted to the MDEQ on August 1, 1996. [COMPLETED]
8. Transmittal of historical analytical data for POTW point of compliance (CFD-02) discharge.	Section 7.6	Data summary report was transmitted to the MDEQ on December 29, 1996. [COMPLETED]
9. Report summarizing analytical results of first round of groundwater sampling. The report will propose to the MDEQ a list of site-specific constituents for future groundwater sampling activities, and will present recommendations for additional well installation, if needed, to further investigate on-site sources, the site perimeter, or off-site areas.	Sections 7.2.4 and 7.2.4.3	Report was transmitted to the MDEQ on January 22, 1996. [COMPLETED]
10. Letter Report presenting analytical results of surface soil sampling. Recommendations for additional surface soil sampling to assess potential worker exposure will also be made, if appropriate.	Section 7.5.4	Letter report was transmitted to the MDEQ on March 8, 1996. [COMPLETED]
11. Report presenting the results of the geophysical borehole logging task and recommendations for additional borings, if needed, to understand discrepancies between the geophysical data and boring logs.	Section 7.2.5	Report was transmitted to the MDEQ on January 19, 1996. [COMPLETED]
12. Transmittal of Quarterly Water Level Data.	Section 7.2.8	Transmitted to the MDEQ within the RI Report on January 21, 1999. [COMPLETED]
13. Letter Report evaluating whether buried utilities (or bedding material) may be serving as preferential pathway(s) for groundwater migration. Report must include maps of buried utilities with an indication of where utilities or bedding materials lie below the water table. Recommendations, if appropriate, for additional borings/monitoring wells need to be included in report.	Section 7.4	The buried utility evaluation map and summary letter were transmitted to the MDEQ on September 4, 1998. [COMPLETED]

TABLE 10-2

SCHEDULE FOR SUBMITTAL OF OTHER DELIVERABLES TO THE MDEQ

GENERAL MOTORS CORPORATION
SAGINAW MALLEABLE IRON PLANT PROPERTY
AND
REALM, INC.
GREEN POINT LANDFILL AND DRUM REMEDIATION AREA
SAGINAW, MICHIGAN

Deliverable ¹	RI/FS Work Plan Section	Submittal and Completion Schedule ³
14. Notification of MDEQ and Preparation of a Work Plan ¹ , if needed, to address any discovered point source discharge to the Saginaw River originating on GM Property.	Section 7.4	Notification of MDEQ within 7 days of discovery, Work Plan due 30 days from date of discovery. [COMPLETED]
15. Report presenting results of Drum Remediation Area Test Pit Investigation.	Section 5.1	Report was transmitted to the MDEQ on August 31, 1995. [COMPLETED]
16. Soil Investigation Work Plan ¹ for Drum Remediation Area, if needed, following completion of Test Pit Investigation.	Section 7.5.2	A Sampling and Analysis Plan to allow consolidation of DRA hillock soils with the Green Point Landfill subgrade, dated August 20, 1996, was transmitted to the MDEQ. Excavation and relocation activities were completed during February 1997. [COMPLETED]
17. Report on the Previous Metal Feedstock Area, based on results of soil sampling and downgradient monitoring well groundwater results, including a work plan, if needed, to install monitoring wells in this area.	Section 7.5.3	Letter report dated August 9, 1996 was transmitted to the MDEQ. [COMPLETED]
18. Plan to further investigate groundwater quality north of the Drum Remediation Area.	NA	The initial investigation plan was submitted to the MDEQ on January 5, 1998. A supplemental plan was submitted to the MDEQ on May 13, 1999. A letter report was transmitted to the MDEQ on December 9, 1999. Additional investigation activities were conducted in October 2000. [COMPLETED]
19. Letter report presenting the results of supplemental surface soil sampling in the Railyard and the Unpaved Area, and recommendations for additional activities, as appropriate.	NA	The letter report was transmitted to the MDEQ on April 14, 1998. [COMPLETED]
20. Plan to collect additional soil, surface water, and sediment samples for ecological characterization.	NA	The initial investigation plan was submitted to the MDEQ on July 17, 2000. Field activities were completed in August 2000, and incorporated into the final RI Report. [COMPLETED]

Notes:

- ¹ The requirements for certain plans are contingent upon factors specified in the RI/FS Work Plan.
- ² Buried utilities include buried sewer (current and abandoned), electrical, water, natural gas, fire protection lines, and tunnels.
- ³ Transmittal dates refer to the dates that deliverables were sent out from preparers, and do not indicate the date that deliverables were received by the MDEQ.

TABLE 1

POLYCHLORINATED BIPHENYL ANALYTICAL DATA
APRIL 2001 SAMPLING EVENT

GM SMI AND REALM, INC. GPL AND DRA
SAGINAW, MI

Location ID Date Sampled	Generic MDEQ Criteria Values (ug/L)			B-7R 4/5/01	MW-111WT 4/5/01	MW-112WT 4/5/01	Reanalysis MW-112WT 4/5/01	MW-114WT 4/5/01
	GSI	RDW	IDW					
<u>Aroclors, Unfiltered</u>								
PCB-1016	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U
PCB-1221	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U
PCB-1232	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	0.40 U	0.40 U	0.40 U	0.40 UJ	0.40 U
PCB-1242	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	0.20 U	0.20 U	0.20 J	0.24 J	0.20 U
PCB-1248	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U
PCB-1254	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U
PCB-1260	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U
Total Aroclors				ND	ND	0.20	0.24	ND
<u>Aroclors, Filtered</u>								
PCB-1016	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	--	--	0.20 U	--	--
PCB-1221	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	--	--	0.20 U	--	--
PCB-1232	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	--	--	0.40 U	--	--
PCB-1242	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	--	--	0.22	--	--
PCB-1248	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	--	--	0.20 U	--	--
PCB-1254	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	--	--	0.20 U	--	--
PCB-1260	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}	--	--	0.20 U	--	--
Total Aroclors	0.20 {J,M,T}	0.50 {A,J,T}	0.50 {A,J,T}			0.22		

See generic notes page.

**TABLE 2
GROUNDWATER AND LNAPL MEASUREMENT SUMMARY**

**GENERAL MOTORS CORPORATION
SAGINAW MALLEABLE IRON PLANT
SAGINAW, MICHIGAN**

Date	MW-147WT reference elevation = 592.07				MW-157WT reference elevation = 591.72				TP-2 reference elevation not available				RW-1 reference elevation = 592.18			
	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)
24-Mar-00	8.11	1.57	9.68	583.83	7.82	1.00	8.82	583.82	8.81	0.34	9.15	NA	8.83	0.41	9.24	583.32
05-May-00	7.85	1.82	9.67	584.07	7.68	0.92	8.60	583.97	8.83	0.45	9.28	NA	8.83	0.45	9.28	583.31
26-May-00	7.50	2.06	9.56	584.41	7.40	0.95	8.35	584.24	8.53	0.67	9.20	NA	8.85	0.40	9.25	583.30
22-Jun-00	7.90	1.86	9.76	584.02	7.75	0.74	8.49	583.91	8.68	0.42	9.10	NA	9.01	0.37	9.38	583.14
14-Jul-00	7.87	1.84	9.71	584.05	7.72	0.71	8.43	583.94	8.65	0.62	9.27	NA	NA	NA	NA	NA
01-Sep-00	7.88	1.77	9.65	584.05	7.85	0.70	8.55	583.81	8.70	0.58	9.28	NA	9.00	0.37	9.37	583.15
06-Oct-00	8.10	1.75	9.85	583.83	7.88	0.75	8.63	583.78	8.85	0.50	9.35	NA	9.00	0.35	9.35	583.15
04-Nov-00	8.26	1.94	10.20	583.65	8.08	0.84	8.92	583.57	8.98	0.56	9.54	NA	8.98	0.48	9.46	583.16
20-Nov-00	8.15	1.66	9.81	583.79	NA	NA	NA	NA	8.90	0.46	9.36	NA	8.89	0.50	9.39	583.25
02-Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	9.10	0.37	9.47	NA	9.09	0.38	9.47	583.06
05/06-Feb-01	8.28	1.85	10.13	583.64	8.02	0.80	8.82	583.64	10.40	0.47	10.87	NA	10.58	1.18	11.76	581.51
28-Feb-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.80	0.41	9.21	583.35
13-Mar-01	8.12	1.48	9.60	583.83	NA	NA	NA	NA	8.80	0.39	9.19	NA	8.80	0.40	9.20	583.35
04-May-01	8.30	1.55	9.85	583.65	NA	NA	NA	NA	8.90	0.50	9.40	NA	8.80	0.41	9.21	583.35
24-May-01	8.06	1.54	9.60	583.89	NA	NA	NA	NA	8.84	0.46	9.30	NA	8.75	0.35	9.10	583.40
16-Jun-01	8.10	1.52	9.62	583.85	NA	NA	NA	NA	8.81	0.45	9.26	NA	8.68	0.02	8.70	583.50
15-Aug-01	8.31	1.61	9.92	583.63	NA	NA	NA	NA	9.15	0.23	9.38	NA	9.07	0.09	9.16	583.10
28-Sep-01	8.04	1.49	9.53	583.91	NA	NA	NA	NA	8.96	0.38	9.34	NA	8.91	0.16	9.07	583.26

See Notes on Page 4.

**TABLE 2
GROUNDWATER AND LNAPL MEASUREMENT SUMMARY**

**GENERAL MOTORS CORPORATION
SAGINAW MALLEABLE IRON PLANT
SAGINAW, MICHIGAN**

Date	MW-158WT reference elevation = 591.78				MW-168WT reference elevation = 592.11				RW-3 reference elevation = 592.32				RW-2 reference elevation = 592.07			
	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)
24-Mar-00	8.37	0.01	8.38	583.41	8.16	1.66	9.82	583.82	10.59	0.01	10.60	581.73	8.70	0.03	8.73	583.37
05-May-00	8.30	0.01	8.31	583.48	7.93	1.92	9.85	584.03	10.69	0.01	10.70	581.63	NA	NA	NA	NA
26-May-00	NP	0.00	8.09	583.69	7.57	1.96	9.53	584.38	NP	0.00	10.70	581.62	NP	0.00	8.78	583.29
22-Jun-00	NP	0.00	8.25	583.53	7.80	1.60	9.40	584.18	NP	0.00	7.53	584.79	NP	0.00	9.00	583.07
14-Jul-00	NP	0.00	8.21	583.57	7.78	1.59	9.37	584.20	NP	0.00	7.53	584.79	NP	0.00	9.10	582.97
01-Sep-00	NP	0.00	8.30	583.48	7.94	1.58	9.52	584.04	NP	0.00	7.12	585.20	NP	0.00	9.10	582.97
06-Oct-00	NA	NA	NA	NA	NA	NA	NA	NA	NP	0.00	7.90	584.42	NP	0.00	9.10	582.97
04-Nov-00	NP	0.00	8.56	583.22	NA	NA	NA	NA	NP	0.00	8.11	584.21	NP	0.00	9.05	583.02
20-Nov-00	8.48	0.01	8.49	583.30	8.11	1.82	9.93	583.85	7.67	0.01	7.68	584.65	8.93	0.01	8.94	583.14
02-Jan-01	NA	NA	NA	NA	8.46	1.12	9.58	583.56	8.35	0.01	8.36	583.97	8.87	0.01	8.88	583.20
05/06-Feb-01	9.09	0.01	9.10	582.69	7.92	1.91	9.83	584.04	NP	0.00	10.52	581.80	NP	0.00	10.61	581.46
28-Feb-01	NA	NA	NA	NA	NA	NA	NA	NA	9.09	0.01	9.10	583.23	8.95	0.01	8.96	583.12
13-Mar-01	NP	0.00	8.65	583.13	7.95	1.79	9.74	584.02	NP	0.00	9.84	582.48	8.94	0.01	8.95	583.13
04-May-01	NP	0.00	8.45	583.33	8.16	1.64	9.80	583.82	10.94	0.01	10.95	581.38	8.90	0.01	8.91	583.17
24-May-01	8.36	0.01	8.37	583.42	7.95	1.55	9.50	584.04	9.90	0.01	9.91	582.42	8.88	0.01	8.89	583.19
16-Jun-01	8.42	0.01	8.43	583.36	7.93	1.55	9.48	584.06	9.87	0.01	9.88	582.45	8.92	0.01	8.93	583.15
15-Aug-01	NP	0.00	8.67	583.11	8.41	1.17	9.58	583.61	8.43	0.01	8.44	583.89	9.05	0.01	9.06	583.02
28-Sep-01	NP	0.00	8.51	583.27	NA	NA	NA	NA	NP	0.00	6.87	585.45	NP	0.00	8.75	583.32

See Notes on Page 4.

**TABLE 2
GROUNDWATER AND LNAPL MEASUREMENT SUMMARY**

**GENERAL MOTORS CORPORATION
SAGINAW MALLEABLE IRON PLANT
SAGINAW, MICHIGAN**

Date	MW-169WT reference elevation = 591.82				MW-172WT reference elevation = 591.51				MW-160WT reference elevation = 591.53				RW-4 reference elevation = 592.27			
	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)
24-Mar-00	8.66	0.01	8.67	583.16	8.10	0.33	8.43	583.38	NA	NA	NA	NA	8.14	0.15	8.29	584.12
05-May-00	8.49	0.01	8.50	583.33	8.18	0.40	8.58	583.30	NA	NA	NA	NA	8.12	0.16	8.28	584.14
26-May-00	NP	0.00	8.43	583.39	8.09	0.01	8.10	583.42	8.11	0.40	8.51	583.39	7.65	0.20	7.85	584.60
22-Jun-00	NP	0.00	8.36	583.46	8.12	0.48	8.60	583.35	8.15	0.52	8.67	583.34	7.87	0.18	8.05	584.39
14-Jul-00	NP	0.00	8.34	583.48	8.10	0.47	8.57	583.37	8.11	0.55	8.66	583.38	7.84	0.16	8.00	584.42
01-Sep-00	NP	0.00	8.41	583.41	8.14	0.48	8.62	583.33	8.20	0.51	8.71	583.29	8.01	0.21	8.22	584.24
06-Oct-00	NP	0.00	8.32	583.50	8.30	0.90	9.20	583.14	NA	NA	NA	NA	7.71	0.22	7.93	584.54
04-Nov-00	NA	NA	NA	NA	8.47	1.03	9.50	582.96	8.45	0.77	9.22	583.02	8.45	0.08	8.53	583.81
20-Nov-00	NA	NA	NA	NA	8.31	0.70	9.01	583.14	8.40	0.63	9.03	583.08	8.30	0.05	8.35	583.97
02-Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	8.48	0.66	9.14	583.00	NP	0.00	14.18	578.09
05/06-Feb-01	8.65	0.01	8.66	583.17	8.42	1.14	9.56	583.00	8.54	0.68	9.22	582.94	12.25	0.01	12.26	580.02
28-Feb-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13-Mar-01	NA	NA	NA	NA	8.27	0.73	9.00	583.18	8.36	0.45	8.81	583.13	NP	0.00	8.05	584.22
04-May-01	8.04	0.01	8.05	583.78	8.36	0.91	9.27	583.08	8.45	0.65	9.10	583.03	NP	0.00	8.30	583.97
24-May-01	7.93	0.01	7.94	583.89	8.33	0.79	9.12	583.12	8.42	0.52	8.94	583.07	7.98	0.01	7.99	584.29
16-Jun-01	7.91	0.01	7.92	583.91	8.36	0.78	9.14	583.09	8.48	0.50	8.98	583.01	8.06	0.01	8.07	584.21
15-Aug-01	8.45	0.01	8.46	583.37	8.39	0.78	9.17	583.06	8.47	0.64	9.11	583.01	NP	0.00	8.16	584.11
28-Sep-01	NP	0.00	8.05	583.77	8.19	0.35	8.54	583.29	8.31	0.43	8.74	583.19	8.09	0.01	8.10	584.18

See Notes on Page 4.

**TABLE 2
GROUNDWATER AND LNAPL MEASUREMENT SUMMARY**

**GENERAL MOTORS CORPORATION
SAGINAW MALLEABLE IRON PLANT
SAGINAW, MICHIGAN**

Date	MW-148WT reference elevation = 592.02				MW-170WT reference elevation = 591.28				MW-178WT reference elevation = 590.35				MW-175WT reference elevation not available			
	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (corrected)
24-Mar-00	7.70	2.52	10.22	584.12	11.00	0.02	11.02	580.28	7.65	0.80	8.45	582.64	7.66	0.01	7.67	NA
05-May-00	7.63	2.55	10.18	584.19	11.24	0.02	11.26	580.04	7.58	1.01	8.59	582.69	7.59	0.01	7.60	NA
26-May-00	6.96	2.89	9.85	584.83	10.89	0.02	10.91	580.39	7.58	1.00	8.58	582.69	NP	0.00	7.61	NA
22-Jun-00	7.05	2.75	9.80	584.75	10.92	0.02	10.94	580.36	7.87	0.78	8.65	582.42	NP	0.00	7.82	NA
14-Jul-00	7.01	2.77	9.78	584.79	10.87	0.02	10.89	580.41	7.85	0.75	8.60	582.44	NP	0.00	7.79	NA
01-Sep-00	7.20	2.65	9.85	584.61	NA	NA	NA	NA	7.90	0.78	8.68	582.39	NP	0.00	7.91	NA
06-Oct-00	6.85	2.95	9.80	584.93	10.78	0.02	10.80	580.50	7.44	0.95	8.39	582.83	NP	0.00	7.51	NA
04-Nov-00	8.02	3.13	11.15	583.75	NA	NA	NA	NA	7.66	0.59	8.25	582.64	6.57	0.01	6.58	NA
20-Nov-00	7.85	3.24	11.09	583.91	NA	NA	NA	NA	7.64	0.87	8.51	582.64	NP	0.00	7.64	NA
02-Jan-01	10.56	3.65	14.21	581.17	NA	NA	NA	NA	NA	NA	NA	NA	NP	0.00	7.81	NA
05/06-Feb-01	9.56	3.07	12.63	582.21	NA	NA	NA	NA	7.64	0.96	8.60	582.63	7.65	0.01	7.66	NA
28-Feb-01	8.87	1.54	10.41	583.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13-Mar-01	7.70	2.70	10.40	584.10	NA	NA	NA	NA	7.63	0.92	8.55	582.65	NP	0.00	7.40	NA
04-May-01	8.05	1.80	9.85	583.83	NA	NA	NA	NA	7.62	1.11	8.73	582.64	NP	0.00	7.50	NA
24-May-01	7.68	1.77	9.45	584.20	NA	NA	NA	NA	7.64	0.92	8.56	582.64	NP	0.00	7.37	NA
16-Jun-01	7.61	1.77	9.38	584.27	NA	NA	NA	NA	7.68	0.94	8.62	582.59	NP	0.00	7.41	NA
15-Aug-01	7.81	1.71	9.52	584.07	NA	NA	NA	NA	7.63	0.91	8.54	582.65	7.47	0.01	7.48	NA
28-Sep-01	7.53	2.11	9.64	584.32	NA	NA	NA	NA	7.73	0.80	8.53	582.56	NA	NA	NA	NA

Notes:

The reference elevation for each of the recovery wells (RW-1, RW-2, RW-3, and RW-4) is the ground surface elevation; approximately equal to the elevation of the edge of the vault.
 NA = not available; monitoring well inaccessible (e.g., covered by pallet or gravel).
 NP = LNAPL was not present in well. An LNAPL density of 0.92 was used to correct the water level elevations for the presence of LNAPL.
 Monitoring well MW-170WT was destroyed during construction activities associated with lining the Stormwater Pond.
 Elevations for wells TP-2 and MW-175 are not available. Missing values for MW-160 are due to a lodged well cover.

TABLE 3

VOLATILE ORGANIC COMPOUNDS, GROUNDWATER ANALYTICAL DATA

REALM, INC. GREEN POINT LANDFILL
SAGINAW, MICHIGAN

Location ID Sample Date Sample Type	MW-117WT			MW-117S1			MW-118WT				MW-118S1			
	6/20/95 FS	5/19/00 FS	6/18/01 FS	6/20/95 FS	5/19/00 FS	6/19/01 FS	6/20/95 FS	5/17/00 FS	6/19/01 FS	6/19/01 DUP	6/20/95 FS	5/17/00 FS	5/17/00 DUP	6/19/01 FS
Acetone	50 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U	40 U	40 U	50 U	10 U	10 U	10 U
Benzene	1.0 U	0.13 J	1.0 U	1.0 U	0.60 J	1.0 U	1.0 U	0.54 J	4.0 U	4.0 U	1.0 U	0.47 J	0.46 J	1.0 U
Bromodichloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	50 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U	40 U	40 U	50 U	10 U	10 U	10 U
Carbon disulfide	50 U	1.0 U	1.0 U	0.50 J	1.0 U	1.0 U	50 U	1.0 U	4.0 U	4.0 U	1.3	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	1.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.1	1.0 U	1.0 U	1.0 U
Chloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 J	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone	R	10 U	10 U	R	10 U	10 U	R	10 U	40 U	40 U	R	10 U	10 U	10 U
4-Methyl-2-pentanone	50 U	10 U	5.0 U	50 U	10 U	5.0 U	50 U	28	180	180	50 U	10 U	10 U	5.0 U
Methylene Chloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	0.90 J	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	1.0 U	1.0 U	1.0 U	1.0 U	0.14 J	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	0.33 J	0.33 J	0.27 J
Xylenes (total)	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	0.47 J	4.0 U	4.0 U	3.0 U	1.0 U	1.0 U	1.0 U

See Notes, Page 4.

TABLE 3

VOLATILE ORGANIC COMPOUNDS, GROUNDWATER ANALYTICAL DATA

REALM, INC. GREEN POINT LANDFILL
SAGINAW, MICHIGAN

Location ID Sample Date Sample Type	MW-128WT			MW-128S1			X-1A				X-1B		
	7/26/95 FS	5/19/00 FS	6/20/01 FS	7/26/95 FS	5/19/00 FS	6/20/01 FS	7/29/95 FS	6/10/96 FS	5/23/00 FS	6/20/01 FS	7/29/95 FS	5/24/00 FS	6/20/01 FS
Acetone	7.3 J	10 U	10 U	6.7 J	10 U	10 U	180 U	210 U	20 U	20 U	5.5 J	16 U	11 U
Benzene	1.0 U	1.0 U	1.0 U	1.0 U	0.28 J	0.27 J	9.5	8.7 J	8.0	9.3	1.9	1.2	2.2
Bromodichloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Bromoform	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	0.34 J	2.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	50 U	10 U	10 U	50 U	10 U	10 U	180 U	100 U	20 UJ	20 U	50 U	10 UJ	10 U
Carbon disulfide	50 U	1.0 U	1.0 U	50 U	1.0 U	1.0 U	180 U	100 U	2.0 U	2.0 U	50 U	0.14 J	1.0 U
Carbon Tetrachloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	0.33 J	0.33 J	1.0 U	1.0 U	1.0 U
Chloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	66	65	32	42	13	11	15
Chloroform	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 UJ	2.0 U	1.0 U	0.46 J	0.88 J
Dibromochloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	0.35 J	2.0 U	1.0 U	0.13 J	0.18 J
1,1-Dichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	1.0 UJ	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone	R	10 U	10 U	R	10 U	10 U	180 U	100 U	20 U	20 U	50 U	10 U	10 U
4-Methyl-2-pentanone	50 U	10 U	5.0 U	50 U	10 U	5.0 U	180 U	100 U	20 U	10 U	50 U	10 U	5.0 U
Methylene Chloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	5.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Styrene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	1.0 UJ	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Toluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6 U	2.1 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	11 U	6.2 U	2.5	2.3	3.0 U	1.0 U	0.63 J

See Notes, Page 4.

TABLE 3

VOLATILE ORGANIC COMPOUNDS, GROUNDWATER ANALYTICAL DATA

REALM, INC. GREEN POINT LANDFILL
SAGINAW, MICHIGAN

Location ID Sample Date Sample Type	X-2A			X-10A		X-16A			X-16B		
	7/15/95	5/19/00	6/18/01	6/13/96	5/24/00	7/27/95	5/24/00	6/19/01	7/28/95	5/19/00	6/20/01
	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
Acetone	50 UJ	10 U	10 U	100 U	10 U	50 U	10 U	10 U	50 UJ	10 U	10 U
Benzene	1.0 U	0.36 J	0.57 J	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	50 UJ	10 U	10 U	50 U	10 UJ	50 U	10 UJ	10 U	50 UJ	10 U	10 U
Carbon disulfide	50 U	1.0 U	1.0 U	50 U	1.0 U	50 U	1.0 U	1.0 U	50 U	1.0 U	1.0 U
Carbon Tetrachloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	0.18 J	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone	50 U	10 U	10 U	50 U	10 U	R	10 U	10 U	50 U	10 U	10 U
4-Methyl-2-pentanone	50 U	10 U	5.0 U	50 U	10 U	50 U	10 U	5.0 U	50 U	10 U	5.0 U
Methylene Chloride	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.8	4.3	1.0 U	1.0 U	0.34 J
Xylenes (total)	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U

See Notes, Page 4.

TABLE 3

VOLATILE ORGANIC COMPOUNDS, GROUNDWATER ANALYTICAL DATA

**REALM, INC. GREEN POINT LANDFILL
SAGINAW, MICHIGAN**

General Notes:

All concentrations in micrograms per liter ($\mu\text{g/L}$); equivalent to parts per billion (ppb), unless otherwise noted.

Location ID:

MW, X = Permanent monitoring wells.

WT = Water table monitoring wells.

S1 = Well screened at top of sand unit; increasing numbers indicate increased depth within the sand unit (e.g., S2, S3, S4).

Sample Type:

FS = Primary field sample, collected by BBL.

DUP = Duplicate field sample, collected by BBL.

Data Qualifiers:

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

R = The sample results were rejected.

U = The constituent was analyzed for but not detected. The associated value is the constituent quantitation limit.

TABLE 4

TAL INORGANIC CONSTITUENTS AND INDICATOR PARAMETERS, GROUNDWATER ANALYTICAL DATA

REALM, INC. GREEN POINT LANDFILL
SAGINAW, MICHIGAN

Location ID Sample Date Sample Type	MW-117WT					MW-117SI					MW-118WT			
	6/20/95 FS	7/14/95 FS	6/11/96 FS	5/19/00 FS	6/18/01 FS	6/20/95 FS	7/14/95 FS	6/11/96 FS	5/19/00 FS	6/18/01 FS	6/20/95 FS	7/14/95 FS	6/11/96 FS	5/17/00 FS
TAL Inorganics (ug/L)														
Aluminum	350	--	100 U	100 U	100 U	117	--	120	100 U	100 U	563	--	100 U	100 U
Antimony	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Arsenic	1.3	--	--	10 U	10 U	1.2	--	--	10 U	10 U	1.0	--	--	10 U
Barium	2,210	--	2,520	3,580	3,170	1,410	--	1,670	1,720	1,740	1,970	--	2,420	7,970
Beryllium	5.0 U	--	--	4.0 U	4.0 U	5.0 U	--	--	4.0 U	4.0 U	5.0 U	--	--	4.0 U
Cadmium	0.20 U	--	--	1.0 U	1.8	0.20 U	--	--	1.0 U	1.0 U	0.20 U	--	--	1.5
Calcium	1,340,000 J	--	--	1,200,000	1,090,000	133,000 J	--	--	163,000	157,000	1,950,000 J	--	--	4,890,000
Chromium	50 U	--	--	5.0 U	5.0 U	50 U	--	--	5.0 U	5.0 U	50 U	--	--	5.0 U
Cobalt	50 U	--	--	40 U	40 U	50 U	--	--	40 U	40 U	50 U	--	--	40 U
Copper	25 U	--	--	25 U	25 U	25 U	--	--	25 U	25 U	25 U	--	--	25 U
Iron	100,000	--	124,000	149,000	137,000	5,780	--	8,260	8,730	9,120	71,500	--	93,100	261,000
Lead	3.0 UJ	--	3.0 U	3.0 U	3.0 U	3.0 UJ	--	3.0 U	3.0 U	3.0 U	3.0 UJ	--	3.0 U	3.0 U
Magnesium	485,000	--	545,000	593,000	550,000	42,500	--	50,400	52,100	51,700	372,000	--	457,000	1,330,000
Manganese	5,130	--	5,190	5,510	4,900	347	--	330	341	340	5,460	--	5,390	8,930
Mercury	0.20 UJ	--	--	0.20 U	0.20 UJ	0.20 UJ	--	--	0.20 U	0.20 UJ	0.20 UJ	--	--	0.20 U
Nickel	50 U	--	50 U	23.3 B	18.2 B	50 U	--	50 U	40 U	40 U	50 U	--	50 U	17.7 B
Potassium	6,960	--	--	41,300	39,800 J	5,000 U	--	--	2,330 B	2,270 BJ	5,000 U	--	--	16,800
Selenium	5.0 UJ	--	--	5.0 U	5.0 U	5.0 UJ	--	--	5.0 U	5.0 U	5.0 UJ	--	--	5.0 U
Silver	0.50 U	--	--	5.0 U	5.0 U	0.50 U	--	--	5.0 U	5.0 U	0.50 U	--	--	5.0 U
Sodium	463,000	--	499,000	590,000	559,000	101,000	--	108,000	120,000	121,000	175,000	--	229,000	647,000
Thallium	4.0 UJ	--	--	17.9	10 U	2.0 UJ	--	--	5.0 B	10 U	2.0 UJ	--	--	26.8
Vanadium	20 U	--	--	50 U	50 U	20 U	--	--	50 U	50 U	20 U	--	--	50 U
Zinc	R	--	20 U	20 U	20 U	R	--	20 U	20 U	12.3 B	R	--	22.3 U	17.8 B
Cyanide, Total	5.0 U	--	--	5.0 U	5.0 U	5.0 U	--	--	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Landfill Indicator Parameters														
pH (Standard Units)	--	--	--	6.4	7.1	--	--	--	7.0	8.0	--	--	--	6.2
Total Dissolved Solids (mg/L)	--	11,000	--	11,000	13,000	--	990	--	840	920	--	--	--	37,000
Chloride (mg/L)	--	4,600	--	4,930 J	5,380	--	230	--	284 J	269	--	1,400	--	16,100
Sulfate (mg/L)	--	--	--	25 UG	0.23 B	--	--	--	2.0 UG	0.26 B	--	--	--	100 UG
Nitrate (as N) (mg/L)	--	--	--	12.5 UG	0.50 U	--	--	--	1.0 UG	0.50 U	--	--	0.08 U	50 UG
Nitrite (as N) (mg/L)	--	--	--	12.5 UG	R	--	--	--	1.0 UG	R	--	--	0.07 U	50 UG
Nitrogen, Ammonia (mg/L)	--	30 J	--	46	63	--	1 UJ	--	5.1	11	--	10 J	--	26

See Notes, Page 5.

TABLE 4

TAL INORGANIC CONSTITUENTS AND INDICATOR PARAMETERS, GROUNDWATER ANALYTICAL DATA

REALM, INC. GREEN POINT LANDFILL
SAGINAW, MICHIGAN

Location ID Sample Date Sample Type	MW-118WT		MW-118S1					MW-128WT				MW-128S1		
	6/19/01 FS	6/19/01 DUP	6/20/95 FS	7/14/95 FS	6/11/96 FS	5/17/00 FS	5/17/00 DUP	6/19/01 FS	7/26/95 FS	3/12/97 FS	5/19/00 FS	6/20/01 FS	7/26/95 FS	3/12/97 FS
TAL Inorganics (ug/L)														
Aluminum	100 U	100 U	219	--	100 U	100 U	100 U	100 U	448	--	100 U	100 U	502	--
Antimony	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Arsenic	5.1 B	7.4 B	1.8	--	--	10 U	10 U	10 U	3.7	--	5.1 B	5.9 B	17.3	--
Barium	10,700	11,200	482	--	532	593	612	645	628	--	142	219	936	--
Beryllium	5.0 U	4.0 U	5.0 U	--	--	4.0 U	4.0 U	4.0 U	5.0 U	--	4.0 U	4.0 U	5.0 U	--
Cadmium	8.3	8.6	0.20 U	--	--	1.0 U	1.0 U	1.0 U	0.20 UJ	--	1.0 U	1.0 U	0.20 UJ	--
Calcium	5,750,000	6,040,000	120,000 J	--	--	156,000	156,000	151,000	360,000	--	217,000	186,000	442,000	--
Chromium	5.0 U	5.0 U	50 U	--	--	5.0 U	5.0 U	5.0 U	50 U	--	1.7 B	2.0 B	50 U	--
Cobalt	40 U	40 U	50 U	--	--	40 U	40 U	40 U	50 U	--	1.7 B	7.5 B	50 U	--
Copper	25 U	25 U	25 U	--	--	25 U	25 U	25 U	25 U	--	25 U	25 U	25 U	--
Iron	330,000	344,000	2,500	--	5,390	6,090	6,150	7,070	24,500	--	20,100	19,400	31,900	--
Lead	3.0 U	3.0 U	3.0 UJ	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--	3.0 U	3.0 U	3.0 U	--
Magnesium	1,760,000	1,840,000	38,100	--	47,000	49,300	49,800	49,400	115,000	--	54,600	61,500	170,000	--
Manganese	7,740	8,070	347	--	383	420	415	428	918	--	2,170	1,520	437	--
Mercury	0.20 UJ	0.20 UJ	0.20 UJ	--	--	0.20 U	0.20 U	0.20 UJ	0.20 U	--	0.20 U	0.20 UJ	0.20 U	--
Nickel	23.5 B	24.4 B	50 U	--	50 U	40 U	40 U	40 U	50 U	--	14.5 B	25.8 B	50 U	--
Potassium	30,700 J	32,400 J	5,000 U	--	--	2,170 B	2,180 B	2,120 BJ	5,420	--	33,900	63,900 J	5,000 U	--
Selenium	5.0 U	5.0 U	5.0 UJ	--	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Silver	5.0 U	5.0 U	0.50 U	--	--	5.0 U	5.0 U	5.0 U	0.50 U	--	5.0 U	5.0 U	0.50 U	--
Sodium	955,000	976,000	97,300	--	112,000	121,000	122,000	117,000	720,000	--	331,000	509,000	582,000	--
Thallium	10 U	6.5 B	2.0 UJ	--	--	8.1 B	5.4 B	10 U	8.0 UJ*	--	6.9 B	10 U	8.0 UJ*	--
Vanadium	50 U	50 U	20 U	--	--	50 U	50 U	50 U	20 U	--	50 U	50 U	20 U	--
Zinc	20 U	20 U	R	--	35.8 U	20 U	20 U	20 U	31	--	20 U	20 U	24	--
Cyanide, Total	5.0 U	5.0 U	5.0 U	--	--	5.0 U	5.0 U	5.0 U	8.3	--	5.0 U	5.0 U	8.8	--
Landfill Indicator Parameters														
pH (Standard Units)	6.9	7.0	--	--	--	7.0	7.0	8.0	--	--	7.2	7.9	--	--
Total Dissolved Solids (mg/L)	34,000	36,000	--	8,000	--	930	940	910	--	--	1,800	2,100	--	--
Chloride (mg/L)	21,800	18,800	--	260	--	284	281	272	--	--	775 J	995	--	--
Sulfate (mg/L)	100 U	0.63 B	--	--	5.0 U	4.0 UG	4.0 UG	0.15 B	--	5.0 U	101	105	--	5.0 U
Nitrate (as N) (mg/L)	50 U	0.50 U	--	--	0.08 U	2.0 UG	2.0 UG	0.50 U	--	0.14	2.5 UG	0.50 U	--	0.08 U
Nitrite (as N) (mg/L)	R	R	--	--	0.07 U	2.0 UG	2.0 UG	R	--	0.07 U	2.5 UG	R	--	0.07 U
Nitrogen, Ammonia (mg/L)	92	76	--	4.8 J	--	5.9	6.2	8.4	--	--	13	66	--	--

See Notes, Page 5.

TABLE 4

TAL INORGANIC CONSTITUENTS AND INDICATOR PARAMETERS, GROUNDWATER ANALYTICAL DATA

REALM, INC. GREEN POINT LANDFILL
SAGINAW, MICHIGAN

Location ID Sample Date Sample Type	MW-128S1		X-1A					X-1B				
	5/19/00 FS	6/20/01 FS	7/29/95 FS	6/10/96 FS	3/8/97 FS	5/23/00 FS	6/20/01 FS	7/29/95 FS	6/10/96 FS	3/9/97 FS	5/24/00 FS	6/20/01 FS
TAL Inorganics (ug/L)												
Aluminum	100 U	100 U	100 U	100 U	--	100 U	100 U	100 U	118 U	--	100 U	100 U
Antimony	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Arsenic	18.1	19	3.6	--	--	3.5 B	4.4 B	3.1	--	--	10 U	4.3 B
Barium	820	791	535	515	--	475	599	887	870	--	770	644
Beryllium	4.0 U	4.0 U	5.0 U	--	--	4.0 U	4.0 U	5.0 U	--	--	4.0 U	4.0 U
Cadmium	1.0 U	1.0 U	0.20 UJ	--	--	1.0 U	1.0 U	0.38 J	--	--	1.0 U	1.0 U
Calcium	398,000	367,000	175,000	--	--	168,000	172,000	371,000	--	--	380,000	352,000
Chromium	4.2 B	1.9 B	50 U	--	--	3.2 B	5.4	50 U	--	--	3.8 B	2.2 B
Cobalt	4.3 B	4.6 B	50 U	--	--	40 U	4.9 B	50 U	--	--	6.1 B	6.5 B
Copper	25 U	25 U	25 U	--	--	25 U	25 U	25 U	--	--	25 U	25 U
Iron	22,000	20,400	7,120	30,000 J	--	18,500 J	16,000	22,900	21,200 J	--	22,100 J	22,400
Lead	3.0 U	3.0 U	3.0 U	3.0 U	--	3.0 U	3.0 U	3.0 U	3.0 U	--	3.0 U	3.0 U
Magnesium	145,000	136,000	110,000	102,000	--	111,000	106,000	124,000	121,000	--	118,000	116,000
Manganese	339	377	666	1,210 J	--	835	703	1,030	838 J	--	795	935
Mercury	0.20 U	0.20 UJ	0.20 UJ	--	--	0.20 U	0.20 UJ	0.20 UJ	--	--	0.20 U	0.20 UJ
Nickel	25.6 B	24 B	50 U	50 U	--	17.2 B	28.1 B	50 U	50 U	--	29.6 B	32.4
Potassium	7,750	8,760 J	235,000	--	--	163,000	192,000 J	53,700	--	--	40,500	37,800 J
Selenium	5.0 U	5.0 U	5.0 U	--	--	5.0 U	5.0 U	5.0 U	--	--	5.0 U	5.0 U
Silver	5.0 U	5.0 U	0.50 U	--	--	5.0 U	5.0 U	0.50 U	--	--	5.0 U	5.0 U
Sodium	515,000	528,000	580,000	389,000	--	339,000	464,000	758,000	831,000	--	858,000	793,000
Thallium	6.2 B	6.1 B	8.0 UJ*	--	--	10 U	5.7 B	4.0 UJ*	--	--	6.6 B	6.4 B
Vanadium	50 U	3.3 B	20 U	--	--	50 U	50 U	20 U	--	--	2.4 B	1.7 B
Zinc	20 U	20 U	20 U	20 U	--	20 U	20 U	143	42.5 U	--	20 U	32.5
Cyanide, Total	5.0 U	5.0 U	5.0 U	--	--	4.5 B	4.8 B	9.1	--	--	5.5	5.0
Landfill Indicator Parameters												
pH (Standard Units)	6.7	7.7	--	--	--	7.0	7.8	--	--	--	6.6	7.4
Total Dissolved Solids (mg/L)	3,000	3,100	--	--	--	2,300	2,100	--	--	--	2,600	3,000
Chloride (mg/L)	1,320 J	1,230	--	--	--	505	893	--	--	--	1,440	1,280
Sulfate (mg/L)	3.8 BG	5.0	--	5.0 U	5.0 U	528	5.1	--	5.0 U	5.0 U	51.2	31.7
Nitrate (as N) (mg/L)	5.0 UG	0.50 U	--	0.08 U	0.08 U	2.5 U	0.50 U	--	0.08 U	0.08 U	10 U	0.50 U
Nitrite (as N) (mg/L)	5.0 UG	R	--	0.07 U	0.07 U	2.5 U	R	--	0.07 U	0.07 U	10 U	R
Nitrogen, Ammonia (mg/L)	3.3	7.4	--	--	--	160	210	--	--	--	24	59

See Notes, Page 5.

TABLE 4

TAL INORGANIC CONSTITUENTS AND INDICATOR PARAMETERS, GROUNDWATER ANALYTICAL DATA

REALM, INC. GREEN POINT LANDFILL
SAGINAW, MICHIGAN

Location ID Sample Date Sample Type	X-2A			X-10A		X-16A			X-16B		
	7/15/95 FS	5/19/00 FS	6/18/01 FS	6/13/96 FS	5/24/00 FS	7/27/95 FS	5/24/00 FS	6/19/01 FS	7/28/95 FS	5/19/00 FS	6/20/01 FS
TAL Inorganics (ug/L)											
Aluminum	111	100 U	100 U	100 U	100 U	1,110	100 U	100 U	--	122	100 U
Antimony	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Arsenic	1.0 U	3.4 B	10 U	5.0 U	10 U	1.0 U	10 U	10 U	--	10 U	10 U
Barium	365	410	432	200 U	44.4 B	200 U	216	225	--	35.7 B	58.7 B
Beryllium	5.0 U	4.0 U	4.0 U	5.0 U	4.0 U	5.0 U	4.0 U	4.0 U	--	4.0 U	4.0 U
Cadmium	0.20 U	1.0 U	1.0 U	0.50 U	1.0 U	0.35 J	1.0 U	1.0 U	--	0.59 B	1.0 U
Calcium	76,400	98,200	103,000	117,000	209,000	362,000	397,000	377,000	--	84,700	136,000
Chromium	50 U	5.0 U	5.0 U	50 U	5.0 U	50 U	1.5 B	5.0 U	--	5.0 U	5.0 U
Cobalt	50 U	40 U	1.3 B	50 U	40 U	50 U	40 U	40 U	--	40 U	40 U
Copper	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	--	25 U	25 U
Iron	254 J	429	606	100 UJ	100 UJ	4,370	6,850 J	9,020	--	100 U	100 U
Lead	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--	3.0 U	3.0 U
Magnesium	23,300	40,400	43,500	22,400	48,700	126,000	136,000	136,000	--	60,100	61,500
Manganese	517	569	625	22.5	152	807	966	964	--	84.5	40.4
Mercury	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 UJ	--	0.20 U	0.20 UJ
Nickel	50 U	13.4 B	10.8 B	50 U	40 U	50 U	9.5 B	40 U	--	23.8 B	3.7 B
Potassium	19,900	33,500	35,500 J	9,450	8,910	5,000 U	1,920 B	1,530 BJ	--	2,620 B	2,450 BJ
Selenium	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Silver	0.50 U	5.0 U	5.0 U	0.50 UJ	5.0 U	0.50 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Sodium	275,000	378,000	429,000	24,000	33,700	86,200	124,000	124,000	--	91,000	99,400
Thallium	2.0 UJ	5.3 B	5.9 B	2.0 UJ	7.1 B	2.0 UJ	7.6 B	6.6 B	--	3.9 B	10 U
Vanadium	20 U	50 U	50 U	20 U	50 U	20 U	50 U	50 U	--	50 U	50 U
Zinc	R	54.6	12.7 B	86.8 U	105	50	20 U	20 U	--	14.5 B	24.4
Cyanide, Total	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.8	5.0 U	5.0 U	5.0 U
Landfill Indicator Parameters											
pH (Standard Units)	--	7.6	7.8	--	7.0	--	6.7	7.9	--	7.9	7.9
Total Dissolved Solids (mg/L)	--	1,800	1,900	--	910	--	1,900	1,900	--	670	920
Chloride (mg/L)	--	884 J	982	--	58.7	--	420	428	--	90.6 J	265
Sulfate (mg/L)	--	24	1.0 U	--	430	--	601	602	--	229	192
Nitrate (as N) (mg/L)	--	2.5 UG	0.50 U	--	0.50 U	--	5.0 U	0.50 U	--	0.16 BG	0.17 B
Nitrite (as N) (mg/L)	--	2.5 UG	R	--	0.50 U	--	5.0 U	R	--	1.0 UG	R
Nitrogen, Ammonia (mg/L)	--	5.6	6.6	--	0.20 U	--	0.40	0.8	--	0.20 U	19

See Notes, Page 5.

TABLE 4

TAL INORGANIC CONSTITUENTS AND INDICATOR PARAMETERS, GROUNDWATER ANALYTICAL DATA

REALM, INC. GREEN POINT LANDFILL
SAGINAW, MICHIGAN

General Notes:

All concentrations in micrograms per liter ($\mu\text{g/L}$); equivalent to parts per billion (ppb), unless otherwise noted.

-- = Sample was not analyzed for the listed constituent.

Location ID:

MW, X = Permanent monitoring wells.

WT = Water table monitoring wells.

S1 = Well screened at top of sand unit; increasing numbers indicate increased depth within the sand unit (e.g., S2, S3, S4).

Sample Type:

FS = Primary field sample, collected by BBL.

DUP = Duplicate field sample, collected by BBL.

Data Qualifiers:

B = (Inorganic) The analyte has been positively identified. The concentration is between the instrument detection limit and the required reporting limit.

G = The reporting limit is elevated due to matrix interference.

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

R = The sample results were rejected.

U = The constituent was analyzed for but not detected. The associated value is the constituent quantitation limit.

UJ = The constituent was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

* = Duplicate analysis not within control limits.

GENERIC NOTES

GM SMI AND REALM, INC. GPL AND DRA SAGINAW, MICHIGAN

General Notes:

All concentrations in micrograms per liter ($\mu\text{g/L}$); equivalent to parts per billion (ppb), unless otherwise noted.

-- = Sample was not analyzed for the listed constituent.

Natural attenuation indicator parameter data were not BBL QA/QC reviewed.

GM = General Motors Corporation

SMI = Saginaw Malleable Iron Plant Property

REALM, INC. = Remediation and Liability Management Company, Inc.

GPL = Green Point Landfill

DRA = Drum Remediation Area

Generic MDEQ Criteria Values:

GSI = Groundwater/Surface Water Interaction criteria, updated June 2000.

RDW = Residential Drinking Water criteria, updated June 2000.

IDW = Industrial Drinking Water criteria, updated June 2000.

Criteria Area:

GSI = Saginaw River Perimeter Wells

Location ID:

B, MW, X = Permanent monitoring wells.

WT = Water table monitoring wells.

S1 = Well screened at top of sand unit; increasing numbers indicate increased depth within the sand unit (e.g., S2, S3, S4).

R = Replacement well.

Sample Type:

FS = Primary field sample, collected by BBL.

DUP = Duplicate field sample, collected by BBL.

Not Filtered/Filtered:

N = Not filtered.

F = Filtered.

Data Qualifiers:

J = The compound/constituent was positively identified; however, the associated numerical value is an estimated concentration only.

U = The compound/constituent was analyzed for but not detected. The associated value is the compound/constituent quantitation limit.

ND = Not detected.

MDEQ Criteria Qualifiers:

NA = Criterion or value is *not available* or, as is the case for Csat, *not applicable*.

{A} = Criterion is the State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act, Act No. 399 of the Public Acts of 1976.

{J} = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria.

{M} = Calculated criterion is below the analytical Target Detection Limit (TDL), therefore, the criterion defaults to the TDL.

{T} = Refer to the Toxic Substances Control Act (TSCA), 40 CFR 761, Subparts D and G, as amended, to determine the applicability of TSCA cleanup standards. Alternatives to compliance with the standards listed below are possible under Subpart D. New releases may be subject to the standards identified in Subpart G. Use Part 201 soil direct contact criteria in the table below where TSCA standards are not applicable.

Land Use Category	TSCA, Subpart D	Part 201
Residential & Commercial I	1,000 ppb, or 10,000 ppb if capped	4,000 ppb
Industrial & Commercial II	1,000 ppb, or 10,000 ppb if capped	20,000 ppb
Commercial III	1,000 ppb, or 10,000 ppb if capped	62,000 ppb
Commercial IV	1,000 ppb, or 10,000 ppb if capped	32,000 ppb