Worldwide Facilities Group
Environmental & Regulatory Support
Remediation Team

June 27, 2008

Mr. Nate Nemani
Project Manager
U.S. EPA, Region 5
Waste, Pesticide and Toxins Division
77 West Jackson Boulevard DW-8J
Chicago, IL 60604-3590

Dear Mr. Nemani:

Re: GMC Powertrain Saginaw Metal Casting Operations, MID-041-793-340
RCRA Corrective Action, LNAPL IM Work Plan
Request for Withdrawal of LNAPL IM Work Plan
Saginaw, Michigan

General Motors Corporation (GM) is requesting to withdrawal of the LNAPL Interim Measures (IM) Work Plan submitted to U.S. EPA in December 2004. The Work Plan was developed to address soils impacted with LNAPL in Investigative Unit (IU) B (Figure 1) at the Saginaw Metal Casting Operations (SMCO) Facility in Saginaw, Michigan. Measurable LNAPL was last observed 7 years ago in 2001 at the location where LNAPL was initially identified, prior to the passive recovery that was performed between 2001 and 2003. To date there has been no evidence of migration or expansion of NAPL related impacts beyond the area. Therefore, GM believes that removing LNAPL impacted soils is no longer necessary in this area.

Background

IU B is the area of the former parts plant and was formerly used for machining and storage of engine blocks. Extensive soil investigations were completed in IU B as part of the ongoing RCRA Facility Investigation (RFI). Soil sample locations and the former area impacted by LNAPL in IU B are presented on Figure 2. Boring logs for investigative locations in IU B are presented in Attachment A.

Early in 2000, periodic monitoring was initiated at monitoring well MW-00305 to determine the presence/absence of product. LNAPL was identified in MW-00305, and as a result, a passive recovery system was installed and operated between 2001 and 2003. Approximately 5 gallons of product were recovered during that time frame.

In December 2004, GM submitted the LNAPL IM Work Plan to address soils impacted with LNAPL in IU B by excavation and off-site disposal. The extent of the proposed LNAPL excavation was identified using the data from monitoring wells and borings installed in this area during RFI activities. The horizontal extent of LNAPL was determined by the presence or absence of LNAPL in the borings and monitoring wells as presented on Figure 2.

On-going Activities

Monitoring frequency at MW-00305 was increased in January 2006 with monitoring for the presence of LNAPL twice a month. In August 2007, MW-00304 was added to the LNAPL monitoring program in this area. On August 22, 2007, four additional monitoring wells (MW-00303, MW-00304A, MW-00304B, and MW-00305A) were installed outside of the previously observed limit of the LNAPL to provide points to monitor and verify the limits of LNAPL and monitor for any evidence of migration (Figure 3). The four additional wells were also added to the twice monthly monitoring for the presence/absence of LNAPL. Tables 1 and 2 present the results of the monitoring for the presence/absence of LNAPL for MW-00305 and MW-00303, MW-00304, MW-00304A, MW-00304B, and MW-00305A, respectively. Since 2001, there has been no measurable product at any of the monitoring locations.

Proposed Corrective Actions

As there has been no measurable product identified in the monitoring wells in IU B since December 2001, GM believes that soil removal is no longer required and requests withdrawal of the LNAPL IM Work Plan.

Please call me at 248-753-5799 if you have any questions regarding the request.

Yours truly,

GENERAL MOTORS CORPORATION

Cheryl R. Hiatt
Project Coordinator

JP/ev/17075/3
Encl.

c.c.: George Bruchmann (MDEQ Waste Management Division, Chief)
Terry Walkington (MDEQ Waste Management Division, District Supervisor)
Rhonda Klann (MDEQ Remediation and Redevelopment)
Dr. Lisa Williams (USDOI, East Lansing Field Office)
Ray Ilkka (GM SMCO Environmental Dept.)
Tony Thrubis, Esq. (GM Legal Counsel)
William K. Steinmann, (CRA Project Manager)
Rosanne Cadetto (CRA Document Coordinator)
Pieter Booth (Exponent)
Stephen Song, Ph.D. (ENVIRON International Corporation, Inc.)
Michael Tomka (CRA)

MONITORING OF LNAPL ABSENCE/PRESENCE IN MW-00305
JUNE 2000 - PRESENT
SMCO FACILITY
SAGINAW, MI

	MW-00305	
Date	*Static Water Elevation*	*LNAPL Present*
6/22/2000	584.54	
11/13/2000	587.03	product in well
2/6/2001	588.34	
12/1/2001	588.79	depth to product 3.39
1/8/2003	586.61	
1/10/2005	588.50	
1/2/2006	589.47	no
1/9/2006	589.07	no
1/23/2006	589.25	no
2/6/2006	589.43	no - but drops visible on water
2/21/2006		
3/6/2006	588.03	no - but drops on probe
3/20/2006	588.70	no
4/4/2006	588.51	no
4/18/2006	587.98	no - but several drops visible bia flashlight on water in mw
4/24/2006	587.60	no - but a couple of drops on probe
5/12/2006	588.85	no - but several drops visible bia flashlight on water in mw
5/24/2006	587.91	no
6/2/2006	588.72	no
6/8/2006	587.58	no
6/21/2006	586.82	no
7/6/2006	586.87	no
7/24/2006	586.86	no
8/8/2006	586.36	no
8/22/2006	586.08	no
9/5/2006	586.49	no
9/18/2006	586.35	no
10/3/2006	586.75	no
10/19/2006	589.33	no
11/3/2006	587.88	no
11/20/2006	589.25	no
12/12/2006	589.37	no
1/3/2007	589.55	no
1/24/2007	588.28	no
2/5/2007	587.47	no
2/19/2007	586.78	no
3/13/2007	589.03	no
3/20/2007	588.00	no
4/9/2007	589.13	no
4/19/2007	589.33	no

MONITORING OF LNAPL ABSENCE/PRESENCE IN MW-00305
JUNE 2000 - PRESENT
SMCO FACILITY
SAGINAW, MI

	MW-00305	
Date	*Static Water Elevation*	*LNAPL Present*
5/2/2007	588.40	no
5/15/2007	587.18	no
6/6/2007	586.70	no
6/15/2007	586.45	no
7/11/2007	586.36	no
7/19/2007	586.32	no
7/31/2007	585.93	no
8/16/2007	585.74	no
8/23/2007	585.64	no
9/10/2007	585.56	no
9/23/2007	586.12	no
10/3/2007	585.96	no
10/17/2007	585.67	no
11/26/2007	585.43	there was drops of LNAPL on the interface probe but it was of unmeasurable thickness
12/5/2007	585.61	there was drops of LNAPL on the interface probe but it was of unmeasurable thickness
1/2/2008	587.68	no
1/14/2008	588.90	no
2/13/2008	588.84	no
2/26/2008		-
3/10/2008		-
3/18/2008		-
4/3/2008	589.26	no
4/14/2008	589.52	no
5/1/2008	587.20	no
5/12/2008	586.74	no

TABLE 2

MONITORING OF LNAPL ABSENCE/PRESENCE IN
MW-00303, MW-00304, MW-00304A, MW-00304B, AND MW-00305A
JULY 2007 - PRESENT
SMCO FACILITY
SAGINAW, MI

	MW-00303		*MW-00304*		*MW-00304A*	
Date	*Static Water Elevation*	*LNAPL Present*	*Static Water Elevation*	*LNAPL Present*	*Static Water Elevation*	*LNAPL Present*
7/31/2007				no		
8/16/2007				no		
8/23/2007	586.95	no	585.92	no	586.71	no
9/10/2007	587.04	no	586.60	no	586.73	no
9/23/2007	587.51	no	586.63	no	587.02	no
10/3/2007	587.37	no	586.82	no	586.96	no
10/17/2007	587.21	no	586.32	no	586.82	no
11/26/2007	587.09	no	587.27	no	586.67	no
12/5/2007	587.93	no	588.21	no	586.89	no
1/2/2008	589.95	no	589.15	no	588.85	no
1/14/2008	590.49	no	589.74	no	589.91	no
2/13/2008	590.64	no	589.91	no	590.01	no
2/26/2008	ice	-	ice	-	ice	-
3/10/2008	ice	-	ice	-	ice	-
3/18/2008	ice	-	ice	-	ice	-
4/3/2008	590.25	no	589.48	no	589.78	no
4/14/2008	590.35	no	589.67	no	589.85	no
5/1/2008	587.83	no	586.99	no	587.69	no
5/12/2008	587.60	no	586.72	no	587.47	no

TABLE 2

MONITORING OF LNAPL ABSENCE/PRESENCE IN
MW-00303, MW-00304, MW-00304A, MW-00304B, AND MW-00305A
JULY 2007 - PRESENT
SMCO FACILITY
SAGINAW, MI

	MW-00304B		*MW-00305A*	
Date	*Static Water Elevation*	*LNAPL Present*	*Static Water Elevation*	*LNAPL Present*
7/31/2007				
8/16/2007				
8/23/2007	dry	-	dry	-
9/10/2007	584.70	no	582.76	no
9/23/2007	587.30	no	585.18	no
10/3/2007	587.13	no	584.99	no
10/17/2007	586.95	no	584.72	no
11/26/2007	587.28	no	584.57	no
12/5/2007	588.07	no	584.53	no
1/2/2008	589.18	no	586.50	no
1/14/2008	589.99	no	588.64	no
2/13/2008	590.09	no	588.59	no
2/26/2008	ice	-	ice	-
3/10/2008	ice	-	ice	-
3/18/2008	ice	-	ice	-
4/3/2008	589.87	no	589.30	no
4/14/2008	590.05	no	589.65	no
5/1/2008	587.70	no	587.19	no
5/12/2008	587.44	no	586.47	no

N

0 200 500ft

LEGEND

A — INVESTIGATIVE UNIT BOUNDARY AND IDENTIFIER

APPROXIMATE PROPERTY BOUNDARY

NOTE: TOPO - SANBORN, 1996

SCALE VERIFICATION

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

GENERAL MOTORS CORPORATION
SAGINAW METAL CASTING OPERATIONS

SAGINAW, MICHIGAN

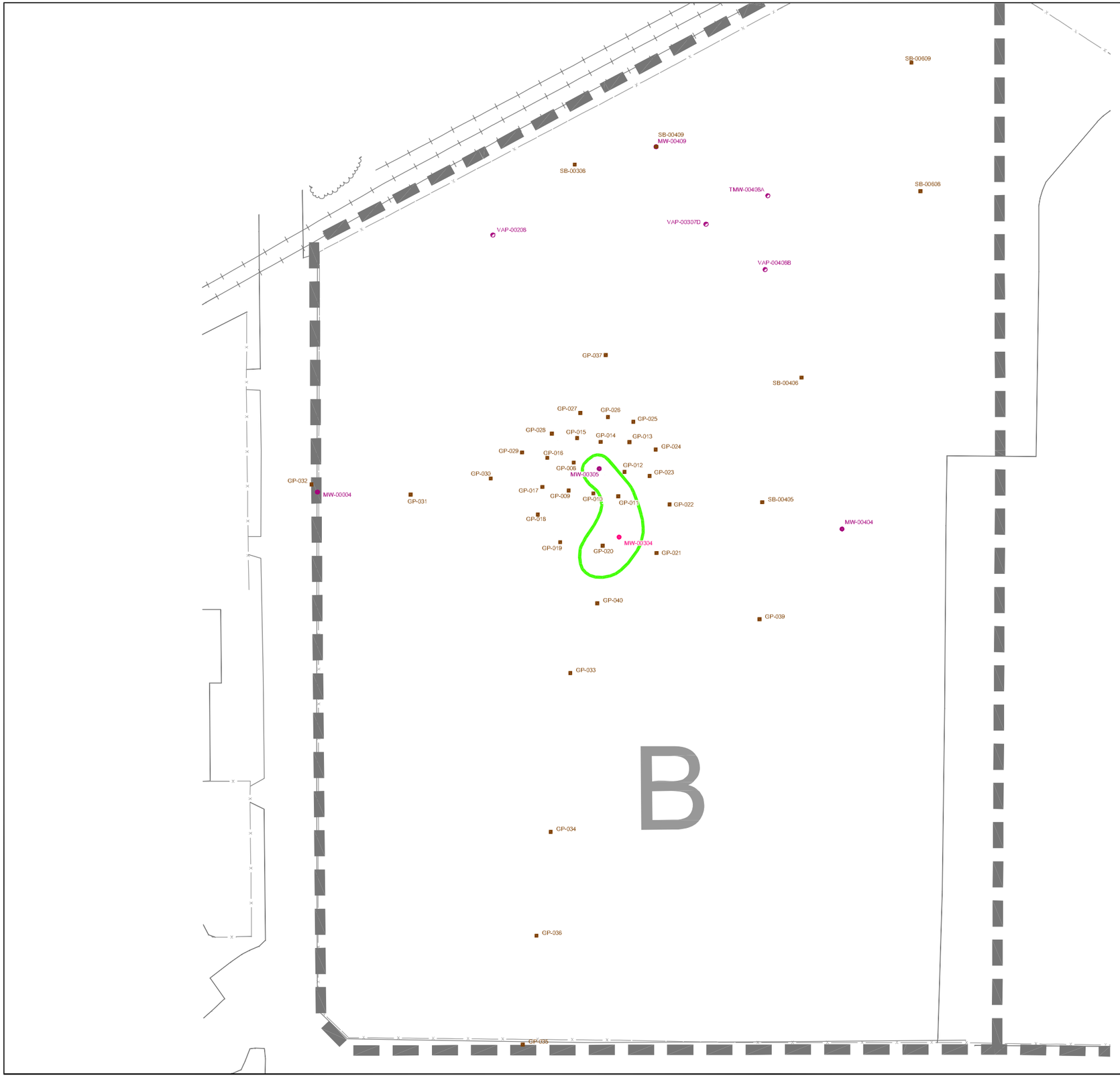
FACILITY PLAN

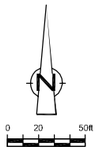
CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88

Project Manager:	Reviewed By:	Date:	
I.R.	M.T.	FEBRUARY 2007	
Scale: 1" = 500'	Project N#: 17075-10	Report N#: NEMA003	Drawing N#: 1

17075-10(NEMA003)GN-WI003 JUN 18/2008





LEGEND

A — INVESTIGATIVE UNIT BOUNDARY AND IDENTIFIER

MW-04835 ● MONITORING WELL - DECEMBER 2001

SB-05036-B ■ SOIL BORING LOCATION - DECEMBER 2001

TMW-04936 ◐ TEMPORARY MONITORING WELL - DECEMBER 2001

GP-038 ■ GEOPROBE LOCATION

MW-04835 ● MONITORING WELL - DECEMBER 2002

YELLOW LNAPL OBSERVED

NOTE:

GROUNDWATER IS REACHED AT APPROXIMATELY 4' bgs.

NOTES:

1) THICK YELLOW LIQUID ENCOUNTERED AT APPROXIMATELY 7 FEET BGS IN BORING GP-011 & GP-029

2) RANGE OF SOIL STAINING: 0.8 - 8.0ft BGS

SCALE VERIFICATION

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

GENERAL MOTORS CORPORATION
SAGINAW METAL CASTING OPERATIONS

SAGINAW, MICHIGAN

INVESTIGATIVE UNIT B
LNAPL - SOIL

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88

Project Manager:	Reviewed By:	Date:	
I.R.	M.T.	DECEMBER 2004	
Scale: 1" = 50'	Project №: 17075-10	Report №: NEMA001	Drawing №: figure 2

17075-10(NEMA003)GN-WD02 JUN 18/2008

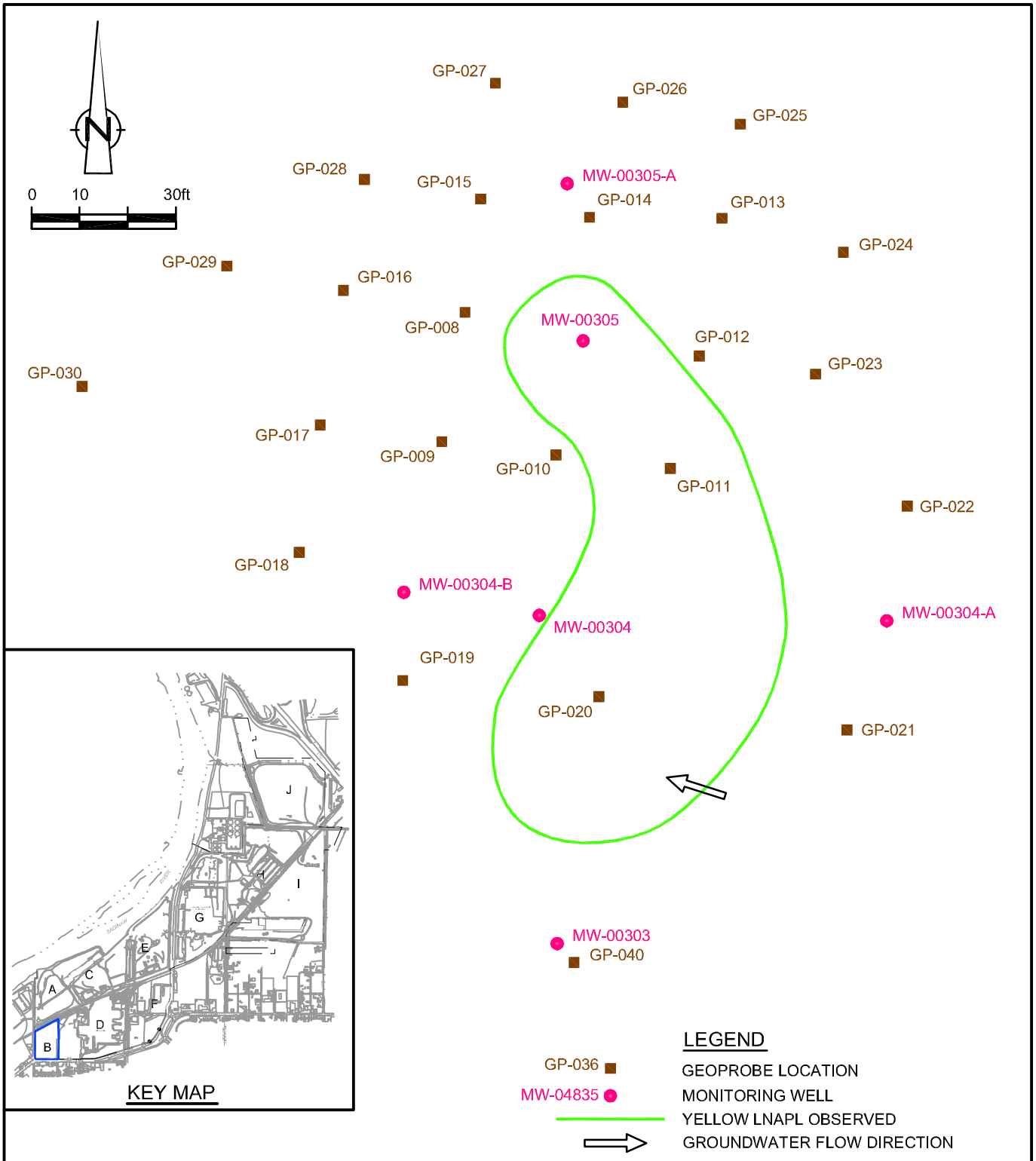


figure 3

INVESTIGATIVE UNIT B
MONITORING FOR ABSENCE/PRESENCE OF LNAPL LOCATIONS
GENERAL MOTORS CORPORATION
SAGINAW METAL CASTING OPERATIONS
Saginaw, Michigan

17075-10(NEMA003)GN-WI001 JUN 18/2008

ATTACHMENT A

BORING LOGS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-08
DATE COMPLETED: December 3, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 710562.38 EASTING: 13240463.8 GROUND SURFACE	590.23					
	GP-SANDY GRAVEL, gray, dry	589.73					
	CH-SANDY CLAY, with gravel, gray, dry, black staining	589.23					0.6
	SP-SAND, with gravel, fine, black, moist	588.56					
2	SW-SAND, coarse, brown, moist		1GP		100		4.7
	SP-SAND, fine, black, wet, odor	586.73					
4	SW-SAND, coarse, blocky, brown with pockets of black stained fine sand, strong odor, wet	586.23					3.2
	SP-CLAYEY SAND, fine, gray, wet, odor	584.83					
6	SP-SAND, with gravel, gray, wet, odor	584.23	2GP		100		
	CL-NATIVE CLAY, trace gravel, light brown, moist to dry	583.73					104
8	END OF BOREHOLE @ 8.0ft BGS	582.23					
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-09
DATE COMPLETED: December 3, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.38						
	GW-SANDY GRAVEL, gray, dry							
		589.63						
	CL-SANDY CLAY, gray, dry	589.46						1.5
	SP-SAND, fine, black, moist	588.96						
2	SP-SAND, with gravel, coarse, dark brown, moist, odor		2" Ø BOREHOLE	1GP		100		2.2
4	- wet							7.9
	SP-SAND, trace gravel, fine, black, wet, odor	585.21						
		584.71						
6	CL-NATIVE CLAY, trace gravel, light brown, moist to dry			2GP		100		158
8	END OF BOREHOLE @ 8.0ft BGS	582.38						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-10
DATE COMPLETED: December 3, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.38						
	GW-SANDY GRAVEL, gray, moist							
	- 1" stone	589.71						
	CL-SANDY CLAY, gray, dry	589.38						2.2
	SP-SAND, with gravel, fine, black, moist							
2	- 1" stone	588.38	2" Ø BOREHOLE	1GP		100		
	SW-GRAVELLY SAND, coarse, brown, moist							
	- wet							
	- staining							1.2
	- stained black (to 4 ft)							
4	SW-SAND, coarse, brown, wet, black staining, odor	586.38	NATURAL COLLAPSE/ BENTONITE					
	SP-CLAYEY SAND, fine, gray, wet, odor	585.21						11.7
6	SP-SAND, with gravel, gray, wet, odor	584.38		2GP		100		
	CL-NATIVE CLAY, trace gravel, light brown, moist to dry	584.13						7.6
8	END OF BOREHOLE @ 8.0ft BGS	582.38						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-11
DATE COMPLETED: December 3, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.37						
	GW-SANDY GRAVEL, gray, moist to dry	589.87						
	CL-CLAY, sandy, gray, dry	589.70						
	SP-SAND, coarse, black, moist							0
2	SW-SAND, with gravel, brown, moist -clay mold at 2.0 ft - 3/4" stones	588.37	2" Ø BOREHOLE	1GP		100		0
	- clay seam							
4	SP-CLAYEY SAND, gray, wet, black staining, odor	586.37	NATURAL COLLAPSE/ BENTONITE					10
	CL-NATIVE CLAY, trace gravel	585.37						
6				2GP		100		
	- stone covered in thick yellow liquid, strong odor							767
8	END OF BOREHOLE @ 8.0ft BGS	582.37						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-12
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.20						
	GW-SANDY GRAVEL, gray, dry							
	CL-CLAY, gray, dry to moist	589.70						
	SP-SAND, with gravel, fine, black, moist	589.20						420
	- crushed clay mold							
2	- crushed stone		2" Ø BOREHOLE	1GP		100		
	SW-SAND, with gravel, coarse, brown, moist	587.03						1105
	CH-CLAY, gray, moist	586.95						
	SW-CLAYEY SAND, gray, moist, odor	586.53						
4	SP-SILTY SAND, trace gravel, black, wet	586.20	NATURAL COLLAPSE/ BENTONITE					
	SW-SAND, with gravel, coarse, gray, wet, black staining, odor	585.20						>2000
	CH-SANDY CLAY, trace gravel, gray, moist, odor	584.53						
6	CL-NATIVE CLAY, with gravel, light brown, moist to dry	584.20		2GP		100		>2000
8	END OF BOREHOLE @ 8.0ft BGS	582.20						
	Note - PID bulb responding to moisture							
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-13
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	589.98						
	GW-SANDY GRAVEL, gray, dry							
	CONCRETE SLAB, gray, dry	588.98						
	SP-SAND, fine, black, dry	588.81						
	SW-SAND, with gravel, coarse, brown, moist	588.65						
2	- 1" stone, black staining below		2" Ø BOREHOLE	1GP				NR
	CL-CLAY, with gravel, black staining at 3', brown, dry	587.23						
	SP-CLAYEY SAND, fine, black, moist	586.48						
4			NATURAL COLLAPSE/ BENTONITE					
	SP-CLAYEY SAND, fine, gray, wet, slight odor	585.65						
	CL-NATIVE CLAY, with gravel, gray to light brown, moist to dry	584.98						
6				2GP				NR
8	END OF BOREHOLE @ 8.0ft BGS	581.98						
	Note - PID bulb responding to moisture							
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-14
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.16						
	GW-SANDY GRAVEL, gray, dry	590.08						
	CL-SANDY CLAY, with gravel, hard, gray, dry	589.91						
	SW-SAND, coarse, brown, moist							
2			2" Ø BOREHOLE	1GP		100		NR
	- 3/4" stone							
	- 3/4" stone							
4			NATURAL COLLAPSE/ BENTONITE					
	- wet							
	SP-SILTY SAND, fine, black, wet,	584.83						
	-pieces of demolished wood	584.49						
6	SP-CLAYEY SAND, coarse, black, wet, strong chemical odor	584.41		2GP		100		NR
	CL-NATIVE CLAY, trace gravel, hard, gray to brown, moist							
8	END OF BOREHOLE @ 8.0ft BGS	582.16						
	Note - PID bulb responding to moisture							
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-15
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.00						
	GW-SANDY GRAVEL, gray, moist	589.67						
	CL-SANDY CLAY, gray, dry	589.50						
	SW-SAND, coarse, black, moist	589.00						
	SW-SAND, coarse, brown, moist							
2			2" Ø BOREHOLE	1GP		100		NR
	SP-SAND, fine, black, moist, no odor	587.75						
	- crushed brick							
4	SW-SAND, coarse, gray, wet, odor	586.00	NATURAL COLLAPSE/ BENTONITE					
6				2GP		100		NR
	CL-NATIVE CLAY, gray to brown, moist, no odor	583.00						
8	END OF BOREHOLE @ 8.0ft BGS	582.00						
	Note - PID bulb responding to moisture							
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-16
DATE COMPLETED: December 3, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.21						
	SW-SANDY GRAVEL, gray, dry	589.71						
	CL-SANDY CLAY, gray, dry	589.21						0
2	SP-SAND, with gravel, coarse, brown, moist - slight odor		2" Ø BOREHOLE	1GP		100		
	SP-SAND, fine, black, moist	587.21						1.0
4	SP - SAND, with gravel, coarse, brown, moist - wet, black staining	586.21	NATURAL COLLAPSE/ BENTONITE					4.4
6	SP-SILTY SAND, fine, black staining, gray, wet	584.71		2GP		100		
	GRAVELLY SAND, wet, gray, odor	583.71						
	SP-CLAYEY SAND, fine, gray, wet, odor	583.21						16.8
8	CL-NATIVE CLAY, gray, moist END OF BOREHOLE @ 8.0ft BGS	582.29 582.21						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-17
DATE COMPLETED: December 3, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.35						
	SW-SANDY GRAVEL, gray, dry	589.85						
	CL-SANDY CLAY, gray, dry - black staining	589.60						0
2	SW-SAND, with gravel, coarse, brown, moist, odor		2" Ø BOREHOLE	1GP		100		
	SP-CLAYEY SAND, with gravel, fine, black, moist, odor	587.35						0
4	SW-SAND, with gravel, coarse, brown, wet	586.35	NATURAL COLLAPSE/ BENTONITE					
	SP-SILTY SAND, fine, black and brown, laminated, wet	585.18						4.1
6	SP-CLAYEY SAND, with gravel, gray, strong odor	584.68		2GP		100		
	CL-NATIVE CLAY, trace gravel	583.60						11.7
8	END OF BOREHOLE @ 8.0ft BGS	582.35						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-18
DATE COMPLETED: December 3, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.30						
	GW-SANDY GRAVEL, gray, dry							
		589.63						
	CL-SANDY CLAY, hard, gray, moist							
		589.30						2.2
	SW-SAND, coarse, brown, moist		2" Ø BOREHOLE	1GP		100		
2								
		587.30						3.5
	SP-CLAYEY SAND, black, no odor							
4		586.30	NATURAL COLLAPSE/ BENTONITE					
	SW-SAND, coarse, brown, wet							33
	- 1" stone	584.63						
6	CL-NATIVE CLAY, with trace gravel, gray to brown, laminated with gray, odor			2GP		100		
	- no odor							15.8
8		582.30						
	END OF BOREHOLE @ 8.0ft BGS							
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-19
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.25						
	SW-SANDY GRAVEL, gray, dry	590.17						
	SP-SAND, coarse, dark brown, moist							0
	SW-SAND, with gravel, coarse, brown, moist	589.08						
2			2" Ø BOREHOLE	1GP		100		
	SW-SAND, with gravel, coarse, gray, moist, strong odor	587.25						4.2
	SP-CLAYEY SAND, fine, black, no odor	586.58						
4	SW-SAND, coarse, wet, chemical odor	586.25	NATURAL COLLAPSE/ BENTONITE					
	CH-SANDY CLAY, moist, no noticeable odor	585.50						9.8
	CL-NATIVE CLAY, hard, brown, moist, black staining, odor	584.58		2GP		100		
6	- no staining, no odor							3.7
8	END OF BOREHOLE @ 8.0ft BGS	582.25						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-20
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.39						
	GW-SANDY GRAVEL, gray, moist							
	CL-CLAY, hard, gray, dry	589.64						0
	SW-SAND, with gravel, coarse, black, moist, no odor	589.31						
	CL-SANDY CLAY, soft, black, moist	589.14						
2	SW-SAND, with gravel, coarse, black, moist	589.06	2" Ø BOREHOLE	1GP		100		
	SW-SAND, coarse, brown, black staining, odor	588.72						4
4	- wet, no staining		NATURAL COLLAPSE/ BENTONITE					
	CL-SANDY CLAY, firm, black to gray, staining and odor throughout	585.22						6
6				2GP		100		
	CL-NATIVE CLAY, hard, brown, moist, odor, thick yellow liquid present along sleeve	583.14						7
8	- no odor	582.39						
	END OF BOREHOLE @ 8.0ft BGS							
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-21
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.57						
	GW-SANDY GRAVEL, gray, moist							
		589.90						
	SP-SILTY SAND, with gravel, medium, gray, moist							0
		589.15						
	SP-SAND, fine, grey, black staining							
2			2" Ø BOREHOLE	1GP		100		
	- crushed porous rock							
		587.82						
	GP-GRAVEL, with sand, fine, black, odor, wood debris							0
		586.90						
4	SP-CLAYEY SAND, fine, black, moist - wet - No recovery from 4.0ft to 6.5ft							0
6			NATURAL COLLAPSE/ BENTONITE	2GP		50		
	- predominantly crushed porous rock, black, odor, wet							
		583.57						0
	CL - ~~NATIVE~~ CLAY, odor							
8		582.57						
	CH-SANDY CLAY, soft, gray, wet, odor							
10				3GP		100		NR
		579.57						
	CL-NATIVE CLAY, with gravel, soft to hard, light brown - soft pocket							
12		578.57						
	END OF BOREHOLE @ 12.0ft BGS							
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-22
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.28						
	GW-GRAVEL, gray, dry	589.95						
	CL-SANDY CLAY, hard, gray, dry	589.18						0
2	SP-SAND, fine, black, moist - crushed mold - predominantly crushed porous rock, black, moist	587.08	2" Ø BOREHOLE	1GP		100		0
	CL-CLAY, with gravel, laminated light brown, gray, and black, moist							
4	- stone and crushed rock - black wood debris	586.28	NATURAL COLLAPSE/ BENTONITE					
	SW-SAND, coarse, gray, wet, black	585.78						
	CH-SANDY CLAY, firm, gray, wet	585.28						0
	CL-NATIVE CLAY, trace gravel, hard, moist to dry, sheen on water below clay in sleeve							
6				2GP		100		
								0
8	END OF BOREHOLE @ 8.0ft BGS	582.28						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-23
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	589.98						
	GW-SANDY GRAVEL, gray, dry	589.90						
	CL-CLAY, hard, gray, dry	589.48						
	SP-SAND, trace gravel, fine, dark brown							0
	CL-CLAY, hard, light brown	588.81						
	SP-SAND, with gravel, fine, black, hardened from 2.6ft to 3.0ft	588.65	2" Ø BOREHOLE	1GP		100		
2								
	GW-GRAVEL, with sand, wet	586.98						14
	SP-SAND, and crushed brick, coarse, brown, wet	586.73						
	SC-CLAYEY SAND, soft, black	586.56						
4	CH-SANDY CLAY, soft, gray to black, chemical odor	585.98	NATURAL COLLAPSE/ BENTONITE					18
	CL-NATIVE CLAY, hard, brown, moist, odor	584.48						
6	- no odor at 6.0ft			2GP		100		10
	END OF BOREHOLE @ 8.0ft BGS	581.98						
8								
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-24
DATE COMPLETED: December 4, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	589.67						
	GW-SANDY GRAVEL	589.00						0
	SW-SAND, with gravel, moist - wood debris and rubble	588.17						
	GW-GRAVEL, with sand	587.75						
2	SW-SAND, coarse, brown	587.47	2" Ø BOREHOLE	1GP		100		0
	CH-SANDY CLAY, with gravel, soft, dry to moist		NATURAL COLLAPSE/ BENTONITE					
4								0
6				2GP		100		
	CL-NATIVE CLAY, hard, light brown, moist to dry	583.37						0
8	END OF BOREHOLE @ 8.0ft BGS	581.67						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-25
DATE COMPLETED: December 5, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.10						
	GW-SANDY GRAVEL, gray, dry							
	CL-CLAY, hard, gray, dry	589.10						0
	SP-SAND, with fine gravel, fine, black, moist	588.60						
2	SW-SAND, with gravel, coarse, dark brown, moist - 2" concrete slab, staining below concrete - crushed brown porous rock	588.35	2" ø BOREHOLE	1GP		100		
	SP-CLAYEY SAND, fine, black, odor, black staining	587.35						
	SW-SAND, with gravel, coarse, brown to gray, black staining, wet	587.10						0
	SP-CLAYEY SAND, fine, black, wet, black staining	586.60						
4	GP-GRAVEL, fine, black, wet, slight chemical odor	586.27	NATURAL COLLAPSE/ BENTONITE					
	SW-GRAVELLY SAND, coarse, gray to black, wet	586.10						
	SP-CLAYEY SAND, with silt, black to gray, wet, odor	585.43						0
	CL-NATIVE CLAY, hard, gray to light brown, moist to dry	584.90						
6				2GP		100		
								0
8	END OF BOREHOLE @ 8.0ft BGS	582.10						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-26
DATE COMPLETED: December 5, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.26						
	GW-SANDY GRAVEL, gray, dry							
		589.59						
	CL-CLAY, hard, gray, dry	589.51						
	SP-SANDY, medium, brown, moist	589.34						0
	GW-GRAVEL, with sand and silt, coarse, white, dry							
2	SW-SAND, with gravel, coarse, brown, moist	588.46	2" Ø BOREHOLE	1GP		100		
	SP-SAND, with gravel, fine, black, moist, crushed brick	587.76						
	GW-GRAVEL, with sand, brown and gray, moist	587.26						0
	SW-GRAVELLY SAND, brown, moist	587.01						
	- rock							
4	- black staining, strong odor		NATURAL COLLAPSE/ BENTONITE					
	SP-CLAYEY SAND, with gravel, gray and black staining, wet, strong odor	586.01						
	GW-SANDY GRAVEL, gray, dry	585.76						
	SP-SAND, medium gray with black staining, wet	585.59						2.6
6				2GP		100		
	CL-NATIVE CLAY, soft to hard, gray to brown, moist, chemical odor in clay	583.26						3.9
8	END OF BOREHOLE @ 8.0ft BGS	582.26						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-27
DATE COMPLETED: December 5, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.14						
	GW-GRAVEL, gray, moist							
	- 1/4" concrete slab	589.47						
	SW-GRAVELLY SAND, coarse, brown, moist	589.22						0
	- wood debris	588.74						
2	SP-SAND, fine, brown, black staining, moist, no odor		2" Ø BOREHOLE	1GP		100		
	SW-SAND, coarse, brown, moist							
	- 1/4" clay lense	587.74						
	- 1" thick wood							
	- grey stone, brittle, with white powdery sand and silt							0
	SP-SAND, fine, dark brown to light brown, moist, no odor							
	- black staining	586.44						
4	SW-GRAVELLY SAND, coarse, grey							
	SP-SAND, with silt and gravel, coarse, brown, with black staining, wet	585.64						0
	SP-SAND, fine, black, sheen on water on sample, wet, chemical odor	584.64						
6	SP-CLAYEY SAND, trace gravel, gray, wet, chemical odor	584.14	NATURAL COLLAPSE/ BENTONITE	2GP		100		
								1.3
	SW-GRAVELLY SAND, coarse, gray, wet, odor	582.64						
8	- no odor							
								1.5
	CL-NATIVE CLAY, trace gravel, hard, gray to brown, moist to dry	580.94						
10				3GP		100		
								1.6
12	END OF BOREHOLE @ 12.0ft BGS	578.14						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-28
DATE COMPLETED: December 5, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.15						
	GW-SANDY GRAVEL, gray, moist	589.75						
	CL-SANDY CLAY, gray, moist, with roots	589.15						0
	SW-SAND, with gravel, coarse, dark brown, moist							
2	- 2" cored rock, gray	588.15	2" ø BOREHOLE	1GP		100		
	SW-SAND, with gravel, coarse, brown with black staining, no odor, moist							
	- 3" wood debris, stained black, no odor, moist	587.15						0
	SW-SAND, with gravel, coarse, brown, moist	586.65						
4	SP-SAND, fine, black, moist, no odor							
	- wet							
		585.15						0
	SP-SAND, fine, gray, wet							
6			NATURAL COLLAPSE/ BENTONITE	2GP		100		
		582.95						0
	SW-SAND, coarse, gray, wet, no odor							
8								
								0
10				3GP		100		
								0
		578.65						
	CL-NATIVE CLAY, hard, gray to brown, moist							
12	- pocket of sandy gravel	578.15						
	END OF BOREHOLE @ 12.0ft BGS							
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-29
DATE COMPLETED: December 5, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.22						
	GW-GRAVEL, sandy, gray, moist	590.12						
	CH-SANDY CLAY, firm, gray, moist	589.82						
	SW-SAND, with gravel, coarse, brown, moist							0
2			2" Ø BOREHOLE	1GP		100		0
	SP-SAND, fine, black, moist	586.72						
4	- wet							0
	SP-SAND, fine, gray, wet	584.72						
	SP-SAND, fine, black, wet	584.62						
6	- 3" piece of wood	584.22		2GP		100		
	SP-CLAYEY SAND, gray, wet, fine							0
	SW-GRAVELLY SAND, coarse, gray, wet	583.12						
8			NATURAL COLLAPSE/ BENTONITE					0
10				3GP		100		
								0
12	- sheen, faint odor							1.7
14	CL-NATIVE CLAY, trace gravel, gray to brown, moist, no odor	576.22		4GP		100		
								0
16	END OF BOREHOLE @ 16.0ft BGS	574.22						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-30
DATE COMPLETED: December 5, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.15						
	GW-SANDY GRAVEL, gray, moist	589.65						0
	SP-CLAYEY SAND, with rootlets, gray, moist	589.32						
	SP-SAND, fine, black, moist	588.90						
2	SW-SAND, coarse, brown, moist - crushed brick - crushed stone		2" Ø BOREHOLE	1GP		100		
	- crushed brick	587.15						0
4	SP-SAND, fine, black, moist - wet, loose							
	- crushed brick	585.15						0
6	SP-CLAYEY SAND, with gravel, fine, compact - wood debris		NATURAL COLLAPSE/ BENTONITE	2GP		100		
	SP-CLAYEY SAND, with gravel, gray - wet	583.45						0
8	SW-GRAVELLY SAND, coarse, gray, wet, sheen on water	582.15						3.9
10	CL-NATIVE CLAY, trace gravel, gray to light brown, moist, soft to hard	580.15		3GP		100		0
	- sand pocket							
12	END OF BOREHOLE @ 12.0ft BGS	578.15						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-31
DATE COMPLETED: December 5, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	589.01						
	TOPSOIL, brown, moist, roots							
	SW-SAND, coarse, brown, moist	588.01						0
2			2" ∅ BOREHOLE	1GP		100		
	CH-SANDY CLAY, dark brown, moist	586.11						0
	SP-SAND, fine, black, moist	585.91						
4	- wet							
	SP-SAND, coarse, gray, wet	584.31						0
6				2GP		100		
	ML-CLAYEY SILT, firm, gray, wet	582.81						
	- seam of coarse sand							0
	- seam of coarse sand							
8	SP-SAND, medium, gray, wet	581.01	NATURAL COLLAPSE/ BENTONITE					
								0
10	- sheen			3GP		100		
	- seam of coarse sand							0
12								
	SW-SAND, coarse, gray, wet	576.01						2
14				4GP		100		
	CL-NATIVE CLAY, firm to hard, gray to light brown, moist	574.51						0
	- pocket of sand							
16	END OF BOREHOLE @ 16.0ft BGS	573.01						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-33
DATE COMPLETED: December 7, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.80						
	GW-SANDY GRAVEL, gray, moist	590.30						
	SP-SAND, trace gravel, black, moist	589.80						0
2	CL-SANDY CLAY, with gravel, hard, brown with red lamination, black staining, moist		2" Ø BOREHOLE	1GP		100		
	SW-SAND, coarse, gray with black staining	588.30						
	SP-CLAYEY SAND, fine, brown with black lamination	587.97 / 587.80						0.3
	SW-SAND, coarse, brown to gray, moist	587.38						
4	SP-SAND, fine, black, moist		NATURAL COLLAPSE/ BENTONITE					
	SP-SILTY SAND, fine, soft, brown, wet, sheen on water	586.80						11
	SW-CLAYEY SAND, with gravel, fine to coarse, gray, wet, odor, sheen	585.47						
6	CL-NATIVE CLAY, gray-brown, laminated, moist, odor	584.97		2GP		100		5
8	END OF BOREHOLE @ 8.0ft BGS	582.80						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-34
DATE COMPLETED: December 7, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	591.09						
	GW-SANDY GRAVEL, gray, moist	590.69						
	CL-SANDY CLAY, with gravel, gray, dry	590.29						
	SP-SAND, trace gravel, fine, black	590.09						0
	SP-SILTY SAND, with gravel, fine, brown, dry	589.39						
2	SC-CLAYEY SAND, with gravel, compact, black, dry - no gravel		2" Ø BOREHOLE	1				0
		587.39	NATURAL COLLAPSE/ BENTONITE					
4	SW-SAND, coarse, gray, moist - silt pocket - wet, sheen on water, odor - black staining	586.09						0
	CL-NATIVE CLAY, trace gravel, hard, brown and gray laminated, moist to dry							
6	- odor			2				0
8	END OF BOREHOLE @ 8.0ft BGS	583.09						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-35
DATE COMPLETED: December 7, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	588.97						
	TOPSOIL, brown, moist							0
	GW-SANDY GRAVEL, brown, moist	587.77						
	SP-SAND, medium, light brown, moist	587.57	2" Ø BOREHOLE	1GP		100		0
4			NATURAL COLLAPSE/ BENTONITE					0
	CH-CLAY, firm, gray, moist	583.97						
6	CL-NATIVE CLAY, trace gravel, hard, brown and gray	583.22		2GP		100		0
8	END OF BOREHOLE @ 8.0ft BGS	580.97						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-36
DATE COMPLETED: December 7, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.22						
	GW-SANDY GRAVEL, gray, moist							
	CL-SANDY CLAY, gray, dry	589.72						
	SP-SAND, trace gravel, fine, brown, moist	589.22						0
2	CI-CLAY, hard, brown, moist	588.22	2" Ø BOREHOLE	1GP		100		
	SP-SAND, fine, black, moist	587.52						
	CI-CLAY, with black silty clay, blocky, soft to firm, brown,	587.32						0
4	CL-NATIVE CLAY, trace gravel, soft to firm, brown	586.22	NATURAL COLLAPSE/ BENTONITE					0
6				2GP		100		
								0
8	END OF BOREHOLE @ 8.0ft BGS	582.22						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-37
DATE COMPLETED: December 7, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.06						
	GW-SANDY GRAVEL, gray, dry							
		589.06						0
	SP-SAND, trace gravel, moist		2" Ø BOREHOLE	1GP		100		
2								4.7
4		586.06						
	SP-SAND, fine, black, wet, sheen							0
6		584.06	NATURAL COLLAPSE/ BENTONITE	2GP		100		
	STONE, crushed	583.86						
	SP-SAND, with gravel, wet							
		583.31						3.9
	SP-SAND, fine, gray, wet, odor							
8		582.06						
	SILT, trace gravel, black, sheen on water, odor							1.7
		580.56						
	SP-SILTY SAND, gray, wet, odor			3GP		100		
10								4.4
12		578.06						
	END OF BOREHOLE @ 12.0ft BGS							
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-39
DATE COMPLETED: December 7, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	589.96						
	GW-SANDY GRAVEL, gray, moist	589.63						
	CL-SANDY CLAY, hard, gray, dry	589.29						
	STONE, crushed, white	588.96						0
	SP-SAND, black, moist							
2			2" Ø BOREHOLE	1GP		100		
	SW-SAND, coarse, brown, moist	587.46						0
4	- wet		NATURAL COLLAPSE/ BENTONITE					
	CL-NATIVE CLAY, trace gravel, hard, brown and gray	584.88						0
6				2GP		100		
								0
8	END OF BOREHOLE @ 8.0ft BGS	581.96						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: GP-40
DATE COMPLETED: December 7, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.60						
	GW-SANDY GRAVEL, gray, moist							
		589.93						
	CL-CLAY, hard, gray, dry	589.60						0
	SP-SAND, fine, black, moist	589.10						
	GW-SANDY GRAVEL, coarse, dry	588.60	2" Ø BOREHOLE	1GP				
2	SW-SILTY SAND, coarse, with gravel, gray, moist, odor							0
4	- wet, black staining							
		584.93						
6	CI-SANDY CLAY, firm, gray,moist, black staining, odor		NATURAL COLLAPSE/ BENTONITE	2GP				0
8		582.60						
	CH-SANDY CLAY, soft, wet, staining, odor -large rocks present throughout prevent further probing							
10				3GP				0
12	END OF BOREHOLE @ 12.0ft BGS	578.60						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

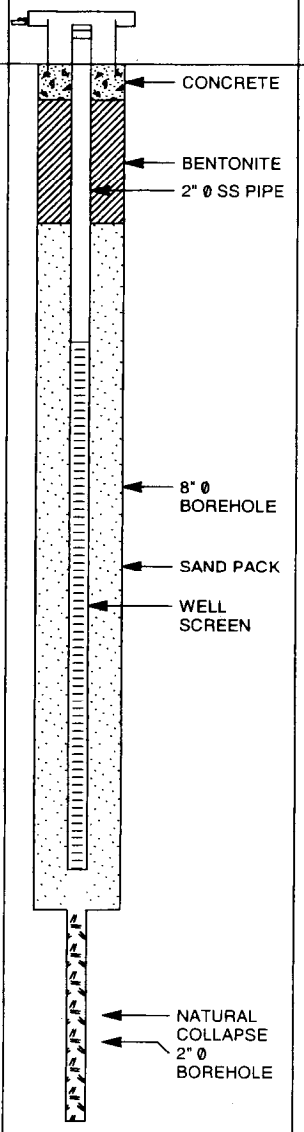
OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: MW-00004 (GP-32)
DATE COMPLETED: December 12, 2001
DRILLING METHOD: GEOPROBE / HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	591.48
	GROUND SURFACE	589.06
	TOPSOIL, firm, brown, moist, with roots and organic material	588.14
	SP-SAND, fine, black, moist	587.39
2	TOPSOIL, trace rootlets, moist, firm, brown	587.06
	SP-SAND, fine, black, moist	586.64
	CL-SANDY CLAY, with gravel, brown, moist	586.06
	SP-SAND, medium, red, moist	585.56
4	SP-SAND, fine, black, moist	
	- wet	
6	ML-CLAYEY SILT, with sand, fine, soft, black	583.23
	SP-SAND, fine, gray to black, wet	582.64
8	SP-CLAYEY SAND, fine, compact, moist	580.89
	SP-SILTY SAND, fine, loose, brown, wet	579.89
10		
12	SP-CLAYEY SAND, fine, laminated with black sand, no odor, moist	577.48
	ML-CLAYEY SILT, very soft, gray to brown to gray, wet	576.06
14		
	CH-CLAY, soft, gray, moist	573.89
16	SP-SILTY SAND, brown, wet, loose, fine	573.06
18	ML-CLAYEY SILT, soft, gray, wet	571.06
20	CL-NATIVE CLAY, trace gravel, firm, gray, moist	569.39
	END OF BOREHOLE @ 20.0ft BGS	569.06
22		
24		



WELL DETAILS
Screened interval:
583.81 to 573.81ft AMSL
Length: 10ft
Diameter: 2in
Slot Size: #10
Material: Stainless Steel
Sand Pack:
586.06 to 573.06ft AMSL
Material: SILICA SAND #5

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1GP		100		0
				0
				0
2GP		100		0
				0
3GP		100		0
4GP		100		0
				0
5GP		100		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/3/02

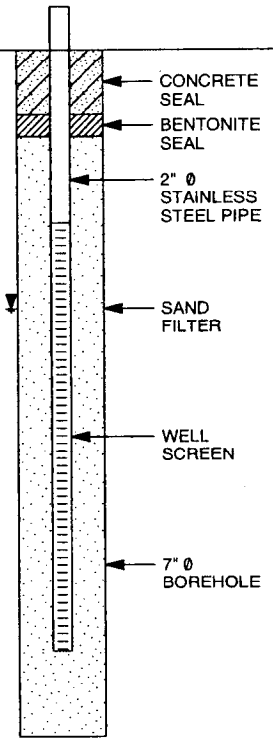
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: ENCORE
LOCATION: SAGINAW, MI

HOLE DESIGNATION: MW-00304
DATE COMPLETED: December 11, 2002
DRILLING METHOD: 3-1/4" HSA
FIELD PERSONNEL: K. PARTINGTON

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	592.66
	GROUND SURFACE	590.26
	GP - GRAVEL, loose, coarse grained, 1.5" pieces, with sand, gray, dry	
		589.26
2	SP - SAND, trace gravel, loose, medium grained, dark brown, damp, no odour - 1" thick seam of trace wood chips - moist	
	- wet, gray-black, odour present, slight glisten/sheen on soil, gravelly, wet	
		586.46
4	CL - CLAY, soft, gray, plastic, wet - 1/8" thick seam trace green crystalline coarse grained sand	585.86
	- 2" thick seam SP - SAND, black, coarse grained, with odour, slight glisten/sheen, wet NATIVE CLAY - gray/rust colour, firm, wet, trace gravel, no odour observed	
6		
8	END OF BOREHOLE @ 8.0ft BGS	582.26
10		
12		
14		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
588.26 to 583.26ft AMSL
2.00 to 7.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
589.51 to 589.26ft AMSL
0.75 to 1.00ft BGS
Material: Bentonite Chips
Sand Pack:
589.26 to 582.26ft AMSL
1.00 to 8.00ft BGS
Material: #5 Filterpack

Seal:
590.26 to 589.51ft AMSL
0.00 to 0.75ft BGS
Material: Concrete

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		2.0	31	0.6
2		2.0	14	4.9/10.2
3		2.0	6	4.0
4		2.0	13	39.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
STATIC WATER LEVEL ▼

OVERBURDEN LOG 17075 DEC02.GPJ CRA_CORP.GDT 1/29/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(IU B)

PROJECT NAME: RCRA Facility Investigation (RFI)
PROJECT NUMBER: 17075 - 16
CLIENT: General Motors Corporation
LOCATION: Saginaw Metal Casting Operations - Saginaw, Michigan
CONTRACTOR: RAU Drilling

HOLE DESIGNATION: MW-00305
DATE COMPLETED: June 21, 2000
DRILLING METHOD: Hollow Stem Auger (HSA)
FIELD PERSONNEL: Ngozi Enyia
BOREHOLE DIAMETER (INCHES): 8

NORTHING: 710556.66
EASTING: 13240488.28
REFERENCE POINT (Top of Riser): 592.39
GROUND SURFACE: 590.2

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NAVD '88	MONITORING WELL INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE 'N' VALUE
0	See SB-00305		CONCRETE SEAL; 2" Ø SS RISER; BENTONITE CHIPS SEAL	B20266 B20267C		15
4	- Water at 4.0ft BGS		SAND PACK; 2" Ø SS WELL SCREEN; 8" Ø BOREHOLE			
8	Sandy CLAY (CL), light olive brown (2.5Y 5/3), medium grained, slightly damp	582.2				24
10	END OF BOREHOLE @ 10.0ft BGS	580.2				
12	* Shallow monitoring well installed. * The Northing and Easting datum is based on the State Plane Coordinate (SPC) system from the National Geodetic Survey (NGS).					
14						
16						
18						

WELL DETAILS
Screened interval:
587.93 to 582.93ft NAVD '88
Length: 5ft
Diameter: 2in
Slot Size: #10
Material: Stainless Steel (SS)
Seal:
589.2 to 588.7ft NAVD '88
Material: Bentonite Chips
Sand Pack:
588.7 to 580.2ft NAVD '88
Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 6/13/00 STATIC WATER LEVEL ▼ 11/13/00
CHEMICAL ANALYSIS ( )

OVERBURDEN LOG SB_OB.GPJ CRA_CORP.GDT 10/16/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: MW-00404 (GP-38)
DATE COMPLETED: December 12, 2001
DRILLING METHOD: GEOPROBE / HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	591.49						
	GROUND SURFACE	588.89						
	GW-SANDY GRAVEL, gray, dry		CONCRETE					
		588.39	BENTONITE					
	CL-CLAY, hard, gray, dry		2" Ø SS PIPE					
		587.89						
	SP-SAND, fine, black, moist							0
	- crushed stone at 1.5ft BGS							
2				1GP		100		
		586.19						
	ML-CLAYEY SILT, firm, fine, black, moist		SAND					0
		585.69						
	SP-SAND, fine, gray, moist	585.49						
4	CL-NATIVE CLAY, with gravel, hard, light brown, moist		WELL SCREEN					
				2SS		100		NR
6								
	END OF BOREHOLE @ 7.0ft BGS		8" Ø BOREHOLE	3SS		100		NR
8		580.89						
10								
12								
14								

WELL DETAILS
Screened interval:
586.89 to 581.89ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: #10
Material: Stainless Steel
Sand Pack:
587.89 to 580.89ft AMSL
Material: SILICA SAND #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/3/02

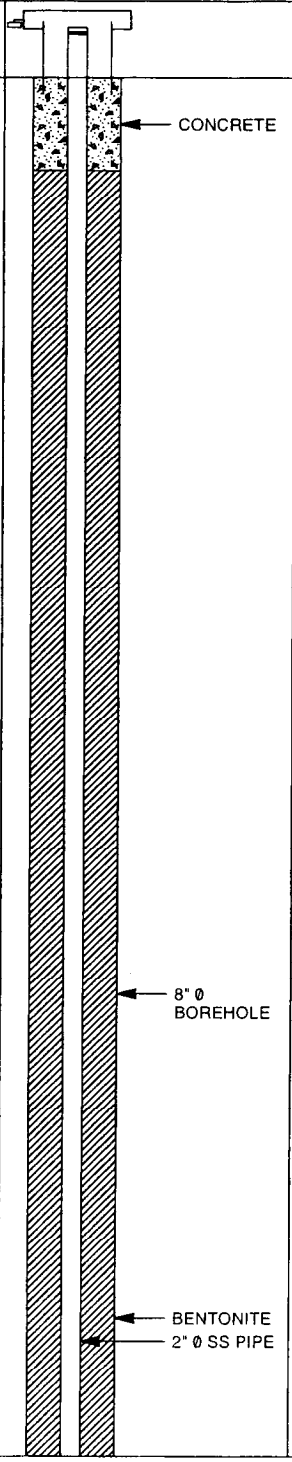
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: MW-00409
DATE COMPLETED: December 12, 2001
DRILLING METHOD: GEOPROBE / HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	591.44
	GROUND SURFACE	589.02
	GW-SANDY GRAVEL, coarse, gray, dry	
	CL-SANDY CLAY, gray, dry	588.02
	SP-SAND, black, dry	587.52
2	SP-SAND, with gravel, coarse, brown, moist	587.32
	CL-CLAY, with gravel, hard, brown and red, moist	586.52
	SW-GRAVELLY SAND, medium, black, moist	586.42
	CL-CLAY, with gravel, hard, brown, moist	586.32
	SP-SAND, with gravel, coarse, brown, moist	586.22
	CH-CLAY, soft, brown, moist	585.72
4	SP-SAND, with gravel, coarse, brown, with black staining, wet	585.32
	SP-CLAYEY SAND, fine, brown with black staining	584.22
	SP-SAND, fine, black, wet	583.62
6	SP-CLAYEY SAND, fine, black, wet	583.02
8	ML-SANDY SILT, with stratified clay, trace gravel, dark brown, saturated, fine, loose, no odor, wet	581.02
10		
	CL-CLAY, gray, moist	578.52
	SP-SAND, with silt, coarse, dark brown, wet, no odour	578.22
12	ML-SANDY SILT, very soft, black, wet	577.02
14		

MONITOR INSTALLATION



SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1GP		100		10
				848
2GP		100		
3GP		100		
4GP		100		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: MW-00409
DATE COMPLETED: December 12, 2001
DRILLING METHOD: GEOPROBE / HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
16								
18	- no recovery from 18.0ft to 24.0ft			5GP		50		
20								
22				6GP		0		
24	SP-SAND, fine, black, wet,	565.02						
26				7GP		100		
	- sheen from 27.5ft to 29.2ft, stopping at clay lense							
28								
	CH-CLAY, firm, gray, moist	559.82		7GP		100		565
	CH-SILTY CLAY, trace gravel, trace sand, soft, gray	559.72						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

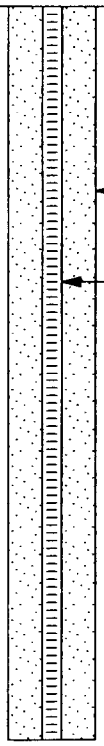
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: MW-00409
DATE COMPLETED: December 12, 2001
DRILLING METHOD: GEOPROBE / HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	with black sand, wet	559.02
	CH-SILTY CLAY, laminated with sand, firm, gray, moist	
32	CH-SILTY CLAY, firm, gray, moist	557.02
	- trace gravel	
34	CL-SILTY CLAY, stiff, gray, wet	555.02
	- soft pockets	
36	SP-SILTY SAND, loose, gray, wet	553.02
	CL-CLAY, stiff, trace gravel, gray, moist	552.52
38	END OF BOREHOLE @ 38.0ft BGS	551.02
40		
42		
44		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
561.02 to 551.02ft AMSL
Length: 10ft
Diameter: 2in
Slot Size: #10
Material: Stainless Steel
Sand Pack:
563.02 to 551.02ft AMSL
Material: SILICA SAND #5

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1SS		75	5	2.8
2SS		100	5	0.3
3SS		100	12	0.3
4SS		100	11	2.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/1/02

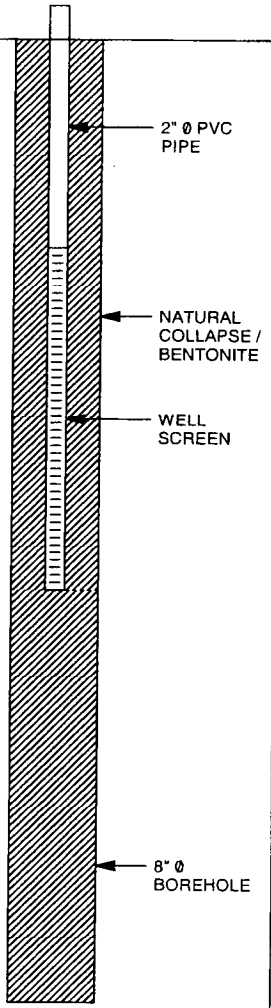
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: TMW-00408a
DATE COMPLETED: December 13, 2001
DRILLING METHOD: GEOPROBE / HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	589.97
	GW-SANDY GRAVEL, coarse, gray, moist	
	CL-CLAY, with sand and fine gravel, hard, gray, dry	588.97
	SP-SAND, fine, black, moist	588.47
2	GW-SANDY GRAVEL, fine, gray, moist	588.22
	SW-SAND, with fine gravel, coarse, loose, brown and black, moist	587.17
	GW-SANDY GRAVEL, fine, gray, moist	586.77
4	GP-GRAVEL, medium to fine with porous crushed rock, dark brown, wet, odor	586.27
	GW-SANDY GRAVEL, gray, wet	585.97
	SP-SAND, fine, black, wet	584.77
6	SP-SAND, medium, gray, wet, with pieces of black odorous stained wood throughout	583.97
	SP-CLAYEY SAND, with silt, gray, wet	582.97
8	SW-SAND, with gravel, compact, coarse, gray, wet	581.97
10	- loose at 10.0ft	
12		
	CL-NATIVE CLAY, trace gravel, stiff, gray, wet	576.47
14	END OF BOREHOLE @ 14.0ft BGS	575.97
	Note - On Nov. 30, 2001 geoprobe rods were stuck. On Dec 13, 2001 4 1/4" ID HSA completed boring.	
16		
18		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
586.97 to 581.97ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: #10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
				0
1GP		100		
				0
				0
2GP		100		
				0
3SS		100	28	0.5
4SS		100	7	1.9
5SS		100	9	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: SB-00308
DATE COMPLETED: December 11, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	588.67						
	GW-SANDY GRAVEL, compact, gray, dry							
	SP-SAND, medium, black, dry	587.67		1SS		100	24	0
	SW-SAND, coarse, compact, gray, dry	587.37						
2	SW-GRAVELLY SAND, coarse, compact, brown, moist	586.17		2SS		100	13	0
4	SW-SAND, coarse, with porous crushed rock, loose, black, wet	584.67	NATURAL COLLAPSE/ BENTONITE	3SS		100	7	0
6	SP-SAND, black, wet, fine	582.77	8" Ø BOREHOLE					
	SP-SILTY SAND, compact, fine, gray, wet, white specks throughout	582.67		4SS		100	25	0
8	END OF BOREHOLE @ 8.0ft BGS	580.67						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: SB-00405
DATE COMPLETED: November 29, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	589.36
	GW-SANDY GRAVEL, coarse, gray, dry	
	CL-CLAY, with sand, gray, dry	588.36
	SP-SAND, with gravel, fine, black, dry	588.16
2		
	SP-SAND, fine, laminated gray and light brown, dry, slight odor	586.66
	SP-SAND, and crushed brick, blocky, reddish brown, moist	586.36
	CL-CLAY, with sand, gray, dry	585.96
4	SW-SAND, coarse, gray, moist	585.66
	- wet	585.46
	SP-SAND, coarse, brown, moist	
	CH-CLAY, with sand and gravel, laminated, gray, wet	584.36
	- black staining	583.86
6	CL-NATIVE CLAY, trace gravel, hard, gray and light brown, moist	
8	END OF BOREHOLE @ 8.0ft BGS	581.36
10		
12		
14		

MONITOR INSTALLATION: NATURAL COLLAPSE/ BENTONITE; 2" Ø BOREHOLE

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1GP		100		0
2GP		100		1.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1GP, 2GP)

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: SB-00406
DATE COMPLETED: November 29, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	588.98						
	GW-SANDY GRAVEL, gray, moist							0.6
	CL-CLAY, with sand, gray, moist	587.48						
	SM-SILTY SAND, black, moist	587.28						
2	SP-SAND, with gravel, blocky, black, moist	586.98		1GP		100		
	SP-CLAYEY SAND, fine, black, moist, odor	585.98						158
4	SP-SAND, with gravel, black, blocky, moist - slag rock	584.98	NATURAL COLLAPSE/ BENTONITE					26.2
6	SP-CLAYEY SAND, fine, gray, wet, odor, sheen	582.98	2" Ø BOREHOLE	2GP		100		
	CL-NATIVE CLAY, with sand, trace gravel, light brown, moist to dry	581.98						11.8
8	END OF BOREHOLE @ 8.0ft BGS	580.98						
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: SB-00608
DATE COMPLETED: November 28, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	589.82						
	GP-SANDY GRAVEL, fine, gray, moist							0
	CL-SANDY CLAY, soft, gray, moist	588.32						
2	SP-SAND, fine, black, moist	587.82		1GP		100		
	SP-SAND, with gravel, medium, black, moist	586.82						0
	SP-SAND, with gravel, medium, black, wet	586.32						
4	no recovery from 4.0ft to 8.0ft	585.82						
6			NATURAL COLLAPSE/ BENTONITE	2GP		0		
8	SP-SILTY SAND, loose, gray, wet	581.82	2" Ø BOREHOLE					0
10				3GP		100		
								0
	CL-NATIVE CLAY, trace sand and gravel, light brown, moist to dry	578.32						
12	END OF BOREHOLE @ 12.0ft BGS	577.82						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1GP)

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: SB-00609
DATE COMPLETED: November 30, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	589.64
0	GP-SANDY GRAVEL, fine, gray, dry	589.24
	SW-SILTY SAND, with gravel, dry	588.44
	CL-CLAY, gray, dry	588.24
2	SP-CLAYEY SAND, fine, black, dry	587.14
	SP-SAND, with blocky hardened slag, coarse, black, moist	586.64
	GP-SANDY GRAVEL, fine, gray, dry	586.44
4	SP-SAND, trace gravel, medium, black, moist	586.24
	SP-SAND, with crushed brick, medium, black, moist	585.14
	SP-SILTY SAND, trace gravel, fine, black, wet	
	- 3" stained wood debris	
6		583.34
	CLAYEY SILT, soft, gray, wet, white specs throughout	
8		
10		
12		577.64
	SW-SAND, with fine gravel, gray, wet	
14		
16		
18		
		570.24
20	CL-NATIVE CLAY, hard, gray, moist to dry	
		569.14
	END OF BOREHOLE @ 20.5ft BGS	

MONITOR INSTALLATION: NATURAL COLLAPSE/ BENTONITE; 2" Ø BOREHOLE

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1GP		100		0
				0
				0
2GP		100		0
				0
3GP		100		0
				0
4GP		100		0
5GP		100		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

VERTICAL AQUIFER PROFILE (VAP) LOCATIONS

(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: VAP-00208A
DATE COMPLETED: November 29, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	588.95						
	GW-SANDY GRAVEL, fine, homogeneous, gray, dry							
		587.95						0
	CL-CLAY, with sand, gray, dry	587.75						
	- gravel layer at 1.3ft							
2	SP-SAND, trace gravel, fine, black, dry	586.65		1GP		100		
	- crushed chip board at 1.8ft	586.45						0
	SP-SAND, trace gravel, coarse, dark brown, dry							
4	SP-SAND, with gravel and crushed brick, coarse, blocky, red and gray, dry							
		584.45						
	GP-SANDY GRAVEL, fine, gray, dry	584.15						0
	- red at 4.8ft							
	SP-SAND, with trace gravel, coarse, brown, moist	583.45						
6	SP-SAND, fine, black, moist	582.95		2GP		100		
	- crushed engine mold at 6.0ft							
	SP-CLAYEY SAND, fine, gray, moist	581.95						0
	SP-SAND, fine, gray, wet							
8								
								0
10				3GP		100		
	SP-CLAYEY SAND, with silt, soft, gray, wet	577.95						
12								
	OL-SILT, with sand, very soft, homogeneous, gray, wet	576.45						
								0
14				4GP		75		
16	SP-SAND, medium, gray, wet	572.95						
								0
18				5GP		100		
	SP-SILTY SAND, fine, soft, black, wet	569.95	NATURAL COLLAPSE/ BENTONITE					
20								
22				6GP		100		0
24	ML-CLAYEY SILT, soft, gray, wet	564.95						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: VAP-00208A
DATE COMPLETED: November 29, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE N' VALUE	SAMPLE PID (ppm)
26				7GP		100		0
28								
30	- clay lense at 29.5ft SP-SAND, medium, gray, wet	559.45		8GP		50		0
32								
34	ML-CLAYEY SILT, soft, gray, wet	554.95		9GP		100		
36								
38	END OF BOREHOLE @ 38.0ft BGS	550.95		10GP		100		
40								
42								
44								
46								
48								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

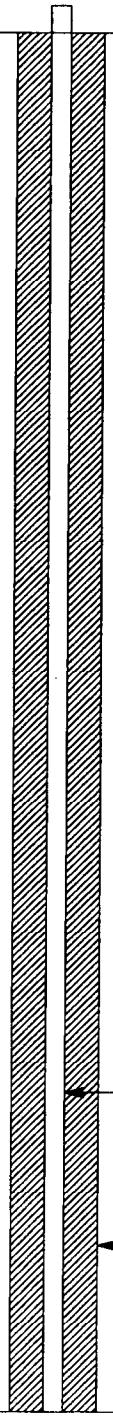
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: VAP-00208B
DATE COMPLETED: December 11, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	588.95
0	GW-SANDY GRAVEL, fine, homogeneous, gray, dry	588.45
	CL-CLAY, with sand, gray, dry	588.20
2	SP-SAND, trace gravel, loose, fine, black, moist	
	SP-SAND, trace gravel, coarse, dark brown, dry	585.95
4	Crushed concrete, with sand, gray, moist	585.20
	SP-SAND, with trace gravel, coarse, brown, wet	584.95
	SP-SAND, firm to stiff, fine, black, moist	584.45
6		
8		
	ML-SILT, soft, grey, wet	580.62
10	- with sand	
	0H-SILTY CLAY, with sand, very soft, gray, wet, white specs	577.28
12		
14		
16		
18		
20		
22		
24		

MONITOR INSTALLATION



SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1SS		100	13	0
2SS		100	14	0.7
3SS		100	6	0
4SS		100	9	0
5SS		100	3	0
6SS		100	0	0
7SS		100	0	0
8SS		100	2	0
9SS		100	0	0
10SS		100	0	0
11SS		100	2	0
12SS		100	2	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

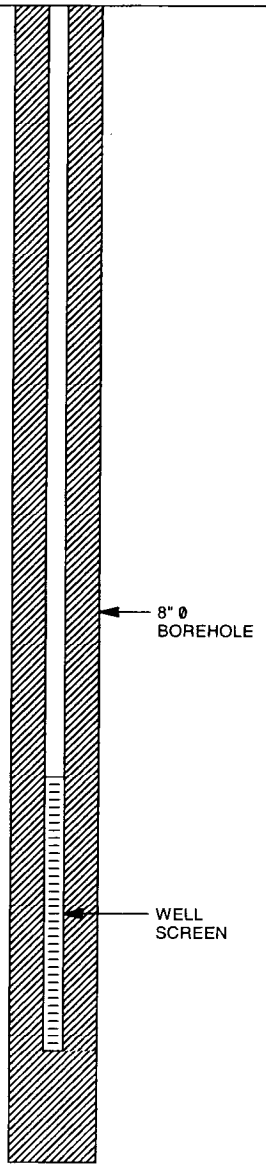
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: VAP-00208B
DATE COMPLETED: December 11, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
26		
28	- brown grass, small shells, wood	
	SP-SILTY SAND, very loose, fine, gray, wet	560.45
	SW-SAND, very loose, medium, gray, wet, white specs	559.95
30		
32		
34	SP-SILTY SAND, loose, fine, gray, wet, white specks	554.95
	0H-SILTY CLAY, with sand, firm, gray, wet	553.95
	SW-SAND, compact to dense, medium, brown, wet	553.37
36		
38		
40		
42	- gravel lense	
	- gravel lense	
44	CL-NATIVE CLAY, trace gravel, dense, grey, moist to dry	544.95
46	END OF BOREHOLE @ 46.0ft BGS	542.95
	Note: VAP samples screened across each 5 foot saturated interval. Riser removed and well abandoned 01/2002.	
48		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
549.95 to 544.95ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: #10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
13SS		100	3	0
14SS		100	3	0
15SS		100	4	0
16SS		100	4	0
17SS		100	5	0
18SS		100	13	0
19SS		100	11	0
20SS		100	4	0
21SS		100	14	0
22SS		100	37	0
23SS		100	42	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

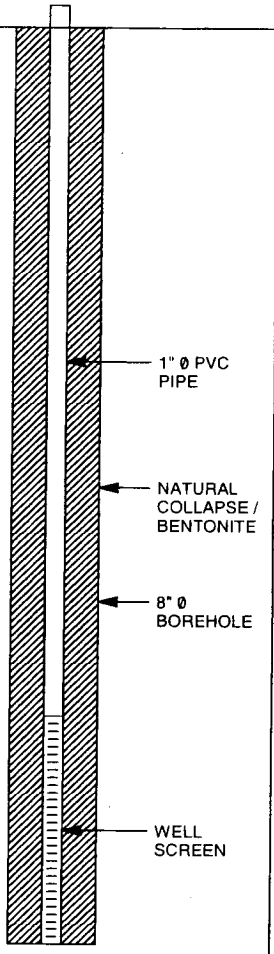
(OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: VAP-00307d
DATE COMPLETED: December 12, 2001
DRILLING METHOD: GEOPROBE / HSA
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	589.00
	GW-SANDY GRAVEL, gray, dry	588.00
	CL-SANDY CLAY, trace gravel, gray, dry	587.60
2	SP-SAND, with gravel, fine, black, dry, crushed stone at 1.7ft and 2.4ft	586.50
	SW-SAND, with gravel, coarse, dark brown, dry to moist, crushed brick at 3.4ft	585.50
4	SP-CLAYEY SAND, with crushed brick, gray, moist	585.00
	GW-SANDY GRAVEL, trace crushed brick, gray, moist	584.50
	GW-SANDY GRAVEL, white, moist	583.80
6	GW-SANDY GRAVEL, gray, wet	583.00
	SP-CLAYEY SAND, fine, gray, wet	
8	SP-SILTY SAND, coarse, gray, wet	581.00
10		
12	SP-SAND, with clay, trace gravel, gray, wet	577.00
14		
16		
18		
	CL-CLAY, trace gravel, moist	569.70
20	END OF BOREHOLE @ 20.0ft BGS	569.00
22		
24		
26		
28		

Note: VAP samples screened across each 5 foot saturated interval. Riser removed and well abandoned 01/2002.



WELL DETAILS
Screened interval:
574.00 to 569.00ft AMSL
Length: 5ft
Diameter: 1in
Slot Size: #10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
				0
1GP		100		0
				0.8
2GP		100		0
				0
3GP		100		0
4GP		100		0
5GP		100		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075-11.GPJ CRA_CORP.GDT 3/5/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SMCO
PROJECT NUMBER: 17075-11
CLIENT: GM
LOCATION: SAGINAW, MI

HOLE DESIGNATION: VAP-00408b
DATE COMPLETED: November 30, 2001
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: P. CUSHING

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	590.24						
	GP-SANDY GRAVEL, fine, homogeneous, gray, dry		1" Ø PVC PIPE					
	CL-CLAY, with fine gravel, hard, gray, dry	589.24						0
	SP-SAND, trace gravel, coarse, dark brown to black, dry	588.74		1GP		100		
2								
	PT-wood shavings, compact, brown, moist	587.24	NATURAL COLLAPSE / BENTONITE WELL SCREEN					0
	SP-SAND, with silt, fine, black, moist	586.74						
4								
	SP-CLAYEY SAND, with silt, fine, compact, homogeneous, gray, wet, white specks throughout	586.04						0
6				2GP		100		
	CL-CLAY, with trace gravel, hard, laminated gray and brown, moist to dry	584.14	2" Ø BOREHOLE					0
8								
	END OF BOREHOLE @ 8.0ft BGS	582.24						
	Note: VAP samples screened across each 5 foot saturated interval. Riser removed and well abandoned 01/2002.							
10								
12								
14								

WELL DETAILS
Screened interval:
589.24 to 584.24ft AMSL
1.00 to 6.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: #10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17075 1B NO.1 - 2001.GPJ CRA_CORP.GDT 9/25/03