

February 7, 2008
File No. 21.0056372.0

Mr. Richard Eisenman
Delphi Automotive Systems LLC
1000 Lexington Ave
Rochester, New York



Re: Downgradient Monitoring Well Installation/Sampling
Delphi Thermal Systems Facility
Lockport, New York

Dear Mr. Eisenman:

535 Washington Street
11th Floor
Buffalo, New York
14203
716-685-2300
FAX 716-685-3629
www.gza.com

GZA GeoEnvironmental of New York (GZA) prepared this letter report to summarize the results of the additional downgradient groundwater monitoring well installation and sampling we did at the above referenced Site. This work was done pursuant to our October 9, 2007 proposal and October 11, 2007 Work Plan¹. The Work Plan was provided to Mr. Glenn May of the New York State Department of Environmental Conservation (NYSDEC) for review and comment. GZA received an electronic transmission from NYSDEC on October 26, 2007 which indicated there were no comments on the Work Plan.

The purpose of the downgradient monitoring wells is to assess if contaminated groundwater is migrating at downgradient locations (eastern portion of the property) not previously investigated.

GROUNDWATER MONITORING WELL INSTALLATION

GZA oversaw the installation of five bedrock groundwater monitoring wells by our drilling subcontractor, Earth Dimensions Inc. from October 31 to November 8, 2007. These wells were installed on the eastern portion of the Delphi Lockport Complex as shown on Figure 1 in Attachment 1. The wells were designated MW-6-1; MW-6-2; MW-7-1; MW-7-2 and MW-7-3. The monitoring wells were installed into bedrock consistent with methodologies used as part of the remedial investigation work previously done (NYSDEC approved Focused Remedial Investigation and Focused Feasibility Study (FRI/FFS) Work Plan dated April 2001) in this portion of the Lockport Complex and pursuant to our October 11, 2007 Work Plan. The boring/well installation logs are included in Attachment 2.

¹ Letter to Mr. Glenn May, NYSDEC: "Work Plan for Downgradient Monitoring Installation, Eastern portion of Delphi Lockport Facility, Lockport, New York" dated October 11, 2007.

MONITORING WELL DEVELOPMENT, MEASUREMENT & HYDRAULIC CONDUCTIVITY TESTING

GZA developed the monitoring wells to remove the drill cuttings, develop the filter sand pack and verify that the monitoring wells are functioning properly. The well development occurred on November 16, 2007 around 8 days after the monitoring wells were installed.



GZA used an 1.75-inch diameter stainless steel slug to agitate or surge the monitoring wells prior to groundwater removal as part of the development. A disposable polyethylene bailer was used to develop the monitoring wells. The following amount of groundwater was generated during the development of the monitoring wells and drummed for disposal by Delphi.

- MW-6-1: Well went “dry” after removal of approximately 5 gallons (2.5 well volumes)
- MW-6-2: Purged approximately 30 gallons (10 well volumes)
- MW-7-1: Well went “dry” after removal of approximately 4 gallons (1.5 well volumes)
- MW-7-2: Well went “dry” after removal of approximately 4 gallons (2 well volumes)
- MW-7-3: Well went “dry” after removal of approximately 5.5 gallons (2.5 well volumes)

In addition to and following development of the monitoring wells, GZA perform hydraulic conductivity testing using the rising head method². GZA calculated the effective hydraulic conductivities for four of the five newly installed wells. The recovery in monitoring well, MW-7-1, was slow and not practical to measure (e.g., water level increase approximately 3 feet in 8 days). The following hydraulic conductivities were calculated for the other four wells (see calculation spreadsheets in Attachment 3).

- MW-6-1: 2.4×10^{-5} centimeters per second (cm/s)
- MW-6-2: 1.3×10^{-5} cm/s
- MW-7-2: 4.5×10^{-5} cm/s
- MW-7-3: 2.7×10^{-6} cm/s

The monitoring points (top or riser) of the five newly installed wells were measured relative to the existing monitoring well elevations established during the previous investigations. The monitoring point elevations for the five new wells are as follows.

- MW-6-1: 598.23 ft
- MW-6-2: 609.33 ft
- MW-7-1: 597.98 ft
- MW-7-2: 592.57 ft

² Bouwer, H. 1989. “The Bouwer and Rice Slug Test – An Update”. Groundwater Journal, Vol. 27., No. 3. May-June 1989.

- MW-7-3: 594.04 ft



In addition to measuring the monitoring point elevations of the newly installed wells, GZA completed a round of groundwater measurements from the numerous monitoring wells across the Site, to assess groundwater flow. Twenty-two well locations were measured on January 8, 2007 in the development of the groundwater contour map shown on Figure 2 in Attachment 1. The groundwater flow direction is generally in an eastern direction across the Site.

The groundwater measurements from monitoring wells MW-7-A-6 and MW-7-1 were not used in the development of the contour map. The road box and j-plug on MW-7-A-6, had been destroyed/removed by plowing activities in the area. The well was exposed and its groundwater level was high (1.66 feet below top of riser), likely due to runoff from the significant snow melt that occurred in the days prior to measuring the water level. The road box for MW-7-A-6 has been replaced with a new one. The measurement from MW-7-1 (19.16 feet below top of riser) was not used due to the slow recharge of this well. GZA returned to the Site on January 16, 2007 and re-measured the depth to groundwater and found the level had increased approximately 3 feet (16.06 feet below top of riser).

MONITORING WELL GROUNDWATER SAMPLING

GZA waited approximately two weeks after the monitoring well development to collect groundwater samples from the five monitoring wells. Low-flow sampling methodologies consistent with those outlined in the Operations, Monitoring & Maintenance Plan in the Site Management Plan dated August 2007 were used to collect the groundwater samples on November 29 and 30, 2007. The five groundwater samples collected were submitted to Free-Col Laboratories for analytical testing for volatile organic compounds (VOCs) via EPA Method 8260 Target Analyte List (TCL). Table 1 in Attachment 1 is a summary of the analytical results. The laboratory report is included in Attachment 4.

VOCs were detected in two of the five monitoring wells (MW-6-2 and MW-7-1). Trichloroethylene (TCE) was the only VOC detected above method detection limits in the sample collected from MW-6-2. TCE was detected at a concentration of 25 parts per billion (ppb), which exceeds its respective Class GA³ groundwater criteria of 5 ppb.

Four VOCs; TCE (110 ppb), 1,2-dichloroethenes (total) (8 ppb), benzene (3 ppb) and toluene (7 ppb) were detected at a concentration above their method detection limits in the sample collected from MW-7-1. The detected concentrations of the four compounds exceed their respective Class GA groundwater criteria of 5 ppb, 5 ppb, 1 ppb and 5 ppb.

As mentioned earlier, no VOCs were detected above method detection limits in the groundwater samples analyzed from MW-6-1, MW-7-2 and MW-7-3.

³ Division of Water Technical and Operational Guidance Series (1.1.1) "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" prepared by the New York State Department of Environmental Conservation, dated October 1993, revised 1998, ERRATA Sheet dated January 1999; and Addendum dated April 2000.

GZA recommends that the newly installed monitoring wells be resampled in the Spring of 2008, prior to making a decision on additional on or off-Site work based on the presented analytical results.

Please do not hesitate to contact the undersigned if you have any questions or require any additional information.

Sincerely,

GZA GEOENVIRONMENTAL



Christopher Boron
Project Manager



Ernest R. Hanna, P.E.
Principal

Attachment 1: Figure 1 – New Downgradient Monitoring Well Locations
Figure 2 – January 8, 2007 Groundwater Contour Map
Table 1 – Summary of Groundwater Sample Result

Attachment 2: Boring & Monitoring Well Installation Logs

Attachment 3: Hydraulic Conductivity Calculation Spreadsheets

Attachment 4: Free Col Laboratories Analytical Report



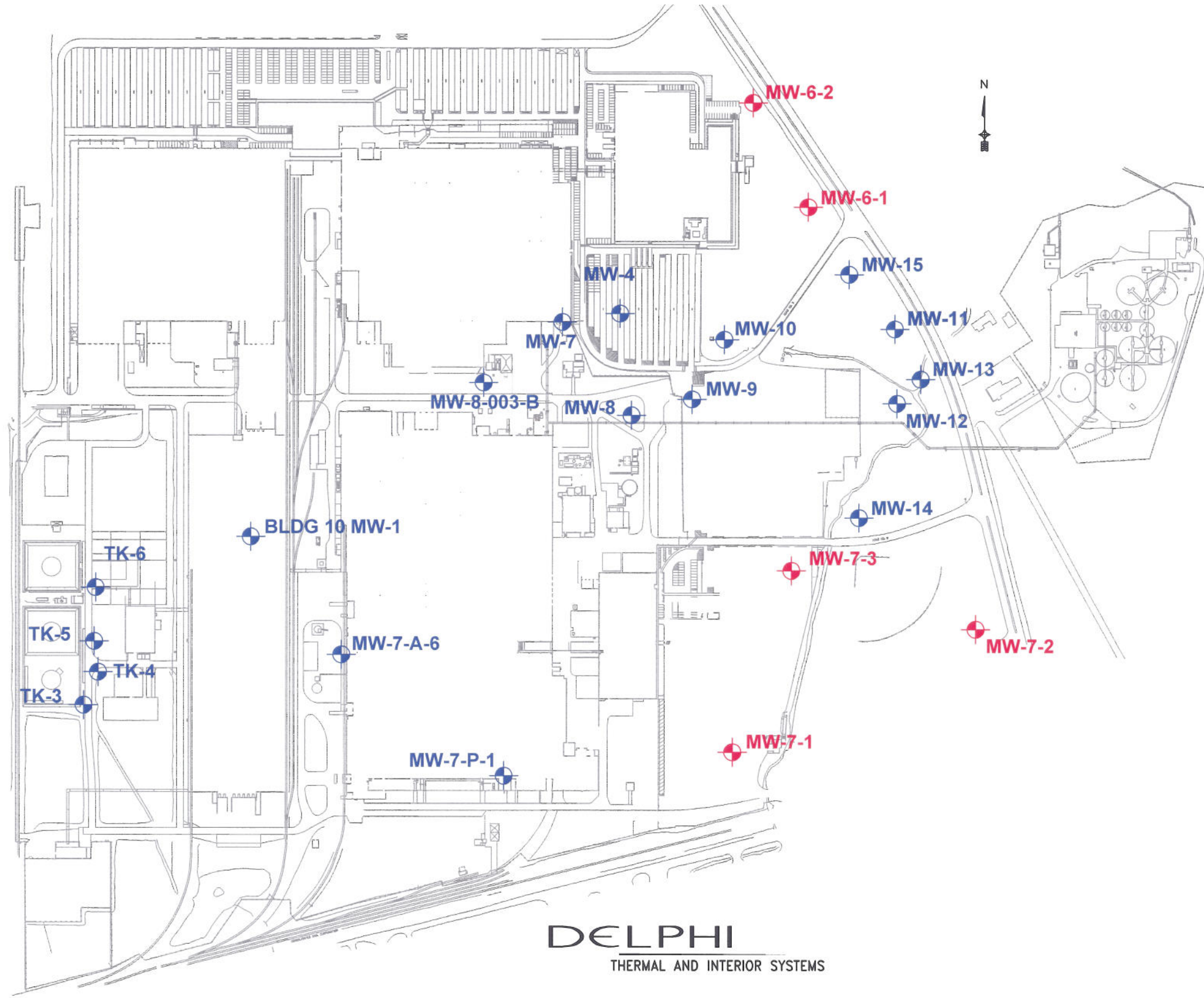
ATTACHMENT 1
TABLE & FIGURES

Table 1
Groundwater Analytical Testing Results Summary
Additional Downgradient Groundwater Monitoring Wells
Delphi Lockport Complex
Lockport, New York

Parameter	NYSDEC Class GA Criteria	MW-6-1	MW-6-2	MW-7-1	MW-7-2	MW-7-3
VOC - EPA Method 8260 TCL (ug/L)						
Benzene	1			3		
1,2-Dichloroethenes (total)	5			8		
Trichloroethylene	5		25	110		
Toluene	5			7		

Notes:

- Compounds detected in one or more samples are presented on this table.
- Analytical testing completed by Free-Col Laboratory. Samples were analyzed for volatile organic compounds (VOCs) via EPA Method 8260 Target Compound List (TCL), only.
- NYSDEC Class GA criteria obtained from Division of Water Technical and Operational Guidance Series (TOGS 1.1.1), June 1998.
- ug/L = part per billion (ppb).
- Blank indicates compound was not detected.
- BOLD** values exceeding guidance criteria.



DELPHI
THERMAL AND INTERIOR SYSTEMS

LEGEND:



APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL
INSTALLED NOVEMBER 2007.



APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL
INSTALLED PREVIOUSLY.

NOTES:

1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY
DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES
SHOULD BE CONSIDERED APPROXIMATE.

DELPHI AUTOMOTIVE SYSTEMS

DELPHI LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD, LOCKPORT, NEW YORK

**DOWNGRADIENT
MONITORING WELL INSTALLATION**

SITE PLAN

PROJECT No.
21.0056372

FIGURE No.
1



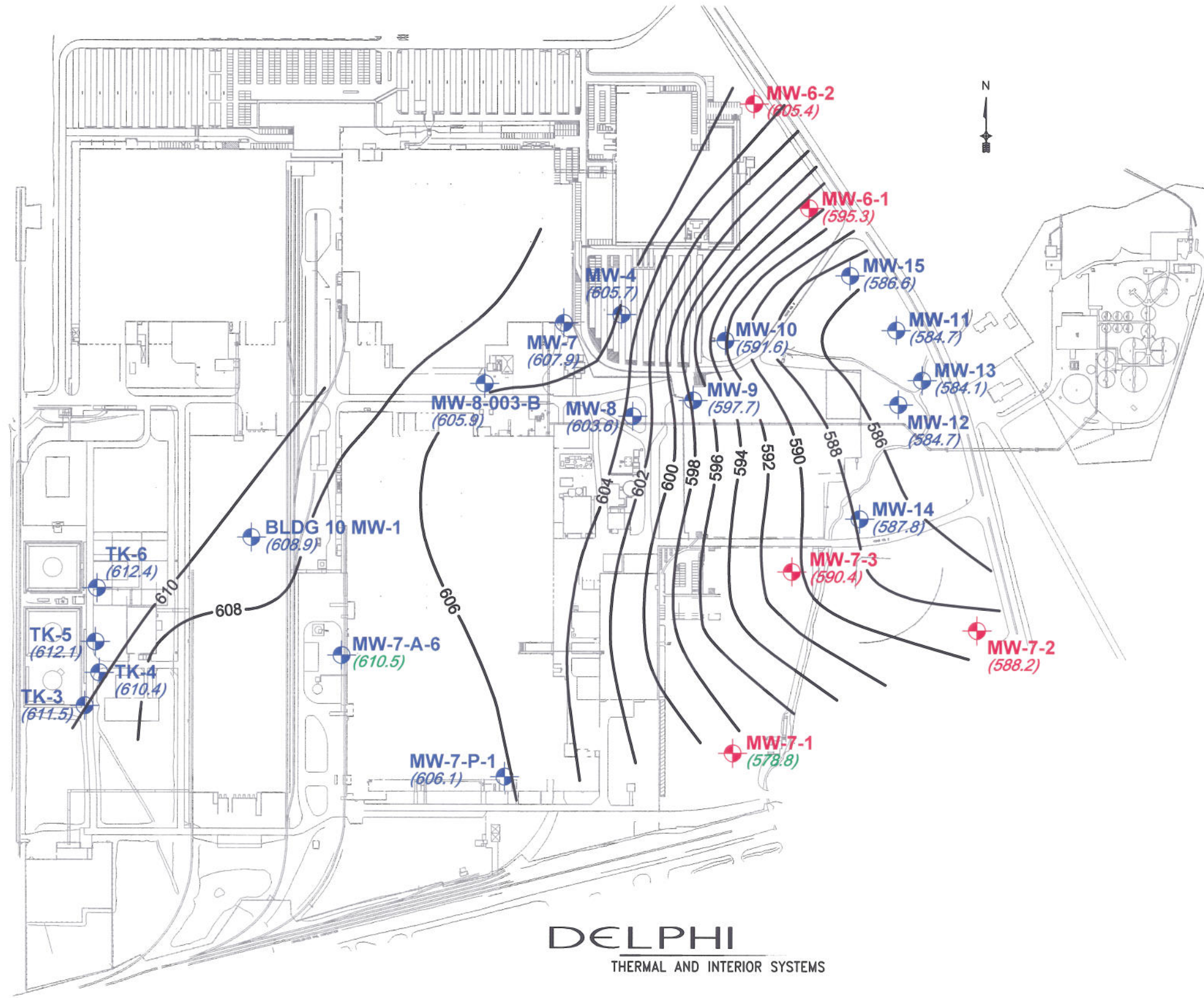
APPROXIMATE SCALE IN FEET

DRAWN BY: DEW

DATE: JANUARY 2008



**GZA GeoEnvironmental of
New York**



LEGEND:

MW-7-2
(588.2)

APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL
INSTALLED NOVEMBER 2007, WITH GROUNDWATER ELEVATION
MEASURED ON JANUARY 8, 2008

MW-11
(584.7)

APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL
INSTALLED PREVIOUSLY, WITH GROUNDWATER ELEVATION
MEASURED ON JANUARY 8, 2008

(610.5)

GROUNDWATER ELEVATION MEASURED ON JANUARY 8, 2008 **NOT**
USED IN THE DEVELOPMENT OF GROUNDWATER CONTOURS

—606—

APPROXIMATE LOCATION AND ELEVATION OF GROUNDWATER
CONTOUR LINE, BASED ON GROUNDWATER ELEVATIONS MEASURED
ON JANUARY 8, 2008

NOTES:

1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY
DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES
SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: DEW DATE: JANUARY 2008		GZA GeoEnvironmental of New York	
APPROXIMATE SCALE IN FEET 0 200 400 800			
DELPHI AUTOMOTIVE SYSTEMS DELPHI LOCKPORT FACILITY 200 UPPER MOUNTAIN ROAD, LOCKPORT, NEW YORK		PROJECT No. 21.0056372	
MONITORING WELL INSTALLATION MONITORING WELL LOCATIONS AND JANUARY 8, 2008 GROUNDWATER CONTOURS		FIGURE No. 2	

ATTACHMENT 2
BORING & MONITORING WELL INSTALLATION LOGS

Delphi Automotive
Additional Well Installation
Lockport Complex
Lockport, NY

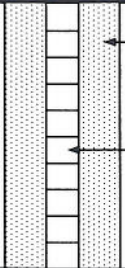
BORING No. MW-6-1
SHEET 1 OF 1
FILE No. 21.0056372.00
CHECKED BY: ERH

CONTRACTOR		Earth Dimensions, Inc.		BORING LOCATION		See Location Plan	
DRILLER		Andy Morris		GROUND SURFACE ELEVATION		596.6 DATUM NGVD	
START DATE		11/1/2007		END DATE		11/8/2007	
GZA GEOENVIRONMENTAL REPRESENTATIVE				C. Boron			

WATER LEVEL DATA						TYPE OF DRILL RIG		CME-550	
DATE	TIME	WATER	CASING	NOTES	CASING SIZE AND DIAMETER	6-5/8" HSA			
					OVERBURDEN SAMPLING METHOD	2" diameter x 24" long splitspoon			
					ROCK DRILLING METHOD	5 7/8 Roller Bit-NQ Size Rock Core-3 7/8 Roller bit			

D E P T H	SAMPLE					SAMPLE DESCRIPTION	WELL INSTALLATION DIAGRAM	WELL INSTALLATION DESCRIPTION	O V M (ppm)
	BLOWS (/6")	NO.	DEPTH (FT)	N-VALUE /RQD %	RECOVERY (%)				
1	3	S-1	0 - 2	17	70	TOPSOIL		ND	
2	6					Brown Clayey SILT, trace Sand, little Gravel, moist. (FILL)			
3	11					Dark brown Clayey SILT, trace Sand, trace Gravel, moist. (FILL)			
4	9	S-2	2 - 4	24	60	Brown Clayey SILT, trace Sand, trace Gravel, moist. (Native)			
5	11					Splitspoon Refusal at 4.3 feet			
6	12					Auger Refusal at 4.5 feet			
7	12					Rollerbit to 6.5 feet			
8	18					BEDROCK			
9	100/3	S-3	4 - 4.3			Lockport Dolomite Formation			
10						Gray, hard, very slight to slight weathering, fine grained, horizontal and low angle fractures.			
11									
12									
13									
14									
15									
16									
17						Rollerbit 16.5 to 17 feet			
18						End of boring at 17 feet bgs.			
19									

S - Split Spoon Sample C - Rock Core Sample	NOTES: 1) HNu PI - 101 organic vapor meter (OVM) used to screen soil samples. Meter was calibrated to the equivalent of 100 ppm isobutylene in air. 2) OVM reading from headspace screening of soil samples.
General Notes: 1) Stratification lines represent approximate boundary between soil types; transitions may be gradual. 2) Water level readings have been made at times and under conditions stated; fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	

D E P T H	SAMPLE					SAMPLE DESCRIPTION	WELL INSTALLATION DIAGRAM	WELL INSTALLATION DESCRIPTION	O V M (ppm)			
	BLOWS (/6")	NO.	DEPTH (FT)	N-VALUE /RQD %	RECOVERY (%)							
20						BEDROCK LOCKPORT DOLOMITE FORMATION Gray, hard, slight to moderate weathering, fine-grained, horizontal and low angle fractures		Sandpack #00N from 12.9 to 24.6 feet 2 inch PVC Screen SCH. 40, 10 slot, from 14.6 to 24.6 feet.				
21												
22												
23												
24												
25												
26						End of boring at 24.6 feet bgs.						
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
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40												
S - Split Spoon Sample C - Rock Core Sample									NOTES: 1) HNu PI - 101 organic vapor meter (OVM) used to screen soil samples. Meter was calibrated to the equivalent of 100 ppm isobutylene in air. 2) OVM reading from headspace screening of soil samples.			
General Notes:									1) Stratification lines represent approximate boundary between soil types; transitions may be gradual. 2) Water level readings have been made at times and under conditions stated; fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.			

Delphi Automotive
Additional Well Installation
Lockport Complex
Lockport, NY

BORING No. MW-7-1
SHEET 1 OF 2
FILE No. 21.0056372.00
CHECKED BY ERH

CONTRACTOR		Earth Dimensions, Inc.		BORING LOCATION		See Location Plan	
DRILLER		Andy Morris		GROUND SURFACE ELEVATION		DATUM NGVD	
START DATE		10/31/2007		END DATE		11/6/2007	
				GZA GEOENVIRONMENTAL REPRESENTATIVE		C. Boron	

WATER LEVEL DATA						TYPE OF DRILL RIG		CME-550	
DATE	TIME	WATER	CASING	NOTES		CASING SIZE AND DIAMETER		6-5/8" HSA	
4/5/1996	12:50	Dry	6.2	20 min. stab.		OVERBURDEN SAMPLING METHOD		2" diameter x 24" long splitspoon	
4/8/1996	8:30	3.0	6.2			ROCK DRILLING METHOD		5 7/8 Roller Bit-NQ Size Rock Core-3 7/8 Roller bit	

D E P T H	SAMPLE					SAMPLE DESCRIPTION	WELL INSTALLATION DIAGRAM	WELL INSTALLATION DESCRIPTION	O V M (ppm)		
	BLOWS (6")	NO.	DEPTH (FT)	N-VALUE /RQD %	RECOVERY (%)						
1						ASPHALT (3 to 4 inches)			ND		
2						Subbase (6-inches)					
3	9	S-1	2 - 4	23	25	Red brown Clayey SILT, little Sand, trace Gravel, moist (Native)					ND
4	11										
5	12										
6	13										
7	8	S-2	4 - 6	34	70						ND
8	15										
9	19										
10	19										
11	27	S-3	6 - 8	60	80						ND
12	29					Grades to:....little Sand, little Gravel.					
13	31										
14	30										
15	8	S-4	8 - 10	38	90	Grades to:....trace Sand, trace Gravel.					ND
16	20										
17	18										
18	24										
19	9	S-5	10 - 12	47	60						ND
20	20										
21	27										
22	30										
23	10	S-6	12.0 - 12.8		90			ND			
24	100/3					Splitspoon Refusal at 12.7 ft bgs Auger refusal at 13.2 feet bgs					
25											
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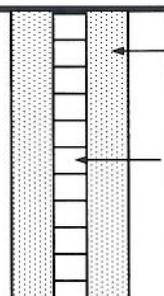
DEPTH	SAMPLE					SAMPLE DESCRIPTION	WELL INSTALLATION DIAGRAM	WELL INSTALLATION DESCRIPTION	O V M (ppm)			
	BLOWS (/6")	NO.	DEPTH (FT)	N-VALUE /RQD %	RECOVERY (%)							
20						BEDROCK Lockport Dolomite Formation Gray, hard, very slight to slight weathering, fine grained, horizontal and low angle fractures.		Sandpack #00N from 18 to 30 feet 2 inch PVC Screen SCH. 40, 10 slot, from 20 to 30 feet.				
21												
22												
23												
24												
25		C-2	24.5 - 29.5	53	53							
26												
27												
28												
29												
30												
31						Rollerbit 29.5 to 30.0 feet.						
32						End of boring at 30 feet bgs.						
33												
34												
35												
36												
37												
38												
39												
40												
S - Split Spoon Sample C - Rock Core Sample				NOTES: 1) HNu PI - 101 organic vapor meter (OVM) used to screen soil samples. Meter was calibrated to the equivalent of 100 ppm isobutylene in air. 2) OVM reading from headspace screening of soil samples.								
General Notes:				1) Stratification lines represent approximate boundary between soil types; transitions may be gradual. 2) Water level readings have been made at times and under conditions stated; fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.								

Delphi Automotive
Additional Well Installation
Lockport Complex
Lockport, NY

BORING No. MW-7-3
SHEET 1 OF 2
FILE No. 21.0056372.00
CHECKED BY ERH

CONTRACTOR		Earth Dimensions, Inc.		BORING LOCATION		See Location Plan	
DRILLER		Andy Morris		GROUND SURFACE ELEVATION		DATUM NGVD	
START DATE		10/31/2007		END DATE		11/8/2007	
				GZA GEOENVIRONMENTAL REPRESENTATIVE		C. Boron	

WATER LEVEL DATA						TYPE OF DRILL RIG		CME-550		
DATE	TIME	WATER	CASING	NOTES	CASING SIZE AND DIAMETER	6-5/8" HSA				
						OVERBURDEN SAMPLING METHOD	2" diameter x 24" long splitspoon			
						ROCK DRILLING METHOD	5 7/8 Roller Bit-NQ Size Rock Core-3 7/8 Roller bit			
D E P T H	SAMPLE					SAMPLE DESCRIPTION	WELL INSTALLATION DIAGRAM	WELL INSTALLATION DESCRIPTION	O V M (ppm)	
	BLOWS (/6")	NO.	DEPTH (FT)	N-VALUE /RQD %	RECOVERY (%)					
1						ASPHALT (3 to 4 inches)			ND	
2						Subbase (6-inches)				
3	7	S-1	2 - 4	10	50	Red brown Clayey SILT, trace Sand, moist. (FILL)				
4	5					Dark brown SILT & CLAY, trace Sand, trace Organics, moist. (FILL)				
5	2	S-2	4 - 6	5	20	Dark brown SILT & CLAY, trace Sand, moist. (Native)				
6	3									
7	5	S-3	6 - 8	16	50	Red brown Clayey SILT, trace Sand, trace Gravel, moist.				
8	10									
9	6					Grades to...wet.				
10	4					Splitspoon & Auger Refusal at 8.2 feet				
11	50/0.2	S-4	8 - 8.2		0	Rollerbit to 9.5 feet				
12										
13										
14										
15										
16						BEDROCK				
17						Lockport Dolomite Formation				
18						Gray, hard, very slight to slight weathering, fine grained, horizontal and low angle fractures.				
19										
		C-2	19.5 - 24.5	96	100					

DEPTH (ft)	SAMPLE					SAMPLE DESCRIPTION	WELL INSTALLATION DIAGRAM	WELL INSTALLATION DESCRIPTION	O V M			
	BLOWS (/6")	NO.	DEPTH (FT)	N-VALUE /RQD %	RECOVERY (%)							
20						 Sandpack #00N from 10.5 to 25 feet 2 inch PVC Screen SCH. 40, 10 slot, from 15 to 25 feet. Rollerbit 24.5 to 25.0 feet. End of boring at 25 feet bgs.						
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General Notes:									1) Stratification lines represent approximate boundary between soil types; transitions may be gradual. 2) Water level readings have been made at times and under conditions stated; fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.			

ATTACHMENT 3

HYDRAULIC CONDUCTIVITY CALCULATION SPREADSHEETS

Bouwer & Rice Slug Test Method **Hydraulic Conductivity Calculation Worksheet**

Project	21.0056372.0	Date	1/17/2008
Site	Delphi Thermal	Well No	MW-6-1

H =	50.0	feet	(aquifer thickness => assumed)
Le =	10.0	feet	(wetted screen length)
Lw =	12.7	feet	(length from bottom of well to static water table)
rw =	0.500	feet	(borehole radius)
rc =	0.083	feet	(well radius)
n =	0.25		if d = 2 inch, m = 0.163
yo =	4.31	feet	if d = 4 inch, m = 0.653
yt =	2.41	feet	if d = 6 inch, m = 1.469
t =	3.8	min	(multiplier)
Le/rw =	20.0		m = 0.163
A =	1.75		Q = 0.082
B =	0.25		Q = 1.09E-02
C =	1.00		(flowrate)
rc' =	0.260		(flowrate)
In Re =	0.220		
Re =	1.246	feet	
In Re =	1.871		
Re =	6.496	feet	

K =	4.81E-05	ft/min	(hydraulic conductivity)
K =	2.44E-05	cm/sec	(hydraulic conductivity)
T =	4.01E-05	ft ² /sec	(transmissivity)
T =	25.91	gpd/ft	(transmissivity)

Bouwer & Rice Slug Test Method **Hydraulic Conductivity Calculation Worksheet**

Project	21.0056372.0	Date	1/17/2008
Site	Delphi Thermal	Well No	MW-6-2

H =	50.0	feet	(aquifer thickness => assumed)
Le =	10.0	feet	(wetted screen length)
Lw =	18.2	feet	(length from bottom of well to static water table)
rw =	0.500	feet	(borehole radius)
rc =	0.083	feet	(well radius)
n =	0.25		if d = 2 inch, m = 0.163
yo =	15	feet	(porosity of gravel pack)
yt =	10.10	feet	if d = 4 inch, m = 0.653
t =	4.73	min	if d = 6 inch, m = 1.469
Le/rw =	20.0		m = 0.163 (multiplier)
A =	2.2		Q = 0.169 gpm (flowrate)
B =	0.65		Q = 2.26E-02 ft ³ /min (flowrate)
C =	1.70		
rc' =	0.260		
In Re =	0.220		
Re =	1.246	feet	
In Re =	1.865		
Re =	6.453	feet	

K =	2.63E-05	ft/min	(hydraulic conductivity)
K =	1.34E-05	cm/sec	(hydraulic conductivity)
T =	2.19E-05	ft ² /sec	(transmissivity)
T =	14.16	gpd/ft	(transmissivity)

Bouwer & Rice Slug Test Method **Hydraulic Conductivity Calculation Worksheet**

Project	21.0056372.0	Date	1/17/2008
Site	Delphi Thermal	Well No	MW-7-2

H =	50.0	feet	(aquifer thickness => assumed)
Le =	10.0	feet	(wetted screen length)
Lw =	12.8	feet	(length from bottom of well to static water table)
rw =	0.500	feet	(borehole radius)
rc =	0.083	feet	(well radius)
n =	0.25		if d = 2 inch, m = 0.163
yo =	11.96	feet	if d = 4 inch, m = 0.653
yt =	11.46	feet	if d = 6 inch, m = 1.469
t =	15.18	min	
Le/rw =	20.0		m = 0.163 (multiplier)
A =	2.2		Q = 0.005 gpm (flowrate)
B =	0.65		Q = 7.18E-04 ft ³ /min (flowrate)
C =	1.70		
rc' =	0.260		
In Re =	0.220		
Re =	1.246	feet	
In Re =	1.664		
Re =	5.278	feet	

K =	8.85E-07	ft/min	(hydraulic conductivity)
K =	4.50E-07	cm/sec	(hydraulic conductivity)
T =	7.37E-07	ft ² /sec	(transmissivity)
T =	0.48	gpd/ft	(transmissivity)

Bouwer & Rice Slug Test Method
Hydraulic Conductivity Calculation Worksheet

Project	21.0056372.0	Date	1/17/2008
Site	Delphi Thermal	Well No	MW-7-3

H =	50.0	feet	(aquifer thickness => assumed)
Le =	10.0	feet	(wetted screen length)
Lw =	20.8	feet	(length from bottom of well to static water table)
rw =	0.500	feet	(borehole radius)
rc =	0.083	feet	(well radius)
n =	0.25		if d = 2 inch, m = 0.163
yo =	18.77	feet	(porosity of gravel pack)
yt =	16.57	feet	(start water level)
t =	7.36	min	(end water level)
Le/rw =	20.0		(change in time)
A =	1.75		(calculated ratio)
B =	0.25		(from plot)
C =	1.00		(from plot)
rc' =	0.260		(effective radius)
In Re =	0.220		(for Lw < H)
Re =	1.246	feet	(for Lw < H)
In Re =	2.204		(for Lw = H)
Re =	9.061	feet	(for Lw = H)

K =	5.33E-06	ft/min	(hydraulic conductivity)
K =	2.71E-06	cm/sec	(hydraulic conductivity)
T =	4.44E-06	ft ² /sec	(transmissivity)
T =	2.87	gpd/ft	(transmissivity)

ATTACHMENT 4

FREE COL LABORATORIES ANALYTICAL REPORT



FREE-COL LABORATORIES

11618 COTTON ROAD
MEADVILLE, PENNSYLVANIA 16335

PHONE: (814) 724-6242

FAX: (814) 333-1466

EMAIL: service@freecol.com

Accredited Lab ID#
Free-Col: 20-00073
Modern Erie: 25-03459

Certificate Of Analysis

Delivery Group ID: 2007:0013351

2 Sample(s) are included in this Delivery Group.

Company Name: Delphi Energy & Engine

Contact Name: Mr. Rick Eisenman

Date Received 12/4/2007

Time Received: 09:00

Delivered By: UPS

P.O. Box 92700

Rochester NY 14692

P.O. 460016825

Project Name: Delphi Thermal System

Printed on 12/10/2007 at 11:27AM

Sample ID: 2007:0013351-1

Client's Sample ID: MW-7-1

Date Sampled: 11/30/2007 Time Sampled: 11:00

Date Received: 12/4/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
Organics						
Volatiles						
Acrolein	<0.010	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Acrylonitrile	<0.010	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Benzene	0.003	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Bromoform	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Carbon Tetrachloride	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Chlorobenzene	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Chlorodibromomethane	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Chloroethane	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
2-Chloroethylvinyl ether	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Chloroform	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Dichlorobromomethane	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,1-Dichloroethane	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,2-Dichloroethane	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,1-Dichloroethene	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,2-Dichloroethenes (Total)	0.008	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,2-Dichloropropane	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
cis-1,3-Dichloropropene	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
trans-1,3-Dichloropropene	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Ethylbenzene	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Methyl Bromide	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Methyl Chloride	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Methylene chloride	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,1,2,2-Tetrachloroethane	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Tetrachloroethylene	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Toluene	0.007	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,1,1-Trichloroethane	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,1,2-Trichloroethane	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Trichloroethylene	0.11	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
Vinyl Chloride	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,2-Dichlorobenzene	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B



FREE-COL LABORATORIES

11618 COTTON ROAD
MEADVILLE, PENNSYLVANIA 16335
PHONE: (814) 724-6242
FAX: (814) 333-1466
EMAIL: service@freecol.com

Accredited Lab ID#
Free-Col: 20-00073
Modern Erie: 25-03459

Certificate Of Analysis

Delivery Group ID: 2007:0013351

2 Sample(s) are included in this Delivery Group.

Company Name: Delphi Energy & Engine

Contact Name: Mr. Rick Eisenman

Date Received 12/4/2007

Time Received: 09:00

Delivered By: UPS

P.O. Box 92700

Rochester NY 14692

P.O. 460016825

Project Name: Delphi Thermal System

Printed on 12/10/2007 at 11:27AM

Sample ID: 2007:0013351-1

Client's Sample ID: MW-7-1

Date Sampled: 11/30/2007 Time Sampled: 11:00

Date Received: 12/4/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
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Organics (Continued)

Volatiles (Continued)

1,3-Dichlorobenzene	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B
1,4-Dichlorobenzene	<0.002	mg/L	12/06/07	04:00	Perrine	SW-846 8260B

Sample ID: 2007:0013351-2

Client's Sample ID: MW-6-1

Date Sampled: 11/30/2007 Time Sampled: 09:00

Date Received: 12/4/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
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Organics

Volatiles

Acrolein	<0.010	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Acrylonitrile	<0.010	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Benzene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Bromoform	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Carbon Tetrachloride	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Chlorobenzene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Chlorodibromomethane	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Chloroethane	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
2-Chloroethylvinyl ether	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Chloroform	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Dichlorobromomethane	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,1-Dichloroethane	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,2-Dichloroethane	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,1-Dichloroethene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,2-Dichloroethenes (Total)	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,2-Dichloropropane	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
cis-1,3-Dichloropropene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
trans-1,3-Dichloropropene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B



FREE-COL LABORATORIES

11618 COTTON ROAD
MEADVILLE, PENNSYLVANIA 16335
PHONE: (814) 724-6242
FAX: (814) 333-1466
EMAIL: service@freecol.com

Accredited Lab ID#
Free-Col: 20-00073
Modern Erie: 25-03459

Certificate Of Analysis

Delivery Group ID: 2007:0013351

2 Sample(s) are included in this Delivery Group.

Company Name: Delphi Energy & Engine
Contact Name: Mr. Rick Eisenman

Date Received 12/4/2007

Time Received: 09:00

Delivered By: UPS

P.O. Box 92700
Rochester NY 14692

P.O. 460016825

Project Name: Delphi Thermal System

Printed on 12/10/2007 at 11:27AM

Sample ID: 2007:0013351-2

Client's Sample ID: MW-6-1

Date Sampled: 11/30/2007 Time Sampled: 09:00

Date Received: 12/4/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
<u>Organics (Continued)</u>						
Volatiles (Continued)						
Ethylbenzene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Methyl Bromide	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Methyl Chloride	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Methylene chloride	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,1,2,2-Tetrachloroethane	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Tetrachloroethylene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Toluene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,1,1-Trichloroethane	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,1,2-Trichloroethane	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Trichloroethylene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
Vinyl Chloride	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,2-Dichlorobenzene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,3-Dichlorobenzene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
1,4-Dichlorobenzene	<0.002	mg/L	12/06/07	09:29	Perrine	SW-846 8260B
CC: GZA						

CHAIN OF CUSTODY RECORD

1 CLIENT INFORMATION		2 SAMPLE REPORTING INFORMATION		3 ANALYSIS REQUESTED/COMMENTS (If composite, please use inclusive dates and times.)	
COMPANY	DELPHI THERMAL / GZA	Check all that apply	Sample Type	CH₄, Fe, Hg, Pb, Cu, Ni, Alk, Tol, Cl, NH₃, NO₂, NO₃, Sulfate, Bifidic, + VOC's (P.E., TCE, Cis-1,2-Dichloroethylene, Trans-1,2-Dichloroethylene, V. Chloroac.) TOL VOC'S TOL VOC'S	
CONTACT	CHRIS BROWN (GZA)	NORMAL	Wastewater:		
ADDRESS	5315 WASHINGTON ST 11th Floor	Rush (Specify)	Frequency		
CITY	BUFFALO	QA/QC	Monitoring Wells		
STATE	NY	Due Date	Solid Waste:		
PHONE	716-685-2800	Fax Data	Frequency	Sampling Frequency (Circle One):	
PURCHASE ORDER NUMBER		Non-Compliance	Other:	Quarterly/Monthly/Annual	
CLIENT #		Compliance	Frequency	Check Sample: Yes / No	
5 SAMPLE INFORMATION					
DATE	TIME	SAMPLE IDENTIFICATION	FOR FREE-COL USE ONLY	FREE-COL ID	RESULTS
11/30/07	1100	HW-7-1		13351-1	
"	900	HW-6-1		2	
6 SAMPLE TRACEABILITY					
Date Received	SIGNATURE	ORGANIZATION	DATE RELINQUISHED	USE BY LABORATORY ONLY	
12/4/07	[Signature]	GZA	12/03/07	Samples received at lab	YES NO
12/4/07	[Signature]	PA	12/4	Means of delivery to lab	YES NO
12/4/07	[Signature]	PA	12/11/07	Sample cooler temp. upon receipt	YES NO
				Sample check in started	Completed
				Analyst	Date Run
				Reviewed by	Date
				Worksheet Number	

FREE-COL LABORATORIES, Division of Moderna Ind.

11618 COTTON ROAD
MEADVILLE, PA 16335
814 724 - 6242
814 333 - 1466 Fax

Website: www.free-col.com

3 PROJECT NAME / NUMBER

DELPHI THERMAL 0106175

4 SAMPLER'S NAME / DATE

JONAS BENEVENTE

SAMPLE RANGE:

ANALYSIS REQUESTED/COMMENTS (If composite, please use inclusive dates and times.)

CH₄, Fe, Hg, Pb, Cu, Ni, Alk, Tol, Cl, NH₃, NO₂, NO₃, Sulfate, Bifidic, + VOC's (P.E., TCE, Cis-1,2-Dichloroethylene, Trans-1,2-Dichloroethylene, V. Chloroac.)

TOL VOC'S

TOL VOC'S

USE BY LABORATORY ONLY

Refrigerated upon receipt?

YES

NO

Sample cooler temp. upon receipt

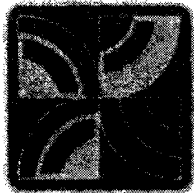
Completed

12.4

Date Run

Date

Worksheet Number



FREE-COL LABORATORIES

11618 COTTON ROAD
MEADVILLE, PENNSYLVANIA 16335
PHONE: (814) 724-6242
FAX: (814) 333-1466
EMAIL: service@freecol.com

Accredited Lab ID#
Free-Col: 20-00073
Modern Erie: 25-03459

Certificate Of Analysis

Delivery Group ID: 2007:0013303

6 Sample(s) are included in this Delivery Group.

Company Name: Delphi Energy & Engine

Contact Name: Mr. Rick Eisenman

P.O. Box 92700
Rochester NY 14692

Date Received 12/1/2007

Time Received: 09:00

Delivered By: UPS

P.O. 460016825

Project Name: Delphi Thermal Systems

Printed on 12/26/2007 at 11:02AM

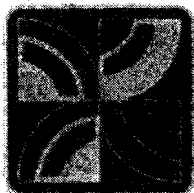
Sample ID: 2007:0013303-3

Client's Sample ID: MW-7-2

Date Sampled: 11/29/2007 Time Sampled: 08:40

Date Received: 12/1/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
Organics						
Volatiles						
Acrolein	<0.010	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Acrylonitrile	<0.010	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Benzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Bromoform	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Carbon Tetrachloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chlorodibromomethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
2-Chloroethylvinyl ether	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chloroform	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Dichlorobromomethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1-Dichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1-Dichloroethene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloroethenes (Total)	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloropropane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
cis-1,3-Dichloropropene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
trans-1,3-Dichloropropene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Ethylbenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methyl Bromide	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methyl Chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methylene chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,2,2-Tetrachloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Tetrachloroethylene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Toluene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,1-Trichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,2-Trichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Trichloroethylene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Vinyl Chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B



FREE-COL LABORATORIES

11618 COTTON ROAD
MEADVILLE, PENNSYLVANIA 16335
PHONE: (814) 724-6242
FAX: (814) 333-1466
EMAIL: service@freecol.com

Accredited Lab ID#
Free-Col: 20-00073
Modern Eric: 25-03459

Certificate Of Analysis

Delivery Group ID: 2007:0013303

6 Sample(s) are included in this Delivery Group.

Company Name: Delphi Energy & Engine

Date Received 12/1/2007

Contact Name: Mr. Rick Eisenman

Time Received: 09:00

Delivered By: UPS

P.O. Box 92700
Rochester NY 14692

P.O. 460016825

Project Name: Delphi Thermal Systems

Printed on 12/26/2007 at 11:02AM

Sample ID: 2007:0013303-3

Client's Sample ID: MW-7-2

Date Sampled: 11/29/2007 Time Sampled: 08:40

Date Received: 12/1/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
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Organics (Continued)

Volatiles (Continued)

1,3-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,4-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B

Sample ID: 2007:0013303-4

Client's Sample ID: MW-7-3

Date Sampled: 11/29/2007 Time Sampled: 10:30

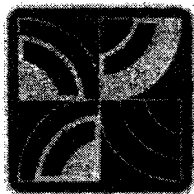
Date Received: 12/1/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
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Organics

Volatiles

Acrolein	<0.010	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Acrylonitrile	<0.010	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Benzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Bromoform	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Carbon Tetrachloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chlorodibromomethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
2-Chloroethylvinyl ether	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chloroform	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Dichlorobromomethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1-Dichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1-Dichloroethene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloroethenes (Total)	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloropropane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
cis-1,3-Dichloropropene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
trans-1,3-Dichloropropene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B



FREE-COL LABORATORIES

11618 COTTON ROAD
MEADVILLE, PENNSYLVANIA 16335
PHONE: (814) 724-6242
FAX: (814) 333-1466
EMAIL: service@freecol.com

Accredited Lab ID#
Free-Col: 20-00073
Modern Erie: 25-03459

Certificate Of Analysis

Delivery Group ID: 2007:0013303

6 Sample(s) are included in this Delivery Group.

Company Name: Delphi Energy & Engine

Date Received 12/1/2007

Contact Name: Mr. Rick Eisenman

Time Received: 09:00

Delivered By: UPS

P.O. Box 92700
Rochester NY 14692

P.O. 460016825

Project Name: Delphi Thermal Systems

Printed on 12/26/2007 at 11:02AM

Sample ID: 2007:0013303-4

Client's Sample ID: MW-7-3

Date Sampled: 11/29/2007 Time Sampled: 10:30

Date Received: 12/1/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
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Organics (Continued)

Volatiles (Continued)

Ethylbenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methyl Bromide	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methyl Chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methylene chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,2,2-Tetrachloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Tetrachloroethylene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Toluene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,1-Trichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,2-Trichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Trichloroethylene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Vinyl Chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,3-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,4-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B

Surrogate recoveries for this sample were outside of the established limits due to matrix interferences.

Sample ID: 2007:0013303-5

Client's Sample ID: MW-6-2

Date Sampled: 11/29/2007 Time Sampled: 16:25

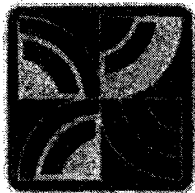
Date Received: 12/1/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
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Organics

Volatiles

Acrolein	<0.010	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Acrylonitrile	<0.010	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Benzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Bromoform	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Carbon Tetrachloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B



FREE-COL LABORATORIES

11618 COTTON ROAD

MEADVILLE, PENNSYLVANIA 16335

PHONE: (814) 724-6242

FAX: (814) 333-1466

EMAIL: service@freecol.com

Accredited Lab ID#

Free-Col: 20-00073

Modern Erie: 25-03459

Certificate Of Analysis

Delivery Group ID: 2007:0013303

6 Sample(s) are included in this Delivery Group.

Company Name: Delphi Energy & Engine

Date Received 12/1/2007

Contact Name: Mr. Rick Eisenman

Time Received: 09:00

Delivered By: UPS

P.O. Box 92700

Rochester NY 14692

P.O. 460016825

Project Name: Delphi Thermal Systems

Printed on 12/26/2007 at 11:02AM

Sample ID: 2007:0013303-5

Client's Sample ID: MW-6-2

Date Sampled: 11/29/2007 Time Sampled: 16:25

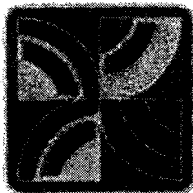
Date Received: 12/1/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
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Organics (Continued)

Volatiles (Continued)

Chlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chlorodibromomethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
2-Chloroethylvinyl ether	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chloroform	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Dichlorobromomethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1-Dichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1-Dichloroethene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloroethenes (Total)	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloropropane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
cis-1,3-Dichloropropene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
trans-1,3-Dichloropropene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Ethylbenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methyl Bromide	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methyl Chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methylene chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,2,2-Tetrachloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Tetrachloroethylene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Toluene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,1-Trichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,2-Trichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Trichloroethylene	0.025	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Vinyl Chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,3-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,4-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B



FREE-COL LABORATORIES

11618 COTTON ROAD

MEADVILLE, PENNSYLVANIA 16335

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EMAIL: service@freecol.com

Accredited Lab ID#

Free-Col: 20-00073

Modern Erie: 25-03459

Certificate Of Analysis

Delivery Group ID: 2007:0013303

6 Sample(s) are included in this Delivery Group.

Company Name: Delphi Energy & Engine

Date Received: 12/1/2007

Contact Name: Mr. Rick Eisenman

Time Received: 09:00

Delivered By: UPS

P.O. Box 92700

Rochester NY 14692

P.O. 460016825

Project Name: Delphi Thermal Systems

Printed on 12/26/2007 at 11:02AM

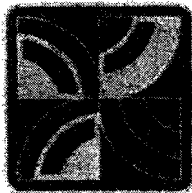
Sample ID: 2007:0013303-6

Client's Sample ID: Trip Blank

Date Sampled: 11/20/2007 Time Sampled: 08:40

Date Received: 12/1/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
Organics						
Volatiles						
Acrolein	<0.010	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Acrylonitrile	<0.010	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Benzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Bromoform	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Carbon Tetrachloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chlorodibromomethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
2-Chloroethylvinyl ether	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Chloroform	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Dichlorobromomethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1-Dichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1-Dichloroethene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloroethenes (Total)	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichloropropane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
cis-1,3-Dichloropropene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
trans-1,3-Dichloropropene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Ethylbenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methyl Bromide	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methyl Chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Methylene chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,2,2-Tetrachloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Tetrachloroethylene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Toluene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,1-Trichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,1,2-Trichloroethane	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Trichloroethylene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
Vinyl Chloride	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,2-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B



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Accredited Lab ID#
Free-Col: 20-00073
Modern Erie: 25-03459

Certificate Of Analysis

Delivery Group ID: 2007:0013303

6 Sample(s) are included in this Delivery Group.

Company Name: Delphi Energy & Engine

Contact Name: Mr. Rick Eisenman

P.O. Box 92700
Rochester NY 14692

Date Received 12/1/2007

Time Received: 09:00

Delivered By: UPS

P.O. 460016825

Project Name: Delphi Thermal Systems

Printed on 12/26/2007 at 11:02AM

Sample ID: 2007:0013303-6

Client's Sample ID: Trip Blank

Date Sampled: 11/20/2007 Time Sampled: 08:40

Date Received: 12/1/2007

Analyte	Result	Units	Date Analyzed	Start Time	Analyst	Method Source
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Organics (Continued)

Volatiles (Continued)

1,3-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B
1,4-Dichlorobenzene	<0.002	mg/L	12/04/07	14:57	Perrine	SW-846 8260B

CC: GZA

