



28 January 2013
File No. 37848-005

VIA OVERNIGHT DELIVERY

Mr. Kevin Collins
Geologist
Land Protection Branch
Response and Remediation Program/Environmental Protection Division
2 Martin Luther King, Jr. Drive, S.E.
Suite 1462, East Tower
Atlanta, Georgia 30334-9000

Subject: January 2013 Annual Progress Report
Former Vulcan Performance Chemicals Dalton Plant
HSI Site No. 10770

Dear Mr. Collins:

This Annual Progress Report is being submitted on behalf of Legacy Vulcan Corp. (LVC) to fulfill LVC's reporting obligation under the Voluntary Remediation Program (VRP). Consistent with the VRP guidance and the Georgia Environmental Protection Division's (EPD) approval letter dated 31 July 2012, this document contains the following information:

- Field sampling activities and analytical results associated with the April 2012 groundwater sampling event.
- Updated Conceptual Site Model (CSM).
- Revised Project Schedule.
- Monthly summary of hours invoiced and description of services provided since the last submittal and the Professional Geologist Certification (Appendix A).

Background

The Dalton site (the Site) is currently owned and operated by Harsco Chemicals Inc. An application requesting that the Site be entered into the VRP was submitted to the EPD on 27 January 2012. EPD reviewed the applications and in a letter dated 31 July 2012 from Mr. David Brownlee, EPD formally approved the application and accepted the Site into the VRP. The approval letter provided a schedule for semi-annual sampling and progress reporting. However, during a telephone conversation between yourself and Carleton Degges (LVC) on 14 January 2013, it was agreed that the requirement for semi-annual sampling and reporting could be reduced to annual sampling and reporting. This document represents the first Annual Progress Report.

Groundwater Monitoring Activities

Groundwater sampling was conducted in accordance with the *Compliance Status Report Addendum* (CSRA; CH2M Hill, 2008). Consistent with the CSRA, groundwater samples were collected by Atlanta

Environmental Management, Inc. (AEM) from monitoring wells MW-5, MW-13, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22D, and MW-23 on April 9 and 10, 2012. MW-22D and MW-23 were added to the sampling program following their installation in August 2011 (2011 Annual Report prepared by Haley & Aldrich and submitted to EPD on 30 November 2011).

Groundwater samples were collected using a low-flow method. Before each monitoring well was sampled, water levels and field parameters, including pH, temperature, specific conductivity, turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP), were measured and recorded on purge logs (Appendix B). Groundwater samples were submitted to Analytical Environmental Services, Inc. (AES) to be analyzed for beryllium by EPA Method 6020A and for lead, nickel, and zinc by EPA Method 6010C. The laboratory analytical reports are provided in Appendix C. In addition to the samples that were collected for metals analyses, groundwater samples collected from monitoring wells MW-19, MW-21, and MW-23 were tested for selected indicator parameters (total alkalinity, carbonate/bicarbonate alkalinity, chloride, and sulfate). The results of indicator parameter testing are used in the evaluation of geochemical interactions in Site groundwater that influence or otherwise control the environmental fate and transport of lead in groundwater. These analytical results are also provided in Appendix C.

Results

Groundwater elevations calculated utilizing water level measurements obtained on 9 April 2012 are summarized in Table I. A water table configuration map has been prepared using this data and is presented in Figure 1. Based on this map, groundwater flow at the Site appears to be to the west and southwest.

Analytical results for the April 2012 sampling event, including field parameters and laboratory analytical data, are summarized on Table II. The Type 1 Risk Reduction Standard (RRS) for lead (0.015 mg/L) was exceeded at one monitoring location (0.0239 mg/L at MW-21). Lead was detected below the Type 1 RRS in the sample from MW-19 (0.0135 mg/L v. 0.015 mg/L). The lead concentrations in the other wells sampled in April 2012 were below the laboratory detection limit (0.010 mg/L). Lead concentrations are included on the potentiometric surface map (Figure 1).

The historical concentrations of lead measured in groundwater samples collected at the Site are summarized in Tables III and IV. The results of the most recent sampling event indicate that the lead concentration at MW-21 has decreased to the lowest level since sampling at this well began in 2008. This data supports the finding that lead concentrations are attenuating due to natural subsurface geochemical conditions, enhanced by the application of a soil amendment during the interim corrective action conducted in 2008. The extent of lead in groundwater above the Type 1 RRS remains localized and is currently limited to a single well location.

Figure 2 is a graph of lead concentration versus time in samples collected from MW-21. At MW-19, the lead concentration was below the Type 1 RRS for the fourth consecutive sampling event. As shown on Figure 2, the lead concentration in groundwater at MW-21 is projected to decrease to below the Type 1 RRS by April 2017, at which time the Site will be in compliance with RRS.

Beryllium was not detected above its laboratory detection limit (0.001 mg/L) at any of the monitoring wells. Nickel and zinc concentrations continue to be reported below their RRS in all monitoring wells.

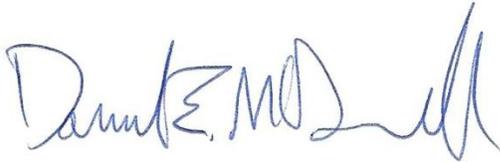
The Conceptual Site Model (CSM) has been updated with data obtained during the April 2012 groundwater sampling event. The site characterization presented in the CSM and the conclusions derived

from it, as presented in the VRP Application, have not changed. The graphical representation of the CSM is included as Figure 3.

In accordance with the approved VRP application, future groundwater monitoring events will include sample collection at monitoring wells MW-19, MW-21, and MW-23, with laboratory analyses for lead only. The next sampling event is scheduled for April 2013. The next Annual Progress Report will be submitted on or before 31 January 2014. A revised project milestone schedule is provided as Figure 4.

If you have any questions or require additional information, please contact Carleton Degges at (205) 298-3063 or Dan McDonnell at (864) 214-8754.

Sincerely yours,
HALEY & ALDRICH, INC.



Daniel E. McDonnell, P.G.
Senior Project Manager

c: Legacy Vulcan Corp.; Attn: Carleton Degges
Harcros Chemicals, Inc., Attn: James Grantham

Attachments:

- Table I – Summary of Groundwater Elevations: April 2012
- Table II – Groundwater Sampling Results: April 2012
- Table III – Summary of Lead Concentrations in Groundwater: 1996-2007
- Table IV – Summary of Lead Concentrations in Groundwater: 2008-2012
- Figure 1 – Water Table Configuration and Lead Concentration Map
- Figure 2 – Lead in Groundwater vs Time Graph
- Figure 3 – Conceptual Site Model
- Figure 4 – Project Milestone Schedule
- Appendix A – Labor Summary and Professional Geologist Certification
- Appendix B – Field Sampling Forms
- Appendix C – Laboratory Analytical Report

TABLES

TABLE I
SUMMARY OF GROUNDWATER ELEVATIONS
April 9, 2012
FORMER VULCAN PERFORMANCE CHEMICALS DALTON SITE

Well No.	Top of Casing (ft msl)	Depth to Water (ft below TOC)	Elevation (ft msl)
MW-4	712.26	4.36	707.90
MW-5	713.68	9.33	704.35
MW-6	702.78	4.70	698.08
MW-7	712.69	6.50	706.19
MW-8	711.81	6.43	705.38
MW-13	705.92	5.68	700.24
MW-14	711.05	5.42	705.63
MW-15	710.08	6.03	704.05
MW-16	702.42	3.17	699.25
MW-17	711.95	6.51	705.44
MW-18	711.74	6.40	705.34
MW-19	711.62	6.24	705.38
MW-20	710.91	5.51	705.40
MW-21	709.84	6.12	703.72
MW-22D	710.00	7.92	702.08
MW-23	708.41	8.26	700.15
TMW-19	715.43	14.84	700.59

TABLE II
GROUNDWATER SAMPLING RESULTS - METALS ANALYSES
April 2012
FORMER VULCAN PERFORMANCE CHEMICALS DALTON SITE

WELL NO.	Sample Date	Beryllium (ug/L)	Lead (mg/L)	Nickel (mg/L)	Zinc (mg/L)
MW-5	4/9/2012	<1.00	<0.0100	<0.0200	<0.0200
MW-13	4/9/2012	<1.00	<0.0100	0.0666	<0.0200
MW-16	4/10/2012	<1.00	<0.0100	<0.0200	<0.0200
MW-17	4/9/2012	<1.00	<0.0100	0.0727	0.0251
MW-17D	4/9/2012	<1.00	<0.0100	0.0713	0.0248
MW-18	4/9/2012	<1.00	<0.0100	0.0748	0.0335
MW-19	4/10/2012	<1.00	0.0135	0.0645	0.0773
MW-20	4/9/2012	<1.00	<0.0100	0.0496	0.0062
MW-21	4/9/2012	<1.00	0.0239	0.139	<0.0200
MW-22D	4/10/2012	<1.00	<0.0100	0.118	<0.0200
MW-23	4/9/2012	<1.00	<0.0100	<0.0200	<0.0200
RRS	--	4*	0.015*	0.73**	2*

NOTES: MW-17D is a duplicate from MW-17

* Type 1 Risk Reduction Standard

**Type 2 Risk Reduction Standard

TABLE II (cont'd)
GROUNDWATER SAMPLING RESULTS - MNA PARAMETERS
April 2012
FORMER VULCAN PERFORMANCE CHEMICALS DALTON SITE

WELL NO.	Total Alkalinity (as CaCO ₃ in mg/L)	Bicarbonate Alkalinity (mg/L)	Carbonate Alkalinity (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
MW-19	256	250	<10.0	300	293
MW-21	343	343	<10.0	135	180
MW-23	346	346	<10.0	52.9	50.8

TABLE II (cont'd)
GROUNDWATER SAMPLING RESULTS - FIELD PARAMETERS
April 2012
FORMER VULCAN PERFORMANCE CHEMICALS DALTON SITE

WELL NO.	Temp (Deg C)	Conductivity (uS/cm)	pH (SU)	DO (mg/L)	ORP (mV)	Eh* (mV)	Turbidity (NTU)
MW-5	16.93	833	6.44	2.13	120.5	320.5	3.84
MW-13	15.96	840	6.74	0.67	120.9	320.9	1.74
MW-16	14.67	1570	6.58	0.52	-75.4	124.6	5.11
MW-17	18.22	2050	7.11	0.09	-65.0	135.0	2.95
MW-18	19.93	1938	7.38	0.11	67.6	267.6	2.95
MW-19	16.16	1819	8.42	3.34	-96.2	103.8	3.73
MW-20	16.58	1526	6.92	0.34	-118.9	81.1	3.96
MW-21	17.90	1378	6.66	0.18	43.7	243.7	0.60
MW-22D	18.01	1316	6.59	0.22	-60.1	139.9	0
MW-23	18.00	901	6.87	0.43	109.7	309.7	6.25

*Eh value calculated by adding 200 mv to the ORP reading.

TABLE III
SUMMARY OF LEAD CONCENTRATIONS IN GROUNDWATER (mg/L)
1996 - 2007
FORMER VULCAN PERFORMANCE CHEMICALS DALTON SITE

Well	February-96	April-03	May-03	July-03	March-06	May-06	August-06	July-07
TMW-2	0.088							
TMW-3	BDL							
TMW-5	BDL							
TMW-8	BDL							
TMW-9	BDL							
TMW-10	BDL							
TMW-11	BDL							
TMW-12						<0.010		
TMW-13						<0.010		
TMW-14						<0.010		
TMW-15								<0.001
TMW-16								0.00162
TMW-17								<0.001
TMW-18								<0.001
TMW-21								<0.001
B-1		0.011						
B-2		0.026						
B-6		<0.010						
B-7		<0.010						
B-10		0.095						
B-11		<0.010						
B-12		<0.010						
B-13		<0.010						
B-14		<0.010						
B-15		<0.010						
B-16		<0.010						
B-17		<0.010						
B-18		<0.010						
B-19		<0.010						
MW-1			0.044	0.089	0.199		0.200	0.243
MW-2				<0.001				
MW-3D						<0.010		
MW-4						<0.010		
MW-5						<0.010		
MW-7						<0.001		<0.001
MW-8						<0.001		<0.001
MW-9								0.0927
MW-10								0.00108
MW-11								<0.001

NOTE: Shaded cell indicates an exceedance of the Type 1 RRS for lead (0.015 mg/L)

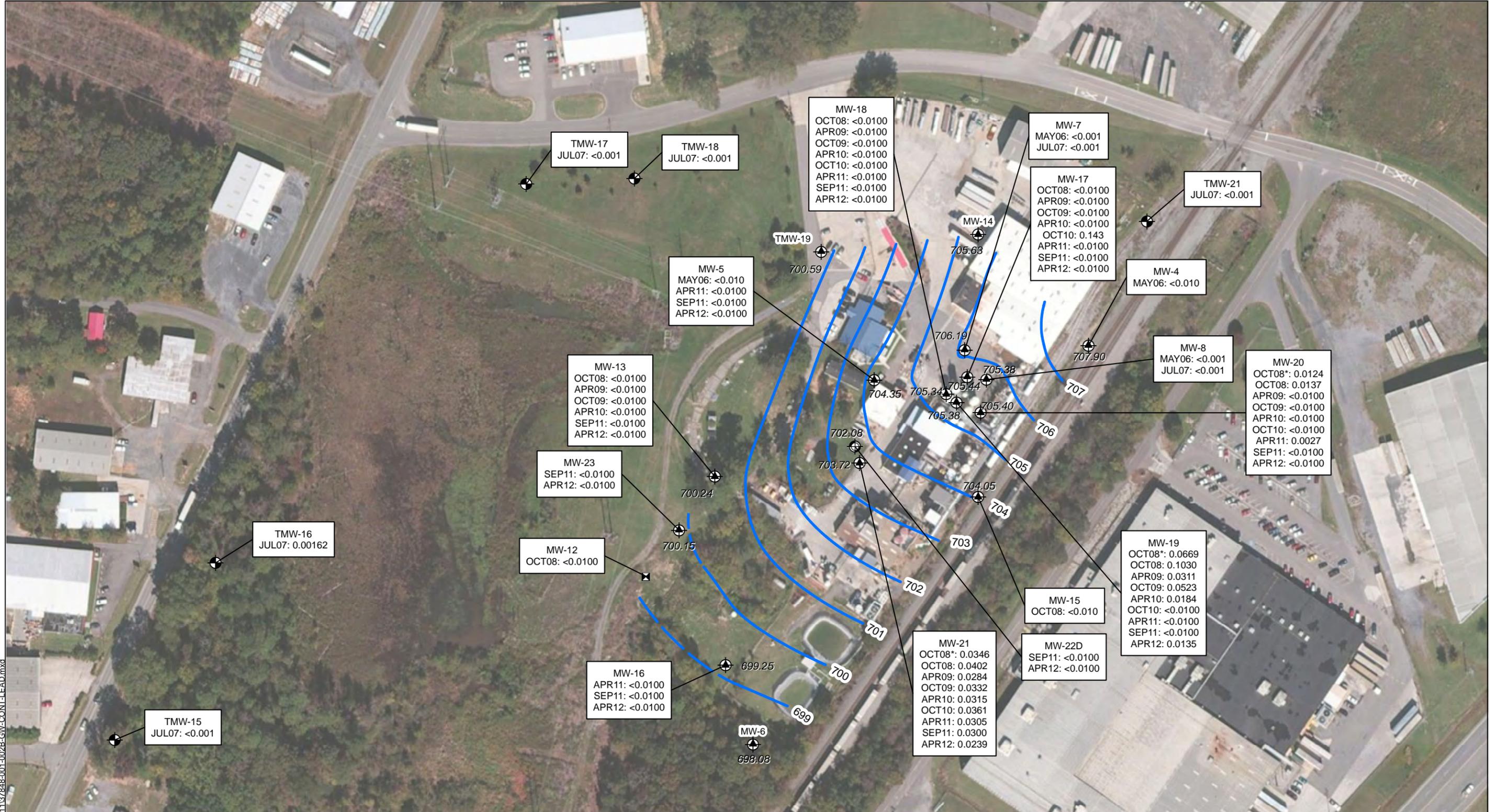
TABLE IV
SUMMARY OF LEAD CONCENTRATIONS IN GROUNDWATER (mg/L)
2008 - 2012
FORMER VULCAN PERFORMANCE CHEMICALS DALTON SITE

Well	Oct-08	Oct-08*	Apr-09	Oct-09	Apr-10	Oct-10	Apr-11	Sep-11	Apr-12
MW-5							<0.0100	<0.0100	<0.0100
MW-12	<0.010								
MW-13	<0.010		<0.0100	<0.0100	<0.0100			<0.0100	<0.0100
MW-15	<0.010								
MW-16							<0.0100	<0.0100	<0.0100
MW-17	<0.010		<0.0100	<0.0100	<0.0100	0.143	<0.0100	<0.0100	<0.0100
MW-18	<0.010		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
MW-19	0.103	0.0669	0.0311	0.0523	0.0184	<0.0100	<0.0100	<0.0100	0.0135
MW-20	0.0137	0.0124	<0.0100	<0.0100	<0.0100	<0.0100	0.0027	<0.0100	<0.0100
MW-21	0.0402	0.0346	0.0284	0.0332	0.0315	0.0361	0.0305	0.0300	0.0239
MW-22D								<0.0100	<0.0100
MW-23								<0.0100	<0.0100

NOTE: Shaded cell indicates an exceedance of the Type 1 RRS for lead (0.015 mg/L)

* Confirmation samples

FIGURES



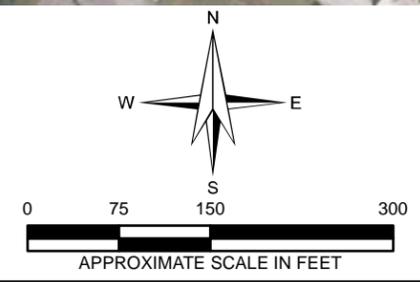
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LEGEND

-  WATER TABLE MONITORING WELL LOCATION
-  BEDROCK MONITORING WELL LOCATION
-  PIEZOMETER LOCATION
-  TMW LOCATION
-  DESTROYED WELL
-  WATER TABLE CONTOUR
DASHED WHERE INFERRED
(ELEVATION IN FEET ABOVE MSL)

NOTES:
 1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
 2. LABELS INDICATE LEAD CONCENTRATION (mg/L).
 3. IMAGERY SOURCE: ArcGIS ONLINE SERVICE BY ESRI

700.15 GROUNDWATER ELEVATION
(FEET ABOVE MSL)



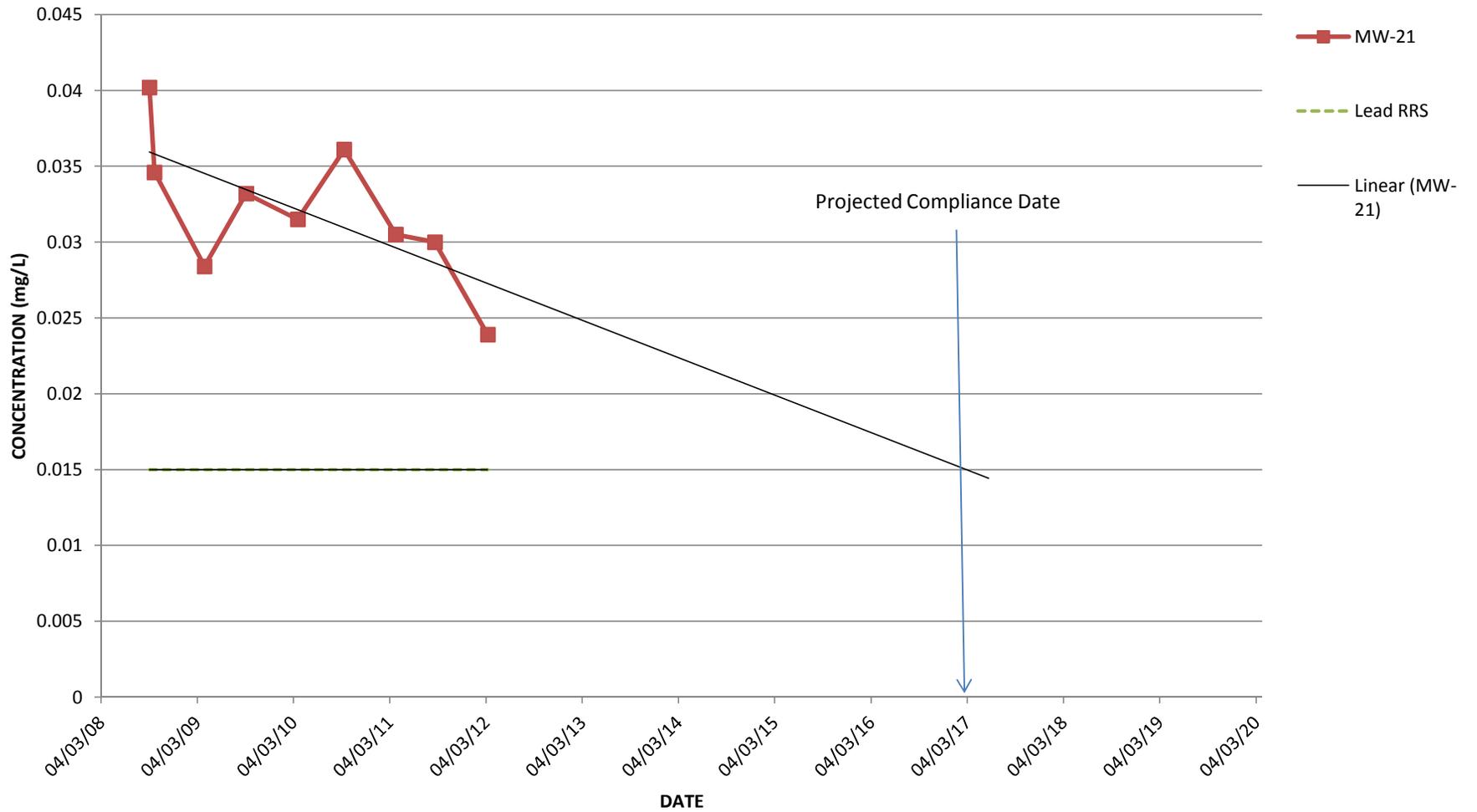
HALEY & ALDRICH FORMER VULCAN PERFORMANCE CHEMICALS PLANT
DALTON, GEORGIA

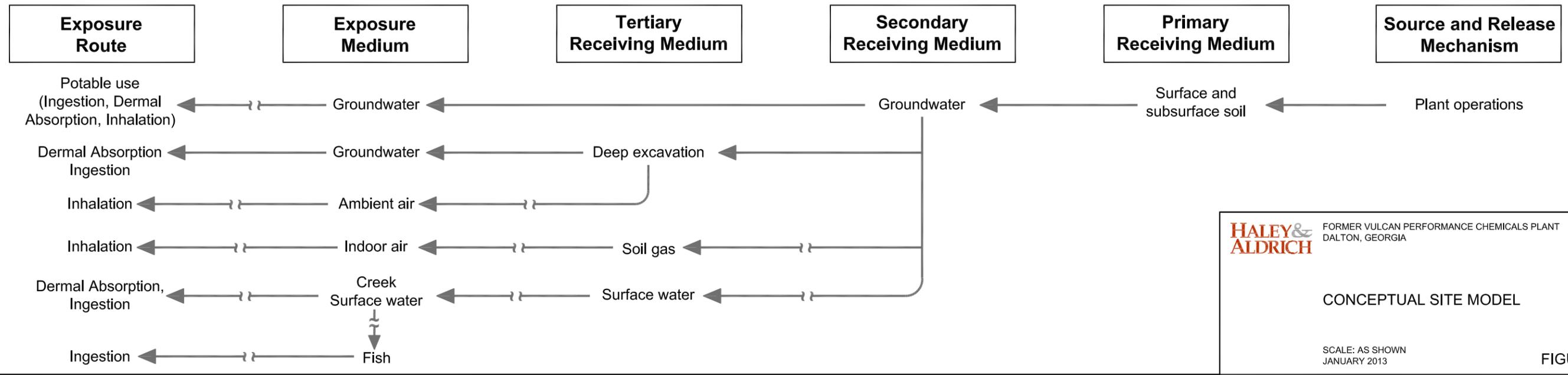
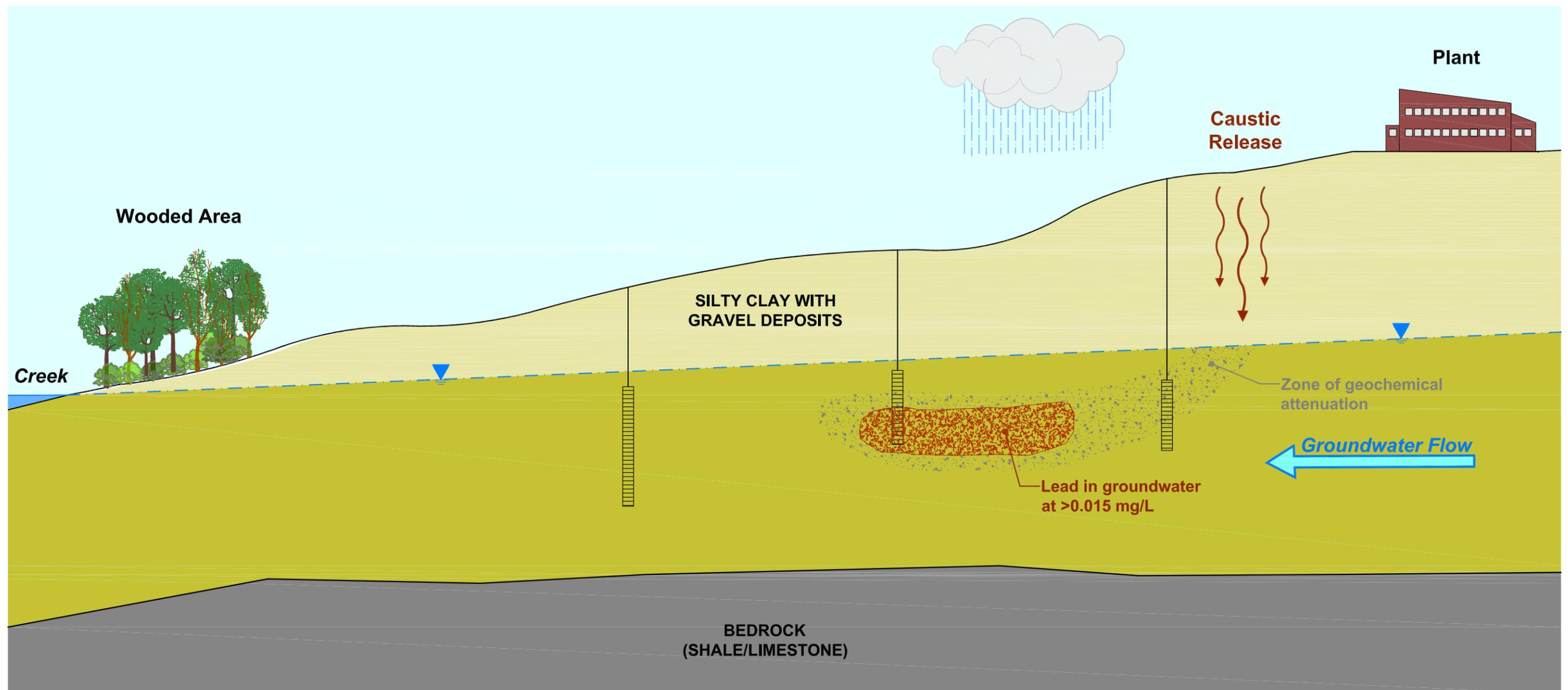
**WATER TABLE CONFIGURATION
AND LEAD CONCENTRATION**

SCALE: AS SHOWN
JANUARY 2013

FIGURE 1

Figure 2
Lead in Groundwater vs Time
Former Vulcan Performance Chemicals - Dalton, GA





HALEY & ALDRICH FORMER VULCAN PERFORMANCE CHEMICALS PLANT
DALTON, GEORGIA

CONCEPTUAL SITE MODEL

SCALE: AS SHOWN
JANUARY 2013

FIGURE 3

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FIGURE 4
PROJECT MILESTONE SCHEDULE
FORMER VULCAN PERFORMANCE CHEMICALS DALTON PLANT

No.	TASK	2013				2014				2015				2016				2017			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Financial Assurance Submittal																				
2	Delineation	COMPLETE																			
3	Annual Progress Report Submittal																				
5	Remedial Activities																				
6	Compliance Status Report Submittal																				

APPENDIX A

Labor Summary and Professional Geologist Certification

TABULATED MONTHLY SUMMARY OF HOURS INVOICED BY HALEY & ALDRICH

Period: March 2012-December 2012

**Former Vulcan Performance Chemicals Dalton Site
Voluntary Remediation Program (HSI# 10770)**

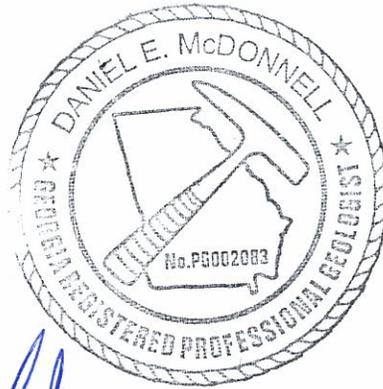
Month-Year	Hours	Type Service	Description
March-12	6.25	PG	Project Management
April-12	1.00	PG	Data review
May-12	1.50	PG	Data review
July-12	10.00	PE	EPD site visit and followup
	2.50	Support	Administrative and Graphics
September-12	20.50	Risk	Risk assessment
	4.00	PG	Pb fate & transport
	3.50	Support	Graphics
	35.50	PG	CSR preparation
October-12	19.50	PG	CSR preparation
	4.50	Risk	Risk assessment
	0.50	Support	Administrative
November-12	0.75	Support	Graphics and Administrative
	10.50	PG	CSR preparation
December-12	1.00	PG	CSR preparation
	0.25	Support	Administrative
	0.50	Risk	Risk assessment
	3.00	PG	Progress Report

Note: The above hours do not include subcontractor hours worked for Haley & Aldrich (groundwater sampling, etc.)

PROFESSIONAL GEOLOGIST CERTIFICATION

I certify that I am a qualified groundwater scientist who has received a post-graduate degree in the natural sciences, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses that enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this Progress Report for the Georgia Environmental Protection Division (EPD) Voluntary Remediation Program, prepared for Legacy Vulcan Corp. for the former Vulcan Performance Chemicals site, located in Dalton, Georgia, was prepared by myself and appropriate qualified subordinates working under my direction.

In addition, I have attached a monthly summary of hours invoiced, and description of services provided, to the VRP participant since the previous submittal to the EPD.



A handwritten signature in blue ink that reads "Daniel E. McDonnell".

Daniel E. McDonnell, P.G.
Georgia Professional Geologist Registration No. 002083

1/28/13
Date

APPENDIX B

Field Sampling Forms

AEM Groundwater Sampling Field Log

AEM Project: Haley & Aldrich - Former Vulcan Site AEM Job No.: 1398-1201 Well No.: MW-16
 Sampling Personnel: Tony Gordon, Tom Lawrence Date: 4-10-12
 Comments: Clear mild w/ breeze Time In: 0950 Time Out: 1156

Well Information

Well Diameter: 2 inches Reference Point Marked: Yes No
 Depth to Water: 3.17 feet below T.O.C. Well Depth: 15.04 feet below T.O.C.

0.04 gal/ft in 1-inch-ID well
 0.16 gal/ft in 2-inch-ID well
 0.65 gal/ft in 4-inch-ID well

Purging Information

Water Column: 11.87 ft
 1 Well Volume = 1.90 gal Purge Start Time: 1011
 3 Well Volume = 5.70 gal Purge End Time: 1140
 Total Purged: 5.70 gal Total Time: 09 min
 Well Purge Dry (?) yes/no no Purge Rate: _____ gpm

Purging Equipment and Calibration Information

Bailer: Teflon Poly. Pump: Grundfos Peri ID# P-6
 Pump Tubing Type: Teflon Teflon-Lined Poly. Polyethylene
 Meter(s) Used: Hanna 991300 YSI 556 Lamotte 2020 ID#s 7
 Calibration Date/Time: 4-10-12 / 0950
 Comments: _____

5 3/4

Groundwater Field Parameters

Time	Gallons Purged	Temp. Deg. Cel	Cond. µS/cm	pH SU	Dissolved Oxygen mg/L	ORP mV	Turbidity NTUs	Water Level ft. from TOC	Turbidity Depn
1015	1/2	15.04	1537	6.58	0.73	-98.8	3.70	4.70	5
1108	4 3/4	14.73	1568	6.56	0.54	-81.7	6.61	6.92	6.7
1120	4 3/4	14.60	1560	6.57	0.47	-82.2	4.99	7.32	7 1/2
1129	5 1/4	14.67	1571	6.57	0.60	-82.6	7.69	7.58	8
1140	5 3/4	14.67	1570	6.58	0.52	-75.4	5.11	7.70	8

Stabilization Info: +/- 0.5 deg. +/- 5% +/- 0.1 SU +/- 10% +/- 10% <10 NTUs -----

Sample Collection Parameters

Sample Collection Method (check all): Bailer Straw Method Pump Tubing Vacuum Jug Other
 Final Tubing/Pump Depth: 0 feet below T.O.C. Final Groundwater Depth (if applic. 7.70 feet below T.O.C.
 Final Sample Turbidity 5.11 NTUs Ferrous Iron Concentration (if sampled): NA mg/L
 Comments: _____

Laboratory Analytical Information

Sample ID	Analysis	Container	Qty.	Preservative	Time Sampled
<u>MW-16</u>	Total Pb, Ni, Zn (6010B) Total Be (6020A)	250 mL HDPE	1	HNO ₃	<u>1144</u>

Sample Laboratory (circle): ACL/Xenco/AES/Other Delivery Method: Hand Delivery/Fed-Ex/UPS/Other

Field Personnel Signature: _____

Thomas Lawrence

April 2012 - Annual
Groundwater Leachate Measurements
Former Vulcan Plant - Dalton, Ga

Estimated Time	Recorded Date	Well Number	Aquifer Zone	Apr-12 DTW ¹	Apr-12 DTB ²	Lead/Nickel/Zinc (Method 6010B)	Beryllium (Method 6020A)	MNA ³ (see below)
1110	4/9/2012	MW-4	Residuuum	4.36	NM			
1134	4/9/2012	MW-5 X	Residuuum	9.33	18.32	X	X	
1123	4/9/2012	MW-6	Residuuum	4.70	NM			
1138	4/9/2012	MW-7	Residuuum	6.50	NM			
115A	4/9/2012	MW-8	Residuuum.	6.43	NM			
1040	4/9/2012	MW-13 X	Residuuum	5.68	11.02	X	X	
1105	4/9/2012	MW-14	Residuuum	5.42	NM			
1114	4/9/2012	MW-15	Residuuum	6.03	NM			
1125	4/9/2012	MW-16	Residuuum	3.17	15.04	X	X	
1203	4/9/2012	MW-17 X	Residuuum	6.59	14.89	X	X	
1157	4/9/2012	MW-18 X	Residuuum	6.40	15.15	X	X	
1205	4/9/2012	MW-19 X	Residuuum	6.24	15.15	X	X	X
1200	4/9/2012	MW-20 X	Residuuum	5.51	14.38	X	X	
1040	4/9/2012	MW-21 X	Residuuum	6.72	13.97	X	X	X
1045	4/9/2012	MW-22D X	Residuuum	7.92	36.79	X	X	
0930	4/9/2012	MW-23 X	Residuuum	8.26	19.98	X	X	X
1055	4/9/2012	TMW-19	Residuuum	14.84	NM			
1100	4/9/2012	TMW-20	Residuuum	14.59	NM			
1052	4/9/2012	PZ-1 (1")	Residuuum	16.76	NM			

¹ - Depth to Water measured in feet from Top of Casing (TOC)

² - Depth to Bottom (DTB) measured in feet from Top of Casing

³ - MNA's: Alkalinity (Method 310.2), chloride (Method 300), sulfate (Method 300), and carbonate/bicarbonate (SM 4500)

- Well Sampled

NA - Not Available

MW - Not Measured

Calibration Record

Meter	Date	Time	pH		Conductivity (µS/cm)		ORP (mV)		D.O. (mg/L)		Turbidity (NTU)	
			Before	After	Before	After	Before	After	Before	After	Before	After
YSI Model pentad	4/9/12	1330	7	6.95	7.61	1413	Before	28.4°C	Before	28.0°C	Before	7.65 mg/L
			4	3.95	4.00		Temperature	242.4	Temperature	7.76		
			10				After	1,413	After	240.9	After	(94.5%) (98.4%)
Lamotte #5	4/9/12	1330	7	7.11	7.00	1413	Before	25.7°C	Before	25.8°C	Before	9.94 NTU
			4	4.00	4.00		Temperature	1,361	Temperature	10.32		
			10				After	1,415	After	10.32	After	(108.9%) (97.8%)
YSI pentad	4/10/12	0810	7	7.11	7.00	1413	Before	25.7°C	Before	25.8°C	Before	9.94 NTU
			4	4.00	4.00		Temperature	1,361	Temperature	10.32		
			10				After	1,415	After	10.32	After	(108.9%) (97.8%)
Lamotte #5	4/10/12	0810	7	7.11	7.00	1413	Before	25.7°C	Before	25.8°C	Before	9.94 NTU
			4	4.00	4.00		Temperature	1,361	Temperature	10.32		
			10				After	1,415	After	10.32	After	(108.9%) (97.8%)

Standard

pH 7	# 2110532	Lot Number	10/2013
pH 4	# 2109132	Expiration	8/2013
Conductivity	# 9373		12/2012
ORP	# 9373		11/2010
Turbidity			

Designation

1	Hanna HI 991300	Meters	#	Serial #
2	LaMotte 2020e	ME 11876		
3	Hanna HI 991300			

Designation

4	YSI 556 MPS	Meters	7	Serial #
5	LaMotte 2020	5377-4004		
6	Hydac	9700142667		

ORP Calibration Chart

Temp °C	Value, mV
10	250.5
15	244.0
20	237.5
25	231.0
30	224.5
35	218.0

Notes:

Field Personnel Signature Tony L. Gurdin

Calibration Record

Meter	Date	Time	pH		Conductivity (µS/cm)		ORP		D.O. (mg/L)		Turbidity (NTU)		
			Before	After	Before	After	Before	After	Before	After	Before	After	
YSI Pentel	4/9/12	1338	7	NA	7.00	1413	Temperature	NA	Before	Barometric Pressure	NA	Before	X
			4	NA	4.00		NA	240mV	100% sat.	After	10.0	After	X
			10	NA	---		NA	240mV	100% sat.	After	10.0	After	X
LaMotte #7	4/9/12	1338	7	NA	---	1413	Temperature	---	Before	Barometric Pressure	---	Before	NA
			4	NA	---		---	---	After	---	After	0.0	
			10	NA	---		---	---	After	---	After	10.0	
YSI Pentel	4/10/12	0819	7	NA	7.0	1413	Temperature	NA	Before	Barometric Pressure	NA	Before	X
			4	NA	4.0		NA	240mV	100% sat.	After	10.0	After	X
			10	---	---		NA	240mV	100% sat.	After	10.0	After	X
LaMotte #7	4/10/12	0819	7	NA	---	1413	Temperature	---	Before	Barometric Pressure	---	Before	NA
			4	NA	---		---	---	After	---	After	0.0	
			10	NA	---		---	---	After	---	After	10.0	
			7			1413	Temperature		Before	Barometric Pressure		Before	
			4						After			After	
			10										
			7						Before	Barometric Pressure		Before	
			4						After			After	
			10										

ORP Calibration Chart	
Temp °C	Value, mV
10	250.5
15	244.0
20	237.5
25	231.0
30	224.5
35	218.0

Standard	Lot Number	Expiration	
		Meters	Serial #
pH 7	# 2110532	10/2013	
pH 4	# 2109132	8/2013	
Conductivity	# 9373	12/2012	
ORP	# 3717	11/2016	
Turbidity			

Designation	Meters	Serial #	Designation	Meters	Serial #
1	Hanna HI 991300		7	LaMotte 2020we	185-3710
2	LaMotte 2020e	ME 11876	8	Hanna HI 991300	
3	Hanna HI 991300		9	Hanna HI 991300	8257290

Notes:

Field Personnel Signature: Tom Lawrence

APPENDIX C

Laboratory Analytical Report



April 24, 2012

Daniel McDonnell
Haley & Aldrich
501 River Street, Suite 100
Greenville SC 29601

TEL: (864) 214-8754
FAX:

RE: Former Vulcan Materials

Dear Daniel McDonnell:

Order No: 1204744

Analytical Environmental Services, Inc. received 11 samples on 4/10/2012 2:20:00 PM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/11-06/30/12.
- AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/13.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Chantelle Kanhai
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC
 3785 Presidential Parkway, Atlanta GA 30340-3704
 AES TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1204744

Date: 4/10/12 Page 1 of 1

#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)	ANALYSIS REQUESTED						REMARKS	No # of Containers	
		DATE	TIME				Total Be (6030A)	Alkalinity (310.2)	Carbonates (4500)	Chloride (300)	Sulfate (300)	PRESERVATION (See codes)			Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.
1	MW-20	4/9/12	1430	X		GW	X	X	X	X	I	I	I	Be (6030A)	1
2	MW-5	4/9/12	1554	X		GW	X	X	X	X	X	X	X	"	1
3	MW-23	4/9/12	1630	X		GW	X	X	X	X	X	X	X	"	3
4	MW-18	4/9/12	1706	X		GW	X	X	X	X	X	X	X	"	1
5	MW-13	4/9/12	1730	X		GW	X	X	X	X	X	X	X	"	1
6	MW-17	4/9/12	1759	X		GW	X	X	X	X	X	X	X	"	1
7	MW-17 Dup	4/9/12	1759	X		GW	X	X	X	X	X	X	X	"	1
8	MW-21	4/9/12	1950	X		GW	X	X	X	X	X	X	X	"	3
9	MW-19	4/10/12	0917	X		GW	X	X	X	X	X	X	X	"	3
10	MW-22D	4/10/12	1015	X		GW	X	X	X	X	X	X	X	"	1
11	MW-16	4/10/12	1144	X		GW	X	X	X	X	X	X	X	"	1
12															
13															
14															

RELINQUISHED BY: <u>Larry Gordon</u>	DATE/TIME: <u>4/10/12 1400</u>	RECEIVED BY: <u>[Signature]</u>	DATE/TIME: <u>4/10/12 2:20</u>
SPECIAL INSTRUCTIONS/COMMENTS: Results to: <u>Daniel McDonnell, P.M.</u> <u>Halcy & Albright, Inc</u> <u>33 Market Point Drive</u> <u>Greenville, SC 29607</u>			

COMPANY: <u>Atlanta Environmental Management</u> Fx. (LAEM)	ADDRESS: <u>2550 NE Expressway,</u> <u>Atlanta, GA 30345</u>
PHONE: <u>(404) 329-9006</u>	FAX: <u>(404) 329-9006</u>
SAMPLED BY: <u>Tony L Gordon</u>	SIGNATURE: <u>[Signature]</u>

PROJECT NAME: <u>Former VALCAN MATERIALS</u>	PROJECT #: <u>1398-1201 (LAEM)</u>
SITE ADDRESS: <u>134 Phelps Road, SE</u> <u>Dalton, GA 30720</u>	SEND REPORT TO: <u>Daniel McDonnell</u> <u>Halcy & Albright</u>
INVOICE TO: <u>AEM</u>	STATE PROGRAM (if any):
QUOTE #:	E-mail? <input checked="" type="checkbox"/> N; Fax? <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
PO#:	DATA PACKAGE: <input checked="" type="checkbox"/> I <input checked="" type="checkbox"/> III <input checked="" type="checkbox"/> IV

TURNAROUND TIME REQUEST	<input checked="" type="checkbox"/>
Standard 5 Business Days	<input type="checkbox"/>
2 Business Day Rush	<input type="checkbox"/>
Next Business Day Rush	<input type="checkbox"/>
Same Day Rush (auth req.)	<input type="checkbox"/>
Other	<input type="checkbox"/>

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water
 PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M-I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-20
Project Name: Former Vulcan Materials	Collection Date: 4/9/2012 2:30:00 PM
Lab ID: 1204744-001	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 09:05	JY
METALS, TOTAL SW6010C									
Lead	BRL		0.0016	0.0100	mg/L	160162	1	04/13/2012 22:26	TA
Nickel	0.0496		0.0013	0.0200	mg/L	160162	1	04/13/2012 22:26	TA
Zinc	0.0062	J	0.0016	0.0200	mg/L	160162	1	04/13/2012 22:26	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-5
Project Name: Former Vulcan Materials	Collection Date: 4/9/2012 3:54:00 PM
Lab ID: 1204744-002	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 09:54	JY
METALS, TOTAL SW6010C									
Lead	BRL		0.0016	0.0100	mg/L	160162	1	04/13/2012 22:30	TA
Nickel	0.0181	J	0.0013	0.0200	mg/L	160162	1	04/13/2012 22:30	TA
Zinc	0.0040	J	0.0016	0.0200	mg/L	160162	1	04/13/2012 22:30	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-23
Project Name: Former Vulcan Materials	Collection Date: 4/9/2012 4:30:00 PM
Lab ID: 1204744-003	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 10:01	JY
Inorganic Anions by IC E300.0									
Chloride	52.9		3.81	10.0	mg/L	R219126	10	04/13/2012 10:41	GR
Sulfate	50.8		2.28	10.0	mg/L	R219126	10	04/13/2012 10:41	GR
CARBON DIOXIDE SM4500-CO2									
Bicarbonate Alkalinity	346		10.0	10.0	mg/L	R219139	1	04/13/2012 00:00	TL
Carbonate Alkalinity	BRL		10.0	10.0	mg/L	R219139	1	04/13/2012 00:00	TL
Alkalinity E310.2									
Alkalinity, Total (As CaCO3)	346		2.1	10.0	mg/L	R219139	1	04/13/2012 16:48	TL
METALS, TOTAL SW6010C									
Lead	BRL		0.0016	0.0100	mg/L	160162	1	04/13/2012 22:35	TA
Nickel	0.0132	J	0.0013	0.0200	mg/L	160162	1	04/13/2012 22:35	TA
Zinc	0.0038	J	0.0016	0.0200	mg/L	160162	1	04/13/2012 22:35	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-18
Project Name: Former Vulcan Materials	Collection Date: 4/9/2012 5:06:00 PM
Lab ID: 1204744-004	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 10:07	JY
METALS, TOTAL SW6010C									
Lead	0.0032	J	0.0016	0.0100	mg/L	160162	1	04/13/2012 22:38	TA
Nickel	0.0748		0.0013	0.0200	mg/L	160162	1	04/13/2012 22:38	TA
Zinc	0.0335		0.0016	0.0200	mg/L	160162	1	04/13/2012 22:38	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-13
Project Name: Former Vulcan Materials	Collection Date: 4/9/2012 5:30:00 PM
Lab ID: 1204744-005	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 10:13	JY
METALS, TOTAL SW6010C									
Lead	0.0021	J	0.0016	0.0100	mg/L	160162	1	04/13/2012 22:43	TA
Nickel	0.0666		0.0013	0.0200	mg/L	160162	1	04/13/2012 22:43	TA
Zinc	0.0180	J	0.0016	0.0200	mg/L	160162	1	04/13/2012 22:43	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-17
Project Name: Former Vulcan Materials	Collection Date: 4/9/2012 5:59:00 PM
Lab ID: 1204744-006	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 10:19	JY
METALS, TOTAL SW6010C									
Lead	0.0021	J	0.0016	0.0100	mg/L	160162	1	04/13/2012 22:47	TA
Nickel	0.0727		0.0013	0.0200	mg/L	160162	1	04/13/2012 22:47	TA
Zinc	0.0251		0.0016	0.0200	mg/L	160162	1	04/13/2012 22:47	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-17 DUP
Project Name: Former Vulcan Materials	Collection Date: 4/9/2012 5:59:00 PM
Lab ID: 1204744-007	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 10:25	JY
METALS, TOTAL SW6010C									
Lead	0.0024	J	0.0016	0.0100	mg/L	160162	1	04/13/2012 22:51	TA
Nickel	0.0713		0.0013	0.0200	mg/L	160162	1	04/13/2012 22:51	TA
Zinc	0.0248		0.0016	0.0200	mg/L	160162	1	04/13/2012 22:51	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-21
Project Name: Former Vulcan Materials	Collection Date: 4/9/2012 6:50:00 PM
Lab ID: 1204744-008	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 10:32	JY
Inorganic Anions by IC E300.0									
Chloride	135		19.0	50.0	mg/L	R219126	50	04/13/2012 11:11	GR
Sulfate	180		11.4	50.0	mg/L	R219126	50	04/13/2012 11:11	GR
CARBON DIOXIDE SM4500-CO2									
Bicarbonate Alkalinity	343		10.0	10.0	mg/L	R219139	1	04/13/2012 00:00	TL
Carbonate Alkalinity	BRL		10.0	10.0	mg/L	R219139	1	04/13/2012 00:00	TL
Alkalinity E310.2									
Alkalinity, Total (As CaCO3)	343		2.1	10.0	mg/L	R219139	1	04/13/2012 16:49	TL
METALS, TOTAL SW6010C									
Lead	0.0239		0.0016	0.0100	mg/L	160162	1	04/13/2012 22:56	TA
Nickel	0.139		0.0013	0.0200	mg/L	160162	1	04/13/2012 22:56	TA
Zinc	0.0132	J	0.0016	0.0200	mg/L	160162	1	04/13/2012 22:56	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-22D
Project Name: Former Vulcan Materials	Collection Date: 4/10/2012 10:15:00 AM
Lab ID: 1204744-010	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 10:44	JY
METALS, TOTAL SW6010C									
Lead	0.0044	J	0.0016	0.0100	mg/L	160162	1	04/13/2012 23:12	TA
Nickel	0.118		0.0013	0.0200	mg/L	160162	1	04/13/2012 23:12	TA
Zinc	0.0088	J	0.0016	0.0200	mg/L	160162	1	04/13/2012 23:12	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 24-Apr-12

Client: Haley & Aldrich	Client Sample ID: MW-16
Project Name: Former Vulcan Materials	Collection Date: 4/10/2012 11:44:00 AM
Lab ID: 1204744-011	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020A									
Beryllium	BRL		0.0233	1.00	ug/L	160171	1	04/19/2012 10:50	JY
METALS, TOTAL SW6010C									
Lead	BRL		0.0016	0.0100	mg/L	160162	1	04/13/2012 23:16	TA
Nickel	0.0032	J	0.0013	0.0200	mg/L	160162	1	04/13/2012 23:16	TA
Zinc	0.0061	J	0.0016	0.0200	mg/L	160162	1	04/13/2012 23:16	TA

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Haley & Aldrich

Work Order Number 1204744

Checklist completed by [Signature] Date 4/11/12

Carrier name: FedEx UPS Courier Client US Mail Other

Shipping container/cooler in good condition? Yes No Not Present

Custody seals intact on shipping container/cooler? Yes No Not Present

Custody seals intact on sample bottles? Yes No Not Present

Container/Temp Blank temperature in compliance? (4°C±2)* Yes No

Cooler #1 3.2 Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler #5 _____ Cooler #6 _____

Chain of custody present? Yes No

Chain of custody signed when relinquished and received? Yes No

Chain of custody agrees with sample labels? Yes No

Samples in proper container/bottle? Yes No

Sample containers intact? Yes No

Sufficient sample volume for indicated test? Yes No

All samples received within holding time? Yes No

Was TAT marked on the COC? Yes No

Proceed with Standard TAT as per project history? Yes No Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted Yes No

Water - pH acceptable upon receipt? Yes No Not Applicable

Sample Condition: Good Other(Explain) _____ Adjusted? _____ Checked by [Signature]

(For diffusive samples or AIHA lead) Is a known blank included? Yes No

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

Client: Haley & Aldrich
Project Name: Former Vulcan Materials
Workorder: 1204744

ANALYTICAL QC SUMMARY REPORT

BatchID: 160162

Sample ID: MB-160162	Client ID:	Units: mg/L	Prep Date: 04/13/2012	Run No: 219152							
SampleType: MBLK	TestCode: METALS, TOTAL SW6010C	BatchID: 160162	Analysis Date: 04/13/2012	Seq No: 4582606							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Lead	BRL	0.0100	0	0	0	0	0	0	0	0	
Nickel	BRL	0.0200	0	0	0	0	0	0	0	0	
Zinc	BRL	0.0200	0	0	0	0	0	0	0	0	

Sample ID: LCS-160162	Client ID:	Units: mg/L	Prep Date: 04/13/2012	Run No: 219152							
SampleType: LCS	TestCode: METALS, TOTAL SW6010C	BatchID: 160162	Analysis Date: 04/13/2012	Seq No: 4582605							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Lead	1.039	0.0100	1	0	104	80	120	0	0	0	
Nickel	1.040	0.0200	1	0	104	80	120	0	0	0	
Zinc	1.046	0.0200	1	0	105	80	120	0	0	0	

Sample ID: 1204715-001BMS	Client ID:	Units: mg/L	Prep Date: 04/13/2012	Run No: 219152							
SampleType: MS	TestCode: METALS, TOTAL SW6010C	BatchID: 160162	Analysis Date: 04/13/2012	Seq No: 4582608							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Lead	1.094	0.0100	1	0.005749	109	75	125	0	0	0	
Nickel	1.080	0.0200	1	0	108	75	125	0	0	0	
Zinc	1.127	0.0200	1	0.02247	110	75	125	0	0	0	

Sample ID: 1204715-001BMSD	Client ID:	Units: mg/L	Prep Date: 04/13/2012	Run No: 219152							
SampleType: MSD	TestCode: METALS, TOTAL SW6010C	BatchID: 160162	Analysis Date: 04/13/2012	Seq No: 4582609							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Lead	1.009	0.0100	1	0.005749	100	75	125	1.094	8.12	20	
Nickel	0.9943	0.0200	1	0	99.4	75	125	1.080	8.26	20	
Zinc	1.071	0.0200	1	0.02247	105	75	125	1.127	5.07	20	

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Haley & Aldrich
Project Name: Former Vulcan Materials
Workorder: 1204744

ANALYTICAL QC SUMMARY REPORT

BatchID: 160171

Sample ID: MB-160171	Client ID:	Units: ug/L	Prep Date: 04/13/2012	Run No: 219485							
SampleType: MBLK	TestCode: Total Metals by ICP/MS SW6020A	BatchID: 160171	Analysis Date: 04/19/2012	Seq No: 4589084							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Beryllium BRL 1.00 0 0 0 0 0 0 0 0

Sample ID: LCS-160171	Client ID:	Units: ug/L	Prep Date: 04/13/2012	Run No: 219485							
SampleType: LCS	TestCode: Total Metals by ICP/MS SW6020A	BatchID: 160171	Analysis Date: 04/19/2012	Seq No: 4589083							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Beryllium 104.6 1.00 100 0 105 80 120 0 0 0

Sample ID: 1204744-001AMS	Client ID: MW-20	Units: ug/L	Prep Date: 04/13/2012	Run No: 219485							
SampleType: MS	TestCode: Total Metals by ICP/MS SW6020A	BatchID: 160171	Analysis Date: 04/19/2012	Seq No: 4589087							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Beryllium 111.2 1.00 100 0 111 75 125 0 0 0

Sample ID: 1204744-001AMSD	Client ID: MW-20	Units: ug/L	Prep Date: 04/13/2012	Run No: 219485							
SampleType: MSD	TestCode: Total Metals by ICP/MS SW6020A	BatchID: 160171	Analysis Date: 04/19/2012	Seq No: 4589088							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Beryllium 111.9 1.00 100 0 112 75 125 111.2 0.628 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Haley & Aldrich
Project Name: Former Vulcan Materials
Workorder: 1204744

ANALYTICAL QC SUMMARY REPORT

BatchID: R219126

Sample ID: MB-R219126	Client ID:	Units: mg/L	Prep Date:	Run No: 219126							
SampleType: MBLK	TestCode: Inorganic Anions by IC E300.0	BatchID: R219126	Analysis Date: 04/13/2012	Seq No: 4581752							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	BRL	1.00	0	0	0	0	0	0	0	0	
Sulfate	BRL	1.00	0	0	0	0	0	0	0	0	

Sample ID: LCS-R219126	Client ID:	Units: mg/L	Prep Date:	Run No: 219126							
SampleType: LCS	TestCode: Inorganic Anions by IC E300.0	BatchID: R219126	Analysis Date: 04/13/2012	Seq No: 4581751							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	4.877	1.00	5	0	97.5	90	110	0	0	0	
Sulfate	23.34	1.00	25	0	93.4	90	110	0	0	0	

Sample ID: 1204852-014DMS	Client ID:	Units: mg/L	Prep Date:	Run No: 219126							
SampleType: MS	TestCode: Inorganic Anions by IC E300.0	BatchID: R219126	Analysis Date: 04/13/2012	Seq No: 4581758							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	7.516	1.00	5	2.884	92.6	90	110	0	0	0	
Sulfate	23.73	1.00	25	0.6207	92.4	90	110	0	0	0	

Sample ID: 1204875-006CMS	Client ID:	Units: mg/L	Prep Date:	Run No: 219126							
SampleType: MS	TestCode: Inorganic Anions by IC E300.0	BatchID: R219126	Analysis Date: 04/13/2012	Seq No: 4581789							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	30.46	5.00	25	7.187	93.1	90	110	0	0	0	
Sulfate	116.4	5.00	125	1.979	91.6	90	110	0	0	0	

Sample ID: 1204852-014DMSD	Client ID:	Units: mg/L	Prep Date:	Run No: 219126							
SampleType: MSD	TestCode: Inorganic Anions by IC E300.0	BatchID: R219126	Analysis Date: 04/13/2012	Seq No: 4581763							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	7.506	1.00	5	2.884	92.4	90	110	7.516	0.136	20	
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Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Haley & Aldrich
 Project Name: Former Vulcan Materials
 Workorder: 1204744

ANALYTICAL QC SUMMARY REPORT

BatchID: R219126

Sample ID: 1204852-014DMSD	Client ID:	Units: mg/L	Prep Date:	Run No: 219126							
SampleType: MSD	TestCode: Inorganic Anions by IC E300.0	BatchID: R219126	Analysis Date: 04/13/2012	Seq No: 4581763							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Sulfate	23.80	1.00	25	0.6207	92.7	90	110	23.73	0.305	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Haley & Aldrich
Project Name: Former Vulcan Materials
Workorder: 1204744

ANALYTICAL QC SUMMARY REPORT

BatchID: R219139

Sample ID: MB-R219139	Client ID:	Units: mg/L	Prep Date:	Run No: 219139							
SampleType: MBLK	TestCode: Alkalinity E310.2	BatchID: R219139	Analysis Date: 04/13/2012	Seq No: 4582293							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Alkalinity, Total (As CaCO3) BRL 10.0 0 0 0 0 0 0 0 0

Sample ID: LCS-R219139	Client ID:	Units: mg/L	Prep Date:	Run No: 219139							
SampleType: LCS	TestCode: Alkalinity E310.2	BatchID: R219139	Analysis Date: 04/13/2012	Seq No: 4582294							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Alkalinity, Total (As CaCO3) 251.0 10.0 250 0 100 75 125 0 0 0

Sample ID: 1204620-001BDUP	Client ID:	Units: mg/L	Prep Date:	Run No: 219139							
SampleType: DUP	TestCode: Alkalinity E310.2	BatchID: R219139	Analysis Date: 04/13/2012	Seq No: 4582302							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Alkalinity, Total (As CaCO3) 28.80 10.0 0 0 0 0 0 30.20 4.75 30

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix