UIC- I - ___005___

QUARTERLY REPORTING

UICI-5-0
Agua Moss, LLC
Sunco Disposal #1 30-045-28653

2020

Quarterly
Injection Report

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maxium Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	Total Cumulative Volume (barrels)	
													Previous year	15145116	
Jan-2020	1766.667	2175	1450	51.02708333	84.7875	17.2666667	0	0	0	1749.5	2907	592	3499	15148615	
Feb-2020	1529.167	1825	1400	6.883333333	15.4	2.15833333	0	0	0	236	528	74	708	15149323	
Mar-2020	1533.333	1800	1400	24.5	24.5	24.5	0	0	0	840	840	840	840	15150163	
													Previous Quarter	15150163	
Apr-2020	1483.333	1650	1400	7	7	7	0	0	0	240	240	240	240	15150403	
May-2020	1600	1600	1600	5.075	5.075	5.075	0	0	0	174	174	174	174	15150577	
Jun-2020	1300	1300	1300	0	0	0	0	0	0	0	0	0	0	15150577	
													Previous Quarter	15150577	
Jul-20	0	0	0	0	0	0	0	0	0	0	0	0	0	15150577	
Aug-20	0	0	0	0	0	0	0	0	0	0	0	0	0	15150577	
Sep-20	0	0	0	0	0	0	0	0	0	0	0	0	0	15150577	
													Previous Quarter	15150577	
Oct-2020	0	0	0	0	0	0	0	0	0	0	0	0	0	15150577	
Nov-2020	0	0	0	0	0	0	0	0	0	0	0	0	0	15150577	
Dec-2020	0	0	0	0	0	0	0	0	0	0	0	0	0	15150577	
												Total for year	**5461**	**15156038**	**Life Of well injected**

July 16, 2020

Ms. Shacie Murray
Agua Moss LLC
P.O. Box 600
Farmington, New Mexico 87499

Re: Sunco Disposal #1
Injection Water Quarterly Monitoring
2nd Quarter 2020

Dear Ms. Murray:

This report summarizes the sample collection, field screening, and laboratory analysis of the injection water at the Agua Moss LLC Sunco Disposal #1 well for the 2nd Quarter 2020. Injection water of the Class I Sunco Disposal #1 well is assessed on a quarterly basis in accordance with 20.6.2.5207(B) NMAC.

Field Activities
Rule Engineering, LLC (Rule) personnel collected one injection water sample (S-14) from the process line inside the pump building at the location on June 5, 2020. Injection water was discharged directly from the valve of the process line into laboratory sample containers and a clean container for field screening.

Sample Collection and Field Screening Procedures
The injection water sample (S-14) was field screened for time sensitive parameters including pH, temperature, reduction potential, specific conductance, and total dissolved solids. Field screening was conducted utilizing a handheld water quality meter calibrated on the day of use with laboratory grade standards.

The sampled injection water was placed into laboratory supplied containers, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico.

Field Screening and Laboratory Analytical Results
The field screening and laboratory analytical results are summarized in the attached Table 1.

QA/QC Considerations
Field measurements for time sensitive parameters including pH, temperature, reduction potential, and specific conductance more accurately reflect the characteristics of the injection water than laboratory results for these parameters due to their rapidly changing nature when removed from the stable environment of

the process line. The hold time qualifier is indicated on the laboratory report for pH as the hold time of 15 minutes from collection was exceeded during transport prior to analysis. Similarly, the hold time was exceeded for reduction potential, phosphorus as orthophosphate, reactive sulfide, and corrosivity by pH.

A dilution due to matrix qualifier is indicated on the laboratory report for total dissolved solids.

Data Evaluation

Laboratory analytical results report all constituent concentrations below the maximum concentration of contaminants for the toxicity characteristic per 40 Code of Federal Regulations (CFR) 261.24 Table 1 except for benzene. The Sunco Disposal #1 accepts both Class I non-hazardous fluids and Class II exempt oil and gas fluids. The Sunco Disposal #1 therefore occasionally receives Class II fluids with common oil and gas associated constituents, such as benzene, at concentrations in excess of the toxicity characteristic concentrations.

Closure and Limitations

This report is prepared for the exclusive use of Agua Moss LLC and is subject to the terms, conditions, and limitations stated in Rule's report and Service Agreement with Agua Moss LLC. All work has been performed in accordance with generally accepted professional environmental consulting practices. No other warranty is expressed or implied.

Rule Engineering appreciates the opportunity to provide services to Agua Moss LLC. If you have any questions, please contact me at (505) 325-1055.

Sincerely,
Rule Engineering, LLC

Heather M. Woods

Heather M. Woods, P.G.
Area Manager/Geologist

Attachments:

Table 1. Summary of Field Screening and Laboratory Analytical Results
Laboratory Analytical Reports (Hall: 2006406)

Table 1. Summary of Field Screening and Laboratory Analytical Results

Sample ID	S-14			
Collection Date	6/5/2020		Units	Toxicity Characteristic Concentrations
Analyte	Laboratory Results	Field Results		
pH	5.41 H	6.71	su	
Temperature	--	25.9	°C	
Reduction Potential	108 H	-139.4	mV	
Specific Conductance	21,000	14,909	µmhos/cm	
Specific Gravity	1.006	--		
Total Dissolved Solids	12,000 D	9,737	mg/L	
Bicarbonate (As $CaCO_3$)	1,129	--	mg/L	
Carbonate (As $CaCO_3$)	<5.000	--	mg/L	
Flouride	<1.0	--	mg/L	
Chloride	5,300	--	mg/L	
Bromide	24	--	mg/L	
Phosphorus, Orthophosphate	<5.0 H	--	mg/L	
Sulfate	9.3	--	mg/L	
Nitrate + Nitrite (as N)	<4.0		mg/L	
Calcium	380	--	mg/L	
Magnesium	23	--	mg/L	
Potassium	110	--	mg/L	
Sodium	3,500	--	mg/L	
Reactive Cyanide	<0.00500	--	mg/L	
Reactive Sulfide	0.253 H	--	mg/L	
Flashpoint	Did not flash at 170°F	--		
Corrosivity by pH	5.28 H	--	su	
Arsenic	<5.0	--	mg/L	5.0 mg/L
Barium	<100	--	mg/L	100.0 mg/L
Benzene	**6.1**	--	mg/L	0.5 mg/L
Cadmium	<1.0	--	mg/L	1.0 mg/L
Carbon tetrachloride	<0.50	--	mg/L	0.5 mg/L
Chlordane	<0.030	--	mg/L	0.03 mg/L
Chlorobenzene	<100	--	mg/L	100.0 mg/L
Chloroform	<6.0	--	mg/L	6.0 mg/L
Chromium	<5.0	--	mg/L	5.0 mg/L
Cresols, Total	<200	--	mg/L	200 mg/L
1,4-Dichlorobenzene	<7.5	--	mg/L	7.5 mg/L
1,2-Dichloroethane	<0.50	--	mg/L	0.5 mg/L
1,1-Dichloroethene	<0.70	--	mg/L	0.7 mg/L
2,4-Dinitroltoluene	<0.13	--	mg/L	0.13 mg/L
Hexachlorobenzene	<0.13	--	mg/L	0.13 mg/L
Hexachlorobutadiene	<0.50	--	mg/L	0.5 mg/L
Hexachloroethane	<3.0	--	mg/L	3.0 mg/L
Lead	<5.0	--	mg/L	5.0 mg/L
Mercury	<0.020	--	mg/L	0.2 mg/L
Methyl ethyl ketone	<200	--	mg/L	200.0 mg/L
Nitrobenzene	<2.0	--	mg/L	2.0 mg/L
Pentachlorophenol	<100	--	mg/L	100.0 mg/L
Pyridine	<5.0	--	mg/L	5.0 mg/L
Selenium	<1.0	--	mg/L	1.0 mg/L
Silver	<5.0	--	mg/L	5.0 mg/L
Tetrachloroethylene	<0.70	--	mg/L	0.7 mg/L
Trichloreoethylene	<0.50	--	mg/L	0.5 mg/L
2,4,5-Trichlorophenol	<400	--	mg/L	400.0 mg/L
2,4,6-Trichlorophenol	<2.0	--	mg/L	2.0 mg/L
Vinyl chloride	<0.20	--	mg/L	0.2 mg/L

Notes: su - standard units
°C - degrees Celcius
°F - degrees Farenheit
mV - millivolts
µmhos/cm - micromohs per centimeter
mg/L - milligrams per liter
H - Holding times for preparation or analysis exceeded
D - Sample diluted due to matrix
S - % Recovery outside of range due to dilution or matix

1.00	Exeeds the Toxicity Characteristic Concentration

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

June 29, 2020

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205
Farmington, NM 87401
TEL: (505) 325-1055
FAX:

RE: Agua Moss Sunco Disposal 1 OrderNo.: 2006406

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/6/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2006406**
Date Reported: **6/29/2020**

CLIENT: Rule Engineering LLC
Client Sample ID: S-14 (6/5/20)
Project: Agua Moss Sunco Disposal 1
Collection Date: 6/5/2020 2:40:00 PM
Lab ID: 2006406-001
Matrix: AQUEOUS
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst:	**CFC**
Chlordane	ND	0.030		mg/L	1	6/15/2020 2:53:35 PM	53004
Surr: Decachlorobiphenyl	87.9	38.2-102		%Rec	1	6/15/2020 2:53:35 PM	53004
Surr: Tetrachloro-m-xylene	79.9	32.3-92.4		%Rec	1	6/15/2020 2:53:35 PM	53004
EPA METHOD 8270C TCLP						Analyst:	**DAM**
2-Methylphenol	ND	200		mg/L	1	6/16/2020 11:20:55 AM	53018
3+4-Methylphenol	ND	200		mg/L	1	6/16/2020 11:20:55 AM	53018
2,4-Dinitrotoluene	ND	0.13		mg/L	1	6/16/2020 11:20:55 AM	53018
Hexachlorobenzene	ND	0.13		mg/L	1	6/16/2020 11:20:55 AM	53018
Hexachlorobutadiene	ND	0.50		mg/L	1	6/16/2020 11:20:55 AM	53018
Hexachloroethane	ND	3.0		mg/L	1	6/16/2020 11:20:55 AM	53018
Nitrobenzene	ND	2.0		mg/L	1	6/16/2020 11:20:55 AM	53018
Pentachlorophenol	ND	100		mg/L	1	6/16/2020 11:20:55 AM	53018
Pyridine	ND	5.0		mg/L	1	6/16/2020 11:20:55 AM	53018
2,4,5-Trichlorophenol	ND	400		mg/L	1	6/16/2020 11:20:55 AM	53018
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	6/16/2020 11:20:55 AM	53018
Cresols, Total	ND	200		mg/L	1	6/16/2020 11:20:55 AM	53018
Surr: 2-Fluorophenol	25.2	15-81.1		%Rec	1	6/16/2020 11:20:55 AM	53018
Surr: Phenol-d5	26.5	15-61.1		%Rec	1	6/16/2020 11:20:55 AM	53018
Surr: 2,4,6-Tribromophenol	57.9	17.2-108		%Rec	1	6/16/2020 11:20:55 AM	53018
Surr: Nitrobenzene-d5	39.6	18.7-120		%Rec	1	6/16/2020 11:20:55 AM	53018
Surr: 2-Fluorobiphenyl	34.9	23.6-103		%Rec	1	6/16/2020 11:20:55 AM	53018
Surr: 4-Terphenyl-d14	66.4	24.1-105		%Rec	1	6/16/2020 11:20:55 AM	53018
SPECIFIC GRAVITY						Analyst:	**CAS**
Specific Gravity	1.006	0			1	6/22/2020	R69802
EPA METHOD 300.0: ANIONS						Analyst:	**CAS**
Fluoride	ND	1.0		mg/L	10	6/8/2020 9:36:02 PM	R69490
Chloride	5300	250	*	mg/L	500	6/19/2020 1:44:30 PM	R69782
Bromide	24	1.0		mg/L	10	6/8/2020 9:36:02 PM	R69490
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	6/8/2020 9:36:02 PM	R69490
Sulfate	9.3	5.0		mg/L	10	6/8/2020 9:36:02 PM	R69490
Nitrate+Nitrite as N	ND	4.0		mg/L	20	6/19/2020 1:19:41 PM	R69782
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	21000	50		µmhos/c	5	6/17/2020 12:01:02 PM	R69695
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	1129	50.00		mg/L Ca	2.5	6/16/2020 2:00:30 AM	R69671
Carbonate (As CaCO3)	ND	5.000		mg/L Ca	2.5	6/16/2020 2:00:30 AM	R69671
Total Alkalinity (as CaCO3)	1129	50.00		mg/L Ca	2.5	6/16/2020 2:00:30 AM	R69671

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1
Lab ID: 2006406-001 **Matrix:** AQUEOUS

Client Sample ID: S-14 (6/5/20)
Collection Date: 6/5/2020 2:40:00 PM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	12000	200	*D	mg/L	1	6/12/2020 5:40:00 PM	53023
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	5.41		H	pH units	1	6/9/2020 11:44:07 PM	R69518
EPA METHOD 7470: MERCURY						Analyst:	**pmf**
Mercury	ND	0.020		mg/L	1	6/15/2020 4:29:42 AM	53042
EPA METHOD 6010B: DISSOLVED METALS						Analyst:	**ags**
Calcium	380	10		mg/L	10	6/12/2020 12:54:31 PM	A69596
Magnesium	23	10		mg/L	10	6/12/2020 12:54:31 PM	A69596
Potassium	110	10		mg/L	10	6/12/2020 12:54:31 PM	A69596
Sodium	3500	50		mg/L	50	6/12/2020 1:10:22 PM	A69596
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst:	**ags**
Arsenic	ND	5.0		mg/L	5	6/12/2020 12:44:25 PM	52978
Barium	ND	100		mg/L	10	6/12/2020 1:00:36 PM	52978
Cadmium	ND	1.0		mg/L	5	6/12/2020 12:44:25 PM	52978
Chromium	ND	5.0		mg/L	5	6/12/2020 12:44:25 PM	52978
Lead	ND	5.0		mg/L	5	6/12/2020 12:44:25 PM	52978
Selenium	ND	1.0		mg/L	5	6/16/2020 9:16:32 AM	52978
Silver	ND	5.0		mg/L	5	6/12/2020 12:44:25 PM	52978
TCLP VOLATILES BY 8260B						Analyst:	**RAA**
Benzene	6.1	0.50		mg/L	200	6/10/2020 7:55:00 PM	T69529
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	6/10/2020 7:55:00 PM	T69529
2-Butanone	ND	200		mg/L	200	6/10/2020 7:55:00 PM	T69529
Carbon Tetrachloride	ND	0.50		mg/L	200	6/10/2020 7:55:00 PM	T69529
Chloroform	ND	6.0		mg/L	200	6/10/2020 7:55:00 PM	T69529
1,4-Dichlorobenzene	ND	7.5		mg/L	200	6/10/2020 7:55:00 PM	T69529
1,1-Dichloroethene	ND	0.70		mg/L	200	6/10/2020 7:55:00 PM	T69529
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	6/10/2020 7:55:00 PM	T69529
Trichloroethene (TCE)	ND	0.50		mg/L	200	6/10/2020 7:55:00 PM	T69529
Vinyl chloride	ND	0.20		mg/L	200	6/10/2020 7:55:00 PM	T69529
Chlorobenzene	ND	100		mg/L	200	6/10/2020 7:55:00 PM	T69529
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	200	6/10/2020 7:55:00 PM	T69529
Surr: 4-Bromofluorobenzene	98.1	70-130		%Rec	200	6/10/2020 7:55:00 PM	T69529
Surr: Dibromofluoromethane	101	70-130		%Rec	200	6/10/2020 7:55:00 PM	T69529
Surr: Toluene-d8	102	70-130		%Rec	200	6/10/2020 7:55:00 PM	T69529

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

ANALYTICAL REPORT

June 18, 2020

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1227464
Samples Received:	06/10/2020
Project Number:	
Description:	
Report To:	Jackie Bolte 4901 Hawkins NE Albuquerque, NM 87109

Entire Report Reviewed By:

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

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	Collected by	Collected date/time	Received date/time
2006406-001G S-14 (6/5/20) L1227464-01 WW		06/05/20 14:40	06/10/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1491194	1	06/15/20 15:00	06/15/20 15:00	JIC	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2011	WG1494080	1	06/17/20 11:40	06/17/20 18:21	BAM	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1493695	1	06/17/20 11:39	06/17/20 11:39	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9034-9030B	WG1491079	1	06/11/20 16:20	06/11/20 16:20	MJA	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1493401	1	06/17/20 15:20	06/17/20 15:20	SL	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John V Hawkins

John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9012B.

All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	108	T8	1	06/15/2020 15:00	WG1491194

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		0.00500	1	06/17/2020 18:21	WG1494080

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	5.28	T8	1	06/17/2020 11:39	WG1493695

Sample Narrative:

L1227464-01 WG1493695: 5.28 at 20.6C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.253		0.0500	1	06/11/2020 16:20	WG1491079

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	06/17/2020 15:20	WG1493401

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3538882-1 06/15/20 15:00 • (LCSD) R3538882-2 06/15/20 15:00

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	Diff mV	Diff Limits mV
ORP	228	228	227	100	99.6	86.0-105			1.40	20

Method Blank (MB)

(MB) R3539848-1 06/17/20 18:17

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3539848-5 06/17/20 18:42

Analyte	Original Result	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide		ND	1	0.000		20

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3539848-8 06/17/20 18:51

Analyte	Original Result	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide		0.0495	1	0.811		20

Laboratory Control Sample (LCS)

(LCS) R3539848-2 06/17/20 18:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.107	107	90.0-110	

L1227606-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1227606-06 06/17/20 18:30 • (MS) R3539848-3 06/17/20 18:31 • (MSD) R3539848-4 06/17/20 18:32

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.232	0.407	0.401	175	169	1	75.0-125	E J5	E J5	1.49	20

L1227759-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1227759-01 06/17/20 18:44 • (MS) R3539848-6 06/17/20 18:45 • (MSD) R3539848-7 06/17/20 18:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.0454	0.154	0.154	109	109	1	75.0-125			0.000	20

Laboratory Control Sample (LCS)

(LCS) R3539718-1 06/17/20 11:39

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 21.2C

Method Blank (MB)

(MB) R3537676-1 06/11/20 16:16

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3537676-2 06/11/20 16:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.463	92.6	85.0-115	

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3539836-1 06/17/20 15:20 • (LCSD) R3539836-2 06/17/20 15:20

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	128	131	101	104	96.0-104			2.32	10

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

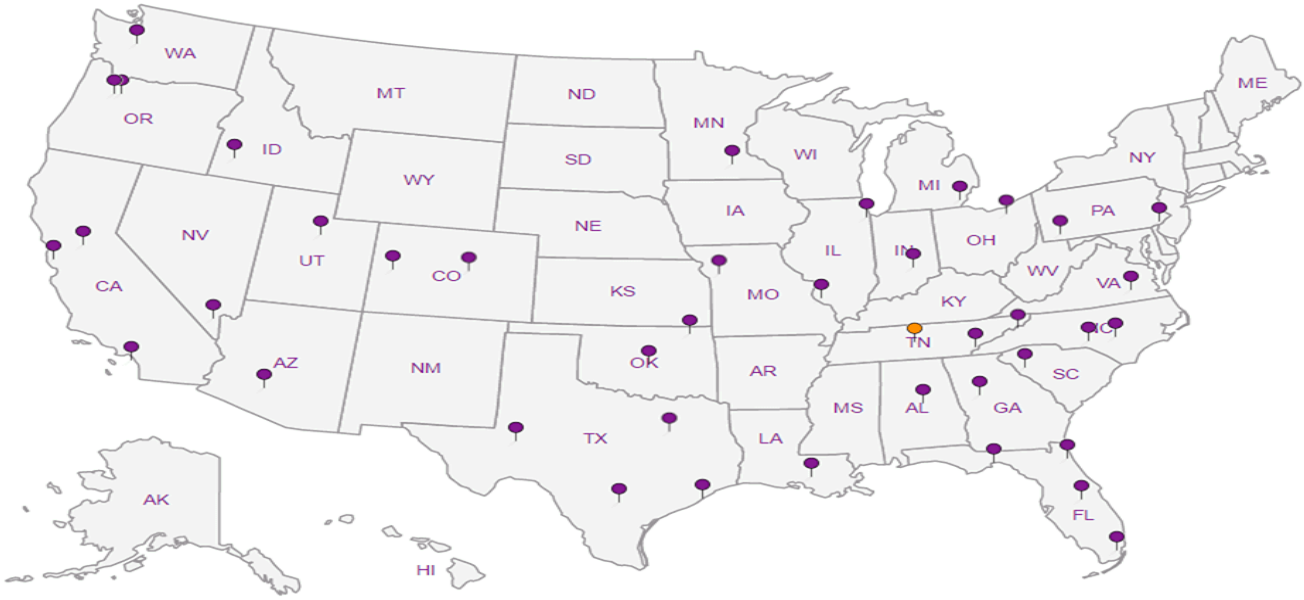
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR: Pace TN	COMPANY: PACE TN	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

D134
L1227464

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2006406-001G	S-14 (6/5/20)	125HDP	Aqueous	6/5/2020 2:40:00 PM	1	ORP -01
2	2006406-001H	S-14 (6/5/20)	500HDPE	Aqueous	6/5/2020 2:40:00 PM	1	RCI -02
3	2006406-001I	S-14 (6/5/20)	500PLNAOH ZNAC	Aqueous	6/5/2020 2:40:00 PM	1	RCI -03
4	2006406-001J	S-14 (6/5/20)	500PL-NaOH	Aqueous	6/5/2020 2:40:00 PM	1	RCI -04

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
PB	6/8/2020	3:09 PM			
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 6-12-20	Time: 0815

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 1.7, 1.1, 1.8 °C Attempt to Cool ? _____
Comments: RAD SCREEN: <0.5 mR/h

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	L1227464	
Cooler Received/Opened On: 6 / 10 / 20 Temperature:	1.4	
Received By: joey brent		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?			
COC Signed / Accurate?			
Bottles arrive intact?			
Correct bottles used?			
Sufficient volume sent?			
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006406**
29-Jun-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R69490** RunNo: **69490**
Prep Date: Analysis Date: **6/8/2020** SeqNo: **2411754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R69490** RunNo: **69490**
Prep Date: Analysis Date: **6/8/2020** SeqNo: **2411755** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	107	90	110			
Bromide	2.6	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.6	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R69782** RunNo: **69782**
Prep Date: Analysis Date: **6/19/2020** SeqNo: **2422746** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R69782** RunNo: **69782**
Prep Date: Analysis Date: **6/19/2020** SeqNo: **2422747** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	99.2	90	110			
Nitrate+Nitrite as N	3.6	0.20	3.500	0	103	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006406**
29-Jun-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW** Batch ID: **T69529** RunNo: **69529**
Prep Date: Analysis Date: **6/10/2020** SeqNo: **2414813** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.020	0.00023	0.02000	0	98.0	70	130			
1,1-Dichloroethene	0.020	0.00013	0.02000	0	99.0	70	130			
Trichloroethene (TCE)	0.019	0.00020	0.02000	0	94.1	70	130			
Chlorobenzene	0.021	0.00014	0.02000	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		104	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		102	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		102	70	130			
Surr: Toluene-d8	0.010		0.01000		101	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW** Batch ID: **T69529** RunNo: **69529**
Prep Date: Analysis Date: **6/10/2020** SeqNo: **2414814** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		102	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.9	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		102	70	130			
Surr: Toluene-d8	0.010		0.01000		103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006406**
29-Jun-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **lcs-1 99.5uS eC** SampType: **lcs** TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW** Batch ID: **R69695** RunNo: **69695**
Prep Date: Analysis Date: **6/17/2020** SeqNo: **2419812** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.50	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006406**
29-Jun-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-53042** SampType: **MBLK** TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW** Batch ID: **53042** RunNo: **69629**
Prep Date: **6/11/2020** Analysis Date: **6/15/2020** SeqNo: **2416846** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCSLL-53042** SampType: **LCSLL** TestCode: **EPA Method 7470: Mercury**
Client ID: **BatchQC** Batch ID: **53042** RunNo: **69629**
Prep Date: **6/11/2020** Analysis Date: **6/15/2020** SeqNo: **2416847** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	74.8	50	150			

Sample ID: **LCS-53042** SampType: **LCS** TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW** Batch ID: **53042** RunNo: **69629**
Prep Date: **6/11/2020** Analysis Date: **6/15/2020** SeqNo: **2416848** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006406**
29-Jun-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-A** SampType: **MBLK** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW** Batch ID: **A69596** RunNo: **69596**
Prep Date: Analysis Date: **6/12/2020** SeqNo: **2415833** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A** SampType: **LCS** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW** Batch ID: **A69596** RunNo: **69596**
Prep Date: Analysis Date: **6/12/2020** SeqNo: **2415835** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	97.6	80	120			
Magnesium	49	1.0	50.00	0	97.3	80	120			
Potassium	49	1.0	50.00	0	97.2	80	120			
Sodium	48	1.0	50.00	0	96.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006406**
29-Jun-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-52978** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **52978** RunNo: **69596**
Prep Date: **6/9/2020** Analysis Date: **6/12/2020** SeqNo: **2415836** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.020								
Silver	ND	0.0050								

Sample ID: **LCS-52978** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **52978** RunNo: **69596**
Prep Date: **6/9/2020** Analysis Date: **6/12/2020** SeqNo: **2415838** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.43	0.030	0.5000	0	86.4	80	120			
Barium	0.44	0.0020	0.5000	0	87.9	80	120			
Cadmium	0.44	0.0020	0.5000	0	88.1	80	120			
Chromium	0.43	0.0060	0.5000	0	86.3	80	120			
Lead	0.45	0.020	0.5000	0	90.2	80	120			
Silver	0.091	0.0050	0.1000	0	91.2	80	120			

Sample ID: **MB-52978** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **52978** RunNo: **69668**
Prep Date: **6/9/2020** Analysis Date: **6/16/2020** SeqNo: **2418691** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.050								

Sample ID: **LCS-52978** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **52978** RunNo: **69668**
Prep Date: **6/9/2020** Analysis Date: **6/16/2020** SeqNo: **2418692** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.46	0.050	0.5000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006406**
29-Jun-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **mb-1 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R69671** RunNo: **69671**
Prep Date: Analysis Date: **6/15/2020** SeqNo: **2419142** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R69671** RunNo: **69671**
Prep Date: Analysis Date: **6/15/2020** SeqNo: **2419143** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.28	20.00	80.00	0	96.6	90	110			

Sample ID: **mb-2 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R69671** RunNo: **69671**
Prep Date: Analysis Date: **6/15/2020** SeqNo: **2419165** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R69671** RunNo: **69671**
Prep Date: Analysis Date: **6/15/2020** SeqNo: **2419166** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.56	20.00	80.00	0	98.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006406**
29-Jun-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **2006406-001DDUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **S-14 (6/5/20)** Batch ID: **R69802** RunNo: **69802**
Prep Date: Analysis Date: **6/22/2020** SeqNo: **2423772** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.009	0						0.258	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006406**
29-Jun-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-53023** SampType: **MBLK** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW** Batch ID: **53023** RunNo: **69601**
Prep Date: **6/11/2020** Analysis Date: **6/12/2020** SeqNo: **2415947** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-53023** SampType: **LCS** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW** Batch ID: **53023** RunNo: **69601**
Prep Date: **6/11/2020** Analysis Date: **6/12/2020** SeqNo: **2415948** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **RULE ENGINEERING LL** Work Order Number: **2006406** RcptNo: **1**

Received By: **Desiree Dominguez** **6/6/2020 9:00:00 AM** DD

Completed By: **Leah Baca** **6/8/2020 2:53:03 PM** Leah Baca

Reviewed By: DAD 6/8/20

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☑ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH: 3 1 (<2 or >12 unless noted)
Adjusted? YES
Checked by: SPA 6.8.20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks: Poured off from -001H to -001G (unpreserved 500mL Plastic) {1.0 mL HNO3 ADDED to sample 001F FOR pH<2, metals Analysis. (125mL unpreserved plastic)
SPA 6.8.20

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.7	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering

Mailing Address: 501 Airport Dr, Ste 205
Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Agua Moss Sunco Disposal #1

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): 3.5+0.2=3.7 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2006406	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	See Attached
6/5/20	1440	Aq	S-14 (6/5/20)	(1) 500mL Plastic	HNO_3	-001											X
				(1) 500mL Plastic	NaOH												
				(1) 500mL Plastic	Zinc acetate / NaOH												
				(2) 500mL Plastic	Non												
				(1) 125mL Plastic	H_2SO_4												
				(1) 125mL Plastic	HNO_3 Filtered												
				(5) 1L Amber Glass	Non												
				(3) 40mL VOA	HCl												

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6/5/2020	1652	Heather M. Woods	Christa Waele		6/5/2020	1652
6/5/2020	1821	Christa Waele	TD3	courier	6/6/20	9:00

Remarks:
Direct bill to Agua Moss
Rates per Andy
Reporting Limits per Attached

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA HW No.	**Contaminant**	**SW-846 Methods**	**Regulatory Level (mg/L)**
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03
D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0

From:	Philana Thompson
To:	Chavez, Carl J, EMNRD
Subject:	[EXT] 4th QRT Sunco Disposal UICI5-0 Report
Date:	Monday, March 2, 2020 5:04:44 PM
Attachments:	2019 4th QRT Injection Report.pdf 191223 Agua Moss Sunco Disp 4Q Injection Water Results.pdf 200218 Sunco Disposal Well WQ Report.pdf

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Carl,

Attached is the 4th QRT Injection reports. The benzene did show high, however, that is because we were accepting Class II water to the disposal. Please let me know if you have any questions or concerns or if I will need to provide anything further.

Philana

--
Philana Thompson
HSE & Regulatory Compliance
Merrion Oil & Gas Corp
cell 505-486-1171

February 18, 2020

Ms. Shacie Murray
Agua Moss LLC
P.O. Box 600
Farmington, New Mexico 87499

Re: Sunco Disposal #1
Injection Water Quarterly Monitoring
4th Quarter 2019

Dear Ms. Murray:

This report summarizes the sample collection, field screening, and laboratory analysis of the injection water at the Agua Moss LLC Sunco Disposal #1 well for the 4th Quarter 2019. Injection water of the Class I Sunco Disposal #1 well is assessed on a quarterly basis in accordance with 20.6.5207(B) NMAC.

Field Activities
Rule Engineering, LLC (Rule) personnel collected one injection water sample (S-12) from the process line inside the pump building at the location on December 23, 2019. Injection water was discharged directly from the valve of the process line into laboratory sample containers and a clean container for field screening.

Sample Collection and Field Screening Procedures
The injection water sample (S-12) was field screened for time sensitive parameters including pH, temperature, reduction potential, specific conductance, and total dissolved solids. Field screening was conducted utilizing a handheld water quality meter calibrated on the day of use with laboratory grade standards.

The sampled injection water was placed into laboratory supplied containers, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico.

Field Screening and Laboratory Analytical Results
The field screening and laboratory analytical results are summarized in the attached Table 1.

QA/QC Considerations
Field measurements for time sensitive parameters including pH, temperature, reduction potential, and specific conductance more accurately reflect the characteristics of the injection water than laboratory results for these parameters due to their rapidly changing nature when removed from the stable environment of

the process line. The hold time qualifier is indicated on the laboratory report for pH as the hold time of 15 minutes from collection was exceeded during transport prior to analysis. Similarly, the hold time was exceeded for corrosivity by pH and reduction potential.

A dilution due to matrix qualifier is indicated on the laboratory report for total dissolved solids, reactive cyanide, and reactive sulfide.

A low spike value was reported for reactive sulfide indicating the sample matrix interfered with the analysis.

Closure and Limitations

This report is prepared for the exclusive use of Agua Moss LLC and is subject to the terms, conditions, and limitations stated in Rule's report and Service Agreement with Agua Moss LLC. All work has been performed in accordance with generally accepted professional environmental consulting practices. No other warranty is expressed or implied.

Rule Engineering appreciates the opportunity to provide services to Agua Moss LLC. If you have any questions, please contact me at (505) 325-1055.

Sincerely,
Rule Engineering, LLC

Heather M. Woods

Heather M. Woods, P.G.
Area Manager/Geologist

Attachments:

Table 1. Summary of Field Screening and Laboratory Analytical Results
Laboratory Analytical Reports (Hall: 1912C38)

UICI-5-0
Agua Moss, LLC
Sunco Disposal #1 30-045-28653

2019

Quarterly
Injection Report

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maxium Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	Total Cumulative Volume (barrels)	
													Previous year	14957142	
Jan-2019	1925	1950	1900	22.26875	23.42083333	21.1166667	0	0	0	763.5	803	724	1527	14958669	
Feb-2019	1400	1500	1300	0	0	0	0	0	0	0	0	0	0	14958669	
Mar-2019	1680	1900	1400	14.09722222	25.75416667	6.70833333	0	0	0	483.3333333	883	230	1450	14960119	
													Previous Quarter	14960119	
Apr-2019	1566.667	1900	1400	24.99583333	24.99583333	24.9958333	0	0	0	857	857	857	857	14960976	
May-2019	1487.5	1950	1250	33.45416667	33.45416667	33.4541667	0	0	0	1147	1147	1147	1147	14962123	
Jun-2019	1412.5	1900	1250	12.19166667	12.19166667	12.1916667	0	0	0	418	418	418	418	14962541	
													Previous Quarter	14962541	
Jul-19	1433.333	1800	1250	16.39166667	16.39166667	16.3916667	0	0	0	562	562	562	562	14963103	
Aug-19	1300	1850	750	47.48333333	47.48333333	47.4833333	0	0	0	1628	1628	1628	1628	14964731	
Sep-19	1250	1250	1250	0	0	0	0	0	0	0	0	0	0	14964731	
													Previous Quarter	14964731	
Oct-2019	1953.333	2750	1250	56.63628205	103.3666667	2.31583333	0	0	0	1941.815385	3544	79.4	25243.6	14989974.6	
Nov-2019	2257.5	2300	2050	47.09541667	103.1333333	16.0416667	0	0	0	1614.7	3536	550	32294	15022268.6	
Dec-2019	2286.538	2350	2150	64.75224359	100.8	19.0458333	0	0	0	2220.076923	3456	653	28861	15051129.6	
												Total for year	**93987.6**	**15145117.2**	**Life Of well injected**

Table 1. Summary of Field Screening and Laboratory Analytical Results

Sample ID	S-12			
Collection Date	12/23/2019		Units	Toxicity Characteristic Concentrations
Analyte	Laboratory Results	Field Results		
pH	7.15 H	7.82	su	
Temperature	--	20.6	°C	
Reduction Potential	40.0 H	-192.7	mV	
Specific Conductance	66,000	56,000	µmhos/cm	
Specific Gravity	1.018	--		
Total Dissolved Solids	31,000 D	36,211	mg/L	
Bicarbonate (As $CaCO_3$)	628.9	--	mg/L	
Carbonate (As $CaCO_3$)	<2.000	--	mg/L	
Flouride	<1.0	--	mg/L	
Chloride	17,000	--	mg/L	
Bromide	90	--	mg/L	
Phosphorus, Orthophosphate	<5.0	--	mg/L	
Sulfate	6.8	--	mg/L	
Nitrogen, Nitrate (as N)	<10			
Nitrogen, Nitrite (as N)	<10	--	mg/L	
Calcium	190	--	mg/L	
Magnesium	60	--	mg/L	
Potassium	53	--	mg/L	
Sodium	12,000	--	mg/L	
Reactive Cyanide	<0.00500 D S	--	mg/L	
Reactive Sulfide	0.207 D	--	mg/L	
Flashpoint	Did not flash at 170°F	--		
Corrosivity by pH	12.6 H	--	su	
Arsenic	<0.020	--	mg/L	5.0 mg/L
Barium	14	--	mg/L	100.0 mg/L
Benzene	**13**	--	mg/L	0.5 mg/L
Cadmium	<0.0020	--	mg/L	1.0 mg/L
Carbon tetrachloride	<0.50	--	mg/L	0.5 mg/L
Chlordane	<0.30	--	mg/L	0.03 mg/L
Chlorobenzene	<100	--	mg/L	100.0 mg/L
Chloroform	<6.0	--	mg/L	6.0 mg/L
Chromium	<0.0060	--	mg/L	5.0 mg/L
Cresols, Total	<200	--	mg/L	200 mg/L
1,4-Dichlorobenzene	<7.5	--	mg/L	7.5 mg/L
1,2-Dichloroethane	<0.50	--	mg/L	0.5 mg/L
1,1-Dichloroethene	<0.70	--	mg/L	0.7 mg/L
2,4-Dinitroltoluene	<0.13	--	mg/L	0.13 mg/L
Hexachlorobenzene	<0.13	--	mg/L	0.13 mg/L
Hexachlorobutadiene	<0.50	--	mg/L	0.5 mg/L
Hexachloroethane	<3.0	--	mg/L	3.0 mg/L
Lead	<0.0050	--	mg/L	5.0 mg/L
Mercury	<0.00020	--	mg/L	0.2 mg/L
Methyl ethyl ketone	<200	--	mg/L	200.0 mg/L
Nitrobenzene	<2.0	--	mg/L	2.0 mg/L
Pentachlorophenol	<100	--	mg/L	100.0 mg/L
Pyridine	<5.0	--	mg/L	5.0 mg/L
Selenium	<0.050	--	mg/L	1.0 mg/L
Silver	<0.0050	--	mg/L	5.0 mg/L
Tetrachloroethylene	<0.70	--	mg/L	0.7 mg/L
Trichloreoethylene	<0.50	--	mg/L	0.5 mg/L
2,4,5-Trichlorophenol	<400	--	mg/L	400.0 mg/L
2,4,6-Trichlorophenol	<2.0	--	mg/L	2.0 mg/L
Vinyl chloride	<0.20	--	mg/L	0.2 mg/L

Notes: su - standard units
°C - degrees Celcius
°F - degrees Farenheit
mV - millivolts
µmhos/cm - micromohs per centimeter
mg/L - milligrams per liter
H - Holding times for preparation or analysis exceeded
D - Sample diluted due to matrix
S - % Recovery outside of range due to dilution or matix

1.00 Exeeds the Toxicity Characteristic Concentration

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 14, 2020

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205
Farmington, NM 87401
TEL: (505) 325-1055
FAX:

RE: Agua Moss Sunco Disposal 1 OrderNo.: 1912C38

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/24/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1912C38**
Date: **1/14/2020**

CLIENT: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Analytical Comments Regarding 8270:
The laboratory control spike (LCS) was spiked with the standard compound list, instead of the TCLP compound list. The spike used passed all QC parameters.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1
Lab ID: 1912C38-001 **Matrix:** AQUEOUS

Client Sample ID: S-12 (12/23/19)
Collection Date: 12/23/2019 9:10:00 AM
Received Date: 12/24/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst:	**JME**
Chlordane	ND	0.30		mg/L	1	1/2/2020 1:03:54 PM	49550
Surr: Decachlorobiphenyl	70.4	29.4-99.8		%Rec	1	1/2/2020 1:03:54 PM	49550
Surr: Tetrachloro-m-xylene	68.8	20.7-100		%Rec	1	1/2/2020 1:03:54 PM	49550
EPA METHOD 8270C TCLP						Analyst:	**JDC**
2-Methylphenol	ND	200		mg/L	1	1/3/2020 12:50:43 PM	49534
3+4-Methylphenol	ND	200		mg/L	1	1/3/2020 12:50:43 PM	49534
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/3/2020 12:50:43 PM	49534
Hexachlorobenzene	ND	0.13		mg/L	1	1/3/2020 12:50:43 PM	49534
Hexachlorobutadiene	ND	0.50		mg/L	1	1/3/2020 12:50:43 PM	49534
Hexachloroethane	ND	3.0		mg/L	1	1/3/2020 12:50:43 PM	49534
Nitrobenzene	ND	2.0		mg/L	1	1/3/2020 12:50:43 PM	49534
Pentachlorophenol	ND	100		mg/L	1	1/3/2020 12:50:43 PM	49534
Pyridine	ND	5.0		mg/L	1	1/3/2020 12:50:43 PM	49534
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/3/2020 12:50:43 PM	49534
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/3/2020 12:50:43 PM	49534
Cresols, Total	ND	200		mg/L	1	1/3/2020 12:50:43 PM	49534
Surr: 2-Fluorophenol	35.4	15-82.5		%Rec	1	1/3/2020 12:50:43 PM	49534
Surr: Phenol-d5	31.4	15-74.2		%Rec	1	1/3/2020 12:50:43 PM	49534
Surr: 2,4,6-Tribromophenol	61.9	18.6-118		%Rec	1	1/3/2020 12:50:43 PM	49534
Surr: Nitrobenzene-d5	59.7	30.4-106		%Rec	1	1/3/2020 12:50:43 PM	49534
Surr: 2-Fluorobiphenyl	59.3	15-104		%Rec	1	1/3/2020 12:50:43 PM	49534
Surr: 4-Terphenyl-d14	56.1	15-133		%Rec	1	1/3/2020 12:50:43 PM	49534
SPECIFIC GRAVITY						Analyst:	**JRR**
Specific Gravity	1.018	0			1	12/30/2019 1:29:00 PM	R65470
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Fluoride	ND	1.0		mg/L	10	12/24/2019 4:34:15 PM	R65404
Chloride	17000	1000		mg/L	2E+	1/2/2020 8:47:34 PM	R65543
Nitrogen, Nitrite (As N)	ND	10		mg/L	100	12/24/2019 4:46:39 PM	R65404
Bromide	90	10		mg/L	100	12/24/2019 4:46:39 PM	R65404
Nitrogen, Nitrate (As N)	ND	10		mg/L	100	12/24/2019 4:46:39 PM	R65404
Phosphorus, Orthophosphate (As P)	ND	5.0		mg/L	10	12/24/2019 4:34:15 PM	R65404
Sulfate	6.8	5.0		mg/L	10	12/24/2019 4:34:15 PM	R65404
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	66000	250		µmhos/c	50	12/31/2019 11:02:22 AM	R65519
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	628.9	20.00		mg/L Ca	1	12/27/2019 4:21:34 PM	R65457
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	12/27/2019 4:21:34 PM	R65457

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1
Lab ID: 1912C38-001 **Matrix:** AQUEOUS

Client Sample ID: S-12 (12/23/19)
Collection Date: 12/23/2019 9:10:00 AM
Received Date: 12/24/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2320B: ALKALINITY						Analyst:	**JRR**
Total Alkalinity (as CaCO3)	628.9	20.00		mg/L Ca	1	12/27/2019 4:21:34 PM	R65457
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	31000	200	*D	mg/L	1	12/27/2019 1:59:00 PM	49522
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	7.15		H	pH units	1	12/27/2019 4:21:34 PM	R65457
EPA METHOD 7470: MERCURY						Analyst:	**pmf**
Mercury	ND	0.00020		mg/L	1	1/7/2020 4:50:57 PM	49667
EPA METHOD 6010B: DISSOLVED METALS						Analyst:	**pmf**
Calcium	190	10		mg/L	10	12/30/2019 7:23:26 PM	C65484
Magnesium	60	1.0		mg/L	1	12/30/2019 7:21:30 PM	C65484
Potassium	53	1.0		mg/L	1	12/30/2019 7:21:30 PM	C65484
Sodium	12000	200		mg/L	200	1/9/2020 10:54:06 AM	A65667
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst:	**ELS**
Arsenic	ND	0.020		mg/L	1	1/9/2020 8:27:11 AM	49581
Barium	14	0.40		mg/L	20	1/9/2020 8:44:35 AM	49581
Cadmium	ND	0.0020		mg/L	1	1/9/2020 8:27:11 AM	49581
Chromium	ND	0.0060		mg/L	1	1/9/2020 8:27:11 AM	49581
Lead	ND	0.0050		mg/L	1	1/9/2020 8:27:11 AM	49581
Selenium	ND	0.050		mg/L	1	1/9/2020 8:27:11 AM	49581
Silver	ND	0.0050		mg/L	1	1/9/2020 8:27:11 AM	49581
TCLP VOLATILES BY 8260B						Analyst:	**JMR**
Benzene	13	0.50		mg/L	200	12/27/2019 2:56:04 AM	T65432
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	12/27/2019 2:56:04 AM	T65432
2-Butanone	ND	200		mg/L	200	12/27/2019 2:56:04 AM	T65432
Carbon Tetrachloride	ND	0.50		mg/L	200	12/27/2019 2:56:04 AM	T65432
Chloroform	ND	6.0		mg/L	200	12/27/2019 2:56:04 AM	T65432
1,4-Dichlorobenzene	ND	7.5		mg/L	200	12/27/2019 2:56:04 AM	T65432
1,1-Dichloroethene	ND	0.70		mg/L	200	12/27/2019 2:56:04 AM	T65432
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	12/27/2019 2:56:04 AM	T65432
Trichloroethene (TCE)	ND	0.50		mg/L	200	12/27/2019 2:56:04 AM	T65432
Vinyl chloride	ND	0.20		mg/L	200	12/27/2019 2:56:04 AM	T65432
Chlorobenzene	ND	100		mg/L	200	12/27/2019 2:56:04 AM	T65432
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	200	12/27/2019 2:56:04 AM	T65432
Surr: 4-Bromofluorobenzene	95.6	70-130		%Rec	200	12/27/2019 2:56:04 AM	T65432
Surr: Dibromofluoromethane	103	70-130		%Rec	200	12/27/2019 2:56:04 AM	T65432
Surr: Toluene-d8	100	70-130		%Rec	200	12/27/2019 2:56:04 AM	T65432

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

ANALYTICAL REPORT

January 07, 2020

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1174401

Samples Received: 12/27/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

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1912C38-001G S-12 (12/23/19) L1174401-01 GW

Collected by	Collected date/time	Received date/time
	12/23/19 09:10	12/27/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1405525	1	01/03/20 21:20	01/03/20 21:20	AKA	Mt. Juliet, TN

1912C38-001H S-12 (12/23/19) L1174401-02 WW

Collected by	Collected date/time	Received date/time
	12/23/19 09:10	12/27/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2011	WG1405495	1	01/03/20 11:09	01/06/20 14:07	JER	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1403958	1	12/30/19 11:00	12/30/19 11:00	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9034-9030B	WG1403193	1	12/27/19 16:07	12/27/19 16:07	NJM	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1406380	1	01/06/20 14:38	01/06/20 14:38	SL	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9012B.

All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	40.0	T8	1	01/03/2020 21:20	WG1405525

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND	J3 J6	0.00500	1	01/06/2020 14:07	WG1405495

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	12.6	T8	1	12/30/2019 11:00	WG1403958

Sample Narrative:

L1174401-02 WG1403958: 12.55 at 25.1C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.207	J6	0.0500	1	12/27/2019 16:07	WG1403193

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	01/06/2020 14:38	WG1406380

L1174401-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1174401-01 01/03/20 21:20 • (DUP) R3487979-2 01/03/20 21:20

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	40.0	41.0	1	2.47		20

Laboratory Control Sample (LCS)

(LCS) R3487979-1 01/03/20 21:20

Analyte	Spike Amount mV	LCS Result mV	LCS Rec. %	Rec. Limits %	LCS Qualifier
ORP	105	104	99.0	86.0-105	

Method Blank (MB)

(MB) R3488347-1 01/06/20 13:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1175074-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1175074-02 01/06/20 14:20 • (DUP) R3488347-6 01/06/20 14:21

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	0.000	1	0.000		20

L1174352-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1174352-01 01/06/20 14:02 • (DUP) R3488347-9 01/06/20 14:30

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3488347-2 01/06/20 13:54

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0991	99.1	85.0-115	

L1174401-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1174401-02 01/06/20 14:07 • (MS) R3488347-4 01/06/20 14:08 • (MSD) R3488347-5 01/06/20 14:09

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.00414	0.00558	4.14	5.58	1	75.0-125	J6	J3 J6	29.6	20

L1175074-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1175074-05 01/06/20 14:24 • (MS) R3488347-7 01/06/20 14:25 • (MSD) R3488347-8 01/06/20 14:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.0691	0.0991	69.1	99.1	1	75.0-125	J6	J3	35.7	20

Laboratory Control Sample (LCS)

(LCS) R3486873-1 12/30/19 11:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 19.3C

Method Blank (MB)

(MB) R3486422-1 12/27/19 15:41

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.00650	0.0500

L1174401-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1174401-02 12/27/19 16:07 • (DUP) R3486422-3 12/27/19 16:08

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Sulfide	0.207	0.199	1	3.94		20

Laboratory Control Sample (LCS)

(LCS) R3486422-2 12/27/19 15:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.566	113	85.0-115	

L1174401-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1174401-02 12/27/19 16:07 • (MS) R3486422-4 12/27/19 16:09 • (MSD) R3486422-5 12/27/19 16:09

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Sulfide	1.00	0.207	0.774	0.840	56.7	63.3	1	80.0-120	J6	J6	8.18	20

L1175049-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1175049-01 01/06/20 14:38 • (DUP) R3488341-3 01/06/20 14:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	87.4	89.4	1	2.26		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3488341-1 01/06/20 14:38 • (LCSD) R3488341-2 01/06/20 14:38

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	82.0	82.4	82.4	100	100	97.0-103			0.000	10

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

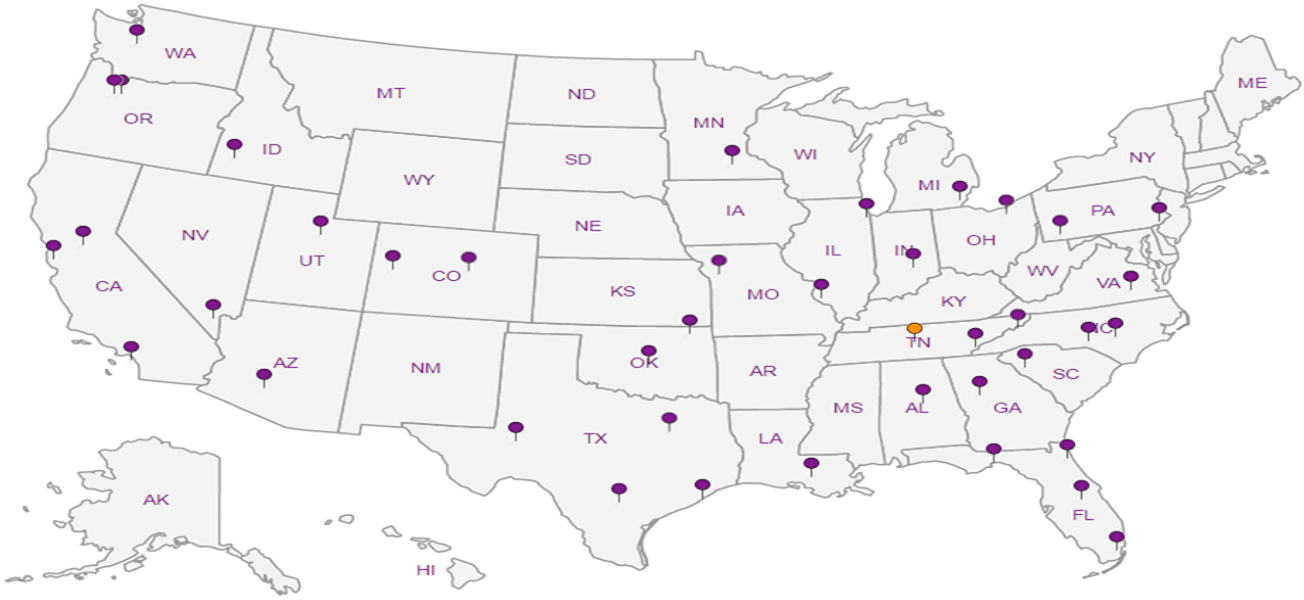
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR: ESC PACE
COMPANY: ESC PACE
PHONE: (800) 767-5859
FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd
ACCOUNT #:
EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1912C38-001G	S-12 (12/23/19)	125HDP	Aqueous	12/23/2019 9:10:00 AM	1	Oxidation Reduction Potential L1174401-01
2	1912C38-001H	S-12 (12/23/19)	500HDPE	Aqueous	12/23/2019 9:10:00 AM	3	RCI 02

RAD SCREEN: <0.5 mR/hr

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

4510 1669 2226 No TB 4 Total

C080

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
I-O	12/24/2019	9:29 AM			
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: Mcum 12-27-19	Date: 830	Time:

TAT: Standard ☒ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 0.2-1=0.1 °C Attempt to Cool ? Y
Comments: LOCSI

Pace Analytical National Center for Testing & Innovation

Cooler Receipt Form

Client: HALLENVANM	L1174401
Cooler Received/Opened On: 12 / 27 /19 Temperature:	3.1
Received By: Michael Pappas	
Signature:	

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?		✓	
Preservation Correct / Checked?			

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246802** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246803** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	100	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.9	90	110			
Bromide	2.5	0.10	2.500	0	98.9	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.0	90	110			
Sulfate	9.8	0.50	10.00	0	97.7	90	110			

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R65543** RunNo: **65543**
Prep Date: Analysis Date: **1/2/2020** SeqNo: **2251528** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R65543** RunNo: **65543**
Prep Date: Analysis Date: **1/2/2020** SeqNo: **2251529** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW** Batch ID: **T65432** RunNo: **65432**
Prep Date: Analysis Date: **12/26/2019** SeqNo: **2247699** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.018	0.0025	0.02000	0	91.9	70	130			
1,1-Dichloroethene	0.018	0.0035	0.02000	0	91.0	70	130			
Trichloroethene (TCE)	0.017	0.0025	0.02000	0	83.3	70	130			
Chlorobenzene	ND	0.50	0.02000	0	93.2	70	130			
Surr: 1,2-Dichloroethane-d4	0.0093		0.01000		93.2	70	130			
Surr: 4-Bromofluorobenzene	0.0093		0.01000		93.0	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		101	70	130			
Surr: Toluene-d8	0.0097		0.01000		97.2	70	130			

Sample ID: **rb** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW** Batch ID: **T65432** RunNo: **65432**
Prep Date: Analysis Date: **12/26/2019** SeqNo: **2247702** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.0025								
1,2-Dichloroethane (EDC)	ND	0.0025								
2-Butanone	ND	1.0								
Carbon Tetrachloride	ND	0.0025								
Chloroform	ND	0.030								
1,4-Dichlorobenzene	ND	0.038								
1,1-Dichloroethene	ND	0.0035								
Tetrachloroethene (PCE)	ND	0.0035								
Trichloroethene (TCE)	ND	0.0025								
Vinyl chloride	ND	0.0010								
Chlorobenzene	ND	0.50								
Surr: 1,2-Dichloroethane-d4	0.0098		0.01000		98.3	70	130			
Surr: 4-Bromofluorobenzene	0.0096		0.01000		95.7	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		100	70	130			
Surr: Toluene-d8	0.010		0.01000		102	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **mb-49534** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW** Batch ID: **49534** RunNo: **65564**
Prep Date: **12/27/2019** Analysis Date: **1/3/2020** SeqNo: **2252212** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.10		0.2000		51.6	15	82.5			
Surr: Phenol-d5	0.085		0.2000		42.3	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		70.9	18.6	118			
Surr: Nitrobenzene-d5	0.078		0.1000		77.8	30.4	106			
Surr: 2-Fluorobiphenyl	0.074		0.1000		73.7	15	104			
Surr: 4-Terphenyl-d14	0.069		0.1000		68.7	15	133			

Sample ID: **lcs-49534** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW** Batch ID: **49534** RunNo: **65564**
Prep Date: **12/27/2019** Analysis Date: **1/3/2020** SeqNo: **2252213** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	0.0010	0.1000	0	0	33.8	121			S
3+4-Methylphenol	ND	0.0010	0.2000	0	0	33.6	109			S
2,4-Dinitrotoluene	0.058	0.0010	0.1000	0	57.9	50.4	124			
Hexachlorobenzene	ND	0.0010	0.1000	0	0	50.1	120			S
Hexachlorobutadiene	ND	0.0010	0.1000	0	0	16.1	103			S
Hexachloroethane	ND	0.0010	0.1000	0	0	15	94.2			S
Nitrobenzene	ND	0.0010	0.1000	0	0	32.4	125			S
Pentachlorophenol	0.11	0.0010	0.1000	0	111	44.6	114			
Pyridine	ND	0.0010	0.1000	0	0	15	67			S
2,4,5-Trichlorophenol	ND	0.0010	0.1000	0	0	49.4	118			S
2,4,6-Trichlorophenol	ND	0.0010	0.1000	0	0	50.3	116			S
Cresols, Total	0.067	0.0010	0.3000	0	22.4	33.8	109			S
Surr: 2-Fluorophenol	0.078		0.2000		39.1	15	82.5			
Surr: Phenol-d5	0.069		0.2000		34.5	15	74.2			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		60.9	18.6	118			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **lcs-49534** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW** Batch ID: **49534** RunNo: **65564**
Prep Date: **12/27/2019** Analysis Date: **1/3/2020** SeqNo: **2252213** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.074		0.1000		73.5	30.4	106			
Surr: 2-Fluorobiphenyl	0.063		0.1000		63.3	15	104			
Surr: 4-Terphenyl-d14	0.061		0.1000		61.4	15	133			

Sample ID: **1912C38-001Cms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**
Client ID: **S-12 (12/23/19)** Batch ID: **49534** RunNo: **65564**
Prep Date: **12/27/2019** Analysis Date: **1/3/2020** SeqNo: **2252215** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.020	0.0010	0.1000	0.02138	-1.58	30.5	98.2			S
3+4-Methylphenol	0.022	0.0010	0.2000	0.02406	-1.26	27.4	98.6			S
2,4-Dinitrotoluene	0.055	0.0010	0.1000	0	54.6	34.3	87.4			
Hexachlorobenzene	ND	0.0010	0.1000	0	0	36.5	100			S
Hexachlorobutadiene	ND	0.0010	0.1000	0	0	15	108			S
Hexachloroethane	ND	0.0010	0.1000	0	0	15	90.7			S
Nitrobenzene	ND	0.0010	0.1000	0	0	39	100			S
Pentachlorophenol	0.10	0.0010	0.1000	0	105	15	97.5			S
Pyridine	ND	0.0010	0.1000	0	0	15	65.8			S
2,4,5-Trichlorophenol	ND	0.0010	0.1000	0	0	36.1	109			S
2,4,6-Trichlorophenol	ND	0.0010	0.1000	0	0	37.8	104			S
Cresols, Total	0.12	0.0010	0.3000	0.06734	17.7	27.1	99.8			S
Surr: 2-Fluorophenol	0.069		0.2000		34.3	15	82.5			
Surr: Phenol-d5	0.059		0.2000		29.6	15	74.2			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		57.6	18.6	118			
Surr: Nitrobenzene-d5	0.061		0.1000		60.5	30.4	106			
Surr: 2-Fluorobiphenyl	0.057		0.1000		57.4	15	104			
Surr: 4-Terphenyl-d14	0.055		0.1000		54.7	15	133			

Sample ID: **1912C38-001Cmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**
Client ID: **S-12 (12/23/19)** Batch ID: **49534** RunNo: **65564**
Prep Date: **12/27/2019** Analysis Date: **1/3/2020** SeqNo: **2252217** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.028	0.0010	0.1000	0.02138	6.48	30.5	98.2	33.8	44.3	S
3+4-Methylphenol	0.030	0.0010	0.2000	0.02406	2.81	27.4	98.6	31.8	50	S
2,4-Dinitrotoluene	0.072	0.0010	0.1000	0	72.5	34.3	87.4	28.2	45.1	
Hexachlorobenzene	ND	0.0010	0.1000	0	0	36.5	100	0	47.2	S
Hexachlorobutadiene	ND	0.0010	0.1000	0	0	15	108	0	43.4	S
Hexachloroethane	ND	0.0010	0.1000	0	0	15	90.7	0	39.2	S
Nitrobenzene	ND	0.0010	0.1000	0	0	39	100	0	42.1	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **1912C38-001Cmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**
Client ID: **S-12 (12/23/19)** Batch ID: **49534** RunNo: **65564**
Prep Date: **12/27/2019** Analysis Date: **1/3/2020** SeqNo: **2252217** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	0.14	0.0010	0.1000	0	145	15	97.5	32.3	50	S
Pyridine	ND	0.0010	0.1000	0	0	15	65.8	0	50	S
2,4,5-Trichlorophenol	ND	0.0010	0.1000	0	0	36.1	109	0	49.7	S
2,4,6-Trichlorophenol	ND	0.0010	0.1000	0	0	37.8	104	0	47	S
Cresols, Total	0.17	0.0010	0.3000	0.06734	32.9	27.1	99.8	31.9	27.4	R
Surr: 2-Fluorophenol	0.10		0.2000		50.0	15	82.5	0	0	
Surr: Phenol-d5	0.082		0.2000		41.0	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		79.1	18.6	118	0	0	
Surr: Nitrobenzene-d5	0.090		0.1000		90.2	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.076		0.1000		75.8	15	104	0	0	
Surr: 4-Terphenyl-d14	0.071		0.1000		71.1	15	133	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **lcs-1 99.9uS eC** SampType: **lcs** TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW** Batch ID: **R65519** RunNo: **65519**
Prep Date: Analysis Date: **12/31/2019** SeqNo: **2250748** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.90	0	99.7	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-49667** SampType: **MBLK** TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW** Batch ID: **49667** RunNo: **65616**
Prep Date: **1/7/2020** Analysis Date: **1/7/2020** SeqNo: **2253871** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCSLL-49667** SampType: **LCSLL** TestCode: **EPA Method 7470: Mercury**
Client ID: **BatchQC** Batch ID: **49667** RunNo: **65616**
Prep Date: **1/7/2020** Analysis Date: **1/7/2020** SeqNo: **2253872** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	76.7	50	150			

Sample ID: **LCS-49667** SampType: **LCS** TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW** Batch ID: **49667** RunNo: **65616**
Prep Date: **1/7/2020** Analysis Date: **1/7/2020** SeqNo: **2253873** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-C** SampType: **MBLK** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW** Batch ID: **C65484** RunNo: **65484**
Prep Date: Analysis Date: **12/30/2019** SeqNo: **2249798** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								

Sample ID: **LCS-C** SampType: **LCS** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW** Batch ID: **C65484** RunNo: **65484**
Prep Date: Analysis Date: **12/30/2019** SeqNo: **2249800** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	46	1.0	50.00	0	93.0	80	120			
Magnesium	47	1.0	50.00	0	94.2	80	120			
Potassium	47	1.0	50.00	0	93.9	80	120			

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW** Batch ID: **A65667** RunNo: **65667**
Prep Date: Analysis Date: **1/9/2020** SeqNo: **2255583** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID: **LCS** SampType: **LCS** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW** Batch ID: **A65667** RunNo: **65667**
Prep Date: Analysis Date: **1/9/2020** SeqNo: **2255584** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	50	1.0	50.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-49581** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **49581** RunNo: **65605**
Prep Date: **12/31/2019** Analysis Date: **1/7/2020** SeqNo: **2253387** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Sample ID: **LCS-49581** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **49581** RunNo: **65605**
Prep Date: **12/31/2019** Analysis Date: **1/7/2020** SeqNo: **2253389** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.020	0.5000	0	98.5	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.47	0.0060	0.5000	0	94.4	80	120			
Silver	0.10	0.0050	0.1000	0	99.9	80	120			

Sample ID: **MB-49581** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **49581** RunNo: **65667**
Prep Date: **12/31/2019** Analysis Date: **1/9/2020** SeqNo: **2255549** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Lead	ND	0.0050								
Selenium	ND	0.050								

Sample ID: **LCS-49581** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **49581** RunNo: **65667**
Prep Date: **12/31/2019** Analysis Date: **1/9/2020** SeqNo: **2255550** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.46	0.020	0.5000	0	91.3	80	120			
Lead	0.48	0.0050	0.5000	0	96.6	80	120			
Selenium	0.45	0.050	0.5000	0	89.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **mb-1 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R65457** RunNo: **65457**
Prep Date: Analysis Date: **12/27/2019** SeqNo: **2248616** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R65457** RunNo: **65457**
Prep Date: Analysis Date: **12/27/2019** SeqNo: **2248617** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.12	20.00	80.00	0	98.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912C38**
14-Jan-20

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-49522** SampType: **MBLK** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW** Batch ID: **49522** RunNo: **65445**
Prep Date: **12/25/2019** Analysis Date: **12/27/2019** SeqNo: **2248074** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-49522** SampType: **LCS** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW** Batch ID: **49522** RunNo: **65445**
Prep Date: **12/25/2019** Analysis Date: **12/27/2019** SeqNo: **2248075** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **RULE ENGINEERING LL** Work Order Number: **1912C38** RcptNo: **1**

Received By: **Desiree Dominguez** **12/24/2019 8:30:00 AM** DD

Completed By: **Isaiah Ortiz** **12/24/2019 9:23:55 AM** I-Ox

Reviewed By: ENM 12/24/19

Chain of Custody

1. Is Chain of Custody sufficiently complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH: 5 (<2 or >12 unless noted)
Adjusted? No
Checked by: DM 12/24/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Not Present			

Chain-of-Custody Record

Client: Rule Engineering

Mailing Address: 501 Airport Dr, Ste 205
Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Agua Moss Sunco Disposal #1

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 0.8+0.1=0.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1917C38	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	See Attached
12/23/19	0910	Water	S-12 (12/23/19)	(1) 500 mL Plastic	HNO_3	-001											X
				(1) 500 mL Plastic	NaOH												
				(1) 500 mL Plastic	Zinc acetate / NaOH												
				(2) 500 mL Plastic	Non												
				(1) 125 mL Plastic	H_2SO_4												
				(1) 125 mL Plastic	HNO_3 Filtered												
				(5) 1L Amber Glass	Non												
				(3) 40 mL VOA	HCl												

Date	Time	Relinquished by	Received by	Via	Date	Time
12/23/19	1537	Heather M. Woods	[illegible]		12/23/19	1537
12/23/19	1810	[illegible]	[illegible]	Courier	12/24/19	8:30

Remarks:
Direct Bill to Agua Moss
Rates per Andy

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA HW No.	**Contaminant**	**SW-846 Methods**	**Regulatory Level (mg/L)**
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03
D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0

D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0

D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/L.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If metals (dissolved), the EPA 1311 TCLP Laboratory Method is required with the exception of Mercury (total).

ADDTIONALLY:

RCI, specific conductance, specific gravity, ORP, and general water quality parameters (general chemistry/cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, total dissolved solids, cation/anion balance, pH, and bromide) using the methods specified at 40 CFR 136.3.

Chavez, Carl J, EMNRD

From: Philana Thompson <pthompson@merrion.bz>
Sent: Wednesday, November 6, 2019 12:28 PM
To: Chavez, Carl J, EMNRD
Subject: [EXT] Sunco Disposal #1 3rd Qrt report
Attachments: 3rd QRT InjectionReport.pdf; 190923 Sunco Disposal Well WQ Report.pdf

Carl,

Attached is the 3rd quarter report for the Sunco Disposal #1. Please let me know if you have any questions or concerns.

Philana

--
Philana Thompson
HSE & Regulatory Compliance
Merrion Oil & Gas Corp
cell 505-486-1171

UICI-5-0
Agua Moss, LLC
Sunco Disposal #1 30-045-28653

2019

Quarterly
Injection Report

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maxium Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	Total Cumulative Volume (barrels)	
													Previous year	14957142	
Jan-2019	1925	1950	1900	22.26875	23.42083333	21.1166667	0	0	0	763.5	803	724	1527	14958669	
Feb-2019	1400	1500	1300	0	0	0	0	0	0	0	0	0	0	14958669	
Mar-2019	1680	1900	1400	14.09722222	25.75416667	6.70833333	0	0	0	483.3333333	883	230	1450	14960119	
													Previous Quarter	14960119	
Apr-2019	1566.667	1900	1400	24.99583333	24.99583333	24.9958333	0	0	0	857	857	857	857	14960976	
May-2019	1487.5	1950	1250	33.45416667	33.45416667	33.4541667	0	0	0	1147	1147	1147	1147	14962123	
Jun-2019	1412.5	1900	1250	12.19166667	12.19166667	12.1916667	0	0	0	418	418	418	418	14962541	
													Previous Quarter	14962541	
Jul-19	1433.333	1800	1250	16.39166667	16.39166667	16.3916667	0	0	0	562	562	562	562	14963103	
Aug-19	1300	1850	750	47.48333333	47.48333333	47.4833333	0	0	0	1628	1628	1628	1628	14964731	
Sep-19	1250	1250	1250	0	0	0	0	0	0	0	0	0	0	14964731	
													Previous Quarter	14964731	
Oct-2019	0	0	0	0	0	0	0	0	0	0	0	0	0	14964731	
Nov-2019	0	0	0	0	0	0	0	0	0	0	0	0	0	14964731	
Dec-2019	0	0	0	0	0	0	0	0	0	0	0	0	0	14964731	
												Total for year	**7589**	**14972320**	**Life Of well injected**

October 25, 2019

Ms. Shacie Murray
Agua Moss LLC
P.O. Box 600
Farmington, New Mexico 87499

Re: Sunco Disposal #1
Injection Water Quality Monitoring
3rd Quarter 2019

Dear Ms. Murray:

This report summarizes the sample collection, field screening, and laboratory analysis of the injection water at the Agua Moss LLC Sunco Disposal #1 facility for the 3rd Quarter 2019. Injection water of the Class I Sunco Disposal #1 well is assessed on a quarterly basis in accordance with 20.6.5207(B) NMAC.

Field Activities
Rule Engineering, LLC (Rule) personnel collected one injection water sample (S-11) from the storage tanks on September 23, 2019. Note: The sample was not collected from the process line inside the pump building as is usual procedure due to equipment issues. Injection water was discharged directly from the valve of the tank into laboratory sample containers and a clean container for field screening.

Sample Collection and Field Screening Procedures
The injection water sample (S-11) was field screened for time sensitive parameters including pH, temperature, reduction potential, specific conductance, and total dissolved solids. Field screening was conducted utilizing a handheld water quality meter calibrated on the day of use with laboratory grade standards.

The sampled injection water was placed into laboratory supplied containers, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico.

Field Screening and Laboratory Analytical Results
The field screening and laboratory analytical results are summarized in the attached Table 1.

QA/QC Considerations
Field measurements for time sensitive parameters including pH, temperature, reduction potential, and specific conductance more accurately reflect the characteristics of the injection water than laboratory results for these parameters

due to their rapidly changing nature when removed from the stable environment of the process line. The hold time qualifier is indicated on the laboratory report for pH as the hold time of 15 minutes from collection was exceeded during transport prior to analysis. Similarly, the hold time was exceeded for reduction potential and corrosivity by pH.

A dilution due to matrix qualifier is indicated on the laboratory report for total dissolved solids. Also, a laboratory control spike qualifier is indicated for pyridine.

Closure and Limitations
This report is prepared for the exclusive use of Agua Moss LLC and is subject to the terms, conditions, and limitations stated in Rule's report and Service Agreement with Agua Moss LLC. All work has been performed in accordance with generally accepted professional environmental consulting practices. No other warranty is expressed or implied.

Rule Engineering appreciates the opportunity to provide services to Agua Moss LLC. If you have any questions, please contact me at (505) 325-1055.

Sincerely,
Rule Engineering, LLC

Heather M. Woods

Heather M. Woods, P.G.
Area Manager/Geologist

Attachments:
Table 1. Summary of Field Screening and Laboratory Analytical Results
Laboratory Analytical Reports (Hall: 1909E10)

Table 1. Summary of Field Screening and Laboratory Analytical Results

Sample ID	S-11			
Collection Date	9/23/2019		Units	Toxicity Characteristic Concentrations
Analyte	Laboratory Results	Field Results		
pH	5.21 H	6.21	su	
Temperature	--	13.3	°C	
Reduction Potential	174 H	123	mV	
Specific Conductance	36,000	32,300	µmhos/cm	
Specific Gravity	1.016	--		
Total Dissolved Solids	12,000 D	10,500	mg/L	
Bicarbonate (As $CaCO_3$)	780.0	--	mg/L	
Carbonate (As $CaCO_3$)	<2.000	--	mg/L	
Flouride	<2.0	--	mg/L	
Chloride	12,000	--	mg/L	
Bromide	55	--	mg/L	
Phosphorus, Orthophosphate	<2.5 H	--	mg/L	
Sulfate	<2.5	--	mg/L	
Nitrate + Nitrite (as N)	<10	--	mg/L	
Calcium	520	--	mg/L	
Magnesium	50	--	mg/L	
Potassium	120	--	mg/L	
Sodium	7,300	--	mg/L	
Reactive Cyanide	0.00571	--	mg/L	
Reactive Sulfide	2.67	--	mg/L	
Flashpoint	Did not flash at 170°F	--		
Corrosivity by pH	5.21 H	--	su	
Arsenic	<5.0	--	mg/L	5.0 mg/L
Barium	<100	--	mg/L	100.0 mg/L
Benzene	<0.50	--	mg/L	0.5 mg/L
Cadmium	<1.0	--	mg/L	1.0 mg/L
Carbon tetrachloride	<0.50	--	mg/L	0.5 mg/L
Chlordane	<0.030	--	mg/L	0.03 mg/L
Chlorobenzene	<100	--	mg/L	100.0 mg/L
Chloroform	<6.0	--	mg/L	6.0 mg/L
Chromium	<5.0	--	mg/L	5.0 mg/L
Cresols, Total	<200	--	mg/L	200 mg/L
1,4-Dichlorobenzene	<7.5	--	mg/L	7.5 mg/L
1,2-Dichloroethane	<0.50	--	mg/L	0.5 mg/L
1,1-Dichloroethene	<0.70	--	mg/L	0.7 mg/L
2,4-Dinitroltoluene	<0.13	--	mg/L	0.13 mg/L
Hexachlorobenzene	<0.13	--	mg/L	0.13 mg/L
Hexachlorobutadiene	<0.50	--	mg/L	0.5 mg/L
Hexachloroethane	<3.0	--	mg/L	3.0 mg/L
Lead	<5.0	--	mg/L	5.0 mg/L
Mercury	<0.020	--	mg/L	0.2 mg/L
Methyl ethyl ketone	<200	--	mg/L	200.0 mg/L
Nitrobenzene	<2.0	--	mg/L	2.0 mg/L
Pentachlorophenol	<100	--	mg/L	100.0 mg/L
Pyridine	<5.0 S	--	mg/L	5.0 mg/L
Selenium	<1.0	--	mg/L	1.0 mg/L
Silver	<5.0	--	mg/L	5.0 mg/L
Tetrachloroethylene	<0.70	--	mg/L	0.7 mg/L
Trichloreoethylene	<0.50	--	mg/L	0.5 mg/L
2,4,5-Trichlorophenol	<400	--	mg/L	400.0 mg/L
2,4,6-Trichlorophenol	<2.0	--	mg/L	2.0 mg/L
Vinyl chloride	<0.20	--	mg/L	0.2 mg/L

Notes: su - standard units
°C - degrees Celcius
°F - degrees Farenheit
mV - millivolts
µmhos/cm - micromohs per centimeter
mg/L - milligrams per liter
H - Holding times for preparation or analysis exceeded
D - Sample diluted due to matrix
S - % Recovery outside of range due to dilution or matix

1.00	Concentration exeeds the Toxicity Characteristic Concer

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 23, 2019

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205
Farmington, NM 87401
TEL: (505) 325-1055
FAX

RE: Agua Moss Sunco Disposal 1 OrderNo.: 1909E10

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/24/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1909E10**
Date: **10/23/2019**

CLIENT: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Analytical Notes Regarding EPA Method 8270:
The Laboratory control spike (LCS) for pyridine had a low recovery when compared to the laboratory SOP.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1
Lab ID: 1909E10-001 **Matrix:** AQUEOUS

Client Sample ID: S-11 (09/23/19)
Collection Date: 9/23/2019 9:20:00 AM
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst:	**JME**
Chlordane	ND	0.030		mg/L	1	10/3/2019 3:22:57 PM	47778
Endrin	ND	0.020		mg/L	1	10/3/2019 3:22:57 PM	47778
gamma-BHC (Lindane)	ND	0.40		mg/L	1	10/3/2019 3:22:57 PM	47778
Heptachlor	ND	0.0080		mg/L	1	10/3/2019 3:22:57 PM	47778
Heptachlor epoxide	ND	0.0080		mg/L	1	10/3/2019 3:22:57 PM	47778
Methoxychlor	ND	10		mg/L	1	10/3/2019 3:22:57 PM	47778
Toxaphene	ND	0.50		mg/L	1	10/3/2019 3:22:57 PM	47778
Surr: Decachlorobiphenyl	64.6	29.4-99.8		%Rec	1	10/3/2019 3:22:57 PM	47778
Surr: Tetrachloro-m-xylene	112	20.7-100	S	%Rec	1	10/3/2019 3:22:57 PM	47778
EPA METHOD 8270C TCLP						Analyst:	**DAM**
2-Methylphenol	ND	200		mg/L	1	10/1/2019 5:30:39 PM	47803
3+4-Methylphenol	ND	200		mg/L	1	10/1/2019 5:30:39 PM	47803
2,4-Dinitrotoluene	ND	0.13		mg/L	1	10/1/2019 5:30:39 PM	47803
Hexachlorobenzene	ND	0.13		mg/L	1	10/1/2019 5:30:39 PM	47803
Hexachlorobutadiene	ND	0.50		mg/L	1	10/1/2019 5:30:39 PM	47803
Hexachloroethane	ND	3.0		mg/L	1	10/1/2019 5:30:39 PM	47803
Nitrobenzene	ND	2.0		mg/L	1	10/1/2019 5:30:39 PM	47803
Pentachlorophenol	ND	100		mg/L	1	10/1/2019 5:30:39 PM	47803
Pyridine	ND	5.0		mg/L	1	10/1/2019 5:30:39 PM	47803
2,4,5-Trichlorophenol	ND	400		mg/L	1	10/1/2019 5:30:39 PM	47803
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	10/1/2019 5:30:39 PM	47803
Cresols, Total	ND	200		mg/L	1	10/1/2019 5:30:39 PM	47803
Surr: 2-Fluorophenol	28.1	15-82.5		%Rec	1	10/1/2019 5:30:39 PM	47803
Surr: Phenol-d5	27.9	15-74.2		%Rec	1	10/1/2019 5:30:39 PM	47803
Surr: 2,4,6-Tribromophenol	52.1	18.6-118		%Rec	1	10/1/2019 5:30:39 PM	47803
Surr: Nitrobenzene-d5	45.0	30.4-106		%Rec	1	10/1/2019 5:30:39 PM	47803
Surr: 2-Fluorobiphenyl	43.1	15-104		%Rec	1	10/1/2019 5:30:39 PM	47803
Surr: 4-Terphenyl-d14	60.2	15-133		%Rec	1	10/1/2019 5:30:39 PM	47803

NOTES:
*See Case Narrative

SPECIFIC GRAVITY						Analyst:	**JRR**
Specific Gravity	1.016	0			1	10/17/2019 2:09:00 PM	R63759
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Fluoride	ND	2.0		mg/L	20	9/27/2019 1:38:39 PM	R63294
Chloride	12000	500		mg/L	1E+	10/7/2019 11:18:10 AM	R63492
Bromide	55	2.0		mg/L	20	9/27/2019 1:38:39 PM	R63294
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	9/27/2019 1:25:47 PM	R63294
Sulfate	ND	2.5		mg/L	5	9/27/2019 1:25:47 PM	R63294

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1
Lab ID: 1909E10-001 **Matrix:** AQUEOUS

Client Sample ID: S-11 (09/23/19)
Collection Date: 9/23/2019 9:20:00 AM
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Nitrate+Nitrite as N	ND	10		mg/L	50	10/7/2019 11:31:01 AM	R63492
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	36000	25		µmhos/c	5	10/3/2019 10:17:35 AM	R63435
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	780.0	20.00		mg/L Ca	1	10/1/2019 11:41:23 AM	R63331
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	10/1/2019 11:41:23 AM	R63331
Total Alkalinity (as CaCO3)	780.0	20.00		mg/L Ca	1	10/1/2019 11:41:23 AM	R63331
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**JMT**
Total Dissolved Solids	12000	100	*D	mg/L	1	9/30/2019 4:25:00 PM	47784
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	5.21		H	pH units	1	10/1/2019 11:41:23 AM	R63331
EPA METHOD 200.7: DISSOLVED METALS						Analyst:	**bcv**
Calcium	520	10		mg/L	10	10/15/2019 2:00:41 PM	A63726
Magnesium	50	1.0		mg/L	1	10/15/2019 1:58:33 PM	A63726
Potassium	120	10		mg/L	10	10/15/2019 2:00:41 PM	A63726
Sodium	7300	100		mg/L	100	10/15/2019 2:02:33 PM	A63726
EPA METHOD 7470: MERCURY						Analyst:	**rde**
Mercury	ND	0.020		mg/L	1	9/30/2019 4:45:48 PM	47814
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst:	**bcv**
Arsenic	ND	5.0		mg/L	10	10/21/2019 2:22:34 PM	47871
Barium	ND	100		mg/L	100	10/10/2019 4:27:39 PM	47871
Cadmium	ND	1.0		mg/L	2	10/8/2019 12:57:40 PM	47871
Chromium	ND	5.0		mg/L	2	10/8/2019 12:57:40 PM	47871
Lead	ND	5.0		mg/L	10	10/21/2019 2:22:34 PM	47871
Selenium	ND	1.0		mg/L	10	10/10/2019 4:22:43 PM	47871
Silver	ND	5.0		mg/L	2	10/8/2019 12:57:40 PM	47871
TCLP VOLATILES BY 8260B						Analyst:	**RAA**
Benzene	ND	0.50		mg/L	200	9/27/2019 10:31:00 PM	T63253
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	9/27/2019 10:31:00 PM	T63253
2-Butanone	ND	200		mg/L	200	9/27/2019 10:31:00 PM	T63253
Carbon Tetrachloride	ND	0.50		mg/L	200	9/27/2019 10:31:00 PM	T63253
Chloroform	ND	6.0		mg/L	200	9/27/2019 10:31:00 PM	T63253
1,4-Dichlorobenzene	ND	7.5		mg/L	200	9/27/2019 10:31:00 PM	T63253
1,1-Dichloroethene	ND	0.70		mg/L	200	9/27/2019 10:31:00 PM	T63253
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	9/27/2019 10:31:00 PM	T63253

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: S-11 (09/23/19)
Project: Agua Moss Sunco Disposal 1
Collection Date: 9/23/2019 9:20:00 AM
Lab ID: 1909E10-001
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Trichloroethene (TCE)	ND	0.50		mg/L	200	9/27/2019 10:31:00 PM	T63253
Vinyl chloride	ND	0.20		mg/L	200	9/27/2019 10:31:00 PM	T63253
Chlorobenzene	ND	100		mg/L	200	9/27/2019 10:31:00 PM	T63253
Surr: 1,2-Dichloroethane-d4	93.5	70-130		%Rec	200	9/27/2019 10:31:00 PM	T63253
Surr: 4-Bromofluorobenzene	99.0	70-130		%Rec	200	9/27/2019 10:31:00 PM	T63253
Surr: Dibromofluoromethane	96.3	70-130		%Rec	200	9/27/2019 10:31:00 PM	T63253
Surr: Toluene-d8	95.5	70-130		%Rec	200	9/27/2019 10:31:00 PM	T63253

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
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Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

October 04, 2019

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1143780

Samples Received: 09/27/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

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1909E10-001G S-11 (09/23/19) L1143780-01 GW

Collected by	Collected date/time	Received date/time
	09/23/19 09:20	09/27/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1355483	1	10/01/19 17:40	10/01/19 17:40	MJA	Mt. Juliet, TN

1909E10-001H S-11 (09/23/19) L1143780-02 WW

Collected by	Collected date/time	Received date/time
	09/23/19 09:20	09/27/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2011	WG1354514	1	09/30/19 12:40	09/30/19 18:49	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1353677	1	09/28/19 15:00	09/28/19 15:00	MSP	Mt. Juliet, TN
Wet Chemistry by Method 9034-9030B	WG1354516	2	09/30/19 11:54	09/30/19 11:54	MJA	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1357111	1	10/04/19 13:05	10/04/19 13:05	MJA	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Olivia Studebaker
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9012B.

All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	174	T8	1	10/01/2019 17:40	WG1355483

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.00571		0.00500	1	09/30/2019 18:49	WG1354514

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	5.21	T8	1	09/28/2019 15:00	WG1353677

Sample Narrative:

L1143780-02 WG1353677: 5.21 at 22C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	2.67		0.100	2	09/30/2019 11:54	WG1354516

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	10/04/2019 13:05	WG1357111

L1143780-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1143780-01 10/01/19 17:40 • (DUP) R3456540-2 10/01/19 17:40

Analyte	Original Result mV	DUP Result mV	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
ORP	174	175	1	0.573		20

Laboratory Control Sample (LCS)

(LCS) R3456540-1 10/01/19 17:40

Analyte	Spike Amount mV	LCS Result mV	LCS Rec. %	Rec. Limits %	LCS Qualifier
ORP	228	225	98.7	95.7-104	

Method Blank (MB)

(MB) R3456160-1 09/30/19 18:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

Laboratory Control Sample (LCS)

(LCS) R3456160-2 09/30/19 18:24

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.102	102	85.0-115	

L1143780-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1143780-02 09/28/19 15:00 • (DUP) R3455644-4 09/28/19 15:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
Corrosivity by pH	5.21	5.20	1	0.192		1

Sample Narrative:
OS: 5.21 at 22C
DUP: 5.2 at 22C

L1143969-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1143969-02 09/28/19 15:00 • (DUP) R3455644-14 09/28/19 15:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
Corrosivity by pH	5.66	5.64	1	0.354		1

Sample Narrative:
OS: 5.66 at 21.7C
DUP: 5.64 at 22.5C

Laboratory Control Sample (LCS)

(LCS) R3455644-1 09/28/19 15:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:
LCS: 9.99 at 21.7C

Method Blank (MB)

(MB) R3455920-1 09/30/19 11:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3455920-2 09/30/19 11:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.488	97.6	85.0-115	

L1143970-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1143970-01 10/04/19 13:05 • (DUP) R3457762-2 10/04/19 13:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	170	170	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3457762-1 10/04/19 13:05

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	deg F	deg F	%	%	
Flashpoint	82.0	82.5	101	96.0-104	

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

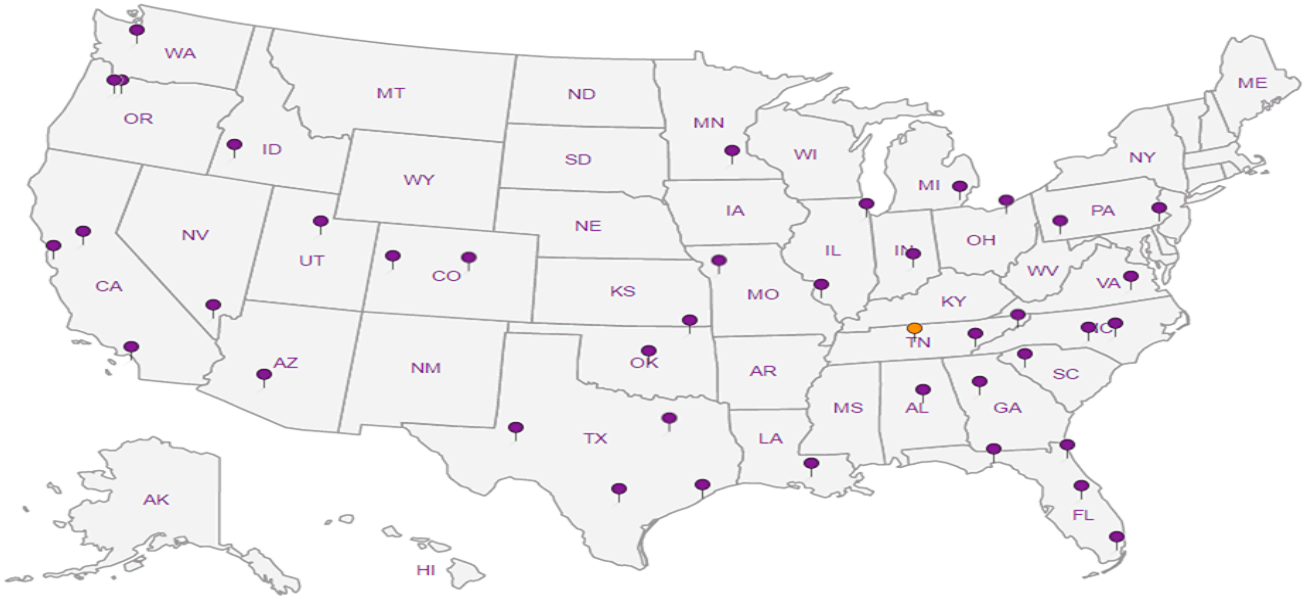
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

C010

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR: ESC PACE	COMPANY: ESC PACE	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1909E10-001G	5-11 (09/23/19)	125HDP	Aqueous	9/23/2019 9:20:00 AM	1	Oxidation Reduction Potential L1143780-01
2	1909E10-001H	5-11 (09/23/19)	500HDPE	Aqueous	9/23/2019 9:20:00 AM	3	RCI 712 02

RAD SCREEN: <0.5 mR/hr

Fedex 4510 1668 9881 4 containers

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
[illegible]	9/25/2019	11:09 AM	[illegible]	9/27/19	8:45
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☒ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples 3.9+0=3.9 AS CK Attempt to Cool ? _____

Comments: _____

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HALLENVANM	L1143780	
Cooler Received/Opened On: 9 /27 /19 Temperature:	3.9	
Received By: Adam Burns		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW** Batch ID: **A63726** RunNo: **63726**
Prep Date: Analysis Date: **10/15/2019** SeqNo: **2178013** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LLLCS** SampType: **LCSLL** TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC** Batch ID: **A63726** RunNo: **63726**
Prep Date: Analysis Date: **10/15/2019** SeqNo: **2178014** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	103	50	150			
Magnesium	ND	1.0	0.5000	0	102	50	150			
Potassium	ND	1.0	0.5000	0	111	50	150			
Sodium	ND	1.0	0.5000	0	92.6	50	150			

Sample ID: **LCS** SampType: **LCS** TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW** Batch ID: **A63726** RunNo: **63726**
Prep Date: Analysis Date: **10/15/2019** SeqNo: **2178015** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	85	115			
Magnesium	51	1.0	50.00	0	102	85	115			
Potassium	51	1.0	50.00	0	102	85	115			
Sodium	51	1.0	50.00	0	103	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R63294** RunNo: **63294**
Prep Date: Analysis Date: **9/27/2019** SeqNo: **2160136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R63294** RunNo: **63294**
Prep Date: Analysis Date: **9/27/2019** SeqNo: **2160137** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	108	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.8	90	110			
Sulfate	9.6	0.50	10.00	0	96.2	90	110			

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R63492** RunNo: **63492**
Prep Date: Analysis Date: **10/7/2019** SeqNo: **2169249** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R63492** RunNo: **63492**
Prep Date: Analysis Date: **10/7/2019** SeqNo: **2169250** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.1	90	110			
Nitrate+Nitrite as N	3.3	0.20	3.500	0	95.4	90	110			

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R63492** RunNo: **63492**
Prep Date: Analysis Date: **10/7/2019** SeqNo: **2169268** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R63492** RunNo: **63492**
Prep Date: Analysis Date: **10/7/2019** SeqNo: **2169269** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Nitrate+Nitrite as N	3.3	0.20	3.500	0	94.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-47778** SampType: **MBLK** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW** Batch ID: **47778** RunNo: **63412**
Prep Date: **9/27/2019** Analysis Date: **10/3/2019** SeqNo: **2165286** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0015		0.002500		61.2	29.4	99.8			
Surr: Tetrachloro-m-xylene	0.0013		0.002500		53.4	20.7	100			

Sample ID: **LCS-47778** SampType: **LCS** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW** Batch ID: **47778** RunNo: **63412**
Prep Date: **9/27/2019** Analysis Date: **10/3/2019** SeqNo: **2165287** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00041	0.00010	0.0005000	0	82.5	44.5	113			
gamma-BHC (Lindane)	0.00036	0.00010	0.0005000	0	72.7	38.2	107			
Heptachlor	0.00037	0.00010	0.0005000	0	74.0	36.4	105			
Heptachlor epoxide	0.00038	0.00010	0.0005000	0	77.0	40	111			
Methoxychlor	0.00039	0.00010	0.0005000	0	79.0	34.3	112			
Surr: Decachlorobiphenyl	0.0018		0.002500		73.3	29.4	99.8			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		63.1	20.7	100			

Sample ID: **1909E10-001CMS** SampType: **MS** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **S-11 (09/23/19)** Batch ID: **47778** RunNo: **63412**
Prep Date: **9/27/2019** Analysis Date: **10/3/2019** SeqNo: **2165289** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00055	0.00010	0.0005000	0	111	28.7	157			
gamma-BHC (Lindane)	0.00029	0.00010	0.0005000	0	58.8	32.3	162			
Heptachlor	0.00070	0.00010	0.0005000	0	139	29.6	161			
Heptachlor epoxide	0.00069	0.00010	0.0005000	0	139	32.9	155			
Methoxychlor	0.00059	0.00010	0.0005000	0	117	33.6	153			
Surr: Decachlorobiphenyl	0.0018		0.002500		71.9	29.4	99.8			
Surr: Tetrachloro-m-xylene	0.0031		0.002500		122	20.7	100			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **1909E10-001CMSD** SampType: **MSD** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **S-11 (09/23/19)** Batch ID: **47778** RunNo: **63412**
Prep Date: **9/27/2019** Analysis Date: **10/3/2019** SeqNo: **2165290** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00040	0.00010	0.0005000	0	79.1	28.7	157	33.2	20	R
gamma-BHC (Lindane)	0.00035	0.00010	0.0005000	0	69.4	32.3	162	16.4	20	
Heptachlor	0.00063	0.00010	0.0005000	0	127	29.6	161	9.38	20	
Heptachlor epoxide	0.00060	0.00010	0.0005000	0	121	32.9	155	14.0	20	
Methoxychlor	0.00042	0.00010	0.0005000	0	83.9	33.6	153	33.0	20	R
Surr: Decachlorobiphenyl	0.0016		0.002500		65.1	29.4	99.8	0	0	
Surr: Tetrachloro-m-xylene	0.0026		0.002500		104	20.7	100	0	0	S

Sample ID: **MB-47778** SampType: **MBLK** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW** Batch ID: **47778** RunNo: **63412**
Prep Date: **9/27/2019** Analysis Date: **10/3/2019** SeqNo: **2165333** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0016		0.002500		63.0	29.4	99.8			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.9	20.7	100			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW** Batch ID: **T63253** RunNo: **63253**
Prep Date: Analysis Date: **9/27/2019** SeqNo: **2160244** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.018	0.00017	0.02000	0	91.6	70	130			
1,1-Dichloroethene	0.018	0.00021	0.02000	0	89.0	70	130			
Trichloroethene (TCE)	0.018	0.00017	0.02000	0	88.5	70	130			
Chlorobenzene	0.019	0.00019	0.02000	0	95.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.0094		0.01000		94.2	70	130			
Surr: 4-Bromofluorobenzene	0.0097		0.01000		97.5	70	130			
Surr: Dibromofluoromethane	0.0096		0.01000		96.4	70	130			
Surr: Toluene-d8	0.0093		0.01000		93.1	70	130			

Sample ID: **rb** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW** Batch ID: **T63253** RunNo: **63253**
Prep Date: Analysis Date: **9/27/2019** SeqNo: **2160245** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0096		0.01000		95.7	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		98.8	70	130			
Surr: Dibromofluoromethane	0.0097		0.01000		97.2	70	130			
Surr: Toluene-d8	0.0094		0.01000		94.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **lcs-1 99.8uS eC** SampType: **lcs** TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW** Batch ID: **R63435** RunNo: **63435**
Prep Date: Analysis Date: **10/3/2019** SeqNo: **2166257** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	99.7	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-47814** SampType: **MBLK** TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW** Batch ID: **47814** RunNo: **63308**
Prep Date: **9/30/2019** Analysis Date: **9/30/2019** SeqNo: **2160459** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-47814** SampType: **LCS** TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW** Batch ID: **47814** RunNo: **63308**
Prep Date: **9/30/2019** Analysis Date: **9/30/2019** SeqNo: **2160460** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-47871** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47871** RunNo: **63528**
Prep Date: **10/1/2019** Analysis Date: **10/8/2019** SeqNo: **2170125** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47871** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47871** RunNo: **63528**
Prep Date: **10/1/2019** Analysis Date: **10/8/2019** SeqNo: **2170147** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.45	0.020	0.5000	0	89.1	80	120			
Cadmium	0.46	0.0020	0.5000	0	91.6	80	120			
Chromium	0.45	0.0060	0.5000	0	90.0	80	120			
Lead	0.47	0.0050	0.5000	0	93.7	80	120			
Selenium	0.46	0.050	0.5000	0	91.6	80	120			
Silver	0.093	0.0050	0.1000	0	93.4	80	120			

Sample ID: **1909E10-001FMS** SampType: **MS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **S-11 (09/23/19)** Batch ID: **47871** RunNo: **63528**
Prep Date: **10/1/2019** Analysis Date: **10/8/2019** SeqNo: **2170197** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.45	0.0040	0.5000	0	90.3	75	125			
Chromium	0.42	0.012	0.5000	0.008788	82.8	75	125			
Silver	0.096	0.010	0.1000	0	96.0	75	125			

Sample ID: **1909E10-001FMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **S-11 (09/23/19)** Batch ID: **47871** RunNo: **63528**
Prep Date: **10/1/2019** Analysis Date: **10/8/2019** SeqNo: **2170198** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.43	0.0040	0.5000	0	86.3	75	125	4.57	20	
Chromium	0.39	0.012	0.5000	0.008788	77.0	75	125	7.07	20	
Silver	0.094	0.010	0.1000	0	94.0	75	125	2.03	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-47871** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47871** RunNo: **63528**
Prep Date: **10/1/2019** Analysis Date: **10/8/2019** SeqNo: **2170238** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47871** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47871** RunNo: **63528**
Prep Date: **10/1/2019** Analysis Date: **10/8/2019** SeqNo: **2170240** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.45	0.020	0.5000	0	90.6	80	120			
Cadmium	0.47	0.0020	0.5000	0	93.4	80	120			
Chromium	0.46	0.0060	0.5000	0	92.4	80	120			
Selenium	0.44	0.050	0.5000	0	88.8	80	120			
Silver	0.093	0.0050	0.1000	0	93.4	80	120			

Sample ID: **MB-47871** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47871** RunNo: **63528**
Prep Date: **10/1/2019** Analysis Date: **10/8/2019** SeqNo: **2170260** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47871** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47871** RunNo: **63528**
Prep Date: **10/1/2019** Analysis Date: **10/8/2019** SeqNo: **2170262** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.5	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.4	80	120			
Chromium	0.48	0.0060	0.5000	0	96.1	80	120			
Lead	0.48	0.0050	0.5000	0	95.7	80	120			
Selenium	0.46	0.050	0.5000	0	91.4	80	120			
Silver	0.096	0.0050	0.1000	0	96.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-47871** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47871** RunNo: **63599**
Prep Date: **10/1/2019** Analysis Date: **10/10/2019** SeqNo: **2172996** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47871** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47871** RunNo: **63599**
Prep Date: **10/1/2019** Analysis Date: **10/10/2019** SeqNo: **2172998** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.020	0.5000	0	89.9	80	120			
Barium	0.45	0.020	0.5000	0	89.8	80	120			
Cadmium	0.43	0.0020	0.5000	0	86.8	80	120			
Chromium	0.43	0.0060	0.5000	0	86.8	80	120			
Lead	0.44	0.0050	0.5000	0	88.4	80	120			
Selenium	0.44	0.050	0.5000	0	88.0	80	120			
Silver	0.089	0.0050	0.1000	0	89.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **mb-1 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R63331** RunNo: **63331**
Prep Date: Analysis Date: **10/1/2019** SeqNo: **2163337** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R63331** RunNo: **63331**
Prep Date: Analysis Date: **10/1/2019** SeqNo: **2163338** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.56	20.00	80.00	0	98.2	90	110			

Sample ID: **mb-2 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R63331** RunNo: **63331**
Prep Date: Analysis Date: **10/1/2019** SeqNo: **2163360** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R63331** RunNo: **63331**
Prep Date: Analysis Date: **10/1/2019** SeqNo: **2163361** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.04	20.00	80.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **1909E10-001DDUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **S-11 (09/23/19)** Batch ID: **R63759** RunNo: **63759**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2179551** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.018	0						0.148	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909E10**
23-Oct-19

Client: Rule Engineering LLC
Project: Agua Moss Sunco Disposal 1

Sample ID: **MB-47784** SampType: **MBLK** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW** Batch ID: **47784** RunNo: **63316**
Prep Date: **9/27/2019** Analysis Date: **9/30/2019** SeqNo: **2160853** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-47784** SampType: **LCS** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW** Batch ID: **47784** RunNo: **63316**
Prep Date: **9/27/2019** Analysis Date: **9/30/2019** SeqNo: **2160854** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **RULE ENGINEERING LL** Work Order Number: **1909E10** RcptNo: **1**

Received By: **Erin Melendrez** **9/24/2019 8:10:00 AM**

Completed By: **Yazmine Garduno** **9/25/2019 10:30:02 AM**

Reviewed By: IO 9/26/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☑ ~~No ☑~~ DAD 9/26/19 NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH: 3:2 (<2 or >12 unless noted)
Adjusted? yes
Checked by: DAD 9/26/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks: For metals analysis added ~1.0mL. HNO_3 to sample 001F for pH<2.

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good				
2	3.6	Good				

Chain-of-Custody Record

Client: Rule Engineering

Mailing Address: 501 Airport Dr. Ste 205
Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Agua Moss Sunco Disposal #1

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

# of Coolers: 2

Cooler Temp (including CF): 1.1-0.2(CF)=0.9°C
3.8-0.2(CF)=3.6°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	See Attached
9/23/19	0920	~~H2O~~	5-11 (09/23/19)	(1)500mL Plastic	HNO_3	1909E10-001											X
				(1)500mL Plastic	NaOH												
				(1)500mL Plastic	Zinc acetate / NaOH												
				(2)500mL Plastic	Non												
				(1)125mL Plastic	H_2SO_4												
				(1)125mL Plastic	HNO_3 Filtered												
				(5)1L Amber Glass	Non												
				(3)40mL VOA	HCl												

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9/23/19	1704	Heather M. Woods	Christine Walker		9/23/19	1704
9/23/19	1811	Christine Walker		Courier	9/24/19	0810

Remarks:
Direct Bill to Agua Moss
Rates per Andy

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chavez, Carl J, EMNRD

From: Philana Thompson <pthompson@merrion.bz>
Sent: Tuesday, November 14, 2017 4:25 PM
To: Chavez, Carl J, EMNRD
Subject: 3rd Quarter Report Sunco Disposal #1
Attachments: Sunco monthly report 3rd QRT.pdf; IMG_5179.JPG; IMG_5180.JPG; IMG_9811.JPG; 171102 Sunco Disposal Well WQ Report Resample.pdf

Carl,
Attached is the 3rd QRT report.

--
Philana Thompson
Regulatory Compliance
Merrion Oil & Gas Corp
cell 505-486-1171
fax 505-324-5300

November 2, 2017

Ms. Shacie Murray
Agua Moss LLC
P.O. Box 600
Farmington, New Mexico 87499

Re: Sunco Disposal #1
Injection Water Quarterly Monitoring
3rd Quarter 2017

Dear Ms. Murray:

This report summarizes the sample collection, field screening, and laboratory analysis of the injection water at the Agua Moss LLC Sunco Disposal #1 well for the 3rd Quarter 2017. Injection water of the Class I Sunco Disposal #1 well is assessed on a quarterly basis in accordance with 20.6.5207(B) NMAC.

Field Activities
Rule Engineering, LLC (Rule) personnel collected one injection water sample (S-5) from the process line inside the pump building at the location on September 1, 2017. Injection water was discharged from the valve of the process line into a clean, 5-gallon bucket for field screening and transfer to laboratory sample containers.

Upon receipt of the laboratory results, it was discovered that the sample S-5 had not been analyzed for chlordane concentration and that benzene was reported in excess of the Toxicity Characteristic Concentrations per Table 1, 40 CFR 261.24(b). Therefore, an additional sample (S-5(R)) was collected for laboratory analysis on October 9, 2017.

Sample Collection and Field Screening Procedures
The injection water sample (S-5) was field screened for time sensitive parameters including pH, temperature, reduction potential (Eh), specific conductance, and total dissolved solids (TDS). Field screening was conducted utilizing a handheld water quality meter calibrated on the day of use with laboratory grade standards.

The sampled injection water was placed into laboratory supplied containers, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico.

Field Screening and Laboratory Analytical Results
The field screening and laboratory analytical results are summarized in the attached Table 1.

Benzene concentration for sample S-5 was reported as 1.1 mg/L, which exceeds the Toxicity Characteristic Concentration of 0.5 mg/L. The benzene concentration decreased to 0.36 mg/L in sample S-5(R).

QA/QC Considerations

Field measurements for time sensitive parameters including pH, temperature, reduction potential, and specific conductance more accurately reflect the characteristics of the injection water than laboratory results for these parameters due to their rapidly changing nature when removed from the stable environment of the process line. The hold time qualifier is indicated on the laboratory report for pH as the hold time of 15 minutes from collection was exceeded during transport prior to analysis. Similarly, the hold time was exceeded for reduction potential, phosphorus, and corrosivity by pH.

A dilution due to matrix qualifier is indicated on the laboratory report for total dissolved solids.

The recovery of a surrogate spike for chlordane was below the anticipated percentage range due to dilution or matrix interference.

Closure and Limitations

This report is prepared for the exclusive use of Agua Moss LLC and is subject to the terms, conditions, and limitations stated in Rule's report and Service Agreement with Agua Moss LLC. All work has been performed in accordance with generally accepted professional environmental consulting practices. No other warranty is expressed or implied.

Rule Engineering appreciates the opportunity to provide services to Agua Moss LLC. If you have any questions, please contact me at (505) 325-1055.

Sincerely,
Rule Engineering, LLC

Heather M. Woods

Heather M. Woods, P.G.
Area Manager/Geologist

Attachments:

Table 1. Summary of Field Screening and Laboratory Analytical Results
Laboratory Analytical Reports (Hall: 1709101 and 1710519)

Table 1. Summary of Field Screening and Laboratory Analytical Results

Sample ID	S-5		S-5(R)		
Collection Date	9/1/2017		10/9/2017	Units	Toxicity Characteristic Concentrations
Analyte	Laboratory Results	Field Results	Laboratory Results		
pH	7.62 H	7.44	--	su	
Temperature	--	26.1	--	°C	
Reduction Potential	-330 H	-400	--	mV	
Specific Conductance	25,000	27,412	--	µmhos/cm	
Specific Gravity	1.012	--	--		
Total Dissolved Solids	16,300 D	17,803	--	mg/L	
Bicarbonate (As $CaCO_3$)	1,005	--	--	mg/L	
Carbonate (As $CaCO_3$)	<2.000	--	--	mg/L	
Flouride	<0.50	--	--	mg/L	
Chloride	8,800	--	--	mg/L	
Bromide	47	--	--	mg/L	
Phosphorus, Orthophosphate	<2.5 H	--	--	mg/L	
Sulfate	200	--	--	mg/L	
Nitrate + Nitrite (as N)	<10	--	--	mg/L	
Calcium	1,200	--	--	mg/L	
Magnesium	88	--	--	mg/L	
Potassium	260	--	--	mg/L	
Sodium	4,700	--	--	mg/L	
Reactive Cyanide	<0.125	--	--	mg/L	
Reactive Sulfide	0.885	--	--	mg/L	
Flashpoint	Did not flash at 170°F	--	--		
Corrosivity by pH	7.57 H	--	--	su	
Arsenic	<5.0	--	--	mg/L	5.0 mg/L
Barium	<500	--	--	mg/L	100.0 mg/L
Benzene	**1.1**	--	0.36	mg/L	0.5 mg/L
Cadmium	<1.0	--	--	mg/L	1.0 mg/L
Carbon tetrachloride	<0.50	--	--	mg/L	0.5 mg/L
Chlordane	--	--	<0.010 S	mg/L	0.03 mg/L
Chlorobenzene	<100	--	--	mg/L	100.0 mg/L
Chloroform	<6.0	--	--	mg/L	6.0 mg/L
Chromium	<5.0	--	--	mg/L	5.0 mg/L
Cresols, Total	<200	--	--	mg/L	200 mg/L
1,4-Dichlorobenzene	<7.5	--	--	mg/L	7.5 mg/L
1,2-Dichloroethane	<0.50	--	--	mg/L	0.5 mg/L
1,1-Dichloroethene	<0.70	--	--	mg/L	0.7 mg/L
2,4-Dinitroltoluene	<0.13	--	--	mg/L	0.13 mg/L
Hexachlorobenzene	<0.13	--	--	mg/L	0.13 mg/L
Hexachlorobutadiene	<0.50	--	--	mg/L	0.5 mg/L
Hexachloroethane	<3.0	--	--	mg/L	3.0 mg/L
Lead	<5.0	--	--	mg/L	5.0 mg/L
Mercury	<0.0010	--	--	mg/L	0.2 mg/L
Methyl ethyl ketone	<200	--	--	mg/L	200.0 mg/L
Nitrobenzene	<2.0	--	--	mg/L	2.0 mg/L
Pentachlorophenol	<100	--	--	mg/L	100.0 mg/L
Pyridine	<5.0	--	--	mg/L	5.0 mg/L
Selenium	<1.0	--	--	mg/L	1.0 mg/L
Silver	<5.0	--	--	mg/L	5.0 mg/L
Tetrachloroethylene	<0.70	--	--	mg/L	0.7 mg/L
Trichloreoethylene	<0.50	--	--	mg/L	0.5 mg/L
2,4,5-Trichlorophenol	<400	--	--	mg/L	400.0 mg/L
2,4,6-Trichlorophenol	<2.0	--	--	mg/L	2.0 mg/L
Vinyl chloride	<0.20	--	--	mg/L	0.2 mg/L

Notes: su - standard units
°C - degrees Celcius
°F - degrees Farenheit
mV - millivolts
µmhos/cm - micromohs per centimeter
mg/L - milligrams per liter
H - Holding times for preparation or analysis exceeded
D - Sample diluted due to matrix
S - % Recovery outside of range due to dilution or matix

1.00 Concentration exeeds the Toxicity Characteristic Concentration

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 03, 2017

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205
Farmington, NM 87401
TEL: (505) 325-1055
FAX

RE: Sunco Disposal 1 OrderNo.: 1709101

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/2/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1709101**
Date Reported: **10/3/2017**

CLIENT: Rule Engineering LLC
Client Sample ID: S-5 (9/1/17)
Project: Sunco Disposal 1
Collection Date: 9/1/2017 9:20:00 AM
Lab ID: 1709101-001
Matrix: AQUEOUS
Received Date: 9/2/2017 12:50:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C TCLP						Analyst:	**DAM**
2-Methylphenol	ND	200		mg/L	1	9/19/2017 11:13:41 AM	33765
3+4-Methylphenol	ND	200		mg/L	1	9/19/2017 11:13:41 AM	33765
Phenol	ND	200		mg/L	1	9/19/2017 11:13:41 AM	33765
2,4-Dinitrotoluene	ND	0.13		mg/L	1	9/19/2017 11:13:41 AM	33765
Hexachlorobenzene	ND	0.13		mg/L	1	9/19/2017 11:13:41 AM	33765
Hexachlorobutadiene	ND	0.50		mg/L	1	9/19/2017 11:13:41 AM	33765
Hexachloroethane	ND	3.0		mg/L	1	9/19/2017 11:13:41 AM	33765
Nitrobenzene	ND	2.0		mg/L	1	9/19/2017 11:13:41 AM	33765
Pentachlorophenol	ND	100		mg/L	1	9/19/2017 11:13:41 AM	33765
Pyridine	ND	5.0		mg/L	1	9/19/2017 11:13:41 AM	33765
2,4,5-Trichlorophenol	ND	400		mg/L	1	9/19/2017 11:13:41 AM	33765
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	9/19/2017 11:13:41 AM	33765
Cresols, Total	ND	200		mg/L	1	9/19/2017 11:13:41 AM	33765
Surr: 2-Fluorophenol	42.1	15-124		%Rec	1	9/19/2017 11:13:41 AM	33765
Surr: Phenol-d5	33.8	15-118		%Rec	1	9/19/2017 11:13:41 AM	33765
Surr: 2,4,6-Tribromophenol	79.6	15-148		%Rec	1	9/19/2017 11:13:41 AM	33765
Surr: Nitrobenzene-d5	72.2	40.6-124		%Rec	1	9/19/2017 11:13:41 AM	33765
Surr: 2-Fluorobiphenyl	69.0	35.7-128		%Rec	1	9/19/2017 11:13:41 AM	33765
Surr: 4-Terphenyl-d14	64.3	18.8-115		%Rec	1	9/19/2017 11:13:41 AM	33765
SPECIFIC GRAVITY						Analyst:	**JRR**
Specific Gravity	1.012	0			1	9/7/2017 1:10:00 PM	R45481
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Fluoride	ND	0.50		mg/L	5	9/7/2017 5:14:31 PM	R45505
Chloride	8800	250		mg/L	500	9/21/2017 10:11:53 PM	A45821
Bromide	47	0.50		mg/L	5	9/7/2017 5:14:31 PM	R45505
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	9/7/2017 5:14:31 PM	R45505
Sulfate	200	10		mg/L	20	9/7/2017 5:26:56 PM	R45505
Nitrate+Nitrite as N	ND	10		mg/L	50	9/22/2017 9:03:19 PM	R45820
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	25000	25		µmhos/cm	5	9/13/2017 3:10:46 PM	R45647
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	1005	20.00		mg/L CaCO3	1	9/7/2017 6:09:28 PM	R45511
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	9/7/2017 6:09:28 PM	R45511
Total Alkalinity (as CaCO3)	1005	20.00		mg/L CaCO3	1	9/7/2017 6:09:28 PM	R45511
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	16300	200	*D	mg/L	1	9/8/2017 3:03:00 PM	33751

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Sunco Disposal 1
Lab ID: 1709101-001 **Matrix:** AQUEOUS

Client Sample ID: S-5 (9/1/17)
Collection Date: 9/1/2017 9:20:00 AM
Received Date: 9/2/2017 12:50:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B: PH						Analyst:	**JRR**
pH	7.62		H	pH units	1	9/7/2017 6:09:28 PM	R45511
EPA METHOD 7470: MERCURY						Analyst:	**DBK**
Mercury	ND	0.0010		mg/L	5	9/15/2017 6:48:58 PM	33892
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst:	**MED**
Arsenic	ND	5.0		mg/L	1	9/28/2017 1:33:09 PM	34004
Barium	ND	500		mg/L	5	9/28/2017 1:12:42 PM	34004
Cadmium	ND	1.0		mg/L	1	9/28/2017 1:33:09 PM	34004
Calcium	1200	20		mg/L	20	9/24/2017 12:35:22 PM	34004
Chromium	ND	5.0		mg/L	1	9/28/2017 1:33:09 PM	34004
Lead	ND	5.0		mg/L	1	9/28/2017 1:33:09 PM	34004
Magnesium	88	5.0		mg/L	5	9/24/2017 12:38:18 PM	34004
Potassium	260	5.0		mg/L	5	9/24/2017 12:38:18 PM	34004
Selenium	ND	1.0		mg/L	1	9/28/2017 1:33:09 PM	34004
Silver	ND	5.0		mg/L	1	9/28/2017 1:33:09 PM	34004
Sodium	4700	100		mg/L	100	9/22/2017 10:32:07 AM	34004
TCLP VOLATILES BY 8260B						Analyst:	**RAA**
Benzene	1.1	0.50		mg/L	200	9/7/2017 4:47:00 PM	T45499
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	9/7/2017 4:47:00 PM	T45499
2-Butanone	ND	200		mg/L	200	9/7/2017 4:47:00 PM	T45499
Carbon Tetrachloride	ND	0.50		mg/L	200	9/7/2017 4:47:00 PM	T45499
Chloroform	ND	6.0		mg/L	200	9/7/2017 4:47:00 PM	T45499
1,4-Dichlorobenzene	ND	7.5		mg/L	200	9/7/2017 4:47:00 PM	T45499
1,1-Dichloroethene	ND	0.70		mg/L	200	9/7/2017 4:47:00 PM	T45499
Hexachlorobutadiene	ND	0.50		mg/L	200	9/7/2017 4:47:00 PM	T45499
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	9/7/2017 4:47:00 PM	T45499
Trichloroethene (TCE)	ND	0.50		mg/L	200	9/7/2017 4:47:00 PM	T45499
Vinyl chloride	ND	0.20		mg/L	200	9/7/2017 4:47:00 PM	T45499
Chlorobenzene	ND	100		mg/L	200	9/7/2017 4:47:00 PM	T45499
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	200	9/7/2017 4:47:00 PM	T45499
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	200	9/7/2017 4:47:00 PM	T45499
Surr: Dibromofluoromethane	102	70-130		%Rec	200	9/7/2017 4:47:00 PM	T45499
Surr: Toluene-d8	93.5	70-130		%Rec	200	9/7/2017 4:47:00 PM	T45499

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	-330	T8	1	09/13/2017 17:07	WG1020084

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Reactive Cyanide	ND		0.125	25	09/15/2017 15:58	WG1020968

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Reactive Sulfide	0.885		0.0500	1	09/08/2017 19:11	WG1018341

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
Corrosivity by pH	7.57	T8	1	09/13/2017 13:52	WG1019240

Sample Narrative:

L934899-01 WG1019240: 7.57 at 18.1c

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	deg F				
Flashpoint	DNF at 170		1	09/11/2017 22:00	WG1018446

L935854-01 Original Sample (OS) • Duplicate (DUP)

(OS) L935854-01 09/13/17 17:07 • (DUP) WG1020084-3 09/13/17 17:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mV	mV		%		%
ORP	-102	-102	1	0.000	T8	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG1020084-1 09/13/17 17:07 • (LCSD) WG1020084-2 09/13/17 17:07

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mV	mV	mV	%	%	%			%	%
ORP	228	229	229	100	100	90.0-110			0.000	20

WG1020968

Wet Chemistry by Method 4500 CN E-2011

QUALITY CONTROL SUMMARY

L934899-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3249718-1 09/15/17 15:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.0018	0.00500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3249718-2 09/15/17 15:54 • (LCSD) R3249718-3 09/15/17 15:55

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.0978	0.111	98	111	85-115			13	20

WG1018341

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L934899-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3248007-1 09/08/17 19:04

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Reactive Sulfide	U		0.0065	0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3248007-2 09/08/17 19:04 • (LCSD) R3248007-3 09/08/17 19:05

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Reactive Sulfide	0.500	0.520	0.503	104	101	85-115			3	20

L934899-01 Original Sample (OS) • Duplicate (DUP)

(OS) L934899-01 09/13/17 13:52 • (DUP) WG1019240-3 09/13/17 13:52

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
Corrosivity by pH	7.57	7.57	1	0.000	T8	1

Sample Narrative:
OS: 7.57 at 18.1c
DUP: 7.57 at 18.1c

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG1019240-1 09/13/17 13:52 • (LCSD) WG1019240-2 09/13/17 13:52

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	su	su	su	%	%	%			%	%
Corrosivity by pH	10.0	10.0	10.0	100	100	98.4-102			0.000	1

Sample Narrative:
LCS: 10.00 at 19.9c
LCSD: 10.01 at 20.0c

L935017-03 Original Sample (OS) • Duplicate (DUP)

(OS) L935017-03 09/11/17 22:00 • (DUP) R3248435-3 09/11/17 22:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3248435-1 09/11/17 22:00 • (LCSD) R3248435-2 09/11/17 22:00

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	82.0	80.7	80.9	98.0	99.0	96.0-104			0.000	10

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R45505** RunNo: **45505**
Prep Date: Analysis Date: **9/7/2017** SeqNo: **1442411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.100								
Bromide	ND	0.100								
Phosphorus, Orthophosphate (As P	ND	0.500								
Sulfate	ND	0.500								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R45505** RunNo: **45505**
Prep Date: Analysis Date: **9/7/2017** SeqNo: **1442412** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.545	0.100	0.5000	0	109	90	110			
Bromide	2.39	0.100	2.500	0	95.6	90	110			
Phosphorus, Orthophosphate (As P	4.64	0.500	5.000	0	92.8	90	110			
Sulfate	9.43	0.500	10.00	0	94.3	90	110			

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **A45821** RunNo: **45821**
Prep Date: Analysis Date: **9/21/2017** SeqNo: **1456045** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **A45821** RunNo: **45821**
Prep Date: Analysis Date: **9/21/2017** SeqNo: **1456046** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.5	90	110			

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R45820** RunNo: **45820**
Prep Date: Analysis Date: **9/22/2017** SeqNo: **1456612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**			
Client ID: **LCSW**	Batch ID: **R45820**	RunNo: **45820**			
Prep Date:	Analysis Date: **9/22/2017**	SeqNo: **1456613**	Units: **mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.5	0.20	3.500	0	98.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW** Batch ID: **T45499** RunNo: **45499**
Prep Date: Analysis Date: **9/7/2017** SeqNo: **1442202** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.021	0.010	0.02000	0	103	70	130			
1,1-Dichloroethene	0.022	0.010	0.02000	0	108	70	130			
Trichloroethene (TCE)	0.021	0.010	0.02000	0	103	70	130			
Chlorobenzene	0.020	0.010	0.02000	0	99.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		101	70	130			
Surr: 4-Bromofluorobenzene	0.0097		0.01000		96.7	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		99.8	70	130			
Surr: Toluene-d8	0.0094		0.01000		94.3	70	130			

Sample ID **rb** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW** Batch ID: **T45499** RunNo: **45499**
Prep Date: Analysis Date: **9/7/2017** SeqNo: **1442203** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0099		0.01000		98.9	70	130			
Surr: 4-Bromofluorobenzene	0.0096		0.01000		95.6	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		99.9	70	130			
Surr: Toluene-d8	0.0093		0.01000		93.5	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID **1709101-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**
Client ID: **S-5 (9/1/17)** Batch ID: **33765** RunNo: **45731**
Prep Date: **9/8/2017** Analysis Date: **9/19/2017** SeqNo: **1452210** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.059	0.0010	0.1000	0	59.0	23.9	129			
3+4-Methylphenol	0.12	0.0010	0.2000	0	61.3	15	167			
2,4-Dinitrotoluene	0.052	0.0010	0.1000	0	51.6	15	147			
Hexachlorobenzene	0.061	0.0010	0.1000	0	61.0	41.4	136			
Hexachlorobutadiene	0.052	0.0010	0.1000	0	52.1	16.2	134			
Hexachloroethane	0.044	0.0010	0.1000	0	44.3	20.6	124			
Nitrobenzene	0.064	0.0010	0.1000	0	64.1	39.5	134			
Pentachlorophenol	0.043	0.0010	0.1000	0	42.7	15	137			
Pyridine	0.030	0.0010	0.1000	0	30.0	15	129			
2,4,5-Trichlorophenol	0.072	0.0010	0.1000	0	71.6	15	158			
2,4,6-Trichlorophenol	0.060	0.0010	0.1000	0	60.5	15	153			
Cresols, Total	0.18	0.0010	0.3000	0	60.6	10.6	179			
Surr: 2-Fluorophenol	0.083		0.2000		41.5	15	124			
Surr: Phenol-d5	0.069		0.2000		34.3	15	118			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		61.9	15	148			
Surr: Nitrobenzene-d5	0.071		0.1000		71.3	40.6	124			
Surr: 2-Fluorobiphenyl	0.061		0.1000		61.3	35.7	128			
Surr: 4-Terphenyl-d14	0.056		0.1000		56.1	18.8	115			

Sample ID **1709101-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**
Client ID: **S-5 (9/1/17)** Batch ID: **33765** RunNo: **45731**
Prep Date: **9/8/2017** Analysis Date: **9/19/2017** SeqNo: **1452211** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.063	0.0010	0.1000	0	62.6	23.9	129	5.95	20	
3+4-Methylphenol	0.13	0.0010	0.2000	0	66.4	15	167	7.89	20	
2,4-Dinitrotoluene	0.058	0.0010	0.1000	0	58.5	15	147	12.5	23.2	
Hexachlorobenzene	0.070	0.0010	0.1000	0	70.1	41.4	136	13.8	20	
Hexachlorobutadiene	0.061	0.0010	0.1000	0	60.8	16.2	134	15.4	20	
Hexachloroethane	0.049	0.0010	0.1000	0	49.2	20.6	124	10.4	31.3	
Nitrobenzene	0.076	0.0010	0.1000	0	75.9	39.5	134	16.9	26.6	
Pentachlorophenol	0.042	0.0010	0.1000	0	42.3	15	137	1.13	27.9	
Pyridine	0.010	0.0010	0.1000	0	10.2	15	129	98.3	47.4	RS
2,4,5-Trichlorophenol	0.080	0.0010	0.1000	0	80.3	15	158	11.4	36.9	
2,4,6-Trichlorophenol	0.071	0.0010	0.1000	0	71.3	15	153	16.4	37.2	
Cresols, Total	0.20	0.0010	0.3000	0	65.1	10.6	179	7.27	27.4	
Surr: 2-Fluorophenol	0.091		0.2000		45.4	15	124	0	0	
Surr: Phenol-d5	0.072		0.2000		36.0	15	118	0	0	
Surr: 2,4,6-Tribromophenol	0.14		0.2000		68.2	15	148	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID **1709101-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**
Client ID: **S-5 (9/1/17)** Batch ID: **33765** RunNo: **45731**
Prep Date: **9/8/2017** Analysis Date: **9/19/2017** SeqNo: **1452211** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.081		0.1000		81.4	40.6	124	0	0	
Surr: 2-Fluorobiphenyl	0.073		0.1000		72.6	35.7	128	0	0	
Surr: 4-Terphenyl-d14	0.064		0.1000		64.2	18.8	115	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID **MB-33892** SampType: **MBLK** TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW** Batch ID: **33892** RunNo: **45662**
Prep Date: **9/15/2017** Analysis Date: **9/15/2017** SeqNo: **1449239** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-33892** SampType: **LCS** TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW** Batch ID: **33892** RunNo: **45662**
Prep Date: **9/15/2017** Analysis Date: **9/15/2017** SeqNo: **1449240** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.1	80	120			

Sample ID **1709101-001DMS** SampType: **MS** TestCode: **EPA Method 7470: Mercury**
Client ID: **S-5 (9/1/17)** Batch ID: **33892** RunNo: **45662**
Prep Date: **9/15/2017** Analysis Date: **9/15/2017** SeqNo: **1449249** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0039	0.0010	0.005000	0.0001995	73.2	75	125			S

Sample ID **1709101-001DMSD** SampType: **MSD** TestCode: **EPA Method 7470: Mercury**
Client ID: **S-5 (9/1/17)** Batch ID: **33892** RunNo: **45662**
Prep Date: **9/15/2017** Analysis Date: **9/15/2017** SeqNo: **1449250** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0039	0.0010	0.005000	0.0001995	74.0	75	125	1.05	20	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID **MB-34004** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **34004** RunNo: **45798**
Prep Date: **9/21/2017** Analysis Date: **9/22/2017** SeqNo: **1455670** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID **LCS-34004** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **34004** RunNo: **45798**
Prep Date: **9/21/2017** Analysis Date: **9/22/2017** SeqNo: **1455671** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	104	80	120			
Barium	0.49	0.020	0.5000	0	98.4	80	120			
Cadmium	0.48	0.0020	0.5000	0	95.9	80	120			
Calcium	50	1.0	50.00	0	101	80	120			
Chromium	0.49	0.0060	0.5000	0	98.0	80	120			
Lead	0.48	0.0050	0.5000	0	95.1	80	120			
Magnesium	50	1.0	50.00	0	99.2	80	120			
Potassium	48	1.0	50.00	0	95.4	80	120			
Selenium	0.47	0.050	0.5000	0	94.6	80	120			
Silver	0.097	0.0050	0.1000	0	97.5	80	120			
Sodium	49	1.0	50.00	0	97.2	80	120			

Sample ID **1709101-001DMS** SampType: **MS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **S-5 (9/1/17)** Batch ID: **34004** RunNo: **45960**
Prep Date: **9/21/2017** Analysis Date: **9/28/2017** SeqNo: **1461674** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.62	0.020	0.5000	0.1127	102	75	125			
Cadmium	0.50	0.0020	0.5000	0	99.9	75	125			
Chromium	0.49	0.0060	0.5000	0.01869	93.8	75	125			
Lead	0.45	0.0050	0.5000	0	89.8	75	125			
Selenium	0.23	0.050	0.5000	0	46.8	75	125			S
Silver	0.11	0.0050	0.1000	0	110	75	125			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID **1709101-001DMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **S-5 (9/1/17)** Batch ID: **34004** RunNo: **45960**
Prep Date: **9/21/2017** Analysis Date: **9/28/2017** SeqNo: **1461678** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.59	0.020	0.5000	0	118	75	125	4.96	20	
Cadmium	0.46	0.0020	0.5000	0	91.2	75	125	9.07	20	
Chromium	0.45	0.0060	0.5000	0.01869	85.6	75	125	8.78	20	
Lead	0.41	0.0050	0.5000	0	82.5	75	125	8.50	20	
Selenium	0.20	0.050	0.5000	0	40.4	75	125	14.7	20	S
Silver	0.10	0.0050	0.1000	0	101	75	125	8.61	20	

Sample ID **1709101-001DPS** SampType: **PS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **S-5 (9/1/17)** Batch ID: **34004** RunNo: **45960**
Prep Date: Analysis Date: **9/28/2017** SeqNo: **1461679** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.41	0.050	0.5000	0	82.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID	**mb-1**	SampType:	**MBLK**		TestCode:	**SM2320B: Alkalinity**				
Client ID:	**PBW**	Batch ID:	**R45511**		RunNo:	**45511**				
Prep Date:		Analysis Date:	**9/7/2017**		SeqNo:	**1442538**	Units:	**mg/L CaCO3**		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		ND	20.00								

Sample ID	**lcs-1**	SampType:	**LCS**		TestCode:	**SM2320B: Alkalinity**				
Client ID:	**LCSW**	Batch ID:	**R45511**		RunNo:	**45511**				
Prep Date:		Analysis Date:	**9/7/2017**		SeqNo:	**1442539**	Units:	**mg/L CaCO3**		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		79.12	20.00	80.00	0	98.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID	**1709101-001CDUP**	SampType:	**DUP**		TestCode:	**Specific Gravity**				
Client ID:	**S-5 (9/1/17)**	Batch ID:	**R45481**		RunNo:	**45481**				
Prep Date:		Analysis Date:	**9/7/2017**		SeqNo:	**1441598**	Units:			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity		1.008	0						0.337	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1709101**
03-Oct-17

Client: Rule Engineering LLC
Project: Sunco Disposal 1

Sample ID **MB-33751**	SampType: **MBLK**		TestCode: **SM2540C MOD: Total Dissolved Solids**		
Client ID: **PBW**	Batch ID: **33751**		RunNo: **45510**		
Prep Date: **9/7/2017**	Analysis Date: **9/8/2017**		SeqNo: **1442510**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-33751**	SampType: **LCS**		TestCode: **SM2540C MOD: Total Dissolved Solids**		
Client ID: **LCSW**	Batch ID: **33751**		RunNo: **45510**		
Prep Date: **9/7/2017**	Analysis Date: **9/8/2017**		SeqNo: **1442511**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: RULE ENGINEERING LL Work Order Number: 1709101 RcptNo: 1

Received By: Andy Freeman 9/2/2017 12:50:00 PM
Completed By: Ashley Gallegos 9/6/2017 1:04:14 PM
Reviewed By: ENM 9/6/17

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH: 1; 2
(2 or >12 unless noted)
Adjusted? NO
Checked by: SPC

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering LLC

Mailing Address: 501 Airport Dr., Ste 205
Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Sunco Disposal #1

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

Sample Temperature: 4.6°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1709101	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_2,NO_3,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	X See Attached				Air Bubbles (Y or N)
9/1/17	0920	Water	S-5 (9/1/17)	(1) 500 mL Plastic	HNO_3	-001												X				
				(1) 500 mL Plastic	NaOH	-001																
				(1) 500 mL Plastic	Zinc Acetate / NaOH	-001																
				(2) 500 mL Plastic	Non	-001																
				(1) 125 mL Plastic	H_2SO_4	-001																
				(1) 125 mL Plastic	HNO_3 Filtered	-001																
				(5) 1 L Amber Glass	Non	-001																
				(3) 40 mL VOA	HCl	-001																

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/1/17	1710	Heather M. Woods	[signature]	9/1/17	1710
9/1/17	1821	[signature]	[signature]	9/2/17	1250

Remarks: Direct Bill to Agua Moss - Rates per Andy
See Attached Pages (2)

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA HW No.	**Contaminant**	**SW-846 Methods**	**Regulatory Level (mg/L)**
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03
D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0

D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0

D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/L.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If metals (dissolved), the EPA 1311 TCLP Laboratory Method is required with the exception of Mercury (total).

ADDTIONALLY:

RCI, specific conductance, specific gravity, ORP, and general water quality parameters (general chemistry/cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, total dissolved solids, cation/anion balance, pH, and bromide) using the methods specified at 40 CFR 136.3.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205
Farmington, NM 87401
TEL: (505) 325-1055
FAX:

RE: Agua Moss Sunco Disposal #1 OrderNo.: 1710519

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/10/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1710519**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Agua Moss Sunco Disposal #1
Lab ID: 1710519-001 **Matrix:** AQUEOUS

Client Sample ID: S-5 (R)(10/9/17)
Collection Date: 10/9/2017 12:33:00 PM
Received Date: 10/10/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES						Analyst: **MAB**	
Chlordane	ND	0.010		mg/L	1	10/13/2017 12:47:29 PM	34376
Surr: Decachlorobiphenyl	40.4	57.8-124	S	%Rec	1	10/13/2017 12:47:29 PM	34376
Surr: Tetrachloro-m-xylene	49.5	43-114		%Rec	1	10/13/2017 12:47:29 PM	34376
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.36	0.020		mg/L	20	10/11/2017 3:05:58 PM	B46259
Toluene	1.6	0.020		mg/L	20	10/11/2017 3:05:58 PM	B46259
Ethylbenzene	0.1	0.020		mg/L	20	10/11/2017 3:05:58 PM	B46259
Xylenes, Total	1.1	0.040		mg/L	20	10/11/2017 3:05:58 PM	B46259
Surr: 4-Bromofluorobenzene	98.1	72.5-140		%Rec	20	10/11/2017 3:05:58 PM	B46259

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710519**

02-Nov-17

Client: Rule Engineering LLC

Project: Agua Moss Sunco Disposal #1

Sample ID: **RB** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBW** Batch ID: **B46259** RunNo: **46259**

Prep Date: Analysis Date: **10/11/2017** SeqNo: **1474047** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	19		20.00		95.3	72.5	140			

Sample ID: **100NG BTEX LCS** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSW** Batch ID: **B46259** RunNo: **46259**

Prep Date: Analysis Date: **10/11/2017** SeqNo: **1474048** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.9	71.7	126			
Toluene	19	1.0	20.00	0	92.7	73.3	119			
Ethylbenzene	19	1.0	20.00	0	95.1	80	120			
Xylenes, Total	57	2.0	60.00	0	95.3	80	120			
Surr: 4-Bromofluorobenzene	20		20.00		99.5	72.5	140			

Sample ID: **1710519-001AMS** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **S-5 (R)(10/9/17)** Batch ID: **B46259** RunNo: **46259**

Prep Date: Analysis Date: **10/11/2017** SeqNo: **1474050** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	760	20	400.0	363.4	99.0	62.3	126			
Toluene	2000	20	400.0	1573	98.4	48.8	134			
Ethylbenzene	500	20	400.0	99.96	99.3	44.4	142			
Xylenes, Total	2300	40	1200	1076	104	55.7	129			
Surr: 4-Bromofluorobenzene	400		400.0		99.1	72.5	140			

Sample ID: **1710519-001AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **S-5 (R)(10/9/17)** Batch ID: **B46259** RunNo: **46259**

Prep Date: Analysis Date: **10/11/2017** SeqNo: **1474051** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	740	20	400.0	363.4	94.7	62.3	126	2.31	20	
Toluene	1900	20	400.0	1573	90.9	48.8	134	1.55	20	
Ethylbenzene	490	20	400.0	99.96	96.7	44.4	142	2.11	20	
Xylenes, Total	2300	40	1200	1076	97.9	55.7	129	3.00	20	
Surr: 4-Bromofluorobenzene	390		400.0		97.5	72.5	140	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710519**

02-Nov-17

Client: Rule Engineering LLC

Project: Agua Moss Sunco Disposal #1

Sample ID: **MB-34376** SampType: **MBLK** TestCode: **EPA Method 8081: PESTICIDES**

Client ID: **PBW** Batch ID: **34376** RunNo: **46352**

Prep Date: **10/12/2017** Analysis Date: **10/13/2017** SeqNo: **1476481** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	1.0								
Surr: Decachlorobiphenyl	1.6		2.500		62.3	57.8	124			
Surr: Tetrachloro-m-xylene	1.5		2.500		60.2	43	114			

Sample ID: **LCS-CHLORDANE-3** SampType: **LCS-Chlord** TestCode: **EPA Method 8081: PESTICIDES**

Client ID: **BatchQC** Batch ID: **34376** RunNo: **46352**

Prep Date: **10/12/2017** Analysis Date: **10/13/2017** SeqNo: **1476482** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	4.8	1.0	10.00	0	47.6	37.3	118			
Surr: Decachlorobiphenyl	1.3									
Surr: Tetrachloro-m-xylene	1.0									

Sample ID: **LCSD-CHLORDANE-** SampType: **LCS-CHLOR** TestCode: **EPA Method 8081: PESTICIDES**

Client ID: **BatchQC** Batch ID: **34376** RunNo: **46352**

Prep Date: **10/12/2017** Analysis Date: **10/13/2017** SeqNo: **1476507** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	6.5	1.0	10.00	0	65.0	37.3	118	30.9	0	
Surr: Decachlorobiphenyl	1.8							0	0	
Surr: Tetrachloro-m-xylene	1.3							0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Chain-of-Custody Record

Client: Rule Engineering, LLC

Mailing Address: 501 Airport Dr., Ste 205
Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Agua Moss @ Sunco Disposal #1

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

Sample Temperature 2.5-CF-1.0 = 1.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1710519	BTEX + ~~MTBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	8081 Chlordane				Air Bubbles (Y or N)
10/9/17	1233	Water	S-5(R)(10/9/17)	1 L Amber G	non	001												x				
				(3) 40mL VOA	HCL	001	X															

Date	Time	Relinquished by:	Received by:	Date	Time
10/9/17	1821	Heather M. Woods	Christina Walters	10/9/17	1821
10/9/17	1944	Christina Walters	[illegible]	10/10/17	0710

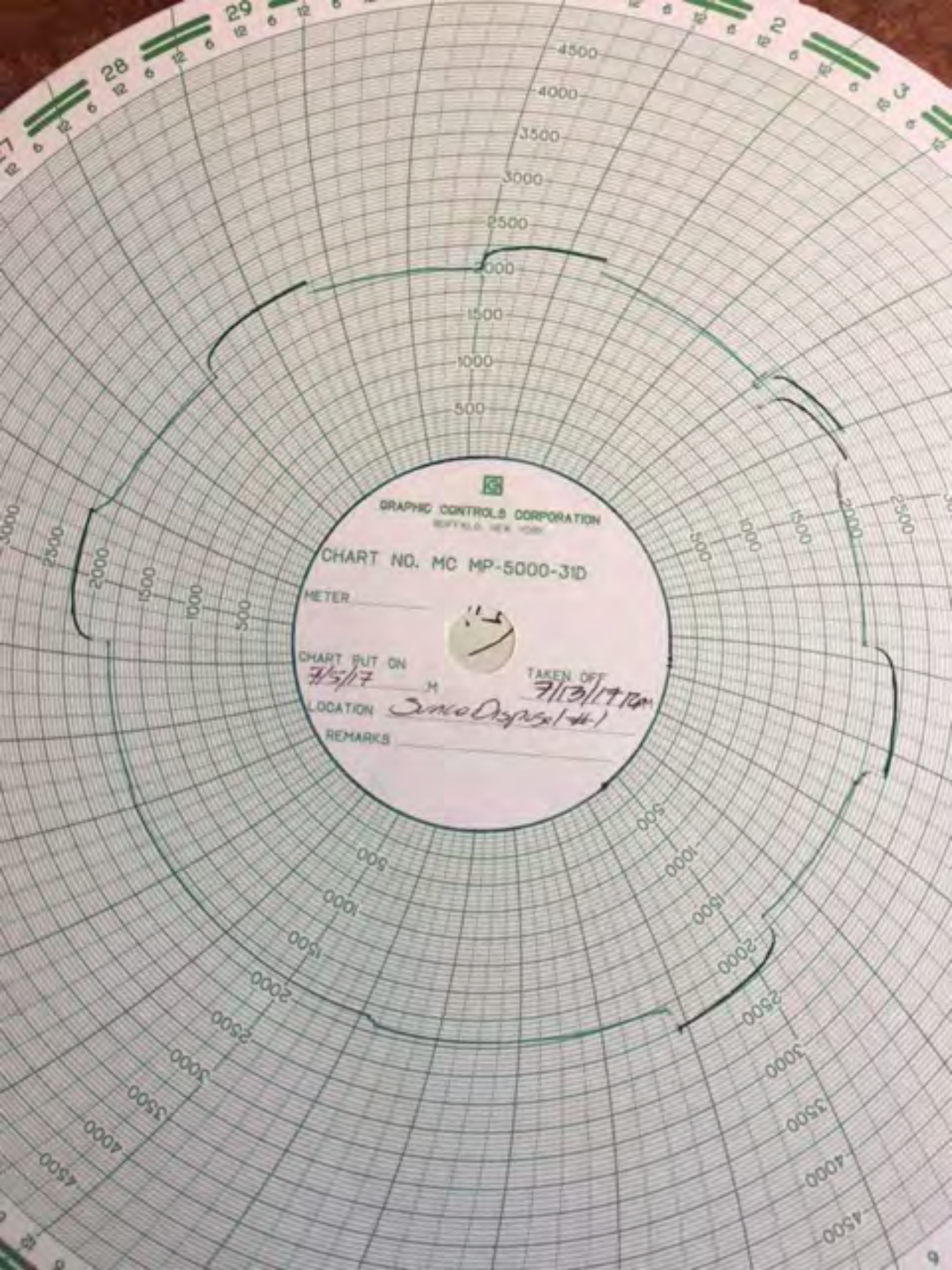
Remarks: Direct Bill to Agua Moss
Costs per Andy.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

UICI-5-0
Agua Moss, LLC
Sunco Disposal #1 30-045-28653

2017
Quarterly
Injection Report

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maxium Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	Total Cumulative Volume (barrels)	
													Previous year	14433658	
Jan-2017	1756.818	2250	1500	20.1627451	38.47083333	6.5041667	0	0	0	691.2941176	1319	223	11752	14445410	
Feb-2017	1890	2250	1500	20.47960526	36.16666667	1.2541667	0	0	0	702.1578947	1240	43	13341	14458751	
Mar-2017	1817.391	2250	1600	16.76944444	45.96666667	4.2	0	0	0	574.952381	1576	144	12074	14470825	
													Previous Quarter	14470825	
Apr-2017	2182.5	2300	1850	57.60854167	92.925	35.904167	0	0	0	1975.15	3186	1231	39503	14510328	
May-2017	1975	2200	200	19.29242424	37.12916667	5.5708333	0	0	0	661.4545455	1273	191	14552	14524880	
Jun-2017	2069.545	2290	1700	26.95162037	90.53333333	5.8333333	0	0	0	924.0555556	3104	200	16633	14541513	
													Previous Quarter	14541513	
Jul-17	2010	2300	1600	29.50856481	37.8	16.216667	0	0	0	1011.722222	1296	556	18211	14559724	
Aug-17	2108.696	2200	1800	27.55742754	39.60833333	2.275	0	0	0	944.826087	1358	78	21731	14581455	
Sep-17	2113.636	2300	1650	30.0375	61.01666667	10.4125	0	0	0	1029.857143	2092	357	21627	14603082	
													Previous Quarter	14603082	
Oct-2017	0	0	0	0	0	0	0	0	0	0	0	0	0	14603082	
Nov-2017	0	0	0	0	0	0	0	0	0	0	0	0	0	14603082	
Dec-2017	0	0	0	0	0	0	0	0	0	0	0	0	0	14603082	
												Total for year	**169424**	**14772506**	**Life Of well injected**


GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
CHART NO. MC MP-5000-31D
METER
CHART PUT ON
7/5/17
M
TAKEN OFF
7/13/17 12M
LOCATION
Sunco Disposal #1
REMARKS

GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK

CHART NO. MC MP-5000-31D

METER

CHART PUT ON 8/1/17 9:00AM

TAKEN OFF 9/1/17 7:30AM

LOCATION Sunco Disposal #1

REMARKS

GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
CHART NO. MC MP-5000-31D
METER
CHART PUT ON
Sep 1 7:30 A.M
TAKEN OFF
10/1/17 5:00 P.M
LOCATION Sunco Disposal #1
REMARKS
START

Chavez, Carl J, EMNRD

From: Philana Thompson <pthompson@merrion.bz>
Sent: Monday, October 3, 2016 8:54 AM
To: Chavez, Carl J, EMNRD
Subject: Re: 2016 FOT sunco
Attachments: 1st qrt 2016 Injection report.pdf; 66157040 1st Quarter 2016 Landfarm Sampling - Injection Well .pdf

UIC 1st qrt

On Fri, Sep 30, 2016 at 4:38 PM, Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us> wrote:

Yes, please do. Thank you.

From: Philana Thompson [mailto:pthompson@merrion.bz]
Sent: Friday, September 30, 2016 4:01 PM

To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Subject: Re: 2016 FOT sunco

Do I need to resubmit 2016 qrtly reports done so far?

Philana Thompson

Merrion Oil & Gas

Sent from my iPhone

On Sep 30, 2016, at 3:50 PM, Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us> wrote:

I had to put in a help desk request with IT to revive my Veronis Secure Upload System. After the recent Windows 10 upgrade and Office 365, it seems I no longer have the Varonis System on my computer. I'm sorry. As soon as I get it back, I will send you a code and make it active so whenever you want to upload, you don't need me to send you a code.

I'll make a note, but please follow up with me in mid-October to check with me.

Thank you.

From: Philana Thompson [mailto:pthompson@merrion.bz]
Sent: Friday, September 30, 2016 3:32 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Subject: Re: 2016 FOT sunco

Thank you Carl. What about quarterly reports?

Philana Thompson

Merrion Oil & Gas

Sent from my iPhone

On Sep 30, 2016, at 2:48 PM, Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us> wrote:

> Philana:
>
> Good afternoon. Received. Thank you.
>
> OCD now uses the Veronis Secure Upload code procedure to allow persons to upload data into its FTP system.
>
> All you have to do is send me a message when you want to upload, and I will send you a Varonis code to enter in order to upload into OCD's file system.
>
> **From:** Philana Thompson [mailto:pthompson@merrion.bz]
> **Sent:** Friday, September 30, 2016 1:23 PM
> **To:** Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
> **Cc:** Ryan Davis <RDavis@merrion.bz>; Jeff Davis <jdaguamoss@hotmail.com>
> **Subject:** 2016 FOT sunco
>
> Carl,

I am trying to upload the FOT to the FileZilla Server and I get the following error msg:

Status: Connecting to 164.64.106.6...

Response: fzSftp started, protocol_version=2

Command: open "OCD-AquaMoss@164.64.106.6" 22

Error: Connection timed out after 20 seconds of inactivity

Error: Could not connect to server

I have attached the PDF document to this email, please let me know that you have received the file.

Thanks philana

--

Philana Thompson

Regulatory Compliance

Merrion Oil & Gas Corp

cell 505-486-1171

fax 505-324-5350

--
Philana Thompson
Regulatory Compliance
Merrion Oil & Gas Corp
cell 505-486-1171
fax 505-324-5350

UICI-5-0
Agua Moss, LLC
Sunco Disposal #1 30-045-28653

2016
Quarterly
Injection Report

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maxium Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	Total Cumulative Volume (barrels)	
													Previous year	14063784	
Jan-2016	2045.238	2250	1900	55.45138889	82.04583333	34.65	0	0	0	1901.19	2813	1188	39925	14103709	
Feb-2016	2026.19	2250	1900	57.775	89.36666667	40.745833	0	0	0	1980.857	3064	1397	41598	14145307	
Mar-2016	1702.174	1900	1500	17.90833333	43.60416667	4.8416667	0	0	0	586.0909	1495	0	12894	14158201	
													Previous Quarter	14158201	
Apr-2016	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14158201	
May-2016	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14158201	
Jun-2016	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14158201	
													Previous Quarter	14158201	
Jul-16	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14158201	
Aug-16	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14158201	
Sep-16	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14158201	
													Previous Quarter	14158201	
Oct-2016	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14158201	
Nov-2016	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14158201	
Dec-2016	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14158201	
												Total for year	**94417**	**14252618**	**Life Of well injected**

UICI-5-0
Agua Moss, LLC
Sunco Disposal #1 30-045-28653

2016
Quarterly
Injection Report

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maxium Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	Total Cumulative Volume (barrels)	
													Previous year	14063784	
Jan-2016	2045.238	2250	1900	55.45138889	82.04583333	34.65	0	0	0	1901.19	2813	1188	39925	14103709	
Feb-2016	2026.19	2250	1900	57.775	89.36666667	40.745833	0	0	0	1980.857	3064	1397	41598	14145307	
Mar-2016	1702.174	1900	1500	17.90833333	43.60416667	4.8416667	0	0	0	586.0909	1495	0	12894	14158201	
													Previous Quarter	14158201	
Apr-2016	1683.333	2250	1550	17.28935185	43.3125	6.0958333	0	0	0	592.7778	1485	209	10670	14168871	
May-2016	1638.636	1900	1450	16.31064815	32.025	6.1541667	0	0	0	559.2222	1098	211	10066	14178937	
Jun-2016	1572.727	1975	1325	26.10902778	90.09583333	2.275	0	0	0	895.1667	3089	78	10742	14189679	
													Previous Quarter	14189679	
Jul-16	1572.727	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14189679	
Aug-16	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14189679	
Sep-16	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14189679	
													Previous Quarter	14189679	
Oct-2016	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14189679	
Nov-2016	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14189679	
Dec-2016	#DIV/0!	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	0	0	0	14189679	
													Total for year	**125895**	**14315574**	**Life Of well injected**

July 20, 2016

Agua Moss
c/o Merrion Oil & Gas Corp.
610 Reilly Avenue
Farmington, New Mexico 87401

Attn: Ms. Shacie Murray
P: (505) 324-5324
E: shacie@merrion.bz

Re: Analytical Results
NM1-9 Injection Well
SWNW S2, T29N, R12W
Crouch Mesa Road
San Juan County, New Mexico
Terracon Project No. 66157040

Dear Ms. Murray;

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to submit analytical results for the second quarter 2016 quarterly sampling of the NM1-9 Injection Well water. The injection well analytical results are summarized in Table 1. A copy of the laboratory analytical report is also provided as an attachment.

We appreciate the opportunity to provide environmental services for you. If you should have any questions or comments regarding this data, please contact Mike Meyer at (505) 222-5795.

Sincerely,
Terracon Consultants, Inc.

M. Meyer

Michael L. Meyer, P.G. (PA)
Office Manager

Mark Hillier PG (TX)
Department Manager

Attachment – Table 1 – Injection Well Analytical Results
Laboratory Analytical Report

TABLE 1

NM1-9 INJECTION WELL ANALYTICAL RESULTS
Agua Moss Disposal Facility
Crouch Mesa Road
San Juan County, New Mexico

6/28/16

Contaminant of Concern	Units	Sample Location
		NM1-9 IW (06/28/2016)
pH*	ratio	8.11
ORP*	mV[1]	-303
Specific Conductance*	mS/cm[2]	24.43
Temperature*	°C[3]	24.3
Specific Gravity	ratio	1.006
Conductivity @ 25° C	µS[4]	8,300
Total Dissolved Solids @ 180° C	mg/L[5]	15,500
Specific Conductance (Laboratory)	µmhos/cm[6]	29,000
Sodium Absorption Ratio	ratio	74
Total Alkalinity as CaCO3	mg/L	682
Total Hardness as CaCO3	mg/L	930
Bicarbonate as CaCO3	mg/L	682
Carbonate as CaCO3	mg/L	<2.0
Nitrate Nitrogen	mg/L	<10
Nitrite Nitrogen	mg/L	<10
Chloride	mg/L	9,000
Fluoride	mg/L	<2.0
Phosphate	mg/L	<2.5
Sulfate	mg/L	100
Iron	mg/L	0.75
Calcium	mg/L	300
Magnesium	mg/L	44
Potassium	mg/L	88
Sodium	mg/L	5,200
Bromide	mg/L	17

* - Field Measurement
1 - mV - millivolts
2 - mS - millisiemen per centimeter
3 - °C - degrees Celsius
4 - µS - micro Siemens
5 - mg/L - milligrams per liter
6 - µmhos/cm - micromhos per centimeter

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 15, 2016

Mike Meyer

Terracon
4905 Hawkins, NE
Albuquerque, NM 87109
TEL: (505) 797-4287
FAX (505) 797-4288

RE: Agua Moss OrderNo.: 1606G14

Dear Mike Meyer:

Hall Environmental Analysis Laboratory received 16 sample(s) on 6/29/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1606G14**
Date Reported: **7/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Client Sample ID: C1-1-36"
Project: Agua Moss
Collection Date: 6/28/2016 9:30:00 AM
Lab ID: 1606G14-001
Matrix: SOIL
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	280	30		mg/Kg	20	7/7/2016 3:44:55 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	6/30/2016 1:44:04 PM	26147
Toluene	ND	0.047		mg/Kg	1	6/30/2016 1:44:04 PM	26147
Ethylbenzene	ND	0.047		mg/Kg	1	6/30/2016 1:44:04 PM	26147
Xylenes, Total	ND	0.094		mg/Kg	1	6/30/2016 1:44:04 PM	26147
Surr: 4-Bromofluorobenzene	99.4	80-120		%Rec	1	6/30/2016 1:44:04 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Client Sample ID: C1-3-36"
Project: Agua Moss
Collection Date: 6/28/2016 10:15:00 AM
Lab ID: 1606G14-002
Matrix: SOIL
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	59	30		mg/Kg	20	7/7/2016 3:57:19 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2016 2:08:32 PM	26147
Toluene	ND	0.049		mg/Kg	1	6/30/2016 2:08:32 PM	26147
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2016 2:08:32 PM	26147
Xylenes, Total	ND	0.098		mg/Kg	1	6/30/2016 2:08:32 PM	26147
Surr: 4-Bromofluorobenzene	96.9	80-120		%Rec	1	6/30/2016 2:08:32 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1606G14**
Date Reported: **7/15/2016**

CLIENT: Terracon
Client Sample ID: C1-2-36"
Project: Agua Moss
Collection Date: 6/28/2016 9:55:00 AM
Lab ID: 1606G14-003
Matrix: SOIL
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	18		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	870	30		mg/Kg	20	7/7/2016 4:09:44 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	6/30/2016 2:32:57 PM	26147
Toluene	ND	0.048		mg/Kg	1	6/30/2016 2:32:57 PM	26147
Ethylbenzene	ND	0.048		mg/Kg	1	6/30/2016 2:32:57 PM	26147
Xylenes, Total	ND	0.096		mg/Kg	1	6/30/2016 2:32:57 PM	26147
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/30/2016 2:32:57 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: Agua Moss
Lab ID: 1606G14-004 **Matrix:** SOIL

Client Sample ID: C1-4-36"
Collection Date: 6/28/2016 10:20:00 AM
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	270	30		mg/Kg	20	7/7/2016 4:22:09 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.023		mg/Kg	1	6/30/2016 2:57:22 PM	26147
Toluene	ND	0.046		mg/Kg	1	6/30/2016 2:57:22 PM	26147
Ethylbenzene	ND	0.046		mg/Kg	1	6/30/2016 2:57:22 PM	26147
Xylenes, Total	ND	0.091		mg/Kg	1	6/30/2016 2:57:22 PM	26147
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/30/2016 2:57:22 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: Agua Moss
Lab ID: 1606G14-005 **Matrix:** SOIL

Client Sample ID: C2S-1-36"
Collection Date: 6/28/2016 10:55:00 AM
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	150	30		mg/Kg	20	7/7/2016 4:34:34 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2016 3:21:51 PM	26147
Toluene	ND	0.049		mg/Kg	1	6/30/2016 3:21:51 PM	26147
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2016 3:21:51 PM	26147
Xylenes, Total	ND	0.098		mg/Kg	1	6/30/2016 3:21:51 PM	26147
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/30/2016 3:21:51 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: Agua Moss
Lab ID: 1606G14-006 **Matrix:** SOIL

Client Sample ID: C2S-2-36"
Collection Date: 6/28/2016 11:05:00 AM
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	170	30		mg/Kg	20	7/7/2016 4:46:58 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2016 5:24:04 PM	26147
Toluene	ND	0.050		mg/Kg	1	6/30/2016 5:24:04 PM	26147
Ethylbenzene	ND	0.050		mg/Kg	1	6/30/2016 5:24:04 PM	26147
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2016 5:24:04 PM	26147
Surr: 4-Bromofluorobenzene	95.5	80-120		%Rec	1	6/30/2016 5:24:04 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: Agua Moss
Lab ID: 1606G14-007 **Matrix:** SOIL

Client Sample ID: C2S-3-36"
Collection Date: 6/28/2016 11:10:00 AM
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	98	30		mg/Kg	20	7/7/2016 5:24:11 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	6/30/2016 5:48:36 PM	26147
Toluene	ND	0.048		mg/Kg	1	6/30/2016 5:48:36 PM	26147
Ethylbenzene	ND	0.048		mg/Kg	1	6/30/2016 5:48:36 PM	26147
Xylenes, Total	ND	0.095		mg/Kg	1	6/30/2016 5:48:36 PM	26147
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	6/30/2016 5:48:36 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: Agua Moss
Lab ID: 1606G14-008 **Matrix:** SOIL

Client Sample ID: C2S-4-36"
Collection Date: 6/28/2016 11:20:00 AM
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	110	30		mg/Kg	20	7/7/2016 5:36:36 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	6/30/2016 6:13:05 PM	26147
Toluene	ND	0.048		mg/Kg	1	6/30/2016 6:13:05 PM	26147
Ethylbenzene	ND	0.048		mg/Kg	1	6/30/2016 6:13:05 PM	26147
Xylenes, Total	ND	0.095		mg/Kg	1	6/30/2016 6:13:05 PM	26147
Surr: 4-Bromofluorobenzene	96.1	80-120		%Rec	1	6/30/2016 6:13:05 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: Agua Moss
Lab ID: 1606G14-009 **Matrix:** SOIL

Client Sample ID: C2N-1-36"
Collection Date: 6/28/2016 11:30:00 AM
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	180	30		mg/Kg	20	7/7/2016 5:49:01 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2016 6:37:29 PM	26147
Toluene	ND	0.049		mg/Kg	1	6/30/2016 6:37:29 PM	26147
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2016 6:37:29 PM	26147
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2016 6:37:29 PM	26147
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	6/30/2016 6:37:29 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: Agua Moss
Lab ID: 1606G14-010 **Matrix:** SOIL

Client Sample ID: C2N-2-36"
Collection Date: 6/28/2016 11:42:00 AM
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	18		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	320	30		mg/Kg	20	7/7/2016 6:01:26 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.023		mg/Kg	1	6/30/2016 7:01:50 PM	26147
Toluene	ND	0.047		mg/Kg	1	6/30/2016 7:01:50 PM	26147
Ethylbenzene	ND	0.047		mg/Kg	1	6/30/2016 7:01:50 PM	26147
Xylenes, Total	ND	0.093		mg/Kg	1	6/30/2016 7:01:50 PM	26147
Surr: 4-Bromofluorobenzene	98.3	80-120		%Rec	1	6/30/2016 7:01:50 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: Agua Moss
Lab ID: 1606G14-011 **Matrix:** SOIL

Client Sample ID: C2N-3-36"
Collection Date: 6/28/2016 11:40:00 AM
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	1000	30		mg/Kg	20	7/7/2016 6:13:50 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2016 7:26:07 PM	26147
Toluene	ND	0.050		mg/Kg	1	6/30/2016 7:26:07 PM	26147
Ethylbenzene	ND	0.050		mg/Kg	1	6/30/2016 7:26:07 PM	26147
Xylenes, Total	ND	0.10		mg/Kg	1	6/30/2016 7:26:07 PM	26147
Surr: 4-Bromofluorobenzene	94.1	80-120		%Rec	1	6/30/2016 7:26:07 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: Agua Moss
Lab ID: 1606G14-012 **Matrix:** SOIL

Client Sample ID: C2N-4-36"
Collection Date: 6/28/2016 12:00:00 PM
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**KJH**
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Chloride	91	30		mg/Kg	20	7/7/2016 6:26:14 PM	26268
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	6/30/2016 7:50:29 PM	26147
Toluene	ND	0.049		mg/Kg	1	6/30/2016 7:50:29 PM	26147
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2016 7:50:29 PM	26147
Xylenes, Total	ND	0.097		mg/Kg	1	6/30/2016 7:50:29 PM	26147
Surr: 4-Bromofluorobenzene	99.3	80-120		%Rec	1	6/30/2016 7:50:29 PM	26147

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Client Sample ID: C1-6"
Project: Agua Moss
Collection Date: 6/28/2016 10:25:00 AM
Lab ID: 1606G14-013
Matrix: AQUEOUS
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **KJH**	
Petroleum Hydrocarbons, TR	2800	1900		mg/Kg	100	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	7/8/2016 12:33:58 PM	26308

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Client Sample ID: C2S-1-6"
Project: Agua Moss
Collection Date: 6/28/2016 12:10:00 PM
Lab ID: 1606G14-014
Matrix: AQUEOUS
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **KJH**	
Petroleum Hydrocarbons, TR	3900	1900		mg/Kg	100	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	430	30		mg/Kg	20	7/8/2016 12:46:23 PM	26308

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Client Sample ID: C2N-1-6"
Project: Agua Moss
Collection Date: 6/28/2016 12:15:00 PM
Lab ID: 1606G14-015
Matrix: AQUEOUS
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **KJH**	
Petroleum Hydrocarbons, TR	6000	1900		mg/Kg	100	7/6/2016	26214
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	290	30		mg/Kg	20	7/8/2016 12:58:48 PM	26308

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:				
	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Client Sample ID: NM1-9IW16Q2
Project: Agua Moss
Collection Date: 6/28/2016 12:40:00 PM
Lab ID: 1606G14-016
Matrix: AQUEOUS
Received Date: 6/29/2016 10:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst:	**MED**
Hardness (As CaCO3)	930	6.6		mg/L	1	7/8/2016 10:30:00 AM	R35523
SODIUM ADSORPTION RATIO						Analyst:	**MED**
Calcium	300	1.0		mg/L	1	7/8/2016 10:30:00 AM	R35523
Magnesium	44	1.0		mg/L	1	7/8/2016 10:30:00 AM	R35523
Sodium	5200	1.0		mg/L	1	7/8/2016 10:30:00 AM	R35523
Sodium Absorption Ratio	74	0			1	7/8/2016 10:30:00 AM	R35523
SPECIFIC GRAVITY						Analyst:	**JRR**
Specific Gravity	1.006	0			1	6/30/2016 11:55:00 AM	R35345
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Fluoride	ND	2.0		mg/L	20	6/29/2016 6:42:07 PM	R35326
Chloride	9000	500		mg/L	1E	7/6/2016 1:28:04 AM	A35449
Bromide	17	0.50		mg/L	5	7/6/2016 1:15:39 AM	A35449
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/29/2016 6:29:42 PM	R35326
Sulfate	100	2.5		mg/L	5	6/29/2016 6:29:42 PM	R35326
Nitrate+Nitrite as N	ND	10		mg/L	50	7/7/2016 2:21:46 PM	R35506
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	29000	10		µmhos/cm	10	7/6/2016 7:52:42 AM	R35440
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	681.8	20.00		mg/L CaCO3	1	6/29/2016 9:55:57 PM	R35350
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	6/29/2016 9:55:57 PM	R35350
Total Alkalinity (as CaCO3)	681.8	20.00		mg/L CaCO3	1	6/29/2016 9:55:57 PM	R35350
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	15500	2000	*D	mg/L	1	7/6/2016 4:54:00 PM	26208
EPA METHOD 6010B: DISSOLVED METALS						Analyst:	**MED**
Calcium	300	5.0		mg/L	5	7/8/2016 12:27:45 PM	A35523
Iron	0.75	0.020		mg/L	1	7/8/2016 11:47:26 AM	A35523
Magnesium	44	1.0		mg/L	1	7/8/2016 11:47:26 AM	A35523
Potassium	88	1.0		mg/L	1	7/8/2016 11:47:26 AM	A35523
Sodium	5200	100		mg/L	100	7/8/2016 12:41:39 PM	A35523

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606G14**
15-Jul-16

Client: Terracon
Project: Agua Moss

Sample ID **MB-26268** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **26268** RunNo: **35474**
Prep Date: **7/6/2016** Analysis Date: **7/6/2016** SeqNo: **1098081** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-26268** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **26268** RunNo: **35474**
Prep Date: **7/6/2016** Analysis Date: **7/6/2016** SeqNo: **1098082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.7	90	110			

Sample ID **MB-26268** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **26268** RunNo: **35519**
Prep Date: **7/6/2016** Analysis Date: **7/7/2016** SeqNo: **1099749** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-26268** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **26268** RunNo: **35519**
Prep Date: **7/6/2016** Analysis Date: **7/7/2016** SeqNo: **1099750** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

Sample ID **MB-26308** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **26308** RunNo: **35546**
Prep Date: **7/8/2016** Analysis Date: **7/8/2016** SeqNo: **1100588** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-26308** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **26308** RunNo: **35546**
Prep Date: **7/8/2016** Analysis Date: **7/8/2016** SeqNo: **1100589** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606G14**
15-Jul-16

Client: Terracon
Project: Agua Moss

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R35326** RunNo: **35326**
Prep Date: Analysis Date: **6/29/2016** SeqNo: **1092939** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R35326** RunNo: **35326**
Prep Date: Analysis Date: **6/29/2016** SeqNo: **1092940** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	108	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.7	90	110			
Sulfate	9.7	0.50	10.00	0	96.6	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **A35449** RunNo: **35449**
Prep Date: Analysis Date: **7/5/2016** SeqNo: **1097052** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Bromide	ND	0.10								

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **A35449** RunNo: **35449**
Prep Date: Analysis Date: **7/5/2016** SeqNo: **1097053** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.7	90	110			
Bromide	2.5	0.10	2.500	0	101	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R35506** RunNo: **35506**
Prep Date: Analysis Date: **7/7/2016** SeqNo: **1099031** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606G14**
15-Jul-16

Client: Terracon
Project: Agua Moss

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**			
Client ID: **LCSW**	Batch ID: **R35506**	RunNo: **35506**			
Prep Date:	Analysis Date: **7/7/2016**	SeqNo: **1099032**	Units: **mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	95.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606G14**
15-Jul-16

Client: Terracon
Project: Agua Moss

Sample ID	**MB-26214**	SampType:	**MBLK**	TestCode:	**EPA Method 418.1: TPH**				
Client ID:	**PBS**	Batch ID:	**26214**	RunNo:	**35450**				
Prep Date:	**7/5/2016**	Analysis Date:	**7/6/2016**	SeqNo:	**1097109**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID	**LCS-26214**	SampType:	**LCS**	TestCode:	**EPA Method 418.1: TPH**				
Client ID:	**LCSS**	Batch ID:	**26214**	RunNo:	**35450**				
Prep Date:	**7/5/2016**	Analysis Date:	**7/6/2016**	SeqNo:	**1097110**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	101	83.4	127			

Sample ID	**LCSD-26214**	SampType:	**LCSD**	TestCode:	**EPA Method 418.1: TPH**				
Client ID:	**LCSS02**	Batch ID:	**26214**	RunNo:	**35450**				
Prep Date:	**7/5/2016**	Analysis Date:	**7/6/2016**	SeqNo:	**1097111**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	97	20	100.0	0	97.3	83.4	127	3.88	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606G14**
15-Jul-16

Client: Terracon
Project: Agua Moss

Sample ID **MB-26147** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **26147** RunNo: **35363**
Prep Date: **6/29/2016** Analysis Date: **6/30/2016** SeqNo: **1093895** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		97.6	80	120			

Sample ID **LCS-26147** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **26147** RunNo: **35363**
Prep Date: **6/29/2016** Analysis Date: **6/30/2016** SeqNo: **1093896** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	105	75.3	123			
Toluene	0.96	0.050	1.000	0	95.9	80	124			
Ethylbenzene	0.95	0.050	1.000	0	95.2	82.8	121			
Xylenes, Total	2.8	0.10	3.000	0	93.0	83.9	122			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606G14**
15-Jul-16

Client: Terracon
Project: Agua Moss

Sample ID	**MB-A**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: Dissolved Metals**		
Client ID:	**PBW**	Batch ID:	**A35523**	RunNo:	**35523**		
Prep Date:		Analysis Date:	**7/8/2016**	SeqNo:	**1099959**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Iron	ND	0.020								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	**LCS-A**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: Dissolved Metals**		
Client ID:	**LCSW**	Batch ID:	**A35523**	RunNo:	**35523**		
Prep Date:		Analysis Date:	**7/8/2016**	SeqNo:	**1099960**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	53	1.0	50.00	0	105	80	120			
Iron	0.49	0.020	0.5000	0	98.0	80	120			
Magnesium	53	1.0	50.00	0	106	80	120			
Potassium	51	1.0	50.00	0	102	80	120			
Sodium	51	1.0	50.00	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606G14**
15-Jul-16

Client: Terracon
Project: Agua Moss

Sample ID **mb-1** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R35350** RunNo: **35350**
Prep Date: Analysis Date: **6/29/2016** SeqNo: **1093478** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R35350** RunNo: **35350**
Prep Date: Analysis Date: **6/29/2016** SeqNo: **1093479** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.96	20.00	80.00	0	97.5	90	110			

Sample ID **mb-2** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R35350** RunNo: **35350**
Prep Date: Analysis Date: **6/29/2016** SeqNo: **1093502** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R35350** RunNo: **35350**
Prep Date: Analysis Date: **6/29/2016** SeqNo: **1093503** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.28	20.00	80.00	0	97.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606G14**
15-Jul-16

Client: Terracon
Project: Agua Moss

Sample ID	**1606G14-016ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**
Client ID:	**NM1-9IW16Q2**	Batch ID:	**R35345**	RunNo:	**35345**
Prep Date:		Analysis Date:	**6/30/2016**	SeqNo:	**1093385** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.005	0						0.119	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606G14**
15-Jul-16

Client: Terracon
Project: Agua Moss

Sample ID **MB-26208**	SampType: **MBLK**		TestCode: **SM2540C MOD: Total Dissolved Solids**		
Client ID: **PBW**	Batch ID: **26208**		RunNo: **35456**		
Prep Date: **7/5/2016**	Analysis Date: **7/6/2016**		SeqNo: **1097402**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-26208**	SampType: **LCS**		TestCode: **SM2540C MOD: Total Dissolved Solids**		
Client ID: **LCSW**	Batch ID: **26208**		RunNo: **35456**		
Prep Date: **7/5/2016**	Analysis Date: **7/6/2016**		SeqNo: **1097403**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: TER-Alb Work Order Number: 1606G14 RcptNo: 1

Received by/date: AT 06/29/16

Logged By: Ashley Gallegos 6/29/2016 10:30:00 AM

Completed By: Ashley Gallegos 6/29/2016 11:12:09 AM

Reviewed By: 06/29/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH: 2
(<2 or >12 unless noted)
Adjusted? NO
Checked by: aJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Not Present			

Chain-of-Custody Record

Client: TERRACON

Mailing Address: 4905 HAWKINS NE
ABQ NM 87109

Phone #: 505-222-5795

email or Fax#: MIKE.MEYER@TERRACON.COM

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☒ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: AGUA MOSS

Project #: 66157040

Project Manager: MIKE MEYER

Sampler: MLM

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1606G14	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B GRO / DRO / MRO	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS) SPECIFIC GRAVITY	RCRA 8 Metals SOIL	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	BTEX 8021B	TPH 418.1	CHLORIDES 300.1		Air Bubbles (Y or N)
6/28/16	0930	S	C1-1-36"	4oz		-001												✓	✓	✓		
	10:15	S	C1-3-36"			-002												✓	✓	✓		
	09:55	S	C1-2-36"			-003												✓	✓	✓		
	10:20	S	C1-4-36"			-004												✓	✓	✓		
	10:55	S	C2S-1-36"			-005												✓	✓	✓		
	11:05	S	C2S-2-36"			-006												✓	✓	✓		
	11:10	S	C2S-3-36"			-007												✓	✓	✓		
	11:20	S	C2S-4-36"			-008												✓	✓	✓		
	11:30	S	C2N-1-36"			-009												✓	✓	✓		
	11:42	S	C2N-2-36"			-010												✓	✓	✓		
	11:40	S	C2N-3-36"			-011												✓	✓	✓		
	12:00	S	C2N-4-36"			-012												✓	✓	✓		

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/29/16	~~1240~~ 1030	M. Meyer	[signature]	06/29/16	1030
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Terracon

Mailing Address: 4905 Hawkins NE

Phone #: 505-222-5595

email or Fax#: Mike.meyer@Terracon.com

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation
☑ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name: Agua Moss

Project #: 66157040

Project Manager: ~~Mark Hilliter~~ MIKE MEYER

Sampler:

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1606G14	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS) Specific Gravity	RCRA 8 Metals Sodium Absorption Rate	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4) Cl, Fluoride, Bicarb	8081 Pesticides / 8082 PCB's Total Hardness	8260B (VOA)	8270 (Semi-VOA)	~~BTEX + 8021B~~	TPH 418.1	CHLORIDE 300.1		Air Bubbles (Y or N)
			MLM																			
1/28/16	10:25	S	C1[redacted]-6"	4oz		-013																
↓	12:10	S	C2S-1-6"	4oz		-014																
	12:15	S	C2N-1-6"	4oz		-015																
↓	1240	W	NM1-9IW16Q2	4 Bottles		-016						✓	✓	✓	✓							

Date:	Time:	Relinquished by:	Received by:	Date	Time
1/29/16	10:30	M. Meyer	[signature]	1/29/16	1030
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Major cat/anions: chloride, fluoride, bicarbonate, sulfate, nitrate, nitrite, calcium, magnesium, potassium & sodium. ON WATER water analysis per 1510070-001

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

August 4, 2016

Agua Moss
c/o Merrion Oil & Gas Corp.
610 Reilly Avenue
Farmington, New Mexico 87401

Attn: Ms. Shacie Murray
P: (505) 324-5324
E: shacie@merrion.bz

Re: First Quarter 2016 Analytical Results
NM1-9 Injection Well
SWNW S2, T29N, R12W
Crouch Mesa Road
San Juan County, New Mexico
Terracon Project No. 66157040

Dear Ms. Murray;

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to submit analytical results for the first quarter 2016 quarterly sampling of the NM1-9 Injection Well water. The injection well analytical results are summarized in Table 1. A copy of the laboratory analytical report is also provided as an attachment.

We appreciate the opportunity to provide environmental services for you. If you should have any questions or comments regarding this data, please contact Mike Meyer at (505) 222-5795.

Sincerely,
Terracon Consultants, Inc.

M. Meyer

Michael L. Meyer, P.G. (PA)
Office Manager

Mark Hillier PG (TX)
Department Manager

Attachment – Table 1 – Injection Well Analytical Results
Laboratory Analytical Report

TABLE 1

NM1-9 INJECTION WELL ANALYTICAL RESULTS
Agua Moss Disposal Facility
Crouch Mesa Road
San Juan County, New Mexico

1/28/16

Contaminant of Concern	Units	Sample Location
		NM1-9 IW (06/28/2016)
pH*	ratio	6.57
ORP*	mV[1]	-290
Specific Conductance*	mS/cm[2]	18.6
Temperature*	°C[3]	20
Specific Gravity	ratio	1.003
Total Dissolved Solids @ 180° C	mg/L[4]	5,730
Specific Conductance (Laboratory)	µmhos/cm[5]	8,300
Sodium Absorption Ratio	ratio	13
Total Alkalinity as CaCO3	mg/L	401.3
Total Hardness as CaCO3	mg/L	1,200
Bicarbonate as CaCO3	mg/L	401.3
Carbonate as CaCO3	mg/L	ND
Nitrate Nitrogen	mg/L	ND
Nitrite Nitrogen	mg/L	ND
Chloride	mg/L	2,000
Fluoride	mg/L	ND
Phosphate	mg/L	ND
Sulfate	mg/L	980
Calcium	mg/L	410
Magnesium	mg/L	31
Potassium	mg/L	280
Sodium	mg/L	1,000
Bromide	mg/L	9.5

* - Field Measurement
1 - mV - millivolts
2 - mS - millisiemen per centimeter
3 - °C - degrees Celsius
4 - mg/L - milligrams per liter
5 - µmhos/cm - micromhos per centimeter

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 10, 2016

Mark Hillier

Terracon
4905 Hawkins, NE
Albuquerque, NM 87109
TEL: (505) 715-0375
FAX (505) 797-4288

RE: NM1-9 Landfarm OrderNo.: 1601B39

Dear Mark Hillier:

Hall Environmental Analysis Laboratory received 4 sample(s) on 1/29/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1601B39**
Date Reported: **2/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Client Sample ID: Q116C2S
Project: NM1-9 Landfarm
Collection Date: 1/28/2016 12:50:00 PM
Lab ID: 1601B39-001
Matrix: SOIL
Received Date: 1/29/2016 11:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**TOM**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	2/2/2016	23505
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.048		mg/Kg	1	2/2/2016 11:03:34 PM	23504
Toluene	ND	0.048		mg/Kg	1	2/2/2016 11:03:34 PM	23504
Ethylbenzene	ND	0.048		mg/Kg	1	2/2/2016 11:03:34 PM	23504
Xylenes, Total	ND	0.096		mg/Kg	1	2/2/2016 11:03:34 PM	23504
Surr: 4-Bromofluorobenzene	111	80-120		%Rec	1	2/2/2016 11:03:34 PM	23504

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Project: NM1-9 Landfarm
Lab ID: 1601B39-002 **Matrix:** SOIL

Client Sample ID: Q116C1
Collection Date: 1/28/2016 1:15:00 PM
Received Date: 1/29/2016 11:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**TOM**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	2/2/2016	23505
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.049		mg/Kg	1	2/2/2016 11:26:47 PM	23504
Toluene	ND	0.049		mg/Kg	1	2/2/2016 11:26:47 PM	23504
Ethylbenzene	ND	0.049		mg/Kg	1	2/2/2016 11:26:47 PM	23504
Xylenes, Total	ND	0.098		mg/Kg	1	2/2/2016 11:26:47 PM	23504
Surr: 4-Bromofluorobenzene	109	80-120		%Rec	1	2/2/2016 11:26:47 PM	23504

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Client Sample ID: Q116C2N
Project: NM1-9 Landfarm
Collection Date: 1/28/2016 1:45:00 PM
Lab ID: 1601B39-003
Matrix: SOIL
Received Date: 1/29/2016 11:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	**TOM**
Petroleum Hydrocarbons, TR	1700	190		mg/Kg	10	2/2/2016	23505
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.048		mg/Kg	1	2/2/2016 11:49:58 PM	23504
Toluene	ND	0.048		mg/Kg	1	2/2/2016 11:49:58 PM	23504
Ethylbenzene	ND	0.048		mg/Kg	1	2/2/2016 11:49:58 PM	23504
Xylenes, Total	ND	0.095		mg/Kg	1	2/2/2016 11:49:58 PM	23504
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	2/2/2016 11:49:58 PM	23504

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Terracon
Client Sample ID: Q116IW
Project: NM1-9 Landfarm
Collection Date: 1/28/2016 2:40:00 PM
Lab ID: 1601B39-004
Matrix: AQUEOUS
Received Date: 1/29/2016 11:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst:	**MED**
Hardness (As CaCO3)	1200	6.6		mg/L	1	2/1/2016	R31819
SODIUM ADSORPTION RATIO						Analyst:	**MED**
Sodium Absorption Ratio	13	0			1	2/1/2016	R31819
SPECIFIC GRAVITY						Analyst:	**JRR**
Specific Gravity	1.003	0			1	2/4/2016 11:22:00 AM	R31910
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Fluoride	ND	0.50		mg/L	5	1/30/2016 12:02:53 AM	R31808
Chloride	2000	100		mg/L	200	2/3/2016 5:34:33 AM	A31880
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	1/30/2016 12:02:53 AM	R31808
Bromide	9.5	0.50		mg/L	5	1/30/2016 12:02:53 AM	R31808
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	1/30/2016 12:02:53 AM	R31808
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	1/30/2016 12:02:53 AM	R31808
Sulfate	980	10		mg/L	20	1/30/2016 12:15:18 AM	R31808
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**MRA**
Conductivity	8300	0.020		µmhos/cm	2	2/2/2016 7:54:39 PM	R31881
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	401.3	20.00		mg/L CaCO3	1	1/30/2016 7:10:52 AM	R31826
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/30/2016 7:10:52 AM	R31826
Total Alkalinity (as CaCO3)	401.3	20.00		mg/L CaCO3	1	1/30/2016 7:10:52 AM	R31826
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	5730	100	*D	mg/L	1	2/2/2016 4:33:00 PM	23514
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst:	**MED**
Calcium	410	10		mg/L	10	2/1/2016 12:42:45 PM	23489
Magnesium	31	1.0		mg/L	1	2/1/2016 10:55:20 AM	23489
Potassium	280	10		mg/L	10	2/1/2016 12:42:45 PM	23489
Sodium	1000	50		mg/L	50	2/1/2016 12:44:10 PM	23489

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1601B39**
10-Feb-16

Client: Terracon
Project: NM1-9 Landfarm

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**		
Client ID: **PBW**	Batch ID: **R31808**	RunNo: **31808**		
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **973448**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**		
Client ID: **LCSW**	Batch ID: **R31808**	RunNo: **31808**		
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **973449**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	107	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	96.3	90	110			
Bromide	2.6	0.10	2.500	0	103	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.2	90	110			
Sulfate	9.8	0.50	10.00	0	98.0	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**		
Client ID: **PBW**	Batch ID: **A31880**	RunNo: **31880**		
Prep Date:	Analysis Date: **2/3/2016**	SeqNo: **975578**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**		
Client ID: **LCSW**	Batch ID: **A31880**	RunNo: **31880**		
Prep Date:	Analysis Date: **2/3/2016**	SeqNo: **975579**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1601B39**
10-Feb-16

Client: Terracon
Project: NM1-9 Landfarm

Sample ID	**MB-23505**	SampType:	**MBLK**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**PBS**	Batch ID:	**23505**	RunNo:	**31860**					
Prep Date:	**2/1/2016**	Analysis Date:	**2/2/2016**	SeqNo:	**974843**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID	**LCS-23505**	SampType:	**LCS**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS**	Batch ID:	**23505**	RunNo:	**31860**					
Prep Date:	**2/1/2016**	Analysis Date:	**2/2/2016**	SeqNo:	**974844**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	101	83.4	127			

Sample ID	**LCSD-23505**	SampType:	**LCSD**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS02**	Batch ID:	**23505**	RunNo:	**31860**					
Prep Date:	**2/1/2016**	Analysis Date:	**2/2/2016**	SeqNo:	**974845**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	102	83.4	127	1.29	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1601B39**
10-Feb-16

Client: Terracon
Project: NM1-9 Landfarm

Sample ID **MB-23504** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **23504** RunNo: **31851**
Prep Date: **2/1/2016** Analysis Date: **2/2/2016** SeqNo: **975028** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		113	80	120			

Sample ID **LCS-23504** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **23504** RunNo: **31851**
Prep Date: **2/1/2016** Analysis Date: **2/2/2016** SeqNo: **975029** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	103	80	120			
Toluene	1.1	0.050	1.000	0	109	80	120			
Ethylbenzene	1.1	0.050	1.000	0	107	80	120			
Xylenes, Total	3.2	0.10	3.000	0	106	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		117	80	120			

Sample ID **1601B39-001AMS** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **Q116C2S** Batch ID: **23504** RunNo: **31851**
Prep Date: **2/1/2016** Analysis Date: **2/2/2016** SeqNo: **975032** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.047	0.9425	0	123	71.5	122			S
Toluene	1.2	0.047	0.9425	0	129	71.2	123			S
Ethylbenzene	1.2	0.047	0.9425	0	129	75.2	130			
Xylenes, Total	3.6	0.094	2.828	0	129	72.4	131			
Surr: 4-Bromofluorobenzene	1.1		0.9425		117	80	120			

Sample ID **1601B39-001AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **Q116C2S** Batch ID: **23504** RunNo: **31851**
Prep Date: **2/1/2016** Analysis Date: **2/2/2016** SeqNo: **975033** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.049	0.9737	0	118	71.5	122	0.283	20	
Toluene	1.2	0.049	0.9737	0	123	71.2	123	1.43	20	
Ethylbenzene	1.2	0.049	0.9737	0	123	75.2	130	1.14	20	
Xylenes, Total	3.6	0.097	2.921	0	123	72.4	131	0.850	20	
Surr: 4-Bromofluorobenzene	1.1		0.9737		117	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1601B39**
10-Feb-16

Client: Terracon
Project: NM1-9 Landfarm

Sample ID	**MB-23489**	SampType:	**MBLK**	TestCode:	**EPA 6010B: Total Recoverable Metals**		
Client ID:	**PBW**	Batch ID:	**23489**	RunNo:	**31819**		
Prep Date:	**1/29/2016**	Analysis Date:	**2/1/2016**	SeqNo:	**973721**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	**LCS-23489**	SampType:	**LCS**	TestCode:	**EPA 6010B: Total Recoverable Metals**		
Client ID:	**LCSW**	Batch ID:	**23489**	RunNo:	**31819**		
Prep Date:	**1/29/2016**	Analysis Date:	**2/1/2016**	SeqNo:	**973722**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.3	80	120			
Magnesium	49	1.0	50.00	0	98.6	80	120			
Potassium	47	1.0	50.00	0	94.0	80	120			
Sodium	48	1.0	50.00	0	95.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1601B39**
10-Feb-16

Client: Terracon
Project: NM1-9 Landfarm

Sample ID	**mb-1**	SampType:	**mblk**	TestCode:	**SM2320B: Alkalinity**						
Client ID:	**PBW**	Batch ID:	**R31826**	RunNo:	**31826**						
Prep Date:		Analysis Date:	**1/29/2016**	SeqNo:	**973885**	Units:	**mg/L CaCO3**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		ND	20.00								

Sample ID	**lcs-1**	SampType:	**lcs**	TestCode:	**SM2320B: Alkalinity**						
Client ID:	**LCSW**	Batch ID:	**R31826**	RunNo:	**31826**						
Prep Date:		Analysis Date:	**1/29/2016**	SeqNo:	**973886**	Units:	**mg/L CaCO3**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		77.72	20.00	80.00	0	97.2	90	110			

Sample ID	**mb-2**	SampType:	**mblk**	TestCode:	**SM2320B: Alkalinity**						
Client ID:	**PBW**	Batch ID:	**R31826**	RunNo:	**31826**						
Prep Date:		Analysis Date:	**1/29/2016**	SeqNo:	**973909**	Units:	**mg/L CaCO3**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		ND	20.00								

Sample ID	**lcs-2**	SampType:	**lcs**	TestCode:	**SM2320B: Alkalinity**						
Client ID:	**LCSW**	Batch ID:	**R31826**	RunNo:	**31826**						
Prep Date:		Analysis Date:	**1/29/2016**	SeqNo:	**973910**	Units:	**mg/L CaCO3**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		77.48	20.00	80.00	0	96.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1601B39**
10-Feb-16

Client: Terracon
Project: NM1-9 Landfarm

Sample ID	**1601B39-004ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**
Client ID:	**Q116IW**	Batch ID:	**R31910**	RunNo:	**31910**
Prep Date:		Analysis Date:	**2/4/2016**	SeqNo:	**976402** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.003	0						0.0499	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1601B39**
10-Feb-16

Client: Terracon
Project: NM1-9 Landfarm

Sample ID	**MB-23514**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**		
Client ID:	**PBW**	Batch ID:	**23514**	RunNo:	**31863**		
Prep Date:	**2/1/2016**	Analysis Date:	**2/2/2016**	SeqNo:	**974947**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-23514**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**		
Client ID:	**LCSW**	Batch ID:	**23514**	RunNo:	**31863**		
Prep Date:	**2/1/2016**	Analysis Date:	**2/2/2016**	SeqNo:	**974948**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: TER-Alb Work Order Number: 1601B39 RcptNo: 1

Received by/date: AT 01/29/16

Logged By: Anne Thorne 1/29/2016 11:50:00 AM Anne Thorne

Completed By: Anne Thorne 1/29/2016 Anne Thorne

Reviewed By: 01/29/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH: 2 (<2 or >12 unless noted)
Adjusted? —
Checked by: A 01/29/16

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.8	Good	Not Present			

Chain-of-Custody Record

Client: Terracon

Mailing Address: 4905 Hawkins NE
Alb, NM 87109

Phone #: 505-797-4287

Email or Fax#: mark.hillier@terracon.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☒ NELAP ☐ Other _____

EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: NM1-9 Landfarm

Project #: 66150040

Project Manager: M. Hillier

Sampler: M. Hillier

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1601B39	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Specific grav.	Sodium Absorption Ratio	Total Hardness	Cations/Anions Balance	Air Bubbles (Y or N)
1/28	1250	S	Q116C2S	40402		001	X			X												
"	1315	S	Q116C1	"		002	X			X												
"	1345	S	Q116C2N	"		003	X			X												
"	1440	W	Q116IW	3		004												X	X	X	X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
9	11:50	[signature]	[signature]	1/29/16	11:50
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:
For water sample, analyze per Lab ID 1510070-001
10% discount

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, October 06, 2010 6:57 AM
To: VonGonten, Glenn, EMNRD
Cc: Sanchez, Daniel J., EMNRD; 'wayne price'; Perrin, Charlie, EMNRD; Jones, Brad A., EMNRD
Subject: FW: Sampling at Key Farmington Facility UIC-5

Glenn:

OCD gave Wayne a one-time ok on the chemicals to analyze during the last quarter (July) of sampling. Do you want Wayne to continue sampling this way or revert back to the discharge permit specified requirements? We have had some discussion about this. Please clarify for Key. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

-----Original Message-----
From: wayne price [mailto:wayneprice77@earthlink.net]
Sent: Tuesday, October 05, 2010 1:01 PM
To: Perrin, Charlie, EMNRD; Powell, Brandon, EMNRD; Jones, Brad A., EMNRD; Chavez, Carl J, EMNRD; VonGonten, Glenn, EMNRD
Cc: Neil Allen; Sanchez, Daniel J., EMNRD
Subject: Sampling at Key Farmington Facility UIC-5

Hi all:

Mary and I will be sampling this Thursday, starting about 10 am: Your more than welcome to witness and attend.

We will be collecting samples from the Injection well and landfarm.

Thanks!

Key Energy Services
6 Desta Drive
Suite 4400
Midland, Texas 79705

Telephone: 432.620.0300
Facsimile: 432.571.7173
www.keyenergy.com

RECEIVED OCD

2010 SEP 17 P 1:15

September 14, 2010

Mr. Daniel Sanchez
UIC Director
State of New Mexico
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

VIA EMAIL AND US MAIL

Reference: Key Farmington UIC-5 (Sunco) Injection Well
Subject: 2010 Second Quarter Sampling Results

Dear Mr. Sanchez:

Please find enclosed the second quarter sampling results for the Key Farmington UIC-5 (Sunco) Injection Well. The sampling was conducted pursuant to permit conditions 22 H, modified by OCD on June 03, 2010, and 22 I. The analytical data and summary report are being submitted this quarter at the request of the OCD.

Section 22H: (Modified)

The language of this Section will be amended as follows, with strike-through indicating eliminated portions and underlining indicating additions/new language:

§ Provide ~~an~~ quarterly analytical laboratory data ~~or test results~~ with associated data summary reports of the ~~injection~~ injected RCRA (non-hazardous) wastewater with each Annual Report. The analytical testing shall be conducted on a quarterly basis with any exceedence of the RCRA Characteristically Hazardous Criteria listed below reported to the OCD within 24 hours after having knowledge of ~~an~~ any such exceedence(s). All testing shall be in accordance with the current discharge permit and with compliance criterion for hazardous waste concentrations. For example, any exceedence of the RCRA Criterion listed below must be immediately resampled for verification of the exceedence(s), and if confirmed, the well shall be immediately shut-in until the injected fluids are confirmed to be RCRA non-hazardous with weekly sampling for one month to verify compliance with the discharge permit.

RCRA Characteristically Hazardous Waste Criterion or Parameters:

Ignitability:
§ Characteristic of Ignitability as defined by 40 CFR, Subpart C, sec. 261.21 (i.e., Sample Ignition upon direct contact with flame or flash point < 60°C or 140°F)

Corrosivity:
§ Characteristic of Corrosivity as defined by 40 CFR, Subpart C, Sec. 261.22 (i.e., pH less than or equal to 2 or pH greater than or equal to 12.5)

Reactivity:
§ Characteristic of Reactivity as defined by 40 CFR, Subpart C, Sec. 261.23. (i.e., Violent reaction with water, strong base, strong acid, or the generation of Sulfide or Cyanide gases at Standard Temperature and Pressure (STP) with pH between 2.0 and 12.5)

Reference: 40 CFR part 261 Subpart C sections 261.21 – 261.23, July 1, 1992.

22 I. Records shall be maintained at Key for the life of the well. The required analytical test methods are:

a. Aromatic and halogenated volatile hydrocarbon scan by EPA Method 8260C GC/MS. Semi-volatile Organics GC/MS EPA Method 8270B including 1- and 2-methylnaphthalene.
b. General water chemistry (Method 40 CFR 136.3) to include calcium, potassium, magnesium, sodium, bicarbonate, carbonate, chloride, sulfate, total dissolved solids (TDS), pH, and conductivity.
c. Heavy metals using the ICP scan (EPA Method 6010) and Arsenic and Mercury using atomic absorption (EPA Methods 7060 and 7470).
d. EPA RCRA Characteristics for Ignitability, Corrosivity and Reactivity (40 CFR part 261 Subpart C Sections 261.21 – 261.23, July 1, 1992).

Summary of Results:

22H. Please find attached the Suspected Hazardous Waste Analysis for Ignitability (D001), Corrosivity (D002), and Reactivity (D003). The results were all negative.

22.I.a. Please find attached the analytical results required in permit condition 22I. Method 8260B (volatile organics) was used instead of the requested 8260C. 8260C is the latest EPA published method for volatile organics and several laboratories contacted were not set up to run the 8260C analysis. After discussing these criteria with several labs, all agreed that the normal 8260B is still being used instead of 8260C. Apparently, the main difference appears to be that EPA has included

pharmaceutical chemicals in Method 8260B, which are flushed down the drains of domestic home users.

The Class I waste disposed of at the Farmington facility does not contain these types of waste streams, therefore, the 8260B which is the standard for volatile organics in the industry will be used when necessary.

The complete suite 8270B semi-volatiles is included and attached for reference. Both 1 and 2-methylnaphthalene are now part of Method 8260B and are included for reference. The 8270B results from Envirotech lab only included PAH's, therefore, in order to obtain the entire suite, which included non-oilfield herbicides and Pesticides, Envirotech had to send out these samples to ESC labs in Tennessee.

22.I.b. Please find attached the analytical results required by permit condition 22.I.b. "General Water Chemistry". While this is currently a permit requirement, there is no criteria or chemical constituent limits for injection.

22.I.c. Please find attached the analytical results required by permit condition 22.I.c. "Heavy metals using the ICP scan (EPA Method 6010) and Arsenic and Mercury using atomic absorption (EPA Methods 7060 and 7470)." The Heavy Metals includes "WQCC metals". Arsenic and Mercury was run by using method 6010 ICP. The new ICP's can now meet the detection limits as required and methods 7060/7470 are not required.

22.I.d. Covered in 22H. Above.

Key met with OCD personnel on August 03, 2010 to discuss a reduced list of chemicals for the 3rd quarter 2010 sampling event. OCD approved the request for the third quarter sampling event. Key will be requesting, after the next sampling event, that samples required in the permit are revaluated and minor modification issued. This will greatly reduce Key's analytical expenses and still allow OCD to evaluate the characteristics of the injected waste.

If you have any questions or concerns, please do not hesitate to call or write.

Sincerely,

Daniel K. Gibson, P.G.
Corporate Environmental Director

cc: Ms. Mikal Altomare
State of New Mexico
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Mr. Glenn vonGonten
State of New Mexico
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Mr. Carl Chavez
State of New Mexico
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Mr. Wayne Price
Price LLC
312 Encantado Ridge CT NE
Rio Rancho, New Mexico 87124

Mr. Loren Molleur

Attachments

envirotech
Analytical Laboratory

EPA Method 8270
Polynuclear Aromatic Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	INJ Water	Date Reported:	07-21-10
Laboratory Number:	55092	Date Sampled:	07-08-10
Chain of custody:	9911	Date Received:	07-08-10
Sample Matrix:	Aqueous	Date Analyzed:	07-16-10
Preservative:	Cool	Date Concentrated:	07-14-10
Condition:	Cool & Intact	Analysis Requested:	8270

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
Naphthalene	ND	0.001
Acenaphthylene	ND	0.001
Acenaphthene	ND	0.001
Fluorene	ND	0.001
Phenanthrene	ND	0.001
Anthracene	ND	0.001
Fluoranthene	ND	0.001
Pyrene	ND	0.001
Benzo[a]anthracene	ND	0.001
Chrysene	ND	0.001
Benzo(b)fluoranthene	ND	0.001
Benzo[k]fluoranthene	ND	0.001
Benzo(a)pyrene	ND	0.001
Indeno[1,2,3]pyrene	ND	0.001
Dibenzo[a,h]anthracene	ND	0.001
Benzo(g,h,i)perylene	ND	0.001

ND - Parameter not detected at the stated detection limit.

SURROGATE RECOVERY	Parameter	Percent Recovery
	1-fluoronapthalene	83.8

References: Method 8270, Semi-Volatile Organics by Capillary Column GC/MS
SW-846, USEPA, September 1986.

Comments: **Key Farmington UIC-5 INJ Water**

Analyst

Review

envirotech
Analytical Laboratory

EPA Method 8270
Polynuclear Aromatic Hydrocarbons
Daily Calibration Report

Client:	QA/QC	Project #:	N/A
Sample ID:	8270 Cal 200 ppm	Date Reported:	07-21-10
Laboratory Number:	0618P200 QA/QC	Date Sampled:	N/A
Chain of custody:	N/A	Date Received:	N/A
Sample Matrix:	Aquesous	Date Analyzed:	07-16-10
Preservative:	N/A	Date Concentrated:	N/A
Condition:	N/A	Analysis Requested:	8270

Parameter	Concentration (mg/L)	Result	% Recovered	% Recovery Limits
Naphthalene	200	184	91.8	80 - 120
Acenaphthylene	200	182	90.9	80 - 120
Acenaphthene	200	200	100	80 - 120
Fluorene	200	200	100	80 - 120
Phenanthrene	200	200	100	80 - 120
Anthracene	200	200	100	80 - 120
Fluoranthene	200	200	100	80 - 120
Pyrene	200	200	100	80 - 120
Benzo[a]anthracene	200	200	100	80 - 120
Chrysene	200	200	100	80 - 120
Benzo(b)fluoranthene	200	200	100	80 - 120
Benzo[k]fluoranthene	200	200	100	80 - 120
Benzo(a)pyrene	200	200	100	80 - 120
Indeno[1,2,3]pyrene	200	200	100	80 - 120
Dibenzo[a,h]anthracene	200	200	100	80 - 120
Benzo(g,h,i)perylene	200	200	100	80 - 120

ND - Parameter not detected at the stated detection limit.

SURROGATE RECOVERY	Parameter	Percent Recovery
	1-fluoronapthalene	90.6

References: Method 8270, Semi-Volatile Organics by Capillary Column GC/MS
SW-846, USEPA, September 1986.

Comments: **QA/QC for Sample 55092**

Analyst

Review

envirotech
Analytical Laboratory

EPA Method 8270
Polynuclear Aromatic Hydrocarbons

Client:	QA/QC	Project #:	N/A
Sample ID:	Method Blank	Date Reported:	07-21-10
Laboratory Number:	0716PMB QA/QC	Date Sampled:	N/A
Chain of custody:	N/A	Date Received:	N/A
Sample Matrix:	Aqueous	Date Analyzed:	07-16-10
Preservative:	N/A	Date Concentrated:	07-14-10
Condition:	N/A	Analysis Requested:	8270

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
Naphthalene	ND	0.00
Acenaphthylene	ND	0.00
Acenaphthene	ND	0.00
Fluorene	ND	0.00
Phenanthrene	ND	0.00
Anthracene	ND	0.00
Fluoranthene	ND	0.00
Pyrene	ND	0.00
Benzo[a]anthracene	ND	0.00
Chrysene	ND	0.00
Benzo(b)fluoranthene	ND	0.00
Benzo[k]fluoranthene	ND	0.00
Benzo(a)pyrene	ND	0.00
Indeno[1,2,3]pyrene	ND	0.00
Dibenzo[a,h]anthracene	ND	0.00
Benzo(g,h,i)perylene	ND	0.00

ND - Parameter not detected at the stated detection limit.

SURROGATE RECOVERY	Parameter	Percent Recovery
	1-fluoronapthalene	91.3

References: Method 8270, Semi-Volatile Organics by Capillary Column GC/MS
SW-846, USEPA, September 1986.

Comments: **QA/QC for Sample 55092**

Analyst

Review

envirotech
Analytical Laboratory

EPA Method 8270
Polynuclear Aromatic Hydrocarbons
Quality Assurance Report

Client:	QA/QC	Project #:	QA/QC
Sample ID:	Matrix Spike	Date Reported:	07-21-10
Laboratory Number:	55092	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Analysis Requested:	8270	Date Analyzed:	07-16-10
Condition:	N/A		

Parameter	Sample Result (mg/L)	Spike Added (mg/L)	Spiked Sample Result (mg/L)	Det. Limit (mg/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Naphthalene	ND	100.0	95.2	0.001	95.2%	10-122
Acenaphthylene	ND	100.0	81.4	0.001	81.4%	10-139
Acenaphthene	ND	100.0	108	0.001	108%	10-124
Fluorene	ND	100.0	111	0.001	111%	10-142
Phenanthrene	ND	100.0	114	0.001	114%	10-155
Anthracene	ND	100.0	117	0.001	117%	10-126
Fluoranthene	ND	100.0	102	0.001	102%	14-123
Pyrene	ND	100.0	108	0.001	108%	10-140
Benzo[a]anthracene	ND	100.0	106	0.001	106%	10-116
Chrysene	ND	100.0	95.9	0.001	95.9%	12-135
Benzo(b)fluoranthene	ND	100.0	87.4	0.001	87.4%	10-199
Benzo[k]fluoranthene	ND	100.0	85.4	0.001	85.4%	10-150
Benzo(a)pyrene	ND	100.0	79.4	0.001	79.4%	10-159
Indeno[1,2,3]pyrene	ND	100.0	80.6	0.001	80.6%	10-128
Dibenzo[a,h]anthracene	ND	100.0	84.3	0.001	84.3%	10-110
Benzo(g,h,i)perylene	ND	100.0	89.4	0.001	89.4%	10-116

ND - Parameter not detected at the stated detection limit.

References: Method 8270, Semi-Volatile Organics by Capillary Column GC/MS
SW-846, USEPA, September 1986.

Comments: **QA/QC for Sample 55092**

Analyst

Review

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EPA Method 8270
Polynuclear Aromatic Hydrocarbons
Quality Assurance Report

Client:	QA/QC	Project #:	QA/QC
Sample ID:	07/16PAHLabBlank	Date Reported:	07-21-10
Laboratory Number:	QA/QC	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-16-10
Condition:	N/A	Analysis Requested:	8270

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
Naphthalene	ND	0.00
Acenaphthylene	ND	0.00
Acenaphthene	ND	0.00
Fluorene	ND	0.00
Phenanthrene	ND	0.00
Anthracene	ND	0.00
Fluoranthene	ND	0.00
Pyrene	ND	0.00
Benzo[a]anthracene	ND	0.00
Chrysene	ND	0.00
Benzo(b)fluoranthene	ND	0.00
Benzo[k]fluoranthene	ND	0.00
Benzo(a)pyrene	ND	0.00
Indeno[1,2,3]pyrene	ND	0.00
Dibenzo[a,h]anthracene	ND	0.00
Benzo(g,h,i)perylene	ND	0.00

ND - Parameter not detected at the stated detection limit.

SURROGATE RECOVERY:	Parameter	Percent Recovery
	1-fluoronapthalene	88.1

References: Method 8270, Semi-Volatile Organics by Capillary Column GC/MS
SW-846, USEPA, September 1986.

Comments: **QA/QC for Samples 55092**

Analyst

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EPA Method 8270
Polynuclear Aromatic Hydrocarbons
Quality Assurance Report

Client:	QA/QC	Project #:	QA/QC
Sample ID:	Matrix Duplicate	Date Reported:	07-21-10
Laboratory Number:	55092	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Analysis Requested:	8270	Date Analyzed:	07-16-10
Condition:	N/A		

Parameter	Sample Result (mg/L)	Duplicate Sample Result (mg/L)	Det. Limit (mg/L)	Percent Difference
Naphthalene	ND	ND	0.001	0.0%
Acenaphthylene	ND	ND	0.001	0.0%
Acenaphthene	ND	ND	0.001	0.0%
Fluorene	ND	ND	0.001	0.0%
Phenanthrene	ND	ND	0.001	0.0%
Anthracene	ND	ND	0.001	0.0%
Fluoranthene	ND	ND	0.001	0.0%
Pyrene	ND	ND	0.001	0.0%
Benzo[a]anthracene	ND	ND	0.001	0.0%
Chrysene	ND	ND	0.001	0.0%
Benzo(b)fluoranthene	ND	ND	0.001	0.0%
Benzo[k]fluoranthene	ND	ND	0.001	0.0%
Benzo(a)pyrene	ND	ND	0.001	0.0%
Indeno[1,2,3]pyrene	ND	ND	0.001	0.0%
Dibenzo[a,h]anthracene	ND	ND	0.001	0.0%
Benzo(g,h,i)perylene	ND	ND	0.001	0.0%

ND - Parameter not detected at the stated detection limit.

References: Method 8270, Semi-Volatile Organics by Capillary Column GC/MS
SW-846, USEPA, September 1986.

Comments: **QA/QC for Sample 55092**

Analyst

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EPA Method 8260B
Volatile Organic Compounds by GC/MS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	INJ Water	Date Reported:	07-21-10
Chain of Custody:	9911	Date Sampled:	07-08-10
Laboratory Number:	55091	Date Received:	07-08-10
Sample Matrix:	Aqueous	Date Analyzed:	07-13-10
Preservative:	HCl	Analysis Requested:	8260 VOC
Condition:	Cool and Intact		

Parameter	Concentration (ug/L)	Units	Det. Limit	Dilution Factor
Benzene	27.6	(ug/L)	1.0	1
Toluene	1,210	(ug/L)	1.0	1
Ethylbenzene	241	(ug/L)	1.0	1
Xylenes, Total	1,360	(ug/L)	1.0	1
Methyl tert-butyl ether (MTBE)	ND	(ug/L)	1.0	1
1,2,4-Trimethylbenzene	191	(ug/L)	1.0	1
1,3,5-Trimethylbenzene	272	(ug/L)	1.0	1
1,2-Dichloroethane (EDC)	ND	(ug/L)	1.0	1
1,2-Dibromoethane (EDB)	ND	(ug/L)	1.0	1
Naphthalene	402	(ug/L)	1.0	1
1-Methylnaphthalene	51.1	(ug/L)	2.0	1
2-Methylnaphthalene	34.9	(ug/L)	2.0	1
Bromobenzene	ND	(ug/L)	1.0	1
Bromochloromethane	ND	(ug/L)	1.0	1
Bromodichloromethane	ND	(ug/L)	1.0	1
Bromoform	ND	(ug/L)	1.0	1
Bromomethane	ND	(ug/L)	1.0	1
Carbon Tetrachloride	ND	(ug/L)	1.0	1
Chlorobenzene	ND	(ug/L)	1.0	1
Chloroethane	ND	(ug/L)	2.0	1
Chloroform	ND	(ug/L)	1.0	1
Chloromethane	ND	(ug/L)	1.0	1
2-Chlorotoluene	ND	(ug/L)	1.0	1
4-Chlorotoluene	ND	(ug/L)	1.0	1
cis-1,2-Dichloroethene	ND	(ug/L)	1.0	1
cis-1,3-Dichloropropene	ND	(ug/L)	1.0	1
1,2-Dibromo-3-chloropropane	ND	(ug/L)	2.0	1
Dibromochloromethane	ND	(ug/L)	1.0	1
Dibromoethane	ND	(ug/L)	2.0	1
1,2-Dichlorobenzene	ND	(ug/L)	1.0	1
1,3-Dichlorobenzene	ND	(ug/L)	1.0	1
1,4-Dichlorobenzene	ND	(ug/L)	1.0	1
Dichlorodifluoromethane	ND	(ug/L)	1.0	1
1,1-Dichloroethane	ND	(ug/L)	1.0	1
1,1-Dichloroethene	ND	(ug/L)	1.0	1
1,2-Dichloropropane	ND	(ug/L)	1.0	1
1,3-Dichloropropane	ND	(ug/L)	1.0	1
2,2-Dichloropropane	ND	(ug/L)	1.0	1

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EPA Method 8260B
Volatile Organic Compounds by GC/MS

Client: Key Energy
Sample ID: INJ Water
Laboratory Number: 55091

Parameter	Concentration (ug/L)	Units	Det. Limit	Dilution Factor
1,1-Dichloropropene	ND	(ug/L)	1.0	1
Hexachlorobutadiene	ND	(ug/L)	1.0	1
Isopropylbenzene	189	(ug/L)	1.0	1
4-Isopropyltoluene	29.9	(ug/L)	1.0	1
Methylene Chloride	19.6	(ug/L)	3.0	1
n-Butylbenzene	13.8	(ug/L)	1.0	1
n-Propylbenzene	56.0	(ug/L)	1.0	1
sec-Butylbenzene	289	(ug/L)	1.0	1
Styrene	ND	(ug/L)	1.0	1
tert-Butylbenzene	ND	(ug/L)	1.0	1
Tetrachloroethene (PCE)	ND	(ug/L)	1.0	1
1,1,1,2-Tetrachloroethane	ND	(ug/L)	1.0	1
1,1,2,2-Tetrachloroethane	ND	(ug/L)	1.0	1
trans-1,2-Dichloroethene	ND	(ug/L)	1.0	1
trans-1,3-Dichloropropene	ND	(ug/L)	1.0	1
Trichloroethene (TCE)	ND	(ug/L)	1.0	1
Trichlorofluoromethane	ND	(ug/L)	1.0	1
1,2,3-Trichlorobenzene	ND	(ug/L)	1.0	1
1,2,4-Trichlorobenzene	ND	(ug/L)	1.0	1
1,1,1-Trichloroethane	ND	(ug/L)	1.0	1
1,1,2-Trichloroethane	ND	(ug/L)	1.0	1
1,2,3-Trichloropropane	ND	(ug/L)	2.0	1
Vinyl Chloride	ND	(ug/L)	2.0	1

Surrogates:			Rec. Limits	
Dibromofluoromethane	86.4	% Recovery	78.6-115	1
1,2-Dichloroethane-d4	86.4	% Recovery	74.6-123	1
Toluene-d8	93.1	% Recovery	84.2-115	1
4-Bromofluorobenzene	99.1	% Recovery	78.6-115	1

ND = Parameter not detected at the stated detection limit.

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8260,Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry,Test Methods for Evaluating Solid Waste,SW-846, USEPA, July 1992

Comments: **Key Farmington UIC-5 INJ Water**

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QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

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EPA Method 8260B
Volatile Organic Compounds by GC/MS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spikes	Date Reported:	07-21-10
Laboratory Number:	55091	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-13-10
Condition:	N/A	Analysis Requested:	8260 VOC

Spike Analyte	Sample	Units: ug/L Added	Result	%Recovery	Recovery Limits	Det. Limit
Benzene	27.6	100	112	87.8%	85.3 - 120	1.0
Toluene	1,210	100	1,400	107%	73.0 - 123	1.0
Chlorobenzene	ND	100	85.7	85.7%	84.7 - 119	1.0
1,1-Dichloroethene	ND	100	88.4	88.4%	83.4 - 122	1.0
Trichloroethene (TCE)	ND	100	83.6	83.6%	76.1 - 126	1.0

Spike Duplicate Analyte	Sample	Units: ug/L Added	Result	%Recovery	Recovery Limits	Det. Limit
Benzene	27.6	100	136	107%	85.3 - 120	1.0
Toluene	1,210	100	1,440	110%	73.0 - 123	1.0
Chlorobenzene	ND	100	86.3	86.3%	84.7 - 119	1.0
1,1-Dichloroethene	ND	100	89.9	89.9%	83.4 - 122	1.0
Trichloroethene (TCE)	ND	100	86.0	86.0%	76.1 - 126	1.0

ND = Parameter not detected at the stated detection limit.

References:

Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8260,Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry,Test Methods for Evaluating Solid Waste,SW-846, USEPA, July 1992

Comments: **QA/QC for Sample 55091**

Analyst

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Analytical Laboratory

EPA Method 8260B
Volatile Organic Compounds by GC/MS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	8260 Blank	Date Reported:	07-21-10
Laboratory Number:	0713VBLK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-13-10
Condition:	N/A	Analysis Requested:	8260 VOC

Parameter	Concentration (ug/L)	Units	Det. Limit	Dilution Factor
Benzene	ND	(ug/L)	1.0	1
Toluene	ND	(ug/L)	1.0	1
Ethylbenzene	ND	(ug/L)	1.0	1
Xylenes, Total	ND	(ug/L)	1.0	1
Methyl tert-butyl ether (MTBE)	ND	(ug/L)	1.0	1
1,2,4-Trimethylbenzene	ND	(ug/L)	1.0	1
1,3,5-Trimethylbenzene	ND	(ug/L)	1.0	1
1,2-Dichloroethane (EDC)	ND	(ug/L)	1.0	1
1,2-Dibromoethane (EDB)	ND	(ug/L)	1.0	1
Naphthalene	ND	(ug/L)	1.0	1
1-Methylnaphthalene	ND	(ug/L)	2.0	1
2-Methylnaphthalene	ND	(ug/L)	2.0	1
Bromobenzene	ND	(ug/L)	1.0	1
Bromochloromethane	ND	(ug/L)	1.0	1
Bromodichloromethane	ND	(ug/L)	1.0	1
Bromoform	ND	(ug/L)	1.0	1
Bromomethane	ND	(ug/L)	1.0	1
Carbon Tetrachloride	ND	(ug/L)	1.0	1
Chlorobenzene	ND	(ug/L)	1.0	1
Chloroethane	ND	(ug/L)	2.0	1
Chloroform	ND	(ug/L)	1.0	1
Chloromethane	ND	(ug/L)	1.0	1
2-Chlorotoluene	ND	(ug/L)	1.0	1
4-Chlorotoluene	ND	(ug/L)	1.0	1
cis-1,2-Dichloroethene	ND	(ug/L)	1.0	1
cis-1,3-Dichloropropene	ND	(ug/L)	1.0	1
1,2-Dibromo-3-chloropropane	ND	(ug/L)	2.0	1
Dibromochloromethane	ND	(ug/L)	1.0	1
Dibromoethane	ND	(ug/L)	2.0	1
1,2-Dichlorobenzene	ND	(ug/L)	1.0	1
1,3-Dichlorobenzene	ND	(ug/L)	1.0	1
1,4-Dichlorobenzene	ND	(ug/L)	1.0	1
Dichlorodifluoromethane	ND	(ug/L)	1.0	1
1,1-Dichloroethane	ND	(ug/L)	1.0	1
1,1-Dichloroethene	ND	(ug/L)	1.0	1
1,2-Dichloropropane	ND	(ug/L)	1.0	1
1,3-Dichloropropane	ND	(ug/L)	1.0	1
2,2-Dichloropropane	ND	(ug/L)	1.0	1

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EPA Method 8260B
Volatile Organic Compounds by GC/MS
Quality Assurance Report

Client: QA/QC
Sample ID: 8260 Blank
Laboratory Number: 0713VBLK

Parameter	Concentration (ug/L)	Units	Det. Limit	Dilution Factor
1,1-Dichloropropene	ND	(ug/L)	1.0	1
Hexachlorobutadiene	ND	(ug/L)	1.0	1
Isopropylbenzene	ND	(ug/L)	1.0	1
4-Isopropyltoluene	ND	(ug/L)	1.0	1
Methylene Chloride	ND	(ug/L)	1.0	1
n-Butylbenzene	ND	(ug/L)	1.0	1
n-Propylbenzene	ND	(ug/L)	1.0	1
sec-Butylbenzene	ND	(ug/L)	1.0	1
Styrene	ND	(ug/L)	1.0	1
tert-Butylbenzene	ND	(ug/L)	1.0	1
Tetrachloroethene (PCE)	ND	(ug/L)	1.0	1
1,1,1,2-Tetrachloroethane	ND	(ug/L)	1.0	1
1,1,2,2-Tetrachloroethane	ND	(ug/L)	1.0	1
trans-1,2-Dichloroethene	ND	(ug/L)	1.0	1
trans-1,3-Dichloropropene	ND	(ug/L)	1.0	1
Trichloroethene (TCE)	ND	(ug/L)	1.0	1
Trichlorofluoromethane	ND	(ug/L)	1.0	1
1,2,3-Trichlorobenzene	ND	(ug/L)	1.0	1
1,2,4-Trichlorobenzene	ND	(ug/L)	1.0	1
1,1,1-Trichloroethane	ND	(ug/L)	1.0	1
1,1,2-Trichloroethane	ND	(ug/L)	1.0	1
1,2,3-Trichloropropane	ND	(ug/L)	2.0	1
Vinyl Chloride	ND	(ug/L)	2.0	1

Surrogates:			Rec. Limits	
Dibromofluoromethane	84.7	% Recovery	78.6-115	1
1,2-Dichloroethane-d4	120	% Recovery	74.6-123	1
Toluene-d8	89.2	% Recovery	84.2-115	1
4-Bromofluorobenzene	104	% Recovery	78.6-115	1

ND = Parameter not detected at the stated detection limit.

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8260,Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry,Test Methods for Evaluating Solid Waste,SW-846, USEPA, July 1992

Comments: **QA/QC for Sample 55091**

Analyst

Review

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Analytical Laboratory

EPA Method 8260B
Volatile Organic Compounds by GC/MS
Daily Calibration Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Daily Calibration	Date Reported:	07-21-10
Laboratory Number:	0713VCAL	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-13-10
Condition:	N/A	Analysis Requested:	8260 VOC

Parameter	Concentration (ug/L)	Result	% Recovered	% Recovery Limits
Benzene	100	100	100	80 - 120
Toluene	100	100	100	80 - 120
Ethylbenzene	100	100	100	80 - 120
Xylenes, Total	100	100	100	80 - 120
Methyl tert-butyl ether (MTBE)	100	100	100	80 - 120
1,2,4-Trimethylbenzene	100	100	100	80 - 120
1,3,5-Trimethylbenzene	100	100	100	80 - 120
1,2-Dichloroethane (EDC)	100	100	100	80 - 120
1,2-Dibromoethane (EDB)	100	100	100	80 - 120
Naphthalene	100	100	100	80 - 120
1-Methylnaphthalene	100	100	100	80 - 120
2-Methylnaphthalene	100	100	100	80 - 120
Bromobenzene	100	100	100	80 - 120
Bromochloromethane	100	100	100	80 - 120
Bromodichloromethane	100	100	100	80 - 120
Bromoform	100	100	100	80 - 120
Bromomethane	100	100	100	80 - 120
Carbon Tetrachloride	100	100	100	80 - 120
Chlorobenzene	100	100	100	80 - 120
Chloroethane	100	100	100	80 - 120
Chloroform	100	100	100	80 - 120
Chloromethane	100	100	100	80 - 120
2-Chlorotoluene	100	100	100	80 - 120
4-Chlorotoluene	100	100	100	80 - 120
cis-1,2-Dichloroethene	100	100	100	80 - 120
cis-1,3-Dichloropropene	100	100	100	80 - 120
1,2-Dibromo-3-chloropropane	100	100	100	80 - 120
Dibromochloromethane	100	100	100	80 - 120
Dibromoethane	100	100	100	80 - 120
1,2-Dichlorobenzene	100	100	100	80 - 120
1,3-Dichlorobenzene	100	100	100	80 - 120
1,4-Dichlorobenzene	100	100	100	80 - 120
Dichlorodifluoromethane	100	100	100	80 - 120
1,1-Dichloroethane	100	100	100	80 - 120
1,1-Dichloroethene	100	100	100	80 - 120
1,2-Dichloropropane	100	100	100	80 - 120
1,3-Dichloropropane	100	100	100	80 - 120
2,2-Dichloropropane	100	100	100	80 - 120

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EPA Method 8260B
Volatile Organic Compounds by GC/MS
Quality Assurance Report

Client: QA/QC
Sample ID: Daily Calibration
Laboratory Number: 0713VCAL

Parameter	Concentration (ug/L)	Result	% Recovered	% Recovery Limits
1,1-Dichloropropene	100	100	100	80 - 120
Hexachlorobutadiene	100	100	100	80 - 120
Isopropylbenzene	100	100	100	80 - 120
4-Isopropyltoluene	100	100	100	80 - 120
Methylene Chloride	100	100	100	80 - 120
n-Butylbenzene	100	100	100	80 - 120
n-Propylbenzene	100	100	100	80 - 120
sec-Butylbenzene	100	100	100	80 - 120
Styrene	100	100	100	80 - 120
tert-Butylbenzene	100	100	100	80 - 120
Tetrachloroethene (PCE)	100	100	100	80 - 120
1,1,1,2-Tetrachloroethane	100	100	100	80 - 120
1,1,2,2-Tetrachloroethane	100	100	100	80 - 120
trans-1,2-Dichloroethene	100	100	100	80 - 120
trans-1,3-Dichloropropene	100	100	100	80 - 120
Trichloroethene (TCE)	100	100	100	80 - 120
Trichlorofluoromethane	100	100	100	80 - 120
1,2,3-Trichlorobenzene	100	100	100	80 - 120
1,2,4-Trichlorobenzene	100	100	100	80 - 120
1,1,1-Trichloroethane	100	100	100	80 - 120
1,1,2-Trichloroethane	100	100	100	80 - 120
1,2,3-Trichloropropane	100	100	100	80 - 120
Vinyl Chloride	100	100	100	80 - 120

Surrogates:			Rec. Limits
Dibromofluoromethane	100	% Recovery	78.6-115
1,2-Dichloroethane-d4	100	% Recovery	74.6-123
Toluene-d8	100	% Recovery	84.2-115
4-Bromofluorobenzene	100	% Recovery	78.6-115

ND = Parameter not detected at the stated detection limit.

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8260,Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry,Test Methods for Evaluating Solid Waste,SW-846, USEPA, July 1992

Comments: **QA/QC for Sample 55091**

Analyst

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	INJ WATER	Date Reported:	07-15-10
Laboratory Number:	55093	Date Sampled:	07-08-10
Chain of Custody:	9911	Date Received:	07-08-10
Sample Matrix:	Aqueous	Date Analyzed:	07-10-10
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	**5.85**	s.u.		
Conductivity @ 25° C	**19,500**	umhos/cm		
Total Dissolved Solids @ 180C	**13,500**	mg/L		
Total Dissolved Solids (Calc)	**14,000**	mg/L		
SAR	**61.0**	ratio		
Total Alkalinity as CaCO3	**1,380**	mg/L		
Total Hardness as CaCO3	**141**	mg/L		
Bicarbonate as CaCO3	**1,380**	mg/L	22.62	meq/L
Carbonate as CaCO3	**<0.1**	mg/L	0.00	meq/L
Hydroxide as CaCO3	**<0.1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**3.80**	mg/L	0.06	meq/L
Nitrite Nitrogen	**0.001**	mg/L	0.00	meq/L
Chloride	**6,950**	mg/L	196.06	meq/L
Fluoride	**1.10**	mg/L	0.06	meq/L
Phosphate	**34.7**	mg/L	1.10	meq/L
Sulfate	**733**	mg/L	15.26	meq/L
Iron	**9.93**	mg/L	0.36	meq/L
Calcium	**448**	mg/L	22.36	meq/L
Magnesium	**8.06**	mg/L	0.66	meq/L
Potassium	**194**	mg/L	4.96	meq/L
Sodium	**4,760**	mg/L	207.06	meq/L
Cations			235.04	meq/L
Anions			235.15	meq/L
Cation/Anion Difference			**0.05%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington UIC-5 INJ Water**

Analyst

Review

envirotech
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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	INJ WATER	Date Reported:	07-15-10
Laboratory Number:	55094	Date Sampled:	07-08-10
Chain of Custody:	9911	Date Received:	07-08-10
Sample Matrix:	Aqueous	Date Analyzed:	07-14-10
Preservative:	HNO3	Date Digested:	07-13-10
Condition:	Cool & Intact	Analysis Needed:	Total RCRA Metals

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
Arsenic	**ND**	**0.001**
Barium	**5.68**	**0.001**
Cadmium	**ND**	**0.001**
Chromium	**ND**	**0.001**
Lead	**0.010**	**0.001**
Mercury	**1.38**	**0.001**
Selenium	**0.011**	**0.001**
Silver	**ND**	**0.001**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Key Farmington UIC-5 INJ Water**

Analyst

Review

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TRACE METAL ANALYSIS
Quality Control / Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	07-14-TM QA/QC	Date Reported:	07-15-10
Laboratory Number:	55094	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Analysis Requested:	Total RCRA Metals	Date Analyzed:	07-14-10
Condition:	Intact	Date Digested:	07-13-10

Blank & Duplicate Conc. (mg/L)	Instrument Blank (mg/L)	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Barium	ND	ND	0.001	5.68	5.88	3.5%	0% - 30%
Cadmium	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Chromium	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Lead	ND	ND	0.001	0.010	0.012	20.0%	0% - 30%
Mercury	ND	ND	0.001	1.38	1.38	0.0%	0% - 30%
Selenium	ND	ND	0.001	0.011	0.011	2.9%	0% - 30%
Silver	ND	ND	0.001	ND	ND	0.0%	0% - 30%

Spike Conc. (mg/L)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	0.250	ND	0.230	92.0%	80% - 120%
Barium	0.500	5.68	6.41	104%	80% - 120%
Cadmium	0.250	ND	0.225	90.1%	80% - 120%
Chromium	0.500	ND	0.551	110%	80% - 120%
Lead	0.500	0.010	0.410	80.4%	80% - 120%
Mercury	0.100	1.38	1.59	107%	80% - 120%
Selenium	0.100	0.011	0.090	81.4%	80% - 120%
Silver	0.100	ND	0.117	117%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 55094 and 55108.**

Analyst

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SUSPECTED HAZARDOUS WASTE ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	INJ Water	Date Reported:	07-22-10
Lab ID#:	55095	Date Sampled:	07-08-10
Sample Matrix:	Aqueous	Date Received:	07-08-10
Preservative:	Cool	Date Analyzed:	07-10-10
Condition:	Intact	Chain of Custody:	9911

Parameter	Result	
IGNITABILITY:	**Negative**	
CORROSIVITY:	**Negative**	**pH = 5.82**
REACTIVITY:	**Negative**	

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
IGNITABILITY:	Characteristic of Ignitability as defined by 40 CFR, Subpart C, Sec. 261.21. *(i.e. Sample ignition upon direct contact with flame or flash point < 60° C.)*
CORROSIVITY:	Characteristic of Corrosivity as defined by 40 CFR, Subpart C, Sec. 261.22. *(i.e. pH less than or equal to 2.0 or pH greater than or equal to 12.5)*
REACTIVITY:	Characteristic of Reactivity as defined by 40 CFR, Subpart C, Sec. 261.23. *(i.e. Violent reaction with water, strong base, strong acid, or the generation of Sulfide or Cyanide gases at STP with pH between 2.0 and 12.5)*

Reference: 40 CFR part 261 Subpart C sections 261.21 - 261.23, July 1, 1992.

Comments: **Key Farmington UIC-5 INJ Water**

Analyst

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CHAIN OF CUSTODY RECORD

09911

Client:	Project Name / Location:
KEY ENERGY	KEY FARMINGTON UIC-5 INJ WATER
Client Address: 5651 US Hwy 64 87401	Sampler Name: WAYNE PRICE - PRICE LLC
Client Phone No.: 1-505-715-2809	Client No.: 98065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative H_2O_2	Preservative HCl	Preservative ICE	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion GEN CHEM	RCI	TCLP with H/P	PAH (8270)	TPH (418.1)	CHLORIDE	METALS 6010 - ICP Hg (7470) - MA	RCI (Notify AA per Wayne FB 7/14/10)		Sample Cool	Sample Intact
INJ WATER	7-8-10	2:56 pm	55091	Soil Solid Sludge Aqueous	2-40 mL VOA		X				X											X	X
" "	"	2:50 pm	55092	Soil Solid Sludge Aqueous	2-1000 mL SVOA			X								X						X	X
" "	"	2:52 pm	55093	Soil Solid Sludge Aqueous	1-500 mL			X					X									X	X
" "	"	2:53 pm	55094	Soil Solid Sludge Aqueous	2-250 mL			HNO3											X			X	X
" "	"	2:54 pm	55095	Soil Solid Sludge Aqueous	1-125 mL			X												X		X	X
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
WAYNE PRICE	JULY 08 2010	3:28 pm		7/8/10	15:29:00
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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Water Analysis

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Inj Water	Date Reported:	08-16-10
Laboratory Number:	55453	Date Sampled:	08-04-10
Sample Matrix:	Aqueous	Date Received:	08-04-10
Preservative:	Cool	Date Analyzed:	08-05-10
Condition:	Cool & Intact	Chain of Custody:	10114

Parameter	Analytical Result	Units
Cyanide (total)	**0.165**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Key Farmington UIC-5 Inj Water**

Analyst

Review

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TRACE METAL ANALYSIS

Client:	Key energy	Project #:	98065-0013
Sample ID:	Inj. Water	Date Reported:	08-10-10
Laboratory Number:	55453	Date Sampled:	08-04-10
Chain of Custody:	10114	Date Received:	08-04-10
Sample Matrix:	Aqueous	Date Analyzed:	08-10-10
Preservative:	Cool	Date Digested:	08-09-10
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
Aluminum	**1.76**	**0.001**
Cobalt	**0.007**	**0.001**
Copper	**ND**	**0.001**
Iron	**12.3**	**0.001**
Manganese	**0.425**	**0.001**
Molybdenum	**0.079**	**0.001**
Nickel	**0.056**	**0.001**
Zinc	**0.295**	**0.001**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farmington UIC-5 Inj Water**

Analyst

Review

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TRACE METAL ANALYSIS
Quality Control / Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	08-10-TM QA/QC	Date Reported:	08-10-10
Laboratory Number:	55453	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Analysis Requested:	Total Metals	Date Analyzed:	08-10-10
Condition:	N/A	Date Digested:	08-09-10

Blank & Duplicate Conc. (mg/L)	Instrument Blank (mg/L	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Aluminum	**ND**	**ND**	**0.001**	**1.76**	**1.78**	**1.1%**	**0% - 30%**
Cobalt	**ND**	**ND**	**0.001**	**0.007**	**0.005**	**28.6%**	**0% - 30%**
Copper	**ND**	**ND**	**0.001**	**ND**	**ND**	**0.0%**	**0% - 30%**
Iron	**ND**	**ND**	**0.001**	**12.3**	**12.5**	**1.7%**	**0% - 30%**
Manganese	**ND**	**ND**	**0.001**	**0.425**	**0.434**	**2.2%**	**0% - 30%**
Molybdenum	**ND**	**ND**	**0.001**	**0.079**	**0.080**	**1.1%**	**0% - 30%**
Nickel	**ND**	**ND**	**0.001**	**0.056**	**0.040**	**27.6%**	**0% - 30%**
Zinc	**ND**	**ND**	**0.001**	**0.295**	**0.296**	**0.2%**	**0% - 30%**

Spike Conc. (mg/L)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Aluminum	**0.500**	**1.76**	**2.29**	**101%**	**80% - 120%**
Cobalt	**0.500**	**0.007**	**0.436**	**86.0%**	**80% - 120%**
Copper	**0.500**	**ND**	**0.409**	**81.9%**	**80% - 120%**
Iron	**0.500**	**12.3**	**12.3**	**95.9%**	**80% - 120%**
Manganese	**0.500**	**0.425**	**0.841**	**91.0%**	**80% - 120%**
Molybdenum	**0.100**	**0.079**	**0.164**	**91.6%**	**80% - 120%**
Nickel	**0.500**	**0.056**	**0.486**	**87.4%**	**80% - 120%**
Zinc	**0.500**	**0.295**	**0.701**	**88.2%**	**80% - 120%**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils.
SW-846, USEPA, December 1996.
Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **QA/QC for Sample 55453**

Analyst

Review

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EPA METHOD 8041
TCLP PHENOLS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Inj. Water	Date Reported:	08-26-10
Laboratory Number:	55453	Date Sampled:	08-04-10
Chain of Custody:	10114	Date Received:	08-04-10
Sample Matrix:	Aqueous	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	08-12-10
Condition:	Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	**ND**	**0.004**	**200**
p,m-Cresol	**ND**	**0.004**	**200**
2,4,6-Trichlorophenol	**ND**	**0.004**	**2.0**
2,4,5-Trichlorophenol	**ND**	**0.004**	**400**
Pentachlorophenol	**ND**	**0.004**	**100**

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-Fluorophenol	**86.2%**
	2,4,6-Tribromophenol	**82.6%**

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **Key Farmington UIC-5 Inj. Water**

Analyst

Review

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EPA METHOD 8041
TCLP PHENOLS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	0812ABLK QA/QC	Date Reported:	08-26-10
Laboratory Number:	55453	Date Sampled:	N/A
Sample Matrix:	2-Propanol	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	08-12-10
Condition:	N/A	Analysis Requested:	TCLP

Blanks & Duplicate Conc (mg/L)	Instrument Blank	Method Blank	Detection Limit	Sample	Duplicate	Percent Diff.
o-Cresol	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**
p,m-Cresol	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**
2,4,6-Trichlorophenol	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**
2,4,5-Trichlorophenol	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**
Pentachlorophenol	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**

ND - Parameter not detected at the stated detection limit.

References:

Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8041, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Comments: **QA/QC for Sample 55453.**

Analyst

Review

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EPA METHOD 8091
Nitroaromatics and Cyclic Ketones

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Inj. Water	Date Reported:	08-17-10
Laboratory Number:	55453	Date Sampled:	08-04-10
Chain of Custody:	10114	Date Received:	08-04-10
Sample Matrix:	Aqueous	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	08-12-10
Condition:	Cool & Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	**ND**	**0.004**	**5.0**
Hexachloroethane	**ND**	**0.004**	**3.0**
Nitrobenzene	**ND**	**0.004**	**2.0**
Hexachlorobutadiene	**ND**	**0.004**	**0.5**
2,4-Dinitrotoluene	**ND**	**0.004**	**0.13**
HexachloroBenzene	**ND**	**0.004**	**0.13**

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-fluorobiphenyl	**86.1%**

References: Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8270, Determination of Semi-Volatile Organics by Capillary Column GC/MS

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **Key Farmington UIC-5 Inj Water**

Analyst

Review

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EPA METHOD 8091
Nitroaromatics and Cyclic Ketones
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	0812BBLK QA/QC	Date Reported:	08-17-10
Laboratory Number:	55453	Date Sampled:	N/A
Sample Matrix:	Hexane	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	08-12-10
Condition:	N/A	Analysis Requested:	TCLP

Blanks & Duplicate Conc (mg/L)	Instrument Blank	Method Blank	Detection Limit	Sample	Duplicate	Percent Diff.
Pyridine	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**
Hexachloroethane	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**
Nitrobenzene	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**
Hexachlorobutadiene	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**
2,4-Dinitrotoluene	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**
HexachloroBenzene	**ND**	**ND**	**0.004**	**ND**	**ND**	**0.0%**

ND - Parameter not detected at the stated detection limit.

References:

Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8270, Determination of Semi-Volatile Organics by Capillary Column GC/MS

Comments: **QA/QC for Sample 55453**

Analyst

Review

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CHAIN OF CUSTODY RECORD

10114

Client:	Project Name / Location:
KEY ENERGY	KEY FARMINGTON UIC-5 INJ WATER
Client Address: 5651 Hwy 64	Sampler Name: Neil Allen
Client Phone No.: 505-486-2010	Client No.: 98065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative HgCl2	Preservative HCl	Preservative ICE	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	~~Ret~~ Cn	~~TCLP~~ with H/P	~~PAH~~ 8041 8081	TPH (418.1)	CHLORIDE	~~Uranium & Ra~~	~~PCB~~ MEK	6010 Metals	Sample Cool	Sample Intact
Inj Water				Soil Sludge Solid Aqueous	2 x 250 mL 2 x 250 mL			X						X			TCL		X		X	X	X
Inj. Water.	8/4/10	2:00 pm	55453	Soil Sludge Solid Aqueous	2x40mL VOA 2x1L amber			X							X					X		X	X
				Soil Sludge Solid Aqueous	2x1L amber			X								X						X	X
	All one sample.		MB.	Soil Sludge Solid Aqueous	2x40mL VOA			X												X		X	X
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Neil Allen	8/4/10	2:18 pm	[illegible]	8/4/10	2:18 pm
[illegible]	8/4/10	2:45 pm	Laura Vaquera	8/4/10	2:45 p
Relinquished by: (Signature)			Received by: (Signature)		

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Lynn Berry
EnviroTech- NM
5796 US. Highway 64
Farmington, NM 87401

Report Summary

Monday August 16, 2010

Report Number: L472785
Samples Received: 08/06/10
Client Project: 98065-0013

Description: Key Energy

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

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NJ - TN002,NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A

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REPORT OF ANALYSIS

Lynn Berry
EnviroTech- NM
5796 US. Highway 64
Farmington, NM 87401

August 16, 2010

ESC Sample # : L472785-01

Date Received : August 06, 2010
Description : Key Energy

Site ID :

Sample ID : 55453-INJ WATER

Project # : 98065-0013

Collected By : N. Allen
Collection Date : 08/04/10 14:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Volatile Organics						
Acetone	2.8	2.5	mg/l	8260B	08/08/10	50
Acrolein	BDL	2.5	mg/l	8260B	08/08/10	50
Acrylonitrile	BDL	0.50	mg/l	8260B	08/08/10	50
Benzene	0.33	0.050	mg/l	8260B	08/08/10	50
Bromobenzene	BDL	0.050	mg/l	8260B	08/08/10	50
Bromodichloromethane	BDL	0.050	mg/l	8260B	08/08/10	50
Bromoform	BDL	0.050	mg/l	8260B	08/08/10	50
Bromomethane	BDL	0.25	mg/l	8260B	08/08/10	50
n-Butylbenzene	0.076	0.050	mg/l	8260B	08/08/10	50
sec-Butylbenzene	BDL	0.050	mg/l	8260B	08/08/10	50
tert-Butylbenzene	BDL	0.050	mg/l	8260B	08/08/10	50
Carbon tetrachloride	BDL	0.050	mg/l	8260B	08/08/10	50
Chlorobenzene	BDL	0.050	mg/l	8260B	08/08/10	50
Chlorodibromomethane	BDL	0.050	mg/l	8260B	08/08/10	50
Chloroethane	BDL	0.25	mg/l	8260B	08/08/10	50
2-Chloroethyl vinyl ether	BDL	2.5	mg/l	8260B	08/08/10	50
Chloroform	BDL	0.25	mg/l	8260B	08/08/10	50
Chloromethane	BDL	0.12	mg/l	8260B	08/08/10	50
2-Chlorotoluene	BDL	0.050	mg/l	8260B	08/08/10	50
4-Chlorotoluene	BDL	0.050	mg/l	8260B	08/08/10	50
1,2-Dibromo-3-Chloropropane	BDL	0.25	mg/l	8260B	08/08/10	50
1,2-Dibromoethane	BDL	0.050	mg/l	8260B	08/08/10	50
Dibromomethane	BDL	0.050	mg/l	8260B	08/08/10	50
1,2-Dichlorobenzene	BDL	0.050	mg/l	8260B	08/08/10	50
1,3-Dichlorobenzene	BDL	0.050	mg/l	8260B	08/08/10	50
1,4-Dichlorobenzene	BDL	0.050	mg/l	8260B	08/08/10	50
Dichlorodifluoromethane	BDL	0.25	mg/l	8260B	08/08/10	50
1,1-Dichloroethane	BDL	0.050	mg/l	8260B	08/08/10	50
1,2-Dichloroethane	BDL	0.050	mg/l	8260B	08/08/10	50
1,1-Dichloroethene	BDL	0.050	mg/l	8260B	08/08/10	50
cis-1,2-Dichloroethene	BDL	0.050	mg/l	8260B	08/08/10	50
trans-1,2-Dichloroethene	BDL	0.050	mg/l	8260B	08/08/10	50
1,2-Dichloropropane	BDL	0.050	mg/l	8260B	08/08/10	50
1,1-Dichloropropene	BDL	0.050	mg/l	8260B	08/08/10	50
1,3-Dichloropropane	BDL	0.050	mg/l	8260B	08/08/10	50
cis-1,3-Dichloropropene	BDL	0.050	mg/l	8260B	08/08/10	50
trans-1,3-Dichloropropene	BDL	0.050	mg/l	8260B	08/08/10	50
2,2-Dichloropropane	BDL	0.050	mg/l	8260B	08/08/10	50
Di-isopropyl ether	BDL	0.050	mg/l	8260B	08/08/10	50
Ethylbenzene	0.54	0.050	mg/l	8260B	08/08/10	50
Hexachloro-1,3-butadiene	BDL	0.050	mg/l	8260B	08/08/10	50
Isopropylbenzene	0.058	0.050	mg/l	8260B	08/08/10	50
p-Isopropyltoluene	0.10	0.050	mg/l	8260B	08/08/10	50

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L472785-01 (SV8151) - Diluted due to matrix
L472785-01 (SV8081) - Diluted due to matrix

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REPORT OF ANALYSIS

Lynn Berry
EnviroTech- NM
5796 US. Highway 64
Farmington, NM 87401

August 16, 2010

ESC Sample # : L472785-01

Date Received : August 06, 2010
Description : Key Energy

Site ID :

Sample ID : 55453-INJ WATER

Project # : 98065-0013

Collected By : N. Allen
Collection Date : 08/04/10 14:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
2-Butanone (MEK)	BDL	0.50	mg/l	8260B	08/08/10	50
Methylene Chloride	BDL	0.25	mg/l	8260B	08/08/10	50
4-Methyl-2-pentanone (MIBK)	BDL	0.50	mg/l	8260B	08/08/10	50
Methyl tert-butyl ether	BDL	0.050	mg/l	8260B	08/08/10	50
Naphthalene	BDL	0.25	mg/l	8260B	08/08/10	50
n-Propylbenzene	0.14	0.050	mg/l	8260B	08/08/10	50
Styrene	BDL	0.050	mg/l	8260B	08/08/10	50
1,1,1,2-Tetrachloroethane	BDL	0.050	mg/l	8260B	08/08/10	50
1,1,2,2-Tetrachloroethane	BDL	0.050	mg/l	8260B	08/08/10	50
1,1,2-Trichloro-1,2,2-trifluoro	BDL	0.050	mg/l	8260B	08/08/10	50
Tetrachloroethene	BDL	0.050	mg/l	8260B	08/08/10	50
Toluene	1.2	0.25	mg/l	8260B	08/08/10	50
1,2,3-Trichlorobenzene	BDL	0.050	mg/l	8260B	08/08/10	50
1,2,4-Trichlorobenzene	BDL	0.050	mg/l	8260B	08/08/10	50
1,1,1-Trichloroethane	BDL	0.050	mg/l	8260B	08/08/10	50
1,1,2-Trichloroethane	BDL	0.050	mg/l	8260B	08/08/10	50
Trichloroethene	BDL	0.050	mg/l	8260B	08/08/10	50
Trichlorofluoromethane	BDL	0.25	mg/l	8260B	08/08/10	50
1,2,3-Trichloropropane	BDL	0.050	mg/l	8260B	08/08/10	50
1,2,4-Trimethylbenzene	0.83	0.050	mg/l	8260B	08/08/10	50
1,2,3-Trimethylbenzene	0.23	0.050	mg/l	8260B	08/08/10	50
1,3,5-Trimethylbenzene	0.41	0.050	mg/l	8260B	08/08/10	50
Vinyl chloride	BDL	0.050	mg/l	8260B	08/08/10	50
Xylenes, Total	3.5	0.15	mg/l	8260B	08/08/10	50
Surrogate Recovery						
Toluene-d8	106.		% Rec.	8260B	08/08/10	50
Dibromofluoromethane	87.6		% Rec.	8260B	08/08/10	50
4-Bromofluorobenzene	98.4		% Rec.	8260B	08/08/10	50
Pesticides						
Aldrin	BDL	0.0025	mg/l	8081A	08/13/10	50
Alpha BHC	BDL	0.0025	mg/l	8081A	08/13/10	50
Beta BHC	BDL	0.0025	mg/l	8081A	08/13/10	50
Delta BHC	BDL	0.0025	mg/l	8081A	08/13/10	50
Gamma BHC	BDL	0.0025	mg/l	8081A	08/13/10	50
Chlordane	BDL	0.025	mg/l	8081A	08/13/10	50
4,4-DDD	BDL	0.0025	mg/l	8081A	08/13/10	50
4,4-DDE	BDL	0.0025	mg/l	8081A	08/13/10	50
4,4-DDT	BDL	0.0025	mg/l	8081A	08/13/10	50
Dieldrin	BDL	0.0025	mg/l	8081A	08/13/10	50
Endosulfan I	BDL	0.0025	mg/l	8081A	08/13/10	50
Endosulfan II	BDL	0.0025	mg/l	8081A	08/13/10	50
Endosulfan sulfate	BDL	0.0025	mg/l	8081A	08/13/10	50
Endrin	BDL	0.0025	mg/l	8081A	08/13/10	50

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L472785-01 (SV8151) - Diluted due to matrix
L472785-01 (SV8081) - Diluted due to matrix

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REPORT OF ANALYSIS

Lynn Berry
EnviroTech- NM
5796 US. Highway 64
Farmington, NM 87401

August 16, 2010

ESC Sample # : L472785-01

Date Received : August 06, 2010
Description : Key Energy

Site ID :

Sample ID : 55453-INJ WATER

Project # : 98065-0013

Collected By : N. Allen
Collection Date : 08/04/10 14:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Endrin aldehyde	BDL	0.0025	mg/l	8081A	08/13/10	50
Endrin ketone	BDL	0.0025	mg/l	8081A	08/13/10	50
Hexachlorobenzene	BDL	0.0025	mg/l	8081A	08/13/10	50
Heptachlor	BDL	0.0025	mg/l	8081A	08/13/10	50
Heptachlor epoxide	BDL	0.0025	mg/l	8081A	08/13/10	50
Methoxychlor	BDL	0.0025	mg/l	8081A	08/13/10	50
Toxaphene	BDL	0.025	mg/l	8081A	08/13/10	50
Pesticides Surrogates						
Decachlorobiphenyl	0.00		% Rec.	8081A	08/13/10	50
Tetrachloro-m-xylene	0.00		% Rec.	8081A	08/13/10	50
Herbicides						
2,4-D	BDL	0.10	mg/l	8151	08/12/10	50
Dalapon	BDL	10.	mg/l	8151	08/12/10	50
2,4-DB	BDL	0.10	mg/l	8151	08/12/10	50
Dicamba	BDL	0.10	mg/l	8151	08/12/10	50
Dichloroprop	BDL	0.10	mg/l	8151	08/12/10	50
Dinoseb	BDL	0.10	mg/l	8151	08/12/10	50
MCPA	BDL	5.0	mg/l	8151	08/12/10	50
MCPP	BDL	5.0	mg/l	8151	08/12/10	50
2,4,5-T	BDL	0.10	mg/l	8151	08/12/10	50
2,4,5-TP (Silvex)	BDL	0.10	mg/l	8151	08/12/10	50
Surrogate Recovery						
2,4-Dichlorophenyl Acetic Acid	0.00		% Rec.	8151	08/12/10	50

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 08/16/10 12:04 Printed: 08/16/10 12:05
L472785-01 (SV8151) - Diluted due to matrix
L472785-01 (SV8081) - Diluted due to matrix

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L472785-01	WG492618	SAMP	Aldrin	R1326868	O
	WG492618	SAMP	Alpha BHC	R1326868	O
	WG492618	SAMP	Beta BHC	R1326868	O
	WG492618	SAMP	Delta BHC	R1326868	O
	WG492618	SAMP	Gamma BHC	R1326868	O
	WG492618	SAMP	Chlordane	R1326868	O
	WG492618	SAMP	4,4-DDD	R1326868	O
	WG492618	SAMP	4,4-DDE	R1326868	O
	WG492618	SAMP	4,4-DDT	R1326868	O
	WG492618	SAMP	Dieldrin	R1326868	O
	WG492618	SAMP	Endosulfan I	R1326868	O
	WG492618	SAMP	Endosulfan II	R1326868	O
	WG492618	SAMP	Endosulfan sulfate	R1326868	O
	WG492618	SAMP	Endrin	R1326868	O
	WG492618	SAMP	Endrin aldehyde	R1326868	O
	WG492618	SAMP	Endrin ketone	R1326868	O
	WG492618	SAMP	Hexachlorobenzene	R1326868	O
	WG492618	SAMP	Heptachlor	R1326868	O
	WG492618	SAMP	Heptachlor epoxide	R1326868	O
	WG492618	SAMP	Methoxychlor	R1326868	O
	WG492618	SAMP	Toxaphene	R1326868	O
	WG492618	SAMP	Decachlorobiphenyl	R1326868	J7
	WG492618	SAMP	Tetrachloro-m-xylene	R1326868	J7
	WG492927	SAMP	2,4-D	R1327028	O
	WG492927	SAMP	Dalapon	R1327028	O
	WG492927	SAMP	2,4-DB	R1327028	O
	WG492927	SAMP	Dicamba	R1327028	O
	WG492927	SAMP	Dichloroprop	R1327028	J3O
	WG492927	SAMP	Dinoseb	R1327028	O
	WG492927	SAMP	MCPA	R1327028	L1O
	WG492927	SAMP	MCPP	R1327028	O
	WG492927	SAMP	2,4,5-T	R1327028	O
	WG492927	SAMP	2,4,5-TP (Silvex)	R1327028	O
	WG492927	SAMP	2,4-Dichlorophenyl Acetic Acid	R1327028	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
J3	The associated batch QC was outside the established quality control range for precision.
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
L1	(ESC) The associated batch LCS exceeded the upper control limit, which indicates a high bias; The sample analyte was "not detected" and is therefore unaffected.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
08/16/10 at 12:05:13

TSR Signing Reports: 288
R5 - Desired TAT

Level II QC on all reports Full TCLP also requires RCI

Sample: L472785-01 Account: ENVIROFNM Received: 08/06/10 09:00 Due Date: 08/13/10 00:00 RPT Date: 08/16/10 12:04

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EnviroTech- NM
Lynn Berry
5796 US. Highway 64

Farmington, NM 87401

Quality Assurance Report
Level II

L472785

August 16, 2010

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG492583	08/08/10 12:34
1,1,1-Trichloroethane	< .001	mg/l			WG492583	08/08/10 12:34
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG492583	08/08/10 12:34
1,1,2-Trichloroethane	< .001	mg/l			WG492583	08/08/10 12:34
1,1,2-Trichloro-1,2,2-trifluoroethane	< .001	mg/l			WG492583	08/08/10 12:34
1,1-Dichloroethane	< .001	mg/l			WG492583	08/08/10 12:34
1,1-Dichloroethene	< .001	mg/l			WG492583	08/08/10 12:34
1,1-Dichloropropene	< .001	mg/l			WG492583	08/08/10 12:34
1,2,3-Trichlorobenzene	< .001	mg/l			WG492583	08/08/10 12:34
1,2,3-Trichloropropane	< .001	mg/l			WG492583	08/08/10 12:34
1,2,3-Trimethylbenzene	< .001	mg/l			WG492583	08/08/10 12:34
1,2,4-Trichlorobenzene	< .001	mg/l			WG492583	08/08/10 12:34
1,2,4-Trimethylbenzene	< .001	mg/l			WG492583	08/08/10 12:34
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG492583	08/08/10 12:34
1,2-Dibromoethane	< .001	mg/l			WG492583	08/08/10 12:34
1,2-Dichlorobenzene	< .001	mg/l			WG492583	08/08/10 12:34
1,2-Dichloroethane	< .001	mg/l			WG492583	08/08/10 12:34
1,2-Dichloropropane	< .001	mg/l			WG492583	08/08/10 12:34
1,3,5-Trimethylbenzene	< .001	mg/l			WG492583	08/08/10 12:34
1,3-Dichlorobenzene	< .001	mg/l			WG492583	08/08/10 12:34
1,3-Dichloropropane	< .001	mg/l			WG492583	08/08/10 12:34
1,4-Dichlorobenzene	< .001	mg/l			WG492583	08/08/10 12:34
2,2-Dichloropropane	< .001	mg/l			WG492583	08/08/10 12:34
2-Butanone (MEK)	< .01	mg/l			WG492583	08/08/10 12:34
2-Chloroethyl vinyl ether	< .05	mg/l			WG492583	08/08/10 12:34
2-Chlorotoluene	< .001	mg/l			WG492583	08/08/10 12:34
4-Chlorotoluene	< .001	mg/l			WG492583	08/08/10 12:34
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG492583	08/08/10 12:34
Acetone	< .05	mg/l			WG492583	08/08/10 12:34
Acrolein	< .05	mg/l			WG492583	08/08/10 12:34
Acrylonitrile	< .01	mg/l			WG492583	08/08/10 12:34
Benzene	< .001	mg/l			WG492583	08/08/10 12:34
Bromobenzene	< .001	mg/l			WG492583	08/08/10 12:34
Bromodichloromethane	< .001	mg/l			WG492583	08/08/10 12:34
Bromoform	< .001	mg/l			WG492583	08/08/10 12:34
Bromomethane	< .005	mg/l			WG492583	08/08/10 12:34
Carbon tetrachloride	< .001	mg/l			WG492583	08/08/10 12:34
Chlorobenzene	< .001	mg/l			WG492583	08/08/10 12:34
Chlorodibromomethane	< .001	mg/l			WG492583	08/08/10 12:34
Chloroethane	< .001	mg/l			WG492583	08/08/10 12:34
Chloroform	< .005	mg/l			WG492583	08/08/10 12:34
Chloromethane	< .001	mg/l			WG492583	08/08/10 12:34
cis-1,2-Dichloroethene	< .001	mg/l			WG492583	08/08/10 12:34
cis-1,3-Dichloropropene	< .001	mg/l			WG492583	08/08/10 12:34
Di-isopropyl ether	< .001	mg/l			WG492583	08/08/10 12:34
Dibromomethane	< .001	mg/l			WG492583	08/08/10 12:34
Dichlorodifluoromethane	< .005	mg/l			WG492583	08/08/10 12:34
Ethylbenzene	< .001	mg/l			WG492583	08/08/10 12:34
Hexachloro-1,3-butadiene	< .001	mg/l			WG492583	08/08/10 12:34
Isopropylbenzene	< .001	mg/l			WG492583	08/08/10 12:34
Methyl tert-butyl ether	< .001	mg/l			WG492583	08/08/10 12:34
Methylene Chloride	< .005	mg/l			WG492583	08/08/10 12:34
n-Butylbenzene	< .001	mg/l			WG492583	08/08/10 12:34
n-Propylbenzene	< .001	mg/l			WG492583	08/08/10 12:34
Naphthalene	< .005	mg/l			WG492583	08/08/10 12:34
p-Isopropyltoluene	< .001	mg/l			WG492583	08/08/10 12:34
sec-Butylbenzene	< .001	mg/l			WG492583	08/08/10 12:34
Styrene	< .001	mg/l			WG492583	08/08/10 12:34
tert-Butylbenzene	< .001	mg/l			WG492583	08/08/10 12:34

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Est. 1970

EnviroTech- NM
Lynn Berry
5796 US. Highway 64

Farmington, NM 87401

Quality Assurance Report
Level II

L472785

August 16, 2010

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Tetrachloroethene	< .001	mg/l			WG492583	08/08/10 12:34
Toluene	< .005	mg/l			WG492583	08/08/10 12:34
trans-1,2-Dichloroethene	< .001	mg/l			WG492583	08/08/10 12:34
trans-1,3-Dichloropropene	< .001	mg/l			WG492583	08/08/10 12:34
Trichloroethene	< .001	mg/l			WG492583	08/08/10 12:34
Trichlorofluoromethane	< .005	mg/l			WG492583	08/08/10 12:34
Vinyl chloride	< .001	mg/l			WG492583	08/08/10 12:34
Xylenes, Total	< .003	mg/l			WG492583	08/08/10 12:34
4-Bromofluorobenzene		% Rec.	92.36	75-128	WG492583	08/08/10 12:34
Dibromofluoromethane		% Rec.	88.47	79-125	WG492583	08/08/10 12:34
Toluene-d8		% Rec.	101.5	87-114	WG492583	08/08/10 12:34
2,4,5-T	< .002	mg/l			WG492927	08/11/10 14:18
2,4,5-TP (Silvex)	< .002	mg/l			WG492927	08/11/10 14:18
2,4-D	< .002	mg/l			WG492927	08/11/10 14:18
2,4-DB	< .002	mg/l			WG492927	08/11/10 14:18
Dalapon	< .002	mg/l			WG492927	08/11/10 14:18
Dicamba	< .002	mg/l			WG492927	08/11/10 14:18
Dichloroprop	< .002	mg/l			WG492927	08/11/10 14:18
Dinoseb	< .002	mg/l			WG492927	08/11/10 14:18
MCPA	< .1	mg/l			WG492927	08/11/10 14:18
MCPP	< .1	mg/l			WG492927	08/11/10 14:18
2,4-Dichlorophenyl Acetic Acid		%	109.0	42-112	WG492927	08/11/10 14:18
4,4-DDD	< .00005	mg/l			WG492618	08/11/10 12:04
4,4-DDE	< .00005	mg/l			WG492618	08/11/10 12:04
4,4-DDT	< .00005	mg/l			WG492618	08/11/10 12:04
Aldrin	< .00005	mg/l			WG492618	08/11/10 12:04
Alpha BHC	< .00005	mg/l			WG492618	08/11/10 12:04
Beta BHC	< .00005	mg/l			WG492618	08/11/10 12:04
Chlordane	< .0005	mg/l			WG492618	08/11/10 12:04
Delta BHC	< .00005	mg/l			WG492618	08/11/10 12:04
Dieldrin	< .00005	mg/l			WG492618	08/11/10 12:04
Endosulfan I	< .00005	mg/l			WG492618	08/11/10 12:04
Endosulfan II	< .00005	mg/l			WG492618	08/11/10 12:04
Endosulfan sulfate	< .00005	mg/l			WG492618	08/11/10 12:04
Endrin	< .00005	mg/l			WG492618	08/11/10 12:04
Endrin aldehyde	< .00005	mg/l			WG492618	08/11/10 12:04
Endrin ketone	< .00005	mg/l			WG492618	08/11/10 12:04
Gamma BHC	< .00005	mg/l			WG492618	08/11/10 12:04
Heptachlor	< .00005	mg/l			WG492618	08/11/10 12:04
Heptachlor epoxide	< .00005	mg/l			WG492618	08/11/10 12:04
Hexachlorobenzene	< .00005	mg/l			WG492618	08/11/10 12:04
Methoxychlor	< .00005	mg/l			WG492618	08/11/10 12:04
Toxaphene	< .0005	mg/l			WG492618	08/11/10 12:04
Decachlorobiphenyl		% Rec.	86.74	10-122.6	WG492618	08/11/10 12:04
Tetrachloro-m-xylene		% Rec.	79.53	15.3-114.2	WG492618	08/11/10 12:04

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0239	95.5	75-134	WG492583
1,1,1-Trichloroethane	mg/l	.025	0.0237	94.6	67-137	WG492583
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0250	99.9	72-128	WG492583
1,1,2-Trichloroethane	mg/l	.025	0.0241	96.3	79-123	WG492583
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/l	.025	0.0282	113.	51-149	WG492583
1,1-Dichloroethane	mg/l	.025	0.0275	110.	67-133	WG492583

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Lynn Berry
5796 US. Highway 64

Farmington, NM 87401

Quality Assurance Report
Level II

L472785

August 16, 2010

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
1,1-Dichloroethene	mg/l	.025	0.0271	108.	60-130	WG492583
1,1-Dichloropropene	mg/l	.025	0.0254	102.	68-132	WG492583
1,2,3-Trichlorobenzene	mg/l	.025	0.0241	96.5	63-138	WG492583
1,2,3-Trichloropropane	mg/l	.025	0.0252	101.	68-130	WG492583
1,2,3-Trimethylbenzene	mg/l	.025	0.0256	102.	70-127	WG492583
1,2,4-Trichlorobenzene	mg/l	.025	0.0245	98.0	65-137	WG492583
1,2,4-Trimethylbenzene	mg/l	.025	0.0249	99.8	72-135	WG492583
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0224	89.6	55-134	WG492583
1,2-Dibromoethane	mg/l	.025	0.0239	95.6	75-126	WG492583
1,2-Dichlorobenzene	mg/l	.025	0.0242	96.7	75-122	WG492583
1,2-Dichloroethane	mg/l	.025	0.0257	103.	63-137	WG492583
1,2-Dichloropropane	mg/l	.025	0.0259	103.	74-122	WG492583
1,3,5-Trimethylbenzene	mg/l	.025	0.0257	103.	73-134	WG492583
1,3-Dichlorobenzene	mg/l	.025	0.0243	97.3	73-131	WG492583
1,3-Dichloropropane	mg/l	.025	0.0242	96.7	77-119	WG492583
1,4-Dichlorobenzene	mg/l	.025	0.0246	98.5	70-121	WG492583
2,2-Dichloropropane	mg/l	.025	0.0234	93.7	46-151	WG492583
2-Butanone (MEK)	mg/l	.125	0.113	90.2	53-132	WG492583
2-Chloroethyl vinyl ether	mg/l	.125	0.101	81.0	0-171	WG492583
2-Chlorotoluene	mg/l	.025	0.0249	99.7	74-128	WG492583
4-Chlorotoluene	mg/l	.025	0.0250	99.8	74-130	WG492583
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.127	101.	60-142	WG492583
Acetone	mg/l	.125	0.140	112.	48-134	WG492583
Acrolein	mg/l	.125	0.142	114.	6-182	WG492583
Acrylonitrile	mg/l	.125	0.126	101.	60-140	WG492583
Benzene	mg/l	.025	0.0258	103.	67-126	WG492583
Bromobenzene	mg/l	.025	0.0253	101.	76-123	WG492583
Bromodichloromethane	mg/l	.025	0.0264	106.	68-133	WG492583
Bromoform	mg/l	.025	0.0246	98.4	60-139	WG492583
Bromomethane	mg/l	.025	0.0246	98.6	45-175	WG492583
Carbon tetrachloride	mg/l	.025	0.0233	93.4	64-141	WG492583
Chlorobenzene	mg/l	.025	0.0246	98.5	77-125	WG492583
Chlorodibromomethane	mg/l	.025	0.0235	94.0	73-138	WG492583
Chloroethane	mg/l	.025	0.0311	125.	49-155	WG492583
Chloroform	mg/l	.025	0.0249	99.5	66-126	WG492583
Chloromethane	mg/l	.025	0.0255	102.	45-152	WG492583
cis-1,2-Dichloroethene	mg/l	.025	0.0237	94.9	72-128	WG492583
cis-1,3-Dichloropropene	mg/l	.025	0.0269	108.	73-131	WG492583
Di-isopropyl ether	mg/l	.025	0.0303	121.	63-139	WG492583
Dibromomethane	mg/l	.025	0.0259	104.	73-125	WG492583
Dichlorodifluoromethane	mg/l	.025	0.0281	112.	39-189	WG492583
Ethylbenzene	mg/l	.025	0.0244	97.6	76-129	WG492583
Hexachloro-1,3-butadiene	mg/l	.025	0.0267	107.	67-135	WG492583
Isopropylbenzene	mg/l	.025	0.0253	101.	73-132	WG492583
Methyl tert-butyl ether	mg/l	.025	0.0300	120.	51-142	WG492583
Methylene Chloride	mg/l	.025	0.0285	114.	64-125	WG492583
n-Butylbenzene	mg/l	.025	0.0271	109.	63-142	WG492583
n-Propylbenzene	mg/l	.025	0.0243	97.4	71-132	WG492583
Naphthalene	mg/l	.025	0.0217	86.9	56-145	WG492583
p-Isopropyltoluene	mg/l	.025	0.0250	100.	68-138	WG492583
sec-Butylbenzene	mg/l	.025	0.0249	99.5	70-135	WG492583
Styrene	mg/l	.025	0.0248	99.3	78-130	WG492583
tert-Butylbenzene	mg/l	.025	0.0242	97.0	72-134	WG492583
Tetrachloroethene	mg/l	.025	0.0245	97.9	67-135	WG492583
Toluene	mg/l	.025	0.0254	102.	72-122	WG492583
trans-1,2-Dichloroethene	mg/l	.025	0.0281	112.	67-129	WG492583
trans-1,3-Dichloropropene	mg/l	.025	0.0268	107.	66-137	WG492583
Trichloroethene	mg/l	.025	0.0252	101.	74-126	WG492583
Trichlorofluoromethane	mg/l	.025	0.0264	106.	54-156	WG492583

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Quality Assurance Report
Level II

L472785

August 16, 2010

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Vinyl chloride	mg/l	.025	0.0270	108.	55-153	WG492583
Xylenes, Total	mg/l	.075	0.0724	96.6	75-128	WG492583
4-Bromofluorobenzene				103.8	75-128	WG492583
Dibromofluoromethane				91.99	79-125	WG492583
Toluene-d8				102.9	87-114	WG492583
2,4,5-T	mg/l	.005	0.00444	88.8	30-136	WG492927
2,4,5-TP (Silvex)	mg/l	.005	0.00485	97.1	33-134	WG492927
2,4-D	mg/l	.005	0.00434	86.8	24-127	WG492927
2,4-DB	mg/l	.005	0.00447	89.3	22-198	WG492927
Dalapon	mg/l	.005	0.00306	61.3	14-121	WG492927
Dicamba	mg/l	.005	0.00475	95.0	31-135	WG492927
Dichloroprop	mg/l	.005	0.00442	88.5	30-122	WG492927
Dinoseb	mg/l	.005	0.00352	70.4	28-183	WG492927
MCPA	mg/l	.5	0.368	73.6	32-153	WG492927
MCPP	mg/l	.5	0.710	142.*	42-133	WG492927
2,4-Dichlorophenyl Acetic Acid				88.52	42-112	WG492927
4,4-DDD	mg/l	.0002	0.000178	88.8	37-142	WG492618
4,4-DDE	mg/l	.0002	0.000170	84.8	33-124	WG492618
4,4-DDT	mg/l	.0002	0.000170	85.3	32-143	WG492618
Aldrin	mg/l	.0002	0.000156	78.1	25-115	WG492618
Alpha BHC	mg/l	.0002	0.000164	82.0	38-119	WG492618
Beta BHC	mg/l	.0002	0.000169	84.7	42-126	WG492618
Delta BHC	mg/l	.0002	0.000165	82.4	24-141	WG492618
Dieldrin	mg/l	.0002	0.000180	90.2	37-130	WG492618
Endosulfan I	mg/l	.0002	0.000185	92.5	37-125	WG492618
Endosulfan II	mg/l	.0002	0.000185	92.7	38-131	WG492618
Endosulfan sulfate	mg/l	.0002	0.000175	87.3	38-131	WG492618
Endrin	mg/l	.0002	0.000173	86.7	37-126	WG492618
Endrin aldehyde	mg/l	.0002	0.000138	69.0	24-154	WG492618
Endrin ketone	mg/l	.0002	0.000175	87.5	37-139	WG492618
Gamma BHC	mg/l	.0002	0.000166	83.1	35-114	WG492618
Heptachlor	mg/l	.0002	0.000163	81.7	21-123	WG492618
Heptachlor epoxide	mg/l	.0002	0.000178	89.0	38-121	WG492618
Hexachlorobenzene	mg/l	.0002	0.000157	78.6	28-115	WG492618
Methoxychlor	mg/l	.0002	0.000176	88.2	55-150	WG492618
Decachlorobiphenyl				87.65	10-122.6	WG492618
Tetrachloro-m-xylene				79.04	15.3-114.2	WG492618

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0245	0.0239	98.0	75-134	2.46	20	WG492583
1,1,1-Trichloroethane	mg/l	0.0241	0.0237	96.0	67-137	1.79	20	WG492583
1,1,2,2-Tetrachloroethane	mg/l	0.0255	0.0250	102.	72-128	2.15	20	WG492583
1,1,2-Trichloroethane	mg/l	0.0250	0.0241	100.	79-123	3.72	20	WG492583
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/l	0.0281	0.0282	112.	51-149	0.360	20	WG492583
1,1-Dichloroethane	mg/l	0.0313	0.0275	125.	67-133	12.9	20	WG492583
1,1-Dichloroethene	mg/l	0.0269	0.0271	107.	60-130	0.820	20	WG492583
1,1-Dichloropropene	mg/l	0.0258	0.0254	103.	68-132	1.32	20	WG492583
1,2,3-Trichlorobenzene	mg/l	0.0235	0.0241	94.0	63-138	2.47	20	WG492583
1,2,3-Trichloropropane	mg/l	0.0260	0.0252	104.	68-130	3.11	20	WG492583
1,2,3-Trimethylbenzene	mg/l	0.0234	0.0256	93.0	70-127	9.17	20	WG492583
1,2,4-Trichlorobenzene	mg/l	0.0226	0.0245	90.0	65-137	8.10	20	WG492583
1,2,4-Trimethylbenzene	mg/l	0.0249	0.0249	99.0	72-135	0.350	20	WG492583
1,2-Dibromo-3-Chloropropane	mg/l	0.0213	0.0224	85.0	55-134	5.12	20	WG492583

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Quality Assurance Report
Level II

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August 16, 2010

Analyte	Units	Laboratory Control Sample Result	Ref	%Rec	Limit	Sample Duplicate RPD	Limit	Batch
1,2-Dibromoethane	mg/l	0.0240	0.0239	96.0	75-126	0.390	20	WG492583
1,2-Dichlorobenzene	mg/l	0.0239	0.0242	96.0	75-122	1.20	20	WG492583
1,2-Dichloroethane	mg/l	0.0265	0.0257	106.	63-137	3.04	20	WG492583
1,2-Dichloropropane	mg/l	0.0275	0.0259	110.	74-122	6.28	20	WG492583
1,3,5-Trimethylbenzene	mg/l	0.0253	0.0257	101.	73-134	1.71	20	WG492583
1,3-Dichlorobenzene	mg/l	0.0246	0.0243	98.0	73-131	0.930	20	WG492583
1,3-Dichloropropane	mg/l	0.0250	0.0242	100.	77-119	3.14	20	WG492583
1,4-Dichlorobenzene	mg/l	0.0250	0.0246	100.	70-121	1.39	20	WG492583
2,2-Dichloropropane	mg/l	0.0241	0.0234	96.0	46-151	3.01	20	WG492583
2-Butanone (MEK)	mg/l	0.116	0.113	93.0	53-132	2.99	20	WG492583
2-Chloroethyl vinyl ether	mg/l	0.101	0.101	81.0	0-171	0.0300	27	WG492583
2-Chlorotoluene	mg/l	0.0249	0.0249	100.	74-128	0.0500	20	WG492583
4-Chlorotoluene	mg/l	0.0246	0.0250	98.0	74-130	1.41	20	WG492583
4-Methyl-2-pentanone (MIBK)	mg/l	0.130	0.127	104.	60-142	2.58	20	WG492583
Acetone	mg/l	0.145	0.140	116.	48-134	3.73	20	WG492583
Acrolein	mg/l	0.145	0.142	116.	6-182	2.00	39	WG492583
Acrylonitrile	mg/l	0.143	0.126	114.	60-140	12.7	20	WG492583
Benzene	mg/l	0.0264	0.0258	106.	67-126	2.29	20	WG492583
Bromobenzene	mg/l	0.0252	0.0253	101.	76-123	0.540	20	WG492583
Bromodichloromethane	mg/l	0.0276	0.0264	110.	68-133	4.49	20	WG492583
Bromoform	mg/l	0.0250	0.0246	100.	60-139	1.73	20	WG492583
Bromomethane	mg/l	0.0269	0.0246	107.	45-175	8.59	20	WG492583
Carbon tetrachloride	mg/l	0.0242	0.0233	97.0	64-141	3.43	20	WG492583
Chlorobenzene	mg/l	0.0243	0.0246	97.0	77-125	1.40	20	WG492583
Chlorodibromomethane	mg/l	0.0242	0.0235	97.0	73-138	2.87	20	WG492583
Chloroethane	mg/l	0.0308	0.0311	123.	49-155	1.12	20	WG492583
Chloroform	mg/l	0.0256	0.0249	102.	66-126	2.98	20	WG492583
Chloromethane	mg/l	0.0246	0.0255	98.0	45-152	3.67	20	WG492583
cis-1,2-Dichloroethene	mg/l	0.0238	0.0237	95.0	72-128	0.470	20	WG492583
cis-1,3-Dichloropropene	mg/l	0.0279	0.0269	111.	73-131	3.32	20	WG492583
Di-isopropyl ether	mg/l	0.0296	0.0303	118.	63-139	2.56	20	WG492583
Dibromomethane	mg/l	0.0261	0.0259	104.	73-125	0.680	20	WG492583
Dichlorodifluoromethane	mg/l	0.0282	0.0281	113.	39-189	0.470	24	WG492583
Ethylbenzene	mg/l	0.0235	0.0244	94.0	76-129	3.70	20	WG492583
Hexachloro-1,3-butadiene	mg/l	0.0255	0.0267	102.	67-135	4.32	20	WG492583
Isopropylbenzene	mg/l	0.0242	0.0253	97.0	73-132	4.35	20	WG492583
Methyl tert-butyl ether	mg/l	0.0312	0.0300	125.	51-142	4.14	20	WG492583
Methylene Chloride	mg/l	0.0292	0.0285	117.	64-125	2.45	20	WG492583
n-Butylbenzene	mg/l	0.0251	0.0271	100.	63-142	7.81	20	WG492583
n-Propylbenzene	mg/l	0.0246	0.0243	98.0	71-132	1.15	20	WG492583
Naphthalene	mg/l	0.0246	0.0217	98.0	56-145	12.3	20	WG492583
p-Isopropyltoluene	mg/l	0.0241	0.0250	96.0	68-138	3.79	20	WG492583
sec-Butylbenzene	mg/l	0.0244	0.0249	97.0	70-135	2.10	20	WG492583
Styrene	mg/l	0.0247	0.0248	99.0	78-130	0.560	20	WG492583
tert-Butylbenzene	mg/l	0.0238	0.0242	95.0	72-134	1.83	20	WG492583
Tetrachloroethene	mg/l	0.0245	0.0245	98.0	67-135	0.320	20	WG492583
Toluene	mg/l	0.0263	0.0254	105.	72-122	3.56	20	WG492583
trans-1,2-Dichloroethene	mg/l	0.0289	0.0281	116.	67-129	2.87	20	WG492583
trans-1,3-Dichloropropene	mg/l	0.0277	0.0268	111.	66-137	3.27	20	WG492583
Trichloroethene	mg/l	0.0259	0.0252	104.	74-126	2.56	20	WG492583
Trichlorofluoromethane	mg/l	0.0275	0.0264	110.	54-156	4.04	20	WG492583
Vinyl chloride	mg/l	0.0272	0.0270	109.	55-153	0.600	20	WG492583
Xylenes, Total	mg/l	0.0713	0.0724	95.0	75-128	1.66	20	WG492583
4-Bromofluorobenzene				100.1	75-128			WG492583
Dibromofluoromethane				90.39	79-125			WG492583
Toluene-d8				105.4	87-114			WG492583
2,4,5-T	mg/l	0.00507	0.00444	101.	30-136	13.1	31	WG492927

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Tax I.D. 62-0814289

Est. 1970

EnviroTech- NM
Lynn Berry
5796 US. Highway 64

Farmington, NM 87401

Quality Assurance Report
Level II

L472785

August 16, 2010

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
2,4,5-TP (Silvex)	mg/l	0.00529	0.00485	106.	33-134	8.56	30	WG492927
2,4-D	mg/l	0.00468	0.00434	94.0	24-127	7.44	27	WG492927
2,4-DB	mg/l	0.00623	0.00447	124.	22-198	32.9	33	WG492927
Dalapon	mg/l	0.00377	0.00306	75.0	14-121	20.8	31	WG492927
Dicamba	mg/l	0.00539	0.00475	108.	31-135	12.5	25	WG492927
Dichloroprop	mg/l	0.00579	0.00442	116.	30-122	26.8*	26	WG492927
Dinoseb	mg/l	0.00432	0.00352	86.0	28-183	20.4	38	WG492927
MCPA	mg/l	0.409	0.368	82.0	32-153	10.4	31	WG492927
MCPP	mg/l	0.726	0.710	145*	42-133	2.25	29	WG492927
2,4-Dichlorophenyl Acetic Acid				96.64	42-112			WG492927
4,4-DDD	mg/l	0.000191	0.000178	96.0	37-142	7.43	39	WG492618
4,4-DDE	mg/l	0.000183	0.000170	91.0	33-124	7.45	37	WG492618
4,4-DDT	mg/l	0.000184	0.000170	92.0	32-143	7.85	42	WG492618
Aldrin	mg/l	0.000167	0.000156	83.0	25-115	6.34	45	WG492618
Alpha BHC	mg/l	0.000174	0.000164	87.0	38-119	5.85	30	WG492618
Beta BHC	mg/l	0.000182	0.000169	91.0	42-126	6.89	31	WG492618
Delta BHC	mg/l	0.000185	0.000165	92.0	24-141	11.3	41	WG492618
Dieldrin	mg/l	0.000195	0.000180	98.0	37-130	7.78	36	WG492618
Endosulfan I	mg/l	0.000200	0.000185	100.	37-125	7.62	35	WG492618
Endosulfan II	mg/l	0.000200	0.000185	100.	38-131	7.80	36	WG492618
Endosulfan sulfate	mg/l	0.000193	0.000175	96.0	38-131	10.1	37	WG492618
Endrin	mg/l	0.000188	0.000173	94.0	37-126	7.92	37	WG492618
Endrin aldehyde	mg/l	0.000149	0.000138	74.0	24-154	7.51	36	WG492618
Endrin ketone	mg/l	0.000190	0.000175	95.0	37-139	8.43	36	WG492618
Gamma BHC	mg/l	0.000177	0.000166	88.0	35-114	6.20	30	WG492618
Heptachlor	mg/l	0.000174	0.000163	87.0	21-123	6.32	38	WG492618
Heptachlor epoxide	mg/l	0.000192	0.000178	96.0	38-121	7.58	33	WG492618
Hexachlorobenzene	mg/l	0.000166	0.000157	83.0	28-115	5.74	29	WG492618
Methoxychlor	mg/l	0.000190	0.000176	95.0	55-150	7.43	40	WG492618
Decachlorobiphenyl				91.87	10-122.6			WG492618
Tetrachloro-m-xylene				82.29	15.3-114.2			WG492618

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0206	0	.025	82.4	45-152	L472747-09	WG492583
1,1,1-Trichloroethane	mg/l	0.0187	0	.025	74.8	31-161	L472747-09	WG492583
1,1,2,2-Tetrachloroethane	mg/l	0.0225	0	.025	90.1	49-149	L472747-09	WG492583
1,1,2-Trichloroethane	mg/l	0.0216	0	.025	86.4	46-145	L472747-09	WG492583
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/l	0.0181	0	.025	72.3	14-168	L472747-09	WG492583
1,1-Dichloroethane	mg/l	0.0212	0	.025	84.6	30-159	L472747-09	WG492583
1,1-Dichloroethene	mg/l	0.0170	0	.025	67.8	10-162	L472747-09	WG492583
1,1-Dichloropropene	mg/l	0.0194	0	.025	77.4	14-162	L472747-09	WG492583
1,2,3-Trichlorobenzene	mg/l	0.0212	0	.025	84.6	32-143	L472747-09	WG492583
1,2,3-Trichloropropane	mg/l	0.0224	0	.025	89.7	48-148	L472747-09	WG492583
1,2,3-Trimethylbenzene	mg/l	0.0210	0	.025	83.9	36-141	L472747-09	WG492583
1,2,4-Trichlorobenzene	mg/l	0.0190	0	.025	76.1	27-142	L472747-09	WG492583
1,2,4-Trimethylbenzene	mg/l	0.0208	0	.025	83.2	29-153	L472747-09	WG492583
1,2-Dibromo-3-Chloropropane	mg/l	0.0205	0	.025	81.8	37-148	L472747-09	WG492583
1,2-Dibromoethane	mg/l	0.0199	0	.025	79.7	41-149	L472747-09	WG492583
1,2-Dichlorobenzene	mg/l	0.0214	0	.025	85.5	40-139	L472747-09	WG492583
1,2-Dichloroethane	mg/l	0.0215	0	.025	86.0	29-167	L472747-09	WG492583
1,2-Dichloropropane	mg/l	0.0217	0	.025	86.8	39-148	L472747-09	WG492583
1,3,5-Trimethylbenzene	mg/l	0.0206	0	.025	82.5	33-149	L472747-09	WG492583
1,3-Dichlorobenzene	mg/l	0.0213	0	.025	85.3	32-148	L472747-09	WG492583
1,3-Dichloropropane	mg/l	0.0210	0	.025	84.2	44-142	L472747-09	WG492583
1,4-Dichlorobenzene	mg/l	0.0205	0	.025	82.1	32-136	L472747-09	WG492583

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Quality Assurance Report
Level II

L472785

August 16, 2010

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
2,2-Dichloropropane	mg/l	0.0184	0	.025	73.5	14-158	L472747-09	WG492583
2-Butanone (MEK)	mg/l	0.0990	0	.125	79.2	32-151	L472747-09	WG492583
2-Chloroethyl vinyl ether	mg/l	0.0815	0	.125	65.2	0-175	L472747-09	WG492583
2-Chlorotoluene	mg/l	0.0201	0	.025	80.4	35-147	L472747-09	WG492583
4-Chlorotoluene	mg/l	0.0201	0	.025	80.4	33-147	L472747-09	WG492583
4-Methyl-2-pentanone (MIBK)	mg/l	0.108	0	.125	86.7	40-160	L472747-09	WG492583
Acetone	mg/l	0.114	0	.125	91.6	25-157	L472747-09	WG492583
Acrolein	mg/l	0.0711	0	.125	56.9	0-179	L472747-09	WG492583
Acrylonitrile	mg/l	0.107	0	.125	85.8	37-162	L472747-09	WG492583
Benzene	mg/l	0.0204	0	.025	81.4	16-158	L472747-09	WG492583
Bromobenzene	mg/l	0.0219	0	.025	87.7	37-147	L472747-09	WG492583
Bromodichloromethane	mg/l	0.0232	0	.025	92.7	45-147	L472747-09	WG492583
Bromoform	mg/l	0.0218	0	.025	87.3	38-152	L472747-09	WG492583
Bromomethane	mg/l	0.0188	0	.025	75.3	0-191	L472747-09	WG492583
Carbon tetrachloride	mg/l	0.0176	0	.025	70.6	22-168	L472747-09	WG492583
Chlorobenzene	mg/l	0.0201	0	.025	80.4	33-148	L472747-09	WG492583
Chlorodibromomethane	mg/l	0.0212	0	.025	84.6	48-151	L472747-09	WG492583
Chloroethane	mg/l	0.0232	0	.025	92.7	4-176	L472747-09	WG492583
Chloroform	mg/l	0.0200	0	.025	79.8	37-147	L472747-09	WG492583
Chloromethane	mg/l	0.0172	0	.025	68.6	10-174	L472747-09	WG492583
cis-1,2-Dichloroethene	mg/l	0.0189	0	.025	75.7	29-156	L472747-09	WG492583
cis-1,3-Dichloropropene	mg/l	0.0228	0	.025	91.1	35-148	L472747-09	WG492583
Di-isopropyl ether	mg/l	0.0240	0	.025	96.0	39-160	L472747-09	WG492583
Dibromomethane	mg/l	0.0210	0	.025	83.8	36-152	L472747-09	WG492583
Dichlorodifluoromethane	mg/l	0.0201	0	.025	80.4	0-200	L472747-09	WG492583
Ethylbenzene	mg/l	0.0197	0	.025	78.8	29-150	L472747-09	WG492583
Hexachloro-1,3-butadiene	mg/l	0.0227	0	.025	90.7	28-144	L472747-09	WG492583
Isopropylbenzene	mg/l	0.0186	0	.025	74.2	35-147	L472747-09	WG492583
Methyl tert-butyl ether	mg/l	0.0240	0	.025	96.0	24-167	L472747-09	WG492583
Methylene Chloride	mg/l	0.0213	0	.025	85.3	23-151	L472747-09	WG492583
n-Butylbenzene	mg/l	0.0215	0	.025	86.0	22-151	L472747-09	WG492583
n-Propylbenzene	mg/l	0.0204	0	.025	81.4	26-150	L472747-09	WG492583
Naphthalene	mg/l	0.0190	0	.025	76.1	24-160	L472747-09	WG492583
p-Isopropyltoluene	mg/l	0.0199	0	.025	79.6	28-151	L472747-09	WG492583
sec-Butylbenzene	mg/l	0.0212	0	.025	84.6	32-149	L472747-09	WG492583
Styrene	mg/l	0.0249	0	.025	99.4	38-149	L472747-09	WG492583
tert-Butylbenzene	mg/l	0.0193	0	.025	77.3	36-149	L472747-09	WG492583
Tetrachloroethene	mg/l	0.0855	0.0670	.025	74.2	13-157	L472747-09	WG492583
Toluene	mg/l	0.0214	0	.025	85.4	22-152	L472747-09	WG492583
trans-1,2-Dichloroethene	mg/l	0.0206	0	.025	82.3	11-160	L472747-09	WG492583
trans-1,3-Dichloropropene	mg/l	0.0233	0	.025	93.1	33-153	L472747-09	WG492583
Trichloroethene	mg/l	0.0221	0.00210	.025	80.1	18-163	L472747-09	WG492583
Trichlorofluoromethane	mg/l	0.0208	0	.025	83.4	10-177	L472747-09	WG492583
Vinyl chloride	mg/l	0.0195	0	.025	77.8	0-179	L472747-09	WG492583
Xylenes, Total	mg/l	0.0601	0	.075	80.1	27-151	L472747-09	WG492583
4-Bromofluorobenzene					97.57	75-128		WG492583
Dibromofluoromethane					92.20	79-125		WG492583
Toluene-d8					101.1	87-114		WG492583

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0222	0.0206	88.9	45-152	7.63	21	L472747-09	WG492583
1,1,1-Trichloroethane	mg/l	0.0206	0.0187	82.6	31-161	9.83	23	L472747-09	WG492583
1,1,2,2-Tetrachloroethane	mg/l	0.0252	0.0225	101.	49-149	11.2	22	L472747-09	WG492583
1,1,2-Trichloroethane	mg/l	0.0238	0.0216	95.1	46-145	9.64	20	L472747-09	WG492583
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/l	0.0194	0.0181	77.4	14-168	6.82	24	L472747-09	WG492583
1,1-Dichloroethane	mg/l	0.0239	0.0212	95.7	30-159	12.3	21	L472747-09	WG492583
1,1-Dichloroethene	mg/l	0.0182	0.0170	72.9	10-162	7.17	23	L472747-09	WG492583

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Quality Assurance Report
Level II

L472785

August 16, 2010

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1-Dichloropropene	mg/l	0.0212	0.0194	84.7	14-162	8.96	23	L472747-09	WG492583
1,2,3-Trichlorobenzene	mg/l	0.0226	0.0212	90.5	32-143	6.71	33	L472747-09	WG492583
1,2,3-Trichloropropane	mg/l	0.0259	0.0224	104.	48-148	14.4	23	L472747-09	WG492583
1,2,3-Trimethylbenzene	mg/l	0.0230	0.0210	91.8	36-141	8.97	25	L472747-09	WG492583
1,2,4-Trichlorobenzene	mg/l	0.0219	0.0190	87.7	27-142	14.2	30	L472747-09	WG492583
1,2,4-Trimethylbenzene	mg/l	0.0217	0.0208	86.6	29-153	4.09	27	L472747-09	WG492583
1,2-Dibromo-3-Chloropropane	mg/l	0.0232	0.0205	92.8	37-148	12.6	27	L472747-09	WG492583
1,2-Dibromoethane	mg/l	0.0229	0.0199	91.5	41-149	13.8	21	L472747-09	WG492583
1,2-Dichlorobenzene	mg/l	0.0234	0.0214	93.6	40-139	9.07	23	L472747-09	WG492583
1,2-Dichloroethane	mg/l	0.0234	0.0215	93.7	29-167	8.48	21	L472747-09	WG492583
1,2-Dichloropropane	mg/l	0.0250	0.0217	99.8	39-148	14.0	20	L472747-09	WG492583
1,3,5-Trimethylbenzene	mg/l	0.0222	0.0206	89.0	33-149	7.53	26	L472747-09	WG492583
1,3-Dichlorobenzene	mg/l	0.0228	0.0213	91.2	32-148	6.71	24	L472747-09	WG492583
1,3-Dichloropropane	mg/l	0.0228	0.0210	91.0	44-142	7.81	20	L472747-09	WG492583
1,4-Dichlorobenzene	mg/l	0.0220	0.0205	88.0	32-136	6.86	23	L472747-09	WG492583
2,2-Dichloropropane	mg/l	0.0200	0.0184	79.8	14-158	8.26	23	L472747-09	WG492583
2-Butanone (MEK)	mg/l	0.114	0.0990	91.0	32-151	13.9	26	L472747-09	WG492583
2-Chloroethyl vinyl ether	mg/l	0.0946	0.0815	75.6	0-175	14.8	75	L472747-09	WG492583
2-Chlorotoluene	mg/l	0.0222	0.0201	88.7	35-147	9.77	24	L472747-09	WG492583
4-Chlorotoluene	mg/l	0.0222	0.0201	88.9	33-147	10.1	25	L472747-09	WG492583
4-Methyl-2-pentanone (MIBK)	mg/l	0.128	0.108	102.	40-160	16.7	28	L472747-09	WG492583
Acetone	mg/l	0.133	0.114	106.	25-157	14.8	26	L472747-09	WG492583
Acrolein	mg/l	0.0828	0.0711	66.3	0-179	15.3	39	L472747-09	WG492583
Acrylonitrile	mg/l	0.122	0.107	97.8	37-162	13.2	24	L472747-09	WG492583
Benzene	mg/l	0.0216	0.0204	86.5	16-158	6.09	21	L472747-09	WG492583
Bromobenzene	mg/l	0.0222	0.0219	88.8	37-147	1.28	23	L472747-09	WG492583
Bromodichloromethane	mg/l	0.0269	0.0232	108.	45-147	15.0	20	L472747-09	WG492583
Bromoform	mg/l	0.0247	0.0218	98.7	38-152	12.3	20	L472747-09	WG492583
Bromomethane	mg/l	0.0205	0.0188	81.8	0-191	8.32	35	L472747-09	WG492583
Carbon tetrachloride	mg/l	0.0190	0.0176	76.1	22-168	7.51	24	L472747-09	WG492583
Chlorobenzene	mg/l	0.0214	0.0201	85.7	33-148	6.42	22	L472747-09	WG492583
Chlorodibromomethane	mg/l	0.0235	0.0212	94.0	48-151	10.5	21	L472747-09	WG492583
Chloroethane	mg/l	0.0245	0.0232	97.9	4-176	5.37	27	L472747-09	WG492583
Chloroform	mg/l	0.0223	0.0200	89.0	37-147	10.9	21	L472747-09	WG492583
Chloromethane	mg/l	0.0177	0.0172	71.0	10-174	3.34	28	L472747-09	WG492583
cis-1,2-Dichloroethene	mg/l	0.0206	0.0189	82.4	29-156	8.48	22	L472747-09	WG492583
cis-1,3-Dichloropropene	mg/l	0.0262	0.0228	105.	35-148	14.1	21	L472747-09	WG492583
Di-isopropyl ether	mg/l	0.0258	0.0240	103.	39-160	7.27	21	L472747-09	WG492583
Dibromomethane	mg/l	0.0241	0.0210	96.6	36-152	14.1	20	L472747-09	WG492583
Dichlorodifluoromethane	mg/l	0.0221	0.0201	88.4	0-200	9.43	26	L472747-09	WG492583
Ethylbenzene	mg/l	0.0211	0.0197	84.4	29-150	6.87	24	L472747-09	WG492583
Hexachloro-1,3-butadiene	mg/l	0.0266	0.0227	106.	28-144	16.1	33	L472747-09	WG492583
Isopropylbenzene	mg/l	0.0193	0.0186	77.2	35-147	3.92	25	L472747-09	WG492583
Methyl tert-butyl ether	mg/l	0.0263	0.0240	105.	24-167	9.01	22	L472747-09	WG492583
Methylene Chloride	mg/l	0.0236	0.0213	94.4	23-151	10.1	21	L472747-09	WG492583
n-Butylbenzene	mg/l	0.0237	0.0215	94.7	22-151	9.66	29	L472747-09	WG492583
n-Propylbenzene	mg/l	0.0210	0.0204	83.9	26-150	2.95	25	L472747-09	WG492583
Naphthalene	mg/l	0.0228	0.0190	91.2	24-160	18.0	37	L472747-09	WG492583
p-Isopropyltoluene	mg/l	0.0203	0.0199	81.0	28-151	1.68	27	L472747-09	WG492583
sec-Butylbenzene	mg/l	0.0216	0.0212	86.5	32-149	2.17	26	L472747-09	WG492583
Styrene	mg/l	0.0260	0.0249	104.	38-149	4.39	23	L472747-09	WG492583
tert-Butylbenzene	mg/l	0.0207	0.0193	82.9	36-149	7.00	26	L472747-09	WG492583
Tetrachloroethene	mg/l	0.0880	0.0855	83.9	13-157	2.80	24	L472747-09	WG492583
Toluene	mg/l	0.0231	0.0214	92.3	22-152	7.75	22	L472747-09	WG492583
trans-1,2-Dichloroethene	mg/l	0.0225	0.0206	90.0	11-160	8.98	23	L472747-09	WG492583
trans-1,3-Dichloropropene	mg/l	0.0266	0.0233	106.	33-153	13.4	22	L472747-09	WG492583
Trichloroethene	mg/l	0.0240	0.0221	87.6	18-163	8.19	21	L472747-09	WG492583
Trichlorofluoromethane	mg/l	0.0224	0.0208	89.7	10-177	7.38	24	L472747-09	WG492583
Vinyl chloride	mg/l	0.0204	0.0195	81.7	0-179	4.85	26	L472747-09	WG492583

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

EnviroTech- NM
Lynn Berry
5796 US. Highway 64

Farmington, NM 87401

Quality Assurance Report
Level II

L472785

August 16, 2010

Analyte	Units	Matrix Spike MSD	Ref	Duplicate %Rec	Limit	RPD	Limit	Ref Samp	Batch
Xylenes, Total	mg/l	0.0630	0.0601	84.0	27-151	4.80	23	L472747-09	WG492583
4-Bromofluorobenzene				102.4	75-128				WG492583
Dibromofluoromethane				92.64	79-125				WG492583
Toluene-d8				105.8	87-114				WG492583

Batch number /Run number / Sample number cross reference

WG492583: R1322008: L472785-01
WG492618: R1326868: L472785-01
WG492927: R1327028: L472785-01

* * Calculations are performed prior to rounding of reported values .
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Level II

L472785

August 16, 2010

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address:
EnviroTech- NM

5796 US. Highway 64
Farmington.NM 87401

Alternate billing information:

Analysis/Container/Preservative

Chain of Custody
Page ___ of ___

Prepared by:

ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

A170

Report to: Lynn Berry
Email to: lberry@envirotech-inc.com
Project Description: Key Energy
City/State Collected: NM
Phone: (505) 632-0615
FAX:
Client Project #: 98065-0013
ESC Key:
Collected by: R. Allen
Site/Facility ID#:
P.O.#: 15573
Collected by (signature):
Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day.....200%
___ Next Day.....100%
___ Two Day.....50%
___ Three Day.....25%

Date Results Needed:
Email? ___No ✓Yes
FAX? ✓No ___Yes

CoCode: ENVIROFNM (lab use only)
Template/Prelogin:
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Herbicides & Pesticides	MEK	Remarks/Contaminant	Sample # (lab only)
55453-Inj Water		OT		8/4/10	14:00	2-1L Amber 2-VOAs	X	X	Please include QA/QC	L472785-01

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other Aqueous

pH _____ Temp _____

Remarks: 9669 7460 0229

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐	Condition: (lab use only)
Yolo Thompson	8/5/10	11:30			OK
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.6°C / Bottles Received: 4	CoC Seals Intact: ___Y ___N ✓NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 08-06-10 / Time: 0900	pH Checked: / NCF:

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, August 03, 2010 4:58 PM
To: 'wayne price'; VonGonten, Glenn, EMNRD; Sanchez, Daniel J., EMNRD
Cc: Dan Gibson; lmolleur@keyenergy.com; Altomare, Mikal, EMNRD
Subject: RE: Key Sunco Injection Well UIC-5 Sampling

Approved for this quarterly sampling event. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: wayne price [mailto:wayneprice77@earthlink.net]
Sent: Tuesday, August 03, 2010 4:44 PM
To: Chavez, Carl J, EMNRD; VonGonten, Glenn, EMNRD; Sanchez, Daniel J., EMNRD
Cc: Dan Gibson; lmolleur@keyenergy.com
Subject: Key Sunco Injection Well UIC-5 Sampling

Dear Gentlemen:

Pursuant to our meeting this afternoon, Key understands it will be allowed to submit the following analytical results for this quarter.

A reduced list of 8260 volatile organics and 8270 semi-volatile organics, an increased list of 6010 heavy metals, complete General Chemistry (EPA 4500 series), and RCI.
In addition, other EPA approved methods will be used to fulfill the necessary requirements as discussed. These methods will be Total Cyanide, 8041 (phenols and Cresols), 8091 (NITROAROMATICS AND CYCLIC KETONES BY GAS CHROMATOGRAPHY) and other approved EPA methods.

These new results will fulfill the requirement for Hazardous Waste testing to make sure Key is not disposing of Hazardous waste per EPA RCRA and OCD requirements. It will also include all of the results for the WQCC part 3103 A,B,C constituents.

Key appreciates OCD's cooperation in this manner as it will reduce the chemical analyses from over 400 test to about 100. As discussed, this will not reduce protecting the environmental since a lot of the new EPA testing requirements are for pesticides, insecticides, and pharmaceuticals chemicals not used in the oil and gas industry. Also, it will actually increase our protection by checking that the D001-D043 RCRA Toxicity chemicals are not
being introduced into the well.

Key and OCD will discuss a possible minor permit modification before the next quarter.

Sincerely!

Chavez, Carl J, EMNRD

From: Kuehling, Monica, EMNRD
Sent: Friday, July 09, 2010 7:11 AM
To: Chavez, Carl J, EMNRD
Subject: RE: C-103 Key Energy Services L.L.C. Class I Oilfield (NH) Disposal Well (API# 30-045-28653

Hey there Carl,

I witnessed the MIT and bradenhead test yesterday. The bradenhead had nothing on it when opened. The casing set at 400 lbs during the whole MIT test of 30 minutes.

Wayne was there with his wife Mary Ann. Neal, Steve and Mel were also on site.

I also witness Wayne taking the quarterly samples of water from the production water tanks.

All looked good.

They are to start their injecting for the fall off test this morning at 7 a.m.

Amy is out this week so it will be sometime next week when you can view the forms for the tests (MIT and Bradenhead) in the well file.

Have a great weekend.

Monica Kuehling
Compliance Offficer
NM Oil Conservation Division
Aztec New Mexico
Office Phone 505-334-6178
Cell Phone 505-320-0243

From: Chavez, Carl J, EMNRD
Sent: Thursday, July 08, 2010 8:18 AM
To: Kuehling, Monica, EMNRD
Subject: RE: C-103 Key Energy Services L.L.C. Class I Oilfield (NH) Disposal Well (API# 30-045-28653

Good morning Monica.

Yes please. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Kuehling, Monica, EMNRD
Sent: Thursday, July 08, 2010 8:16 AM

To: Chavez, Carl J, EMNRD
Subject: RE: C-103 Key Energy Services L.L.C. Class I Oilfield (NH) Disposal Well (API# 30-045-28653

Hello Carl,

I just came back after the 4th and did not get a chance before I left last Friday to look at my e-mail.

Do you want Amy to put the e-mail attached to the c-103 in the well file also??

I will be conducting an mit this afternoon at 1p.m. at Key.

I will send you info on what happens in the morning. Amy is gone the rest of the week so the scanning will not be done until probably Monday.

Have a great day.

Monica Kuehling
Compliance Offficer
NM Oil Conservation Division
Aztec New Mexico
Office Phone 505-334-6178
Cell Phone 505-320-0243

From: Chavez, Carl J, EMNRD
Sent: Friday, July 02, 2010 1:39 PM
To: Kuehling, Monica, EMNRD
Cc: wayne price
Subject: C-103 Key Energy Services L.L.C. Class I Oilfield (NH) Disposal Well (API# 30-045-28653

Monica:

Please find attached the Fall-Off Test (FOT) Plan and signed C-103 for the upcoming FOT where Key is mobilizing on-site on July 8, 2010 to begin operations. Wayne will give you a courtesy call at times reflected in my e-mail in the event you are available to witness a couple of key events.

Also, if you could scan the C-103 into the API file, I would appreciate it this time as Lawrence is out for 2 weeks on vacation. If not, I'll get it when he returns.

Please contact me if you have questions. Thanks.

P.S. Hope you have a Happy 4th! ☺

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, September 25, 2009 3:05 PM
To: 'Bob Patterson'; 'lmolleur@keyenergy.com'; 'Schmaltz, Randy'; DARRELL MOORE; Lackey, Johnny
Cc: Sanchez, Daniel J., EMNRD; Jones, William V., EMNRD; VonGonten, Glenn, EMNRD
Subject: New Mexico Oil Conservation Division Class I (non-hazardous) Disposal Well Operator Notice--QUARTERLY & ANNUAL REPORTING

Gentlemen:

Re: UIC Class I Disposal Well **Quarterly and Annual Reporting**

You are receiving this message because you are currently operating a Underground Injection Control (UIC) Class I (non-hazardous) Disposal Well in New Mexico under an Oil Conservation Division (OCD) Discharge Permit. You may be aware of the most recent events related to OCD Class III Wells in New Mexico and can find out more by visiting the OCD's Brine Well Webpage at http://www.emnrd.state.nm.us/OCD/brinewells.htm and OCD Brine Well Work Group Website at http://ocdimage.emnrd.state.nm.us/imaging/AEOrderFileView.aspx?appNo=pCJC0906359521.

The OCD is writing to inform you that it will be monitoring more closely the receipt of your "Quarterly Reports" and "Annual Reports" required under the applicable section(s) of your OCD Discharge Permit. After reexamining our UIC Program subsequent to the UIC Class III Solution Mining Wells that collapsed in July and November of 2008, the OCD identified that it has been deficient in tracking reporting obligations in the past; however, the OCD has recently upgraded its online electronic system to better track operators who are not meeting the reporting requirements as specified in their OCD Discharge Permits. Please plan on submitting reports with required information by the date specified in your discharge permit. Operators undergoing permit renewal will notice changes to the OCD's discharge permit, which will include "Annual Reports" in addition to the Quarterly Reporting requirement(s).

To access your OCD Discharge Permit Online for the date of submittal and required contents of the report(s), please go to OCD Online at http://ocdimage.emnrd.state.nm.us/imaging/AEOrderCriteria.aspx (enter "Order Type" as UICI and your "Order Number"). The OCD has placed a "Quarterly Reporting" and "Annual Reports" thumbnails into each of your online well files and will be scanning all received reports into them upon receipt from now on.

If you have been delinquent in submitting your Quarterly (more recent permits require Annual Reports), a historical review of your production or disposal records will be required in order to provide cumulative injection or disposal information in this year's report.

Please contact me if you have questions or need assistance.

Thank you in advance for your cooperation in this matter.

Copy: Class I (non-hazardous) Disposal Well Files UICI- 5, 9, 8, 8-1 & 8-0 (Quarterly Reporting & Annual Reports)

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
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E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")