

UIC-1 - _____005_____

QUARTERLY REPORTING

Chavez, Carl J, EMNRD

From: Philana Thompson <pthompson@merrion.bz>
Sent: Thursday, June 6, 2019 7:30 PM
To: Chavez, Carl J, EMNRD
Subject: [EXT] 1st Quarter Sunco Annual Report
Attachments: 190513 Sunco Disposal Well WQ Report 1Qtr 2019.pdf; 1st Quarter Report UIC.pdf; 190516 Sunco MW WQ Report April 2019.pdf

Carl,
The first quarter reports are attached. Please note that the injection sampling we were not able to do until April 9th (just outside of the 1st quarter) because of the status of the facility being open by apt only now and conflict of schedules with our 3rd party scheduler it was difficult coordinating. I did get the final reports May 1st however I have been swamped and was focused on the annual report.

Please let me know if you have any questions or concerns.

Philana

--

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

Quarterly Injection Report

[illegible]

May 13, 2019

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

**Re: Sunco Disposal #1
Injection Water Quality Monitoring
1st 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 1st 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-9) from the process line inside the pump building at the location on April 9, 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-9) 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.

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, P.G.
Area Manager/Geologist

Attachments:

Table 1. Summary of Field Screening and Laboratory Analytical Results
Laboratory Analytical Reports (Hall: 1904573)

Table 1. Summary of Field Screening and Laboratory Analytical Results

Sample ID	S-9		Units	Toxicity Characteristic Concentrations
Collection Date	4/9/2019			
Analyte	Laboratory Results	Field Results		
pH	5.39 H	6.32	su	
Temperature	--	18.1	°C	
Reduction Potential	95.0 H	-228	mV	
Specific Conductance	5,500	6,381	µmhos/cm	
Specific Gravity	1.002	--		
Total Dissolved Solids	4,170 D	4,147	mg/L	
Bicarbonate (As CaCO ₃)	744.4	--	mg/L	
Carbonate (As CaCO ₃)	<2.000	--	mg/L	
Flouride	<0.50	--	mg/L	
Chloride	1,400	--	mg/L	
Bromide	4.1	--	mg/L	
Phosphorus, Orthophosphate	<2.5	--	mg/L	
Sulfate	55	--	mg/L	
Nitrogen, Nitrate (as N)	<0.50	--	mg/L	
Nitrogen, Nitrite (as N)	<0.50	--	mg/L	
Calcium	100	--	mg/L	
Magnesium	10	--	mg/L	
Potassium	72	--	mg/L	
Sodium	910	--	mg/L	
Reactive Cyanide	<0.00500	--	mg/L	
Reactive Sulfide	0.185	--	mg/L	
Flashpoint	Did not flash at 170°F	--		
Corrosivity by pH	5.45 H	--	su	
Arsenic	<0.50	--	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-Dinitrotoluene	<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	<0.50	--	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
2-Methylphenol	<200	--	mg/L	
3+4-Methylphenol	<200	--	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	<0.10	--	mg/L	1.0 mg/L
Silver	<5.0	--	mg/L	5.0 mg/L
Tetrachloroethylene	<0.70	--	mg/L	0.7 mg/L
Trichloroethylene	<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 Fahrenheit

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 matrix

1.00

Concentration exceeds 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

May 07, 2019

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

RE: Sunco Disposal 1

OrderNo.: 1904573

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/10/2019 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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904573

Date Reported: 5/7/2019

CLIENT: Rule Engineering LLC

Client Sample ID: S-9 (4/9/19)

Project: Sunco Disposal 1

Collection Date: 4/9/2019 3:22:00 PM

Lab ID: 1904573-001

Matrix: AQUEOUS

Received Date: 4/10/2019 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	4/22/2019 10:20:05 AM	44354
Surr: Decachlorobiphenyl	60.6	29.4-99.8		%Rec	1	4/22/2019 10:20:05 AM	44354
Surr: Tetrachloro-m-xylene	81.9	20.7-100		%Rec	1	4/22/2019 10:20:05 AM	44354
EPA 200.8: METALS							Analyst: pmf
Arsenic	ND	0.50		mg/L	5	4/17/2019 7:47:27 PM	44318
Lead	ND	0.50	*	mg/L	5	4/17/2019 7:47:27 PM	44318
Selenium	ND	0.10		mg/L	5	4/23/2019 5:59:04 PM	44318
EPA METHOD 8270C TCLP							Analyst: JDC
2-Methylphenol	ND	200		mg/L	1	4/16/2019 7:35:50 PM	44352
3+4-Methylphenol	ND	200		mg/L	1	4/16/2019 7:35:50 PM	44352
2,4-Dinitrotoluene	ND	0.13		mg/L	1	4/16/2019 7:35:50 PM	44352
Hexachlorobenzene	ND	0.13		mg/L	1	4/16/2019 7:35:50 PM	44352
Hexachlorobutadiene	ND	0.50		mg/L	1	4/16/2019 7:35:50 PM	44352
Hexachloroethane	ND	3.0		mg/L	1	4/16/2019 7:35:50 PM	44352
Nitrobenzene	ND	2.0		mg/L	1	4/16/2019 7:35:50 PM	44352
Pentachlorophenol	ND	100		mg/L	1	4/16/2019 7:35:50 PM	44352
Pyridine	ND	5.0		mg/L	1	4/16/2019 7:35:50 PM	44352
2,4,5-Trichlorophenol	ND	400		mg/L	1	4/16/2019 7:35:50 PM	44352
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	4/16/2019 7:35:50 PM	44352
Cresols, Total	ND	200		mg/L	1	4/16/2019 7:35:50 PM	44352
Surr: 2-Fluorophenol	59.7	15-82.5		%Rec	1	4/16/2019 7:35:50 PM	44352
Surr: Phenol-d5	50.3	15-74.2		%Rec	1	4/16/2019 7:35:50 PM	44352
Surr: 2,4,6-Tribromophenol	87.9	18.6-118		%Rec	1	4/16/2019 7:35:50 PM	44352
Surr: Nitrobenzene-d5	93.7	30.4-106		%Rec	1	4/16/2019 7:35:50 PM	44352
Surr: 2-Fluorobiphenyl	69.8	15-104		%Rec	1	4/16/2019 7:35:50 PM	44352
Surr: 4-Terphenyl-d14	49.6	15-133		%Rec	1	4/16/2019 7:35:50 PM	44352
SPECIFIC GRAVITY							Analyst: JRR
Specific Gravity	1.002	0			1	4/23/2019 11:01:00 AM	R59402
EPA METHOD 300.0: ANIONS							Analyst: smb
Fluoride	ND	0.50		mg/L	5	4/10/2019 9:40:14 PM	R59038
Chloride	1400	50	*	mg/L	100	4/22/2019 8:40:12 PM	R59347
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	4/10/2019 9:40:14 PM	R59038
Bromide	4.1	0.50		mg/L	5	4/10/2019 9:40:14 PM	R59038
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	4/10/2019 9:40:14 PM	R59038
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	4/10/2019 9:40:14 PM	R59038
Sulfate	55	2.5		mg/L	5	4/10/2019 9:40:14 PM	R59038
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR

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

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 Quantitative 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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904573

Date Reported: 5/7/2019

CLIENT: Rule Engineering LLC

Client Sample ID: S-9 (4/9/19)

Project: Sunco Disposal 1

Collection Date: 4/9/2019 3:22:00 PM

Lab ID: 1904573-001

Matrix: AQUEOUS

Received Date: 4/10/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	5500	5.0		µmhos/c	1	4/15/2019 2:29:58 PM	R59181
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	744.4	20.00		mg/L Ca	1	4/15/2019 2:29:58 PM	R59181
Carbonate (As CaCO ₃)	ND	2.000		mg/L Ca	1	4/15/2019 2:29:58 PM	R59181
Total Alkalinity (as CaCO ₃)	744.4	20.00		mg/L Ca	1	4/15/2019 2:29:58 PM	R59181
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	4170	200	*D	mg/L	1	4/15/2019 11:31:00 AM	44294
SM4500-H+B / 9040C: PH							Analyst: JRR
pH	5.39		H	pH units	1	4/15/2019 2:29:58 PM	R59181
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	ND	100	*	mg/L	10	4/26/2019 12:50:47 PM	44318
Cadmium	ND	1.0		mg/L	1	4/26/2019 12:42:49 PM	44318
Chromium	ND	5.0	*	mg/L	1	4/26/2019 12:42:49 PM	44318
Silver	ND	5.0		mg/L	1	4/26/2019 12:42:49 PM	44318
EPA METHOD 245.1: MERCURY							Analyst: pmf
Mercury	ND	0.020		mg/L	1	4/18/2019 8:38:18 PM	44411
EPA METHOD 6010B: DISSOLVED METALS							Analyst: rde
Calcium	100	10		mg/L	10	4/26/2019 5:03:33 PM	B59501
Magnesium	10	1.0		mg/L	1	4/26/2019 5:02:13 PM	B59501
Potassium	72	1.0		mg/L	1	4/26/2019 5:02:13 PM	B59501
Sodium	910	10		mg/L	10	4/26/2019 5:03:33 PM	B59501
TCLP VOLATILES BY 8260B							Analyst: RAA
Benzene	ND	0.50		mg/L	200	4/15/2019 6:03:00 PM	T59147
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	4/15/2019 6:03:00 PM	T59147
2-Butanone	ND	200		mg/L	200	4/15/2019 6:03:00 PM	T59147
Carbon Tetrachloride	ND	0.50		mg/L	200	4/15/2019 6:03:00 PM	T59147
Chloroform	ND	6.0		mg/L	200	4/15/2019 6:03:00 PM	T59147
1,4-Dichlorobenzene	ND	7.5		mg/L	200	4/15/2019 6:03:00 PM	T59147
1,1-Dichloroethene	ND	0.70		mg/L	200	4/15/2019 6:03:00 PM	T59147
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	4/15/2019 6:03:00 PM	T59147
Trichloroethene (TCE)	ND	0.50		mg/L	200	4/15/2019 6:03:00 PM	T59147
Vinyl chloride	ND	0.20		mg/L	200	4/15/2019 6:03:00 PM	T59147
Chlorobenzene	ND	100		mg/L	200	4/15/2019 6:03:00 PM	T59147
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	200	4/15/2019 6:03:00 PM	T59147
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	200	4/15/2019 6:03:00 PM	T59147
Surr: Dibromofluoromethane	102	70-130		%Rec	200	4/15/2019 6:03:00 PM	T59147

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

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 Quantitative 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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904573**

Date Reported: 5/7/2019

CLIENT: Rule Engineering LLC

Client Sample ID: S-9 (4/9/19)

Project: Sunco Disposal 1

Collection Date: 4/9/2019 3:22:00 PM

Lab ID: 1904573-001

Matrix: AQUEOUS

Received Date: 4/10/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TCLP VOLATILES BY 8260B							Analyst: RAA
Surr: Toluene-d8	93.9	70-130		%Rec	200	4/15/2019 6:03:00 PM	T59147

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

1904573-001F S-9 (4/9/19)

Collected date/time: 04/09/19 15:22

SAMPLE RESULTS - 01

L1088428

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 4500 CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	ND		0.00500	1	04/18/2019 14:54	<u>WG1267301</u>

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	su				date / time	
Corrosivity by pH	5.45	<u>T8</u>		1	04/12/2019 16:00	<u>WG1264389</u>

Sample Narrative:

L1088428-01 WG1264389: 5.45 at 18.2C

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	0.185		0.0500	1	04/12/2019 18:57	<u>WG1265262</u>

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	deg F				date / time	
Flashpoint	DNF at 170			1	04/18/2019 16:00	<u>WG1268377</u>



ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L1088428

DATE/TIME:

04/18/19 17:50

1904573-001G S-9 (4/9/19)

Collected date/time: 04/09/19 15:22

SAMPLE RESULTS - 02

L1088428

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	95.0	T8	1	04/16/2019 10:40	WG1266602



ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L1088428

DATE/TIME:

04/18/19 17:50

WG1266602

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

L1088428-02

ONE LAB. NATIONWIDE.



L1088428-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1088428-02 04/16/19 10:40 • (DUP) R3402066-2 04/16/19 10:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
ORP	mV 95.0	mV 94.0	1	% 1.06	%	% 20

Laboratory Control Sample (LCS)

(LCS) R3402066-1 04/16/19 10:40

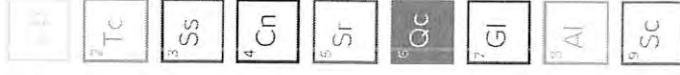
Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
ORP	mV 228	mV 228	% 100	% 95.7-104	

ACCOUNT:
Hall Environmental Analysis Laboratory

PROJECT:

SDG:
L1088428

DATE/TIME:
04/18/19 17:50



WG1267301

Wet Chemistry by Method 4500 CN E-2011

Method Blank (MB)

QUALITY CONTROL SUMMARY

L1088428-01

ONE LAB. NATIONWIDE.



(MB) R3403111-1 04/18/19 14:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	0.00198	J	0.00180	0.00500

L1087446-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1087446-02 04/18/19 14:35 • (DUP) R3403111-3 04/18/19 14:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	0.0143	0.0136	1	5.02		20

L1088572-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1088572-02 04/18/19 15:00 • (DUP) R3403111-6 04/18/19 15:01

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) R3403111-2 04/18/19 14:31

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0976	97.6	85.0-115	

L1087630-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1087630-02 04/18/19 14:37 • (MS) R3403111-4 04/18/19 14:38 • (MSD) R3403111-5 04/18/19 14:39

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.0969	0.0927	1	75.0-125			4.43	20

L1088572-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1088572-03 04/18/19 15:02 • (MS) R3403111-7 04/18/19 15:03 • (MSD) R3403111-8 04/18/19 15:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.00626	0.0828	0.0877	1	75.0-125			5.75	20

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L1088428

DATE/TIME:

04/18/19 17:50

WG1264389

Wet Chemistry by Method 4500H+ B-2011

QUALITY CONTROL SUMMARY

L1088428-01

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS)

(LCS) R3401318-1 04/12/19 16:00

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

Sample Narrative:

LCS: 10.02 at 18.3C

ACCOUNT:
Hall Environmental Analysis Laboratory

PROJECT:

SDG:
L1088428

DATE/TIME:
04/18/19 17:50

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

WG1265262

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L1088428-01

ONE LAB, NATIONWIDE



Method Blank (MB)

(MB) R3401369-1 04/12/19 18:56

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) R3401369-2 04/12/19 18:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.493	98.6	85.0-115	

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

ACCOUNT:
Hall Environmental Analysis Laboratory

PROJECT:

SDG:
L1088428

DATE/TIME:
04/18/19 17:50

WG1268377

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

L1088428-01

ONE LAB. NATIONWIDE.



L1088428-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1088428-01 04/18/19 16:00 • (DUP) R3403156-2 04/18/19 16:00

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

Laboratory Control Sample (LCS)

(LCS) R3403156-1 04/18/19 16:00

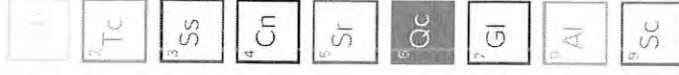
Analyte	Spike Amount		LCS Result		LCS Rec.		Rec. Limits		LCS Qualifier	
	deg F	82.0	deg F	83.4	%	102	%	96.0-104		
Flashpoint										

ACCOUNT:
Hall Environmental Analysis Laboratory

PROJECT:

SDG:
L1088428

DATE/TIME:
04/18/19 17:50





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, 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

J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

¹Al

²Sc

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: MB-44318	SampType: MBLK	TestCode: EPA Method 200.7: Metals								
Client ID: PBW	Batch ID: 44318	RunNo: 59216								
Prep Date: 4/12/2019	Analysis Date: 4/17/2019	SeqNo: 1993778	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Sample ID: LLCS-44318	SampType: LCSLL	TestCode: EPA Method 200.7: Metals								
Client ID: BatchQC	Batch ID: 44318	RunNo: 59216								
Prep Date: 4/12/2019	Analysis Date: 4/17/2019	SeqNo: 1993779	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0020	0.0020	0.002000	0	100	50	150			
Cadmium	0.0022	0.0020	0.002000	0	111	50	150			
Chromium	ND	0.0060	0.006000	0	97.5	50	150			
Silver	ND	0.0050	0.005000	0	86.6	50	150			

Sample ID: LCS-44318	SampType: LCS	TestCode: EPA Method 200.7: Metals								
Client ID: LCSW	Batch ID: 44318	RunNo: 59216								
Prep Date: 4/12/2019	Analysis Date: 4/17/2019	SeqNo: 1993780	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	95.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	101	85	115			
Chromium	0.49	0.0060	0.5000	0	98.4	85	115			
Silver	0.095	0.0050	0.1000	0	95.0	85	115			

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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: MB-44318	SampType: MBLK	TestCode: EPA 200.8: Metals
Client ID: PBW	Batch ID: 44318	RunNo: 59239
Prep Date: 4/12/2019	Analysis Date: 4/17/2019	SeqNo: 1994857 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Arsenic	ND	0.0010
Lead	ND	0.00050

Sample ID: MSLLCS-44318	SampType: LCSLL	TestCode: EPA 200.8: Metals
Client ID: BatchQC	Batch ID: 44318	RunNo: 59239
Prep Date: 4/12/2019	Analysis Date: 4/17/2019	SeqNo: 1994859 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Arsenic	ND	0.0010 0.001000 0 97.8 50 150
Lead	ND	0.00050 0.0005000 0 90.3 50 150

Sample ID: MSLCS-44318	SampType: LCS	TestCode: EPA 200.8: Metals
Client ID: LCSW	Batch ID: 44318	RunNo: 59239
Prep Date: 4/12/2019	Analysis Date: 4/17/2019	SeqNo: 1994861 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Arsenic	0.025	0.0010 0.02500 0 98.5 85 115
Lead	0.012	0.00050 0.01250 0 94.8 85 115

Sample ID: MB-44318	SampType: MBLK	TestCode: EPA 200.8: Metals
Client ID: PBW	Batch ID: 44318	RunNo: 59385
Prep Date: 4/12/2019	Analysis Date: 4/23/2019	SeqNo: 2000621 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Selenium	ND	0.0010

Sample ID: MSLLCS-44318	SampType: LCSLL	TestCode: EPA 200.8: Metals
Client ID: BatchQC	Batch ID: 44318	RunNo: 59385
Prep Date: 4/12/2019	Analysis Date: 4/23/2019	SeqNo: 2000622 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Selenium	ND	0.0010 0.001000 0 95.5 50 150

Sample ID: MSLCS-44318	SampType: LCS	TestCode: EPA 200.8: Metals
Client ID: LCSW	Batch ID: 44318	RunNo: 59385
Prep Date: 4/12/2019	Analysis Date: 4/23/2019	SeqNo: 2000627 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Selenium	0.025	0.0010 0.02500 0 99.8 85 115

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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: MB-44411	SampType: MBLK	TestCode: EPA Method 245.1: Mercury
Client ID: PBW	Batch ID: 44411	RunNo: 59288
Prep Date: 4/17/2019	Analysis Date: 4/18/2019	SeqNo: 1996307 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Mercury	ND 0.00020	

Sample ID: LCS-44411	SampType: LCS	TestCode: EPA Method 245.1: Mercury
Client ID: LCSW	Batch ID: 44411	RunNo: 59288
Prep Date: 4/17/2019	Analysis Date: 4/18/2019	SeqNo: 1996308 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 97.4 80 120	

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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R59038	RunNo: 59038								
Prep Date:	Analysis Date: 4/10/2019	SeqNo: 1988170 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: R59038	RunNo: 59038								
Prep Date:	Analysis Date: 4/10/2019	SeqNo: 1988171 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	103	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	97.9	90	110			
Bromide	2.4	0.10	2.500	0	95.3	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	10	0.50	10.00	0	99.5	90	110			

Sample ID: LCSd	SampType: LCSD	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS02	Batch ID: R59038	RunNo: 59038								
Prep Date:	Analysis Date: 4/10/2019	SeqNo: 1988172 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	105	90	110	1.85	20	
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	99.3	90	110	1.41	20	
Bromide	2.4	0.10	2.500	0	95.9	90	110	0.595	20	
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	105	90	110	0.704	20	
Phosphorus, Orthophosphate (As P)	4.9	0.50	5.000	0	97.6	90	110	0.937	20	
Sulfate	10	0.50	10.00	0	100	90	110	0.641	20	

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R59347	RunNo: 59347								
Prep Date:	Analysis Date: 4/22/2019	SeqNo: 1998585 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: LCS		SampType: lcs		TestCode: EPA Method 300.0: Anions						
Client ID: LCSW		Batch ID: R59347		RunNo: 59347						
Prep Date:		Analysis Date: 4/22/2019		SeqNo: 1998586		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	94.8	90	110			

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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: MB-44354	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: PBW	Batch ID: 44354	RunNo: 59324
Prep Date: 4/16/2019	Analysis Date: 4/22/2019	SeqNo: 1998010 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chlordane	ND	0.030
Surr: Decachlorobiphenyl	0.0020	0.002500 79.3 29.4 99.8
Surr: Tetrachloro-m-xylene	0.0017	0.002500 67.2 20.7 100

Sample ID: LCS-44354	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: LCSW	Batch ID: 44354	RunNo: 59324
Prep Date: 4/16/2019	Analysis Date: 4/22/2019	SeqNo: 1998011 Units: %Rec
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Surr: Decachlorobiphenyl	0.0017	0.002500 66.0 29.4 99.8
Surr: Tetrachloro-m-xylene	0.0013	0.002500 50.9 20.7 100

Sample ID: 1904573-001BMS	SampType: MS	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: S-9 (4/9/19)	Batch ID: 44354	RunNo: 59324
Prep Date: 4/16/2019	Analysis Date: 4/22/2019	SeqNo: 1998013 Units: %Rec
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Surr: Decachlorobiphenyl	0.0016	0.002500 62.2 29.4 99.8
Surr: Tetrachloro-m-xylene	0.0016	0.002500 64.0 20.7 100

Sample ID: 1904573-001BMSD	SampType: MSD	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: S-9 (4/9/19)	Batch ID: 44354	RunNo: 59324
Prep Date: 4/16/2019	Analysis Date: 4/22/2019	SeqNo: 1998014 Units: %Rec
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Surr: Decachlorobiphenyl	0.0016	0.002500 64.9 29.4 99.8 0 0
Surr: Tetrachloro-m-xylene	0.0014	0.002500 56.4 20.7 100 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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: 100ng lcs		SampType: LCS			TestCode: TCLP Volatiles by 8260B					
Client ID: LCSW		Batch ID: T59147			RunNo: 59147					
Prep Date:		Analysis Date: 4/15/2019			SeqNo: 1992083		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	105	70	130			
1,1-Dichloroethene	0.020	0.010	0.02000	0	100	70	130			
Trichloroethene (TCE)	0.020	0.010	0.02000	0	99.5	70	130			
Chlorobenzene	0.021	0.010	0.02000	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	0.0097		0.01000		97.1	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		99.2	70	130			
Surr: Dibromofluoromethane	0.0098		0.01000		97.9	70	130			
Surr: Toluene-d8	0.0093		0.01000		92.7	70	130			

Sample ID: rb1	SampType: MBLK			TestCode: TCLP Volatiles by 8260B						
Client ID: PBW	Batch ID: T59147			RunNo: 59147						
Prep Date:	Analysis Date: 4/15/2019			SeqNo: 1992084			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	0.0098		0.01000		98.5	70	130			
Surr: 4-Bromofluorobenzene	0.0097		0.01000		96.8	70	130			
Surr: Dibromofluoromethane	0.0098		0.01000		97.8	70	130			
Surr: Toluene-d8	0.0093		0.01000		92.8	70	130			

Sample ID: 1904573-001ams	SampType: MS			TestCode: TCLP Volatiles by 8260B						
Client ID: S-9 (4/9/19)	Batch ID: T59147			RunNo: 59147						
Prep Date:	Analysis Date: 4/15/2019			SeqNo: 1992087			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.9	0.00017	4.000	0.4816	109	70	130			
1,1-Dichloroethene	4.2	0.00021	4.000	0	106	67.6	130			
Trichloroethene (TCE)	4.2	0.00017	4.000	0	104	70	130			
Chlorobenzene	4.1	0.00019	4.000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	2.1		2.000		104	70	130			

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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: 1904573-001ams		SampType: MS		TestCode: TCLP Volatiles by 8260B						
Client ID: S-9 (4/9/19)		Batch ID: T59147		RunNo: 59147						
Prep Date:		Analysis Date: 4/15/2019		SeqNo: 1992087		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	2.0		2.000		100	70	130			
Surr: Dibromofluoromethane	2.0		2.000		101	70	130			
Surr: Toluene-d8	1.9		2.000		94.0	70	130			

Sample ID: 1904573-001amsd		SampType: MSD		TestCode: TCLP Volatiles by 8260B						
Client ID: S-9 (4/9/19)		Batch ID: T59147		RunNo: 59147						
Prep Date:		Analysis Date: 4/15/2019		SeqNo: 1992088		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.6	0.00017	4.000	0.4816	104	70	130	4.71	20	
1,1-Dichloroethene	4.0	0.00021	4.000	0	98.8	67.6	130	7.27	20	
Trichloroethene (TCE)	4.0	0.00017	4.000	0	99.1	70	130	4.93	20	
Chlorobenzene	3.9	0.00019	4.000	0	98.0	70	130	4.22	20	
Surr: 1,2-Dichloroethane-d4	2.0		2.000		100	70	130	0	0	
Surr: 4-Bromofluorobenzene	2.0		2.000		100	70	130	0	0	
Surr: Dibromofluoromethane	2.0		2.000		102	70	130	0	0	
Surr: Toluene-d8	1.9		2.000		93.5	70	130	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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: 1904573-001bms		SampType: MS		TestCode: EPA Method 8270C TCLP						
Client ID: S-9 (4/9/19)		Batch ID: 44352		RunNo: 59191						
Prep Date: 4/16/2019		Analysis Date: 4/16/2019		SeqNo: 1993152		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.078	0.010	0.1000	0	77.9	23.9	129			
3+4-Methylphenol	0.19	0.010	0.2000	0.03030	78.1	15	167			
2,4-Dinitrotoluene	0.071	0.010	0.1000	0	70.5	15	147			
Hexachlorobenzene	0.075	0.010	0.1000	0	75.2	41.4	136			
Hexachlorobutadiene	0.040	0.010	0.1000	0	40.1	16.2	134			
Hexachloroethane	0.036	0.010	0.1000	0	36.2	20.6	124			
Nitrobenzene	0.076	0.010	0.1000	0	76.4	39.5	134			
Pentachlorophenol	0.066	0.010	0.1000	0	66.0	15	137			
Pyridine	0.034	0.010	0.1000	0	33.8	15	129			
2,4,5-Trichlorophenol	0.076	0.010	0.1000	0	75.9	15	158			
2,4,6-Trichlorophenol	0.082	0.010	0.1000	0	81.7	15	153			
Cresols, Total	0.27	0.010	0.3000	0.03030	81.1	10.6	179			
Surr: 2-Fluorophenol	0.11		0.2000		53.8	15	82.5			
Surr: Phenol-d5	0.098		0.2000		48.8	15	74.2			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		76.1	18.6	118			
Surr: Nitrobenzene-d5	0.077		0.1000		77.2	30.4	106			
Surr: 2-Fluorobiphenyl	0.056		0.1000		55.5	15	104			
Surr: 4-Terphenyl-d14	0.049		0.1000		49.1	15	133			

Sample ID: 1904573-001Bmsd		SampType: MSD		TestCode: EPA Method 8270C TCLP						
Client ID: S-9 (4/9/19)		Batch ID: 44352		RunNo: 59211						
Prep Date: 4/16/2019		Analysis Date: 4/17/2019		SeqNo: 1994250			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.061	0.010	0.1000	0	61.3	23.9	129	23.9	20	R
3+4-Methylphenol	0.14	0.010	0.2000	0.03030	56.5	15	167	26.1	20	R
2,4-Dinitrotoluene	0.061	0.010	0.1000	0	61.0	15	147	14.5	23.2	
Hexachlorobenzene	0.069	0.010	0.1000	0	69.2	41.4	136	8.23	20	
Hexachlorobutadiene	0.036	0.010	0.1000	0	36.2	16.2	134	10.4	20	
Hexachloroethane	0.032	0.010	0.1000	0	31.7	20.6	124	13.4	31.3	
Nitrobenzene	0.068	0.010	0.1000	0	67.8	39.5	134	12.0	26.6	
Pentachlorophenol	0.055	0.010	0.1000	0	55.0	15	137	18.2	27.9	
Pyridine	0.050	0.010	0.1000	0	50.0	15	129	38.6	47.4	
2,4,5-Trichlorophenol	0.059	0.010	0.1000	0	58.6	15	158	25.7	36.9	
2,4,6-Trichlorophenol	0.061	0.010	0.1000	0	61.2	15	153	28.7	37.2	
Cresols, Total	0.21	0.010	0.3000	0.03030	60.7	10.6	179	25.2	27.4	
Surr: 2-Fluorophenol	0.083		0.2000		41.3	15	82.5	0	0	
Surr: Phenol-d5	0.077		0.2000		38.5	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.14		0.2000		69.1	18.6	118	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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: 1904573-001Bmsd		SampType: MSD		TestCode: EPA Method 8270C TCLP						
Client ID: S-9 (4/9/19)		Batch ID: 44352		RunNo: 59211						
Prep Date: 4/16/2019		Analysis Date: 4/17/2019		SeqNo: 1994250			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.069		0.1000		69.3	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.047		0.1000		46.7	15	104	0	0	
Surr: 4-Terphenyl-d14	0.043		0.1000		42.6	15	133	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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: lcs-1 99.0uS eC	SampType: LCS			TestCode: SM2510B: Specific Conductance						
Client ID: LCSW	Batch ID: R59181			RunNo: 59181						
Prep Date:	Analysis Date: 4/15/2019			SeqNo: 1992495		Units: µmhos/cm				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	85	115			

Sample ID: lcsd-1 99.0uS eC	SampType: LCSD			TestCode: SM2510B: Specific Conductance						
Client ID: LCSS02	Batch ID: R59181			RunNo: 59181						
Prep Date:	Analysis Date: 4/15/2019			SeqNo: 1992496		Units: µmhos/cm				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	85	115	0.101	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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: MB-B	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: PBW	Batch ID: B59501	RunNo: 59501								
Prep Date:	Analysis Date: 4/26/2019	SeqNo: 2004695	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-B	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: LCSW	Batch ID: B59501	RunNo: 59501								
Prep Date:	Analysis Date: 4/26/2019	SeqNo: 2004696	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	46	1.0	50.00	0	91.8	80	120			
Magnesium	46	1.0	50.00	0	92.9	80	120			
Potassium	47	1.0	50.00	0	93.4	80	120			
Sodium	47	1.0	50.00	0	94.8	80	120			

Sample ID: LCSD-B	SampType: LCSD	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: LCSS02	Batch ID: B59501	RunNo: 59501								
Prep Date:	Analysis Date: 4/26/2019	SeqNo: 2004697	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	45	1.0	50.00	0	89.7	80	120	11.3	20	
Magnesium	45	1.0	50.00	0	90.5	80	120	10.5	20	
Potassium	46	1.0	50.00	0	91.0	80	120	8.73	20	
Sodium	46	1.0	50.00	0	92.1	80	120	8.91	20	

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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: mb-1 alk	SampType: MBLK	TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992526 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: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992527 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	79.84	20.00 80.00 0 99.8 90 110

Sample ID: lcsd-1 alk	SampType: LCSD	TestCode: SM2320B: Alkalinity
Client ID: LCSS02	Batch ID: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992528 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	77.16	20.00 80.00 0 96.4 90 110 3.41 20

Sample ID: mb-2 alk	SampType: MBLK	TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992550 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: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992551 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	77.60	20.00 80.00 0 97.0 90 110

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 Quantitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904573

07-May-19

Client: Rule Engineering LLC

Project: Sunco Disposal 1

Sample ID: MB-44294	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 44294	RunNo: 59143								
Prep Date: 4/11/2019	Analysis Date: 4/15/2019	SeqNo: 1990973			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-44294	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 44294	RunNo: 59143								
Prep Date: 4/11/2019	Analysis Date: 4/15/2019	SeqNo: 1990974			Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

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 Quantitative 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 Limit

Sample Log-In Check List

Client Name: **RULE ENGINEERING LL**

Work Order Number: **1904573**

RcptNo: 1

Received By: **Erin Melendrez**

4/10/2019 8:10:00 AM

UAG

Completed By: **Erin Melendrez**

4/10/2019 12:01:50 PM

UAG

Reviewed By: **YG u/10/19**

LB: TWM 4-10-19

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 $>0^{\circ}\text{C}$ 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. 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?
(Note discrepancies on chain of custody) Yes ☒ No ☐
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?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(3) (<2 or >12 unless noted)

Adjusted? W

Checked by: TWM 4-10-19

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: Added 1.0ml HNO₃ to 001E to achieve desired pH.

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.6	Good	Yes			
2	4.8	Good	Yes			
3	2.2	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering

Turn-Around Time:

☒ Standard

☐ Rush

Project Name:

Client: Rule Engineering

Farmington, NM 87401

email or Fax#: Kwoods@ulunginenergy.com

☒ Standard☒ Standard ☐ Level 4 (Full Validation)☐ NELAC

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[illegible]

4/9/15	1834	Heath, M. Wood
--------	------	----------------

07/8/18	18/11/18
---------	----------

☒ Standard ☐ Rush

Sinco Disposal #1

Project Manager:

Sampler: Heather Woods	On Ice: ☒ Yes ☐ No
------------------------	---

Cooler Temp (including CF): 2.7°C, 4.8°C, 0.6°C

Container Type and #	Preservative Type	HEAL No. 1904573
-------------------------	----------------------	---------------------

(1) 500 ml H ₂ O	1
(1) 500 ml Plastic	NaOH

(1) 500 mL Plastic	Wash
(2) 500 mL Plastic	Non

1) 125 mL of H_2SO_4	
2) 125 mL of HNO_3	

5) IL Glass	Non
5) IL Glass	Non

--	--	--	--

Section	Vis. a	Date	Time
Just Last		4/9/9	183

4/10/19

Direct Bill to Aqua Mass - Rates per Andy
See Attached Pages

See Attached Pages

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Remarks:

Direct Bill to Aqua Mass - Rates per Andy
See Attached Pages

See Attached Pages

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	Pentachlorophenol	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).*

ADDITIONALLY:

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.

May 16, 2019

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

**Re: Sunco Disposal #1
Monitoring Well Sampling – April 2019**

Dear Ms. Murray:

This report summarizes the sample collection, field screening, and laboratory analysis of groundwater collected from monitoring well (MW-1) at the Agua Moss LLC Sunco Disposal #1 facility on April 9, 2019.

Field Activities

Rule Engineering, LLC (Rule) personnel collected one groundwater sample from monitoring well MW-1 on April 9, 2019. The sample was collected utilizing a disposable bailer after purging approximately four gallons of water from the well.

Sample Collection and Field Screening Procedures

The groundwater sample 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.

Groundwater collected for analysis was placed directly 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 groundwater than laboratory results for these parameters due to their rapidly changing nature when the sample is exposed to variable temperatures, pressures, and atmospheric gases. The hold time qualifier is indicated on the laboratory report for pH. A dilution due to matrix qualifier is indicated on the laboratory report for total dissolved solids.

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, P.G.
Area Manager/Geologist

Attachments:

Table 1. Summary of Field Screening and Laboratory Analytical Results
Laboratory Analytical Report (Hall: 1904570)

Table 1. Summary of Field Screening and Laboratory Analytical Results

Sample ID	MW-01		Units	WQCC Groundwater Standards*
Collection Date	4/9/2019			
Analyte	Laboratory Results	Field Results		
pH	7.12 H	7.54	su	6 to 9 su
Temperature	--	16.3	°C	
Reduction Potential	--	-192.9	mV	
Specific Conductance	3,800	1,404	µmhos/cm	
Total Dissolved Solids	3,500 D	1,404	mg/L	1,000.0 mg/L
Bicarbonate (As CaCO ₃)	531.7	--	mg/L	
Carbonate (As CaCO ₃)	<2.000	--	mg/L	
Flouride	<0.50	--	mg/L	1.6 mg/L
Chloride	36	--	mg/L	250.0 mg/L
Bromide	<0.50	--	mg/L	
Phosphorus, Orthophosphate	<2.5	--	mg/L	
Sulfate	2,100	--	mg/L	600.0 mg/L
Nitrogen, Nitrate (as N)	<0.50	--	mg/L	10.0 mg/L
Nitrogen, Nitrite (as N)	<0.50	--	mg/L	1.0 mg/L
Calcium	590	--	mg/L	
Magnesium	57	--	mg/L	
Potassium	7.6	--	mg/L	
Sodium	390	--	mg/L	
Benzene	<1.0	--	µg/L	5 µg/L
Toluene	<1.0	--	µg/L	1,000 µg/L
Ethylbenzene	<1.0	--	µg/L	700 µg/L
Methyl tert-butyl ether	<1.0	--	µg/L	
1,2,4-Trimethylbenzene	<1.0	--	µg/L	
1,3,5-Trimethylbenzene	<1.0	--	µg/L	
1,2-Dichloroethane	<1.0	--	µg/L	5 µg/L
1,2-Dibromoethane	<1.0	--	µg/L	0.05 µg/L
Napthalene	<2.0	--	µg/L	30 µg/L
1-Methylnaphthalene	<4.0	--	µg/L	
2-Methylnaphthalene	<4.0	--	µg/L	
Acetone	<10	--	µg/L	
Bromobenzene	<1.0	--	µg/L	
Bromodichloromethane	<1.0	--	µg/L	
Bromoform	<1.0	--	µg/L	
Bromomethane	<3.0	--	µg/L	
2-Butanone	<10	--	µg/L	
Carbon disulfide	<10	--	µg/L	
Carbon Tetrachloride	<1.0	--	µg/L	5 µg/L
Chlorobenzene	<1.0	--	µg/L	
Chloroethane	<2.0	--	µg/L	
Chloroform	<1.0	--	µg/L	100 µg/L
Chloromethane	<3.0	--	µg/L	
2-Chlorotoluene	<1.0	--	µg/L	
4-Chlorotoluene	<1.0	--	µg/L	
cis-1,2-DCE	<1.0	--	µg/L	70 µg/L
cis-1,3-Dichloropropene	<1.0	--	µg/L	
1,2-Dibromo-3-chloropropane	<2.0	--	µg/L	
Dibromochloromethane	<1.0	--	µg/L	
Dibromomethane	<1.0	--	µg/L	
1,2-Dichlorobenzene	<1.0	--	µg/L	600 µg/L
1,3-Dichlorobenzene	<1.0	--	µg/L	
1,4-Dichlorobenzene	<1.0	--	µg/L	75 µg/L
Dichlorodifluoromethane	<1.0	--	µg/L	
1,1-Dichloroethane	<1.0	--	µg/L	25 µg/L
1,1-Dichloroethene	<1.0	--	µg/L	

Table 1. Summary of Field Screening and Laboratory Analytical Results

Sample ID	MW-01		Units	WQCC Groundwater Standards*
Collection Date	4/9/2019			
Analyte	Laboratory Results	Field Results		
1,2-Dichloropropane	<1.0	--	µg/L	5 µg/L
1,3-Dichloropropane	<1.0	--	µg/L	
2,2-Dichloropropane	<2.0	--	µg/L	
1,1-Dichloropropene	<1.0	--	µg/L	
Hexachlorobutadiene	<1.0	--	µg/L	
2-Hexanone	<10	--	µg/L	
Isopropylbenzene	<1.0	--	µg/L	
4-Isopropyltoluene	<1.0	--	µg/L	
4-Methyl-2-pentanone	<10	--	µg/L	
Methylene Chloride	<3.0	--	µg/L	5 µg/L
n-Butylbenzene	<3.0	--	µg/L	
n-Propylbenzene	<1.0	--	µg/L	
sec-Butylbenzene	<1.0	--	µg/L	
Styrene	<1.0	--	µg/L	100 µg/L
tert-Butylbenzene	<1.0	--	µg/L	
1,1,1,2-Tetrachloroethane	<1.0	--	µg/L	
1,1,2,2-Tetrachloroethane	<2.0	--	µg/L	10 µg/L
Tetrachloroethene	<1.0	--	µg/L	5 µg/L
trans-1,2-DCE	<1.0	--	µg/L	100 µg/L
trans-1,3-Dichloropropene	<1.0	--	µg/L	
1,2,3-Trichlorobenzene	<1.0	--	µg/L	
1,2,4-Trichlorobenzene	<1.0	--	µg/L	70 µg/L
1,1,1-Trichloroethane	<1.0	--	µg/L	200 µg/L
1,1,2-Trichloroethane	<1.0	--	µg/L	5 µg/L
Trichloroethene	<1.0	--	µg/L	5 µg/L
Trichlorofluoromethane	<1.0	--	µg/L	
1,2,3-Trichloropropane	<2.0	--	µg/L	
Vinyl chloride	<1.0	--	µg/L	2 µg/L
Xylenes, total	<1.5	--	µg/L	620 µg/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
WQCC - Water Quality Control Commission
*Per 20.6.2.3103 NMAC



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

April 23, 2019

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

RE: Sunco 1

OrderNo.: 1904570

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/10/2019 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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a light blue horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904570**

Date Reported: **4/23/2019**

CLIENT: Rule Engineering LLC

Client Sample ID: MW-01 (4/9/19)

Project: Sunco 1

Collection Date: 4/9/2019 5:00:00 PM

Lab ID: 1904570-001

Matrix: AQUEOUS

Received Date: 4/10/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: smb
Fluoride	ND	0.50		mg/L	5	4/10/2019 9:15:25 PM	R59038
Chloride	36	2.5		mg/L	5	4/10/2019 9:15:25 PM	R59038
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	4/10/2019 9:15:25 PM	R59038
Bromide	ND	0.50		mg/L	5	4/10/2019 9:15:25 PM	R59038
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	4/10/2019 9:15:25 PM	R59038
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	4/10/2019 9:15:25 PM	R59038
Sulfate	2100	25	*	mg/L	50	4/16/2019 12:40:21 AM	A59171
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	3800	5.0		µmhos/c	1	4/15/2019 1:58:38 PM	R59181
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	531.7	20.00		mg/L Ca	1	4/15/2019 1:58:38 PM	R59181
Carbonate (As CaCO ₃)	ND	2.000		mg/L Ca	1	4/15/2019 1:58:38 PM	R59181
Total Alkalinity (as CaCO ₃)	531.7	20.00		mg/L Ca	1	4/15/2019 1:58:38 PM	R59181
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3500	200	*D	mg/L	1	4/15/2019 11:31:00 AM	44294
SM4500-H+B / 9040C: PH							Analyst: JRR
pH	7.12		H	pH units	1	4/15/2019 1:58:38 PM	R59181
EPA METHOD 6010B: DISSOLVED METALS							Analyst: rde
Calcium	590	10		mg/L	10	4/23/2019 12:27:54 PM	R59359
Magnesium	57	1.0		mg/L	1	4/11/2019 10:42:44 AM	A59145
Potassium	7.6	1.0		mg/L	1	4/11/2019 10:42:44 AM	A59145
Sodium	390	5.0		mg/L	5	4/11/2019 10:44:29 AM	A59145
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Toluene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Ethylbenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Naphthalene	ND	2.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1-Methylnaphthalene	ND	4.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
2-Methylnaphthalene	ND	4.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Acetone	ND	10		µg/L	1	4/15/2019 5:39:00 PM	R59147
Bromobenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative 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 at testcode

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904570**

Date Reported: **4/23/2019**

CLIENT: Rule Engineering LLC

Client Sample ID: MW-01 (4/9/19)

Project: Sunco 1

Collection Date: 4/9/2019 5:00:00 PM

Lab ID: 1904570-001

Matrix: AQUEOUS

Received Date: 4/10/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Bromodichloromethane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Bromoform	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Bromomethane	ND	3.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
2-Butanone	ND	10		µg/L	1	4/15/2019 5:39:00 PM	R59147
Carbon disulfide	ND	10		µg/L	1	4/15/2019 5:39:00 PM	R59147
Carbon Tetrachloride	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Chlorobenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Chloroethane	ND	2.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Chloroform	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Chloromethane	ND	3.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
2-Chlorotoluene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
4-Chlorotoluene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
cis-1,2-DCE	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Dibromochloromethane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Dibromomethane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,2-Dichlorobenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,3-Dichlorobenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,4-Dichlorobenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Dichlorodifluoromethane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,1-Dichloroethane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,1-Dichloroethene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,2-Dichloropropane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,3-Dichloropropane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
2,2-Dichloropropane	ND	2.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,1-Dichloropropene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Hexachlorobutadiene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
2-Hexanone	ND	10		µg/L	1	4/15/2019 5:39:00 PM	R59147
Isopropylbenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
4-Isopropyltoluene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
4-Methyl-2-pentanone	ND	10		µg/L	1	4/15/2019 5:39:00 PM	R59147
Methylene Chloride	ND	3.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
n-Butylbenzene	ND	3.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
n-Propylbenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
sec-Butylbenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Styrene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
tert-Butylbenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative 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 at testcode

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904570**

Date Reported: **4/23/2019**

CLIENT: Rule Engineering LLC

Client Sample ID: MW-01 (4/9/19)

Project: Sunco 1

Collection Date: 4/9/2019 5:00:00 PM

Lab ID: 1904570-001

Matrix: AQUEOUS

Received Date: 4/10/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
trans-1,2-DCE	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Trichlorofluoromethane	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
1,2,3-Trichloropropane	ND	2.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Vinyl chloride	ND	1.0		µg/L	1	4/15/2019 5:39:00 PM	R59147
Xylenes, Total	ND	1.5		µg/L	1	4/15/2019 5:39:00 PM	R59147
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%Rec	1	4/15/2019 5:39:00 PM	R59147
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/15/2019 5:39:00 PM	R59147
Surr: Dibromofluoromethane	101	70-130		%Rec	1	4/15/2019 5:39:00 PM	R59147
Surr: Toluene-d8	93.7	70-130		%Rec	1	4/15/2019 5:39:00 PM	R59147

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative 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 at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904570

23-Apr-19

Client: Rule Engineering LLC

Project: Sunco 1

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R59038	RunNo: 59038								
Prep Date:	Analysis Date: 4/10/2019	SeqNo: 1988170 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
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								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R59038	RunNo: 59038								
Prep Date:	Analysis Date: 4/10/2019	SeqNo: 1988171 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	103	90	110			
Chloride	4.9	0.50	5.000	0	98.5	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	97.9	90	110			
Bromide	2.4	0.10	2.500	0	95.3	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	96.7	90	110			

Sample ID: LCSd	SampType: LCSD	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS02	Batch ID: R59038	RunNo: 59038								
Prep Date:	Analysis Date: 4/10/2019	SeqNo: 1988172 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	105	90	110	1.85	20	
Chloride	5.0	0.50	5.000	0	99.1	90	110	0.606	20	
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	99.3	90	110	1.41	20	
Bromide	2.4	0.10	2.500	0	95.9	90	110	0.595	20	
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	105	90	110	0.704	20	
Phosphorus, Orthophosphate (As P)	4.9	0.50	5.000	0	97.6	90	110	0.937	20	

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: A59171	RunNo: 59171								
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992291 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904570

23-Apr-19

Client: Rule Engineering LLC

Project: Sunco 1

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: A59171	RunNo: 59171								
Prep Date:	Analysis Date: 4/16/2019	SeqNo: 1992292 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.9	0.50	10.00	0	99.3	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904570

23-Apr-19

Client: Rule Engineering LLC

Project: Sunco 1

Sample ID: 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R59147		RunNo: 59147							
Prep Date:	Analysis Date: 4/15/2019		SeqNo: 1991078		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Chlorobenzene	21	1.0	20.00	0	106	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	100	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.1	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.9	70	130			
Surr: Toluene-d8	9.3		10.00		92.7	70	130			

Sample ID: rb1	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R59147		RunNo: 59147							
Prep Date:	Analysis Date: 4/15/2019		SeqNo: 1991079		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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904570

23-Apr-19

Client: Rule Engineering LLC

Project: Sunco 1

Sample ID: rb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R59147			RunNo: 59147						
Prep Date:	Analysis Date: 4/15/2019			SeqNo: 1991079		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904570

23-Apr-19

Client: Rule Engineering LLC

Project: Sunco 1

Sample ID: rb1	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R59147		RunNo: 59147							
Prep Date:	Analysis Date: 4/15/2019		SeqNo: 1991079		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.5	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.8	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.8	70	130			
Surr: Toluene-d8	9.3		10.00		92.8	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904570

23-Apr-19

Client: Rule Engineering LLC

Project: Sunco 1

Sample ID: lcs-1 99.0uS eC	SampType: LCS		TestCode: SM2510B: Specific Conductance							
Client ID: LCSW	Batch ID: R59181		RunNo: 59181							
Prep Date:	Analysis Date: 4/15/2019		SeqNo: 1992495		Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	85	115			

Sample ID: lcsd-1 99.0uS eC	SampType: LCSD		TestCode: SM2510B: Specific Conductance							
Client ID: LCSS02	Batch ID: R59181		RunNo: 59181							
Prep Date:	Analysis Date: 4/15/2019		SeqNo: 1992496		Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	85	115	0.101	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904570

23-Apr-19

Client: Rule Engineering LLC

Project: Sunco 1

Sample ID: MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: PBW	Batch ID: A59145	RunNo: 59145								
Prep Date:	Analysis Date: 4/11/2019	SeqNo: 1991022 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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: A59145	RunNo: 59145								
Prep Date:	Analysis Date: 4/11/2019	SeqNo: 1991024 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	49	1.0	50.00	0	98.9	80	120			
Potassium	49	1.0	50.00	0	97.3	80	120			
Sodium	48	1.0	50.00	0	97.0	80	120			

Sample ID: LCSD-A	SampType: LCSD	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: LCSS02	Batch ID: A59145	RunNo: 59145								
Prep Date:	Analysis Date: 4/11/2019	SeqNo: 1991025 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	50	1.0	50.00	0	99.8	80	120	0.875	20	
Potassium	49	1.0	50.00	0	98.4	80	120	1.11	20	
Sodium	49	1.0	50.00	0	97.4	80	120	0.465	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904570

23-Apr-19

Client: Rule Engineering LLC

Project: Sunco 1

Sample ID: mb-1 alk	SampType: MBLK	TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992526 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: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992527 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	79.84	20.00 80.00 0 99.8 90 110

Sample ID: lcsd-1 alk	SampType: LCSD	TestCode: SM2320B: Alkalinity
Client ID: LCSS02	Batch ID: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992528 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	77.16	20.00 80.00 0 96.4 90 110 3.41 20

Sample ID: mb-2 alk	SampType: MBLK	TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992550 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: R59181	RunNo: 59181
Prep Date:	Analysis Date: 4/15/2019	SeqNo: 1992551 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	77.60	20.00 80.00 0 97.0 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.
H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904570

23-Apr-19

Client: Rule Engineering LLC

Project: Sunco 1

Sample ID: MB-44294	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 44294	RunNo: 59143								
Prep Date: 4/11/2019	Analysis Date: 4/15/2019	SeqNo: 1990973			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-44294	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 44294	RunNo: 59143								
Prep Date: 4/11/2019	Analysis Date: 4/15/2019	SeqNo: 1990974			Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

Sample Log-In Check List

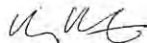
Client Name: **RULE ENGINEERING LL**

Work Order Number: **1904570**

RcptNo: 1

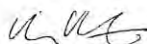
Received By: **Erin Melendrez**

4/10/2019 8:10:00 AM



Completed By: **Erin Melendrez**

4/10/2019 11:50:58 AM



Reviewed By:

YB 4/10/19
LB: TMM 4-10-19

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 $>0^{\circ}\text{C}$ 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. 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?
(Note discrepancies on chain of custody) Yes ☒ No ☐
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?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by:

TMM 4-10-19

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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			
2	4.8	Good	Yes			
3	0.6	Good	Yes			

Chain-of-Custody Record			
Client: <u>Rule Engineering</u>			
Mailing Address: <u>501 Airport Dr, Ste 205</u> <u>Farmington, NM 87401</u> Phone #: <u>(505) 716-2787</u> email or Fax#: <u>hwoods@ruleengineering.com</u>			
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)			
Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other _____			
☒ EDD (Type) _____			
Turn-Around Time: ☒ Standard ☐ Rush			
Project Name: <u>Since #1</u>			
Project #: _____			
Project Manager: <u>Heather Woods</u>			
Sampler: <u>Heather Woods</u>			
On Ice: ☒ Yes ☐ No			
# of Coolers: <u>3</u>			
Cooler Temp (including CF): <u>2.7°C, 4.8°C, 0.6°C</u>			
HEAL No. <u>1904570</u>			
Container Type and # <u>(1) 500mL Plastic HNO₃</u>			
<u>(1) 500mL Plastic NaOH</u>			
<u>(1) 500mL Plastic NaOH</u>			
<u>(2) 500mL Plastic Non</u>			
<u>(1) 125mL Plastic H₂SO₄</u>			
<u>(1) 125mL Plastic HNO₃ Filtered</u>			
<u>(5) 1L Amber Non</u>			
<u>(3) 40mL VOA HCl</u>			
Date: <u>4/9/19</u> Time: <u>1700</u> Matrix: <u>Water</u> Sample Name: <u>MW-01 (4/9/19)</u>			
Date: <u>4/9/19</u> Time: <u>1834</u> Relinquished by: <u>Heather M. Wood</u>			
Date: <u>4/9/19</u> Time: <u>1846</u> Relinquished by: <u>(Signature)</u>			
Received by: <u>(Signature)</u> Date: <u>4/9/19</u> Time: <u>1834</u>			
Received by: <u>(Signature)</u> Date: <u>4/9/19</u> Time: <u>1810</u>			

Turn-Around Time:			
☒ Standard		☐ Rush	
Project Name: <u>Sunco #1</u>			
Project #:			
Project Manager:			
<u>Heather Woods</u>			
Sampler: <u>Heather Woods</u>			
On Ice: ☒ Yes		☐ No	
# of Coolers: <u>3</u>			
Cooler Temp (including CFI): <u>7.7°C, 4.8°C, 0.6°C</u>			
Container Type and #	Preservative Type	HEAL No.	
1) 500mL Plastic	HNO ₃	1904570	
1) 500mL Plastic	NADH	-001	
1) 500 mL Plastic	Zinc Acetate NADH		
2) 500mL Plastic	Non		
1) 125mL Plastic	H ₂ SO ₄		
1) 125mL Plastic	HNO ₃ Filtered		
5) 1L Amber Glass	Non		
3) 40mL VOA	HCl		
Received by: <u>Chhat</u>		Via: <u>Courier</u>	Date: <u>4/9/13</u> Time: <u>0810</u>
Received by: <u>[Signature]</u>		Via: <u>Courier</u>	Date: <u>4/10/13</u> Time: <u>0810</u>



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

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

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

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

Project Manager:		Heather Woods	
Sampler:		Heather Woods	
On Ice:	☒ Yes	☐ No	
# of Coolers:		3	
Cooler Temp (including cFI):		2.2 ^o , 4.3 ^o , 0.6 ^o	
Container Type and #	Preservative Type	HEAL No. 1904570	

email or Fax#: <u>hwoods@ruleengineering.com</u>			
QA/QC Package:			
☒ Standard		☐ Level 4 (Full Validation)	
Accreditation: ☐ Az Compliance			
☐ NELAC		☐ Other _____	
☐ EDD (Type) _____			
Date	Time	Matrix	Sample Name

[illegible]

(1) 500 mL Plastic	HNO ₃	-001
(1) 500 mL Plastic	NaOH	
(1) 500 mL Plastic	Zinc Acetate	
(1) 500 mL Plastic	NaOH	
(2) 500 mL Plastic	Non	
(1) 25 mL Plastic	H ₂ SO ₄	
(1) 25 mL Plastic	HNO ₃	
(5) 1 L Amber Glass	Filtrated Non	
(3) 40 mL VOA	HCl	

[illegible]

Remarks: Direct Bil to Agua Moss - Rates per Andy
See Attached Pages

Received by:	Via:	Date	Time
<i>[Signature]</i>	Whet	4/9/13	1834

Received by:	Via:	Date	Time
<i>[Signature]</i>	Courier	4/10/13	0810

Date:	4/9/19	Time:	1834	Relinquished by:	Heath M. Wood
Date:	4/9/19	Time:	1846	Relinquished by:	[Signature]

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, 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)	Units	Toxicity Characteristic Concentrations
Collection Date	9/1/2017		10/9/2017		
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	
Fluoride	<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-Dinitrotoluene	<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
Trichloroethylene	<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 Fahrenheit

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 matrix

1.00

Concentration exceeds 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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

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 Quantitative 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.

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
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 Quantitative 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

1709101-001E S-5 (9/1/17)

Collected date/time: 09/01/17 09:20

SAMPLE RESULTS - 01

L934899

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
ORP	-330	T6	1	09/13/2017 17:07	WG1020084

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
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
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
Corrosivity by pH	7.57	T6	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
Flashpoint	DNF at 170		1	09/11/2017 22:00	WG1018446

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

WG1020084

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

L934899-01

ONE LAB. NATIONWIDE



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

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

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

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



ACCOUNT:
Hall Environmental Analysis Laboratory

PROJECT:

SDG:
L934899

DATE/TIME:
09/15/17 16:56

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 %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.0978	0.111	98	111	85-115			13	20

1 C

2 Ss

3 Cn

4 Sr

5 Qc

6 Gl

7 Al

8 Sc

ACCOUNT:
Hall Environmental Analysis Laboratory

PROJECT:

SDG:
L934899

DATE/TIME:
09/15/17 16:56

WG1018341

Wet Chemistry by Method 9034-90308

QUALITY CONTROL SUMMARY

L934899-01

ONE LAB. NATIONWIDE.



Method Blank (MB)

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

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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

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



ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L934899

DATE/TIME:

09/15/17 16:56

WG1019240

Wet Chemistry by Method 9040C

QUALITY CONTROL SUMMARY

L934899-01

ONE LAB. NATIONWIDE



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

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

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Corrosivity by pH	su 7.57	su 7.57	1	% 0.000	12	% 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

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

Sample Narrative:

LCS: 10.00 at 19.9c

LCSD: 10.01 at 20.0c

1	Tc
3	Ss
4	Cn
5	Sl
6	Qc
7	Gl
8	Al
9	Sc

ACCOUNT:
Hall Environmental Analysis Laboratory

PROJECT:

SDG:
L934899

DATE/TIME:
09/15/17 16:56

WG1018446

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

L934899-01

ONE LAB. NATIONWIDE.



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

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

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

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCS-D)

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

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

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

ACCOUNT:
Hall Environmental Analysis Laboratory

PROJECT:

SDG:
L934899

DATE/TIME:
09/15/17 16:56



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.	¹ Tc
ND	Not detected at the Reporting Limit (or MDL where applicable).	³ Ss
RDL	Reported Detection Limit.	⁴ Cn
Rec.	Recovery.	⁵ Sr
RPD	Relative Percent Difference.	⁶ Qc
SDG	Sample Delivery Group.	⁷ Gl
U	Not detected at the Reporting Limit (or MDL where applicable).	⁸ Al
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.	⁹ Sc
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative 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#: 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 Quantitative 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 Quantitative 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	RS
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	
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 Quantitative 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 Quantitative 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
Mercurv	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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative 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#: 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 Quantitative 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 Quantitative 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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative 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#: 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 Quantitative 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 Quantitative 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

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?
(Note discrepancies on chain of custody) Yes ☒ No ☐
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?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 1; 2
Adjusted? NO
Checked by: SPE

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			

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	Pentachlorophenol	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).*

ADDITIONALLY:

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
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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Rule Engineering LLC**Client Sample ID:** S-5 (R)(10/9/17)**Project:** Agua Moss Sunco Disposal #1**Collection Date:** 10/9/2017 12:33:00 PM**Lab ID:** 1710519-001**Matrix:** AQUEOUS**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 Quantitative 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.	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 Quantitative 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: 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 Quantitative 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 |

[illegible]

GRAPHIC CONTROLS CORPORATION
BUFFALO, N.Y. 10201

CHART NO. MC MP-5000-31D

METER _____

CHART PUT ON

7/5/77

M

TAKEN OFF

7/13/77

LOCATION

San Diego (H)

REMARKS _____



GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK

CHART NO. MC MP-5000-31D

METER _____

CHART PUT ON
8/1/17 8:00 AM

TAKEN OFF
8/1/17 7:00 PM

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
10/1/77 5:00 P.M

LOCATION *Gunco Disposal #1*

REMARKS _____

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

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.



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 CaCO ₃	mg/L	682
Total Hardness as CaCO ₃	mg/L	930
Bicarbonate as CaCO ₃	mg/L	682
Carbonate as CaCO ₃	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 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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

CLIENT: Terracon

Client Sample ID: C1-4-36"

Project: Agua Moss

Collection Date: 6/28/2016 10:20:00 AM

Lab ID: 1606G14-004

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	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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

CLIENT: Terracon

Client Sample ID: C2S-1-36"

Project: Agua Moss

Collection Date: 6/28/2016 10:55:00 AM

Lab ID: 1606G14-005

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	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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

CLIENT: Terracon

Client Sample ID: C2S-2-36"

Project: Agua Moss

Collection Date: 6/28/2016 11:05:00 AM

Lab ID: 1606G14-006

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	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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

CLIENT: Terracon

Client Sample ID: C2S-3-36"

Project: Agua Moss

Collection Date: 6/28/2016 11:10:00 AM

Lab ID: 1606G14-007

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	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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

CLIENT: Terracon

Client Sample ID: C2S-4-36"

Project: Agua Moss

Collection Date: 6/28/2016 11:20:00 AM

Lab ID: 1606G14-008

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	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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

CLIENT: Terracon

Client Sample ID: C2N-1-36"

Project: Agua Moss

Collection Date: 6/28/2016 11:30:00 AM

Lab ID: 1606G14-009

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	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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

CLIENT: Terracon

Client Sample ID: C2N-2-36"

Project: Agua Moss

Collection Date: 6/28/2016 11:42:00 AM

Lab ID: 1606G14-010

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	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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

CLIENT: Terracon

Client Sample ID: C2N-3-36"

Project: Agua Moss

Collection Date: 6/28/2016 11:40:00 AM

Lab ID: 1606G14-011

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	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.

Analytical Report

Lab Order 1606G14

Date Reported: 7/15/2016

CLIENT: Terracon

Client Sample ID: C2N-4-36"

Project: Agua Moss

Collection Date: 6/28/2016 12:00:00 PM

Lab ID: 1606G14-012

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	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.

Analytical Report

Lab Order **1606G14**

Date Reported: 7/15/2016

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.

Analytical Report

Lab Order **1606G14**

Date Reported: 7/15/2016

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.

Analytical Report

Lab Order **1606G14**

Date Reported: 7/15/2016

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.

Analytical Report

Lab Order **1606G14**

Date Reported: 7/15/2016

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:

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D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
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#: 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:

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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:

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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:

- | | |
|---|---|
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| 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:

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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

Sample Log-In Check List

Client Name: TER-Alb

Work Order Number: 1606G14

RcptNo: 1

Received by/date:

Logged By: **Ashley Gallegos**

6/29/2016 10:30:00 AM

Completed By: **Ashley Gallegos**

6/29/2016 11:12:09 AM

Reviewed By:

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 $>0^{\circ}\text{C}$ 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?
(Note discrepancies on chain of custody) | Yes ☒ | No ☐ | |
| 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?
(If no, notify customer for authorization.) | Yes ☒ | No ☐ | |
- # of preserved bottles checked for pH: 62

Adjusted? [initials]

Checked by: [signature]

of preserved bottles checked for pH: 2

Adjusted? (2) or >12 unless noted

Adjusted? No

Checked by: as

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

Turn-Around Time: ☒ Standard ☐ Rush

Project Name:

Mailing Address: 4905 Hawkins NE

Project #: 66157040

Phone #: 505-222-5595

Project Manager: Mark Hiltner

Email or Fax#: Mike.meyer@TerraCon.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☒ NELAP ☐ Other

☐ EDD (Type)

Sample Temperature: 2.6

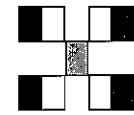
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
12/29/16	10:25	S	C1-6"	402		11000G14
	12:10	S	C2S-1-6"	402		-013
	12:15	S	C2N-1-6"	402		-014
	12:40	W	NM1-9TW1692	402		-015
						-016

Relinquished by: M. Meyer

Received by: [Signature]

Relinquished by:

Received by:



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

BTEX + MTBE + TMBs (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	SPC 1712 GROWTH	PAHs (8310 or 8270-SIMS)	5-Element Absorption Rate	TCRA 8 Metals	As, Cd, Cr, Cu, Pb, Se, V, Zn, Ni, Mn, Co, Mo, Ag, Bi, Br, Ca, Cl, Fe, K, Li, Na, S, Si, Ti, U, W, Y, Zr, Ba, Be, B, C, F, Ga, Ge, Hg, In, Ir, La, Nb, Os, Pd, Pt, Rh, Ru, Sb, Sn, Sr, Ta, Te, Th, Tl, U, V, W, Y, Zn, Zr, H, He, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ
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Remarks: Major cations: Chloride, fluoride, bicarbonate, sulfate, nitrate, nitrite, calcium, magnesium, potassium & sodium. on water analysis per 1510070-001

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.



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 CaCO ₃	mg/L	401.3
Total Hardness as CaCO ₃	mg/L	1,200
Bicarbonate as CaCO ₃	mg/L	401.3
Carbonate as CaCO ₃	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 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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601B39

Date Reported: 2/10/2016

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.

Analytical Report

Lab Order 1601B39

Date Reported: 2/10/2016

CLIENT: Terracon

Client Sample ID: Q116C1

Project: NM1-9 Landfarm

Collection Date: 1/28/2016 1:15:00 PM

Lab ID: 1601B39-002

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	0.049		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.

Analytical Report

Lab Order 1601B39

Date Reported: 2/10/2016

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.

Analytical Report

Lab Order 1601B39

Date Reported: 2/10/2016

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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
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#: 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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
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#: 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

Sample Log-In Check List

Client Name: TER-Alb

Work Order Number: 1601B39

RcptNo: 1

Received by/date: AG 01/29/16

Logged By: **Anne Thorne**

1/29/2016 11:50:00 AM

Completed By: **Anne Thorne**

1/29/2016

Reviewed By:

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 $>0^{\circ}\text{C}$ 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 ☒ | <div> # of preserved bottles checked for pH:
 Adjusted?
 Checked by: </div> |
| 12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) | Yes ☒ | No ☐ | |
| 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?
(If no, notify customer for authorization.) | Yes ☒ | No ☐ | |

of preserved bottles checked for pH: 2

(12 or >12 unless noted)

Adjusted?

Adjusted?

Checked by:

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: Terraviva

Mailing Address: 4905 Hawkins NE

Alb, NM 87109

Phone #: 505-797-4287

Fax or Fax#: Mark: 505-797-4287

VQC Package: ☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☒ NELAP ☐ Other

EDD (Type)

Date

Time

Matrix

Sample Request ID

Container Type and #

Preservative Type

HEAL No.

Sample Temperature

On Ice: ☒ Yes ☐ No

Sampler: M. Hillier

Project Manager: M. Hillier

Project #: 66158040

Project Name: NM-9 Landform

Turn-Around Time: ☒ Standard ☐ Rush

Analysis Request

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, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

Specific Grav.

Sediment Description

Total Hardness

Calcium / Magnesium Balance

Air Bubbles (Y or N)

Relinquished by: [Signature]

Time: 11:50

Date: 11/29/16

Received by: [Signature]

Time: 11:50

Date: 11/29/16

Remarks:

For water sample, analyze

per Lab ID 1510070-001

10% dilution

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/oed/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.

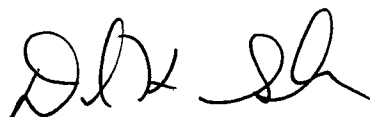
22.I.c. Please find attached the analytical results required by permit condition 22.I.c. "Heavy metals using the ICP scan (EPA Method 6010) and Arsenic and Mercury using atomic absorption (EPA Methods 7060 and 7470)." The Heavy Metals includes "WQCC metals". Arsenic and Mercury was run by using method 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,

A handwritten signature in black ink, appearing to read 'DK Gibson', with a stylized flourish at the end.

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

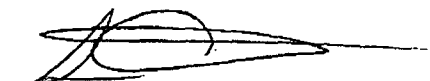
Parameter	Concentration (mg/L)	Det. Limit (mg/L)
Naphthalene	ND	0.001
Acenaphthylene	ND	0.001
Acenaphthene	ND	0.001
Fluorene	ND	0.001
Phenanthrene	ND	0.001
Anthracene	ND	0.001
Fluoranthene	ND	0.001
Pyrene	ND	0.001
Benzo[a]anthracene	ND	0.001
Chrysene	ND	0.001
Benzo(b)fluoranthene	ND	0.001
Benzo[k]fluoranthene	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.

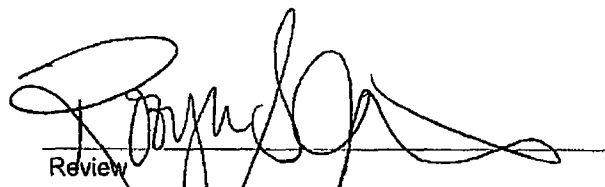
SURROGATE RECOVERY	Parameter	Percent Recovery
	1-fluoronaphthalene	83.8

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:	Aqueous	Date Analyzed:	07-16-10
Preservative:	N/A	Date Concentrated:	N/A
Condition:	N/A	Analysis Requested:	8270

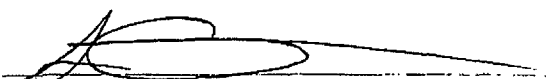
Parameter	Concentration (mg/L)	Result	% Recovered	% Recovery Limits
Naphthalene	200	184	91.8	80 - 120
Acenaphthylene	200	182	90.9	80 - 120
Acenaphthene	200	200	100	80 - 120
Fluorene	200	200	100	80 - 120
Phenanthrene	200	200	100	80 - 120
Anthracene	200	200	100	80 - 120
Fluoranthene	200	200	100	80 - 120
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

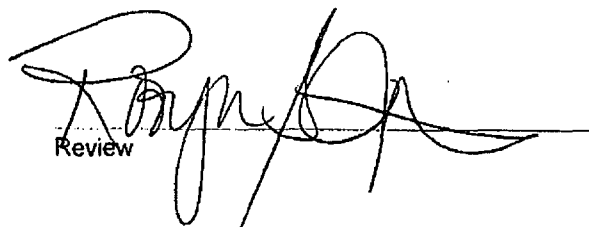
ND - Parameter not detected at the stated detection limit.

SURROGATE RECOVERY	Parameter	Percent Recovery
	1-fluoronaphthalene	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

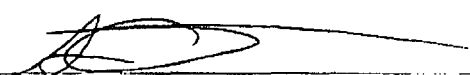
Parameter	Concentration (mg/L)	Det. Limit (mg/L)
Naphthalene	ND	0.00
Acenaphthylene	ND	0.00
Acenaphthene	ND	0.00
Fluorene	ND	0.00
Phenanthrene	ND	0.00
Anthracene	ND	0.00
Fluoranthene	ND	0.00
Pyrene	ND	0.00
Benzo[a]anthracene	ND	0.00
Chrysene	ND	0.00
Benzo(b)fluoranthene	ND	0.00
Benzo[k]fluoranthene	ND	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

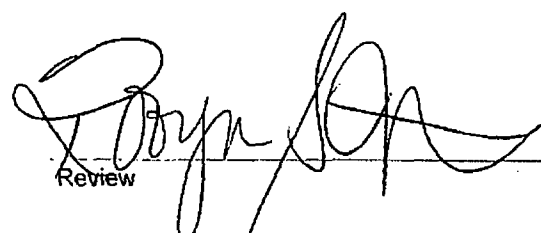
ND - Parameter not detected at the stated detection limit.

SURROGATE RECOVERY	Parameter	Percent Recovery
	1-fluoronaphthalene	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

Client: QA/QC
 Sample ID: Matrix Spike
 Laboratory Number: 55092
 Sample Matrix: Aqueous
 Analysis Requested: 8270
 Condition: N/A

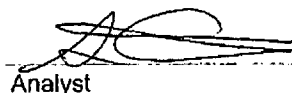
Project #: QA/QC
 Date Reported: 07-21-10
 Date Sampled: N/A
 Date Received: N/A
 Date Analyzed: 07-16-10

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

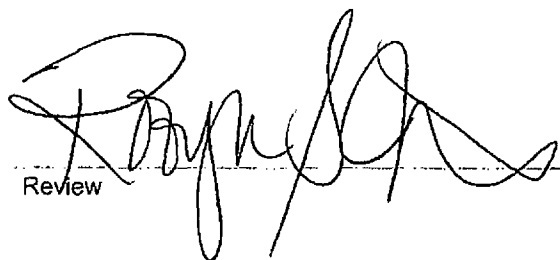
ND - Parameter not detected at the stated detection limit.

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:	07/16PAH Lab Blank	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-fluoronaphthalene	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

Review



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EPA Method 8270
Polynuclear Aromatic Hydrocarbons
Quality Assurance Report

Client: QA/QC
Sample ID: Matrix Duplicate
Laboratory Number: 55092
Sample Matrix: Aqueous
Analysis Requested: 8270
Condition: N/A

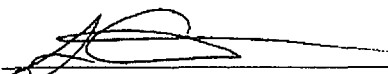
Project #: QA/QC
Date Reported: 07-21-10
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 07-16-10

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%

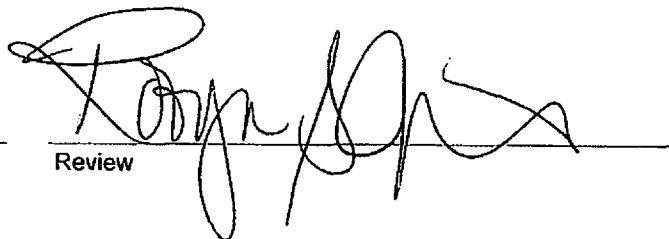
ND - Parameter not detected at the stated detection limit.

References: Method 8270, Semi-Volatile Organics by Capillary Column GC/MS
SW-846, USEPA, September 1986.

Comments: QA/QC for Sample 55092



Analyst



Review



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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

Client: Key Energy
 Sample ID: INJ Water
 Laboratory Number: 55091

page 2

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

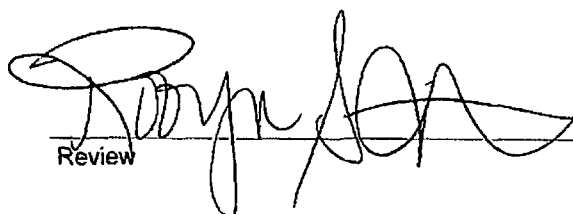
Surrogates:	Rec. Limits			
Dibromofluoromethane	86.4	% Recovery	78.6-115	1
1,2-Dichloroethane-d4	86.4	% Recovery	74.6-123	1
Toluene-d8	93.1	% Recovery	84.2-115	1
4-Bromofluorobenzene	99.1	% Recovery	78.6-115	1

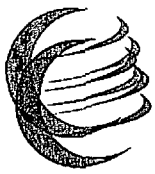
ND = Parameter not detected at the stated detection limit.

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


 Analyst


 Review



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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
Sample ID: Matrix Spikes
Laboratory Number: 55091
Sample Matrix: Aqueous
Preservative: N/A
Condition: N/A

Project #: N/A
Date Reported: 07-21-10
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 07-13-10
Analysis Requested: 8260 VOC

Spike Analyte	Units: ug/L		Result	%Recovery	Recovery Limits	Det. Limit
	Sample	Added				
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

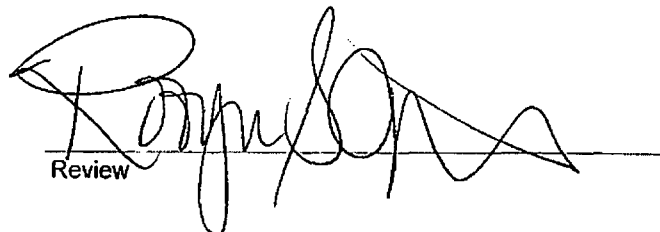
Spike Duplicate Analyte	Units: ug/L		Result	%Recovery	Recovery Limits	Det. Limit
	Sample	Added				
Benzene	27.6	100	136	107%	85.3 - 120	1.0
Toluene	1,210	100	1,440	110%	73.0 - 123	1.0
Chlorobenzene	ND	100	86.3	86.3%	84.7 - 119	1.0
1,1-Dichloroethene	ND	100	89.9	89.9%	83.4 - 122	1.0
Trichloroethene (TCE)	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


Review

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

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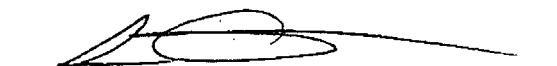
Parameter	Concentration (ug/L)	Units	Det. Limit	Dilution Factor
1,1-Dichloropropene	ND	(ug/L)	1.0	1
Hexachlorobutadiene	ND	(ug/L)	1.0	1
Isopropylbenzene	ND	(ug/L)	1.0	1
4-Isopropyltoluene	ND	(ug/L)	1.0	1
Methylene Chloride	ND	(ug/L)	1.0	1
n-Butylbenzene	ND	(ug/L)	1.0	1
n-Propylbenzene	ND	(ug/L)	1.0	1
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

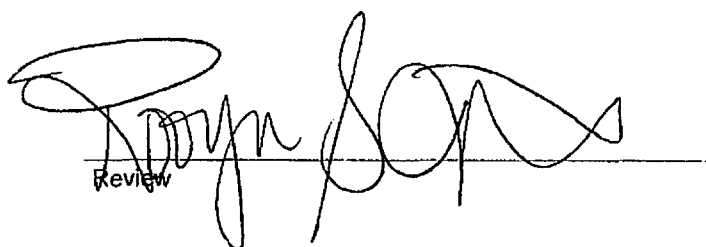
Surrogates:	Rec. Limits			
Dibromofluoromethane	84.7	% Recovery	78.6-115	1
1,2-Dichloroethane-d4	120	% Recovery	74.6-123	1
Toluene-d8	89.2	% Recovery	84.2-115	1
4-Bromofluorobenzene	104	% Recovery	78.6-115	1

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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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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Analytical Laboratory

EPA Method 8260B Volatile Organic Compounds by GC/MS Quality Assurance Report

Client: QA/QC
Sample ID: Daily Calibration
Laboratory Number: 0713VCAL

page 2

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

Review

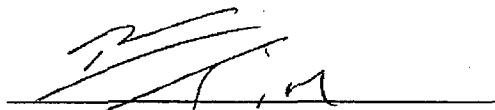
Client: Key Energy
 Sample ID: INJ WATER
 Laboratory Number: 55093
 Chain of Custody: 9911
 Sample Matrix: Aqueous
 Preservative: Cool
 Condition: Intact

Project #: 98065-0013
 Date Reported: 07-15-10
 Date Sampled: 07-08-10
 Date Received: 07-08-10
 Date Analyzed: 07-10-10

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 CaCO ₃	1,380	mg/L		
Total Hardness as CaCO ₃	141	mg/L		
Bicarbonate as CaCO ₃	1,380	mg/L	22.62	meq/L
Carbonate as CaCO ₃	<0.1	mg/L	0.00	meq/L
Hydroxide as CaCO ₃	<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



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.

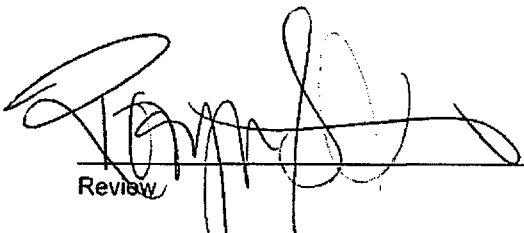
Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy, SW-846, USEPA, December 1996.

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.

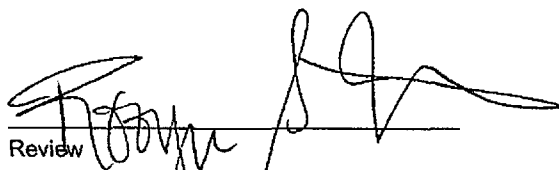
References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils.
SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emission
Spectroscopy, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 55094 and 55108.



Analyst



Review

**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
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IGNITABILITY: Negative

CORROSIVITY: Negative pH = 5.82

REACTIVITY: Negative

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
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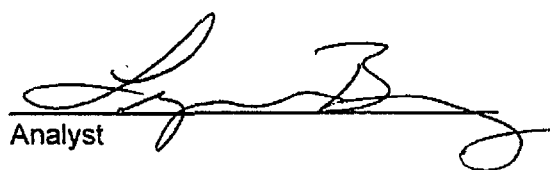
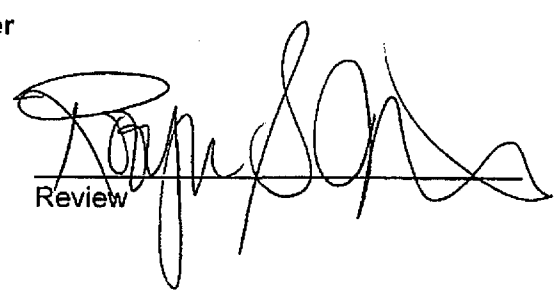
IGNITABILITY: Characteristic of Ignitability as defined by 40 CFR, Subpart C, Sec. 261.21.
(i.e. Sample ignition upon direct contact with flame or flash point < 60° C.)

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
Review

CHAIN OF CUSTODY RECORD

09911

Client: KEY ENERGY		Project Name / Location: KEY FARMINGTON AIC-5 INT WATER		ANALYSIS / PARAMETERS										Date		Time								
Client Address: 5651 US Hwy 64 87401		Sampler Name: WAYNE PRICE - PRICE LLC		TPH (Method 8015) BTEX (Method 8021) VOC (Method 8260) RCRA 8 Metals Cation / Anion RCI TCLP with H/P PAH (8270) TPH (418.1) CHLORIDE METALS 6010-3CP Hg (Mn) (Mn) - Mn RCI Not on AA 7/14/10										Sample Cool		Sample Intact								
Client Phone No.: 1-505-715-2309		Client No.: 98065-0013																						
Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative	kg/L	HA	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH (8270)	TPH (418.1)	CHLORIDE	METALS 6010-3CP	Hg (Mn) (Mn) - Mn	RCI	Not on AA	7/14/10	
INTJ0 WATER	7-8-10	2:56 PM	55091	Sludge Aqueous	2-4 mL VOA	X					X													
"	"	2:50 PM	55092	Sludge Aqueous	2-100 mL SVOA	X										X								
"	"	2:52 PM	55093	Sludge Aqueous	1-500 mL	X																		
"	"	2:53 PM	55094	Sludge Aqueous	2-250 mL	X																		
"	"	2:54 PM	55095	Sludge Aqueous	1-125 mL	X																		
Relinquished by: (Signature) Wayne Price				Date 7/8/10		Time 3:28 PM		Received by: (Signature)		Date 7/8/10		Time 15:29:00												
Relinquished by: (Signature)				Date		Time		Received by: (Signature)		Date		Time												
Relinquished by: (Signature)				Date		Time		Received by: (Signature)		Date		Time												



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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

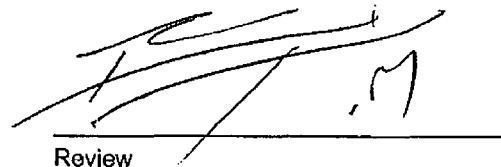
Parameter	Analytical Result	Units
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Cyanide (total)	0.165	mg/L
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Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: Key Farmington UIC-5 Inj Water


Analyst


Review

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.

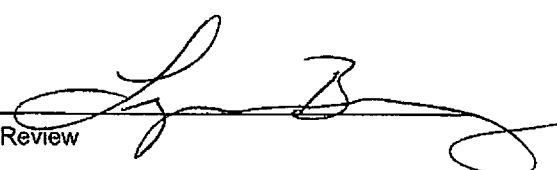
References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils.
SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emission
Spectroscopy, SW-846, USEPA, December 1996.

Comments: **Key Farmington UIC-5 Inj Water**



Analyst



Review

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
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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
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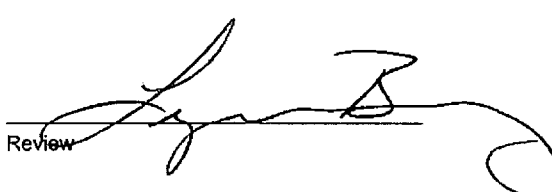
Aluminum	0.500	1.76	2.29	101%	80% - 120%
Cobalt	0.500	0.007	0.436	86.0%	80% - 120%
Copper	0.500	ND	0.409	81.9%	80% - 120%
Iron	0.500	12.3	12.3	95.9%	80% - 120%
Manganese	0.500	0.425	0.841	91.0%	80% - 120%
Molybdenum	0.100	0.079	0.164	91.6%	80% - 120%
Nickel	0.500	0.056	0.486	87.4%	80% - 120%
Zinc	0.500	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 Emission Spectroscopy, 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%

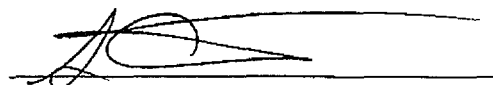
References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

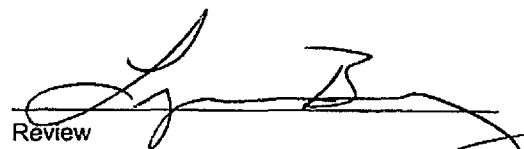
Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

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

**EPA METHOD 8041
TCLP PHENOLS
Quality Assurance Report**

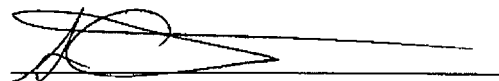
Client:	QA/QC	Project #:	N/A
Sample ID:	0812ABLK QA/QC	Date Reported:	08-26-10
Laboratory Number:	55453	Date Sampled:	N/A
Sample Matrix:	2-Propanol	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	08-12-10
Condition:	N/A	Analysis Requested:	TCLP

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

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

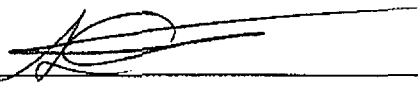
ND - Parameter not detected at the stated detection limit.

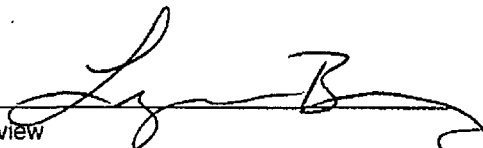
Surrogate Recoveries:	Parameter	Percent Recovery
	2-fluorobiphenyl	86.1%

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

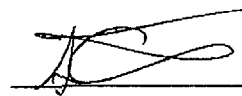
Client:	QA/QC	Project #:	N/A
Sample ID:	0812BBLK QA/QC	Date Reported:	08-17-10
Laboratory Number:	55453	Date Sampled:	N/A
Sample Matrix:	Hexane	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	08-12-10
Condition:	N/A	Analysis Requested:	TCLP

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

 **Analytical Laboratory**

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Est. 1970

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

AZLA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
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NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
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REPORT OF ANALYSIS

August 16, 2010

Lynn Berry
EnviroTech- NM
5796 US. Highway 64
Farmington, NM 87401

Date Received : August 06, 2010
Description : Key Energy

Sample ID : 55453-INJ WATER

Collected By : N. Allen
Collection Date : 08/04/10 14:00

ESC Sample # : L472785-01

Site ID :

Project # : 98065-0013

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-Dichloropropene	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

Date Received : August 06, 2010
Description : Key Energy

ESC Sample # : L472785-01

Sample ID : 55453-INJ WATER

Site ID :

Collected By : N. Allen
Collection Date : 08/04/10 14:00

Project # : 98065-0013

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

August 16, 2010

Lynn Berry
EnviroTech- NM
5796 US. Highway 64
Farmington, NM 87401

Date Received : August 06, 2010
Description : Key Energy
Sample ID : 55453-INJ WATER
Collected By : N. Allen
Collection Date : 08/04/10 14:00

ESC Sample # : L472785-01

Site ID :

Project # : 98065-0013

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.

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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	J30
	WG492927	SAMP	Dinoseb	R1327028	O
	WG492927	SAMP	MCPA	R1327028	L10
	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 NELAP. 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 Difference.
- Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography 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

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Est. 1970

August 16, 2010

Analyte	Result	Laboratory Blank 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.'



YOUR LAB OF CHOICE

EnviroTech- NM
Lynn Berry
5796 US. Highway 64
Farmington, NM 87401

Quality Assurance Report
Level II

L472785

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

August 16, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
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

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
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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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-Trichloropropene	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-Dichloropropene	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-Dichloropropene	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-Dichloropropene	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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Analyte	Units	Laboratory Known Val	Control Sample 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	142.1*	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

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
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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Analyte	Units	Laboratory Control Result	Sample Duplicate Ref	%Rec	Limit	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	55-145	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	3.58	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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Quality Assurance Report
Level II

L472785

12065 Lebanon Rd.
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(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

August 16, 2010

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
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

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
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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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 Ref	Duplicate %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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Analyte	Units	MSD	Matrix Spike Ref	Duplicate %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	32	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.'



YOUR LAB OF CHOICE

EnviroTech- NM
Lynn Berry
5796 US. Highway 64
Farmington, NM 87401

Quality Assurance Report
Level II

L472785

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

August 16, 2010

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
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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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: Email to: lberry@envirotech-nm.com City/State Collected: NM		Chain of Custody Page 1 of 1	
Report to: Lynn Berry Project Description: Key Energy		Email to: lberry@envirotech-nm.com City/State Collected: NM		Prepared by: ENVIRONMENTAL SCIENCE CORP. 12065 Lebanon Road Mt Juliet, TN 37122 Phone (615) 758-5858 Phone (800) 767-5859 FAX (615) 758-5859	
Phone: (505) 632-0615 FAX:		Client Project #: 98065-0013 ESC Key:		CoCode: ENVIROFNN (lab use only) Template/Prelogin Shipped Via:	
Collected by: R. Allen Site/Facility ID#:		P.O.#: 15573		A170	
Collected by (signature): Immediately: Y ☒ Packed on Ice: N ☒		Date Results Needed: Same Day: 200% Next Day: 100% Two Day: 50% Three Day: 25%		Date: 8/4/10 14:00 Email? No ☒ Yes ☐ FAX? No ☒ Yes ☐	
Sample ID 55453 - Inj Water		Comp/Grab OT		Matrix OT	
Date: 8/5/10 11:30 Time:		Date: 8/5/10 11:30 Time:		Date: 8/5/10 11:30 Time:	
Relinquished by (Signature): Relinquished by (Signature): Relinquished by (Signature):		Received by (Signature): Received by (Signature): Received for lab by (Signature):		Received by (Signature): Received by (Signature): Received for lab by (Signature):	
Remarks: Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other Aqueous 9669 7460 0229		Samples returned via: ☐ UPS ☐ Courier Temp: 36°C Date: 8/10/10		Condition: OK CoC Seals Intact: Y ☒ N ☐	

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; Imolleur@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; Imolleur@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 Officer
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 Officer
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'; 'Imolleur@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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(Pollution Prevention Guidance is under "Publications")