Souder, Miller & Associates♦201 S. Halagueno St.♦Carlsbad, NM 88220
(575) 689-8801

May 22, 2018

NOT APPROVED

#5E26436-BG1

NMOCD District I
Olivia Yu
1625 N. French Drive
Hobbs, New Mexico 88240

SUBJECT: SOIL REMEDIATION CLOSURE REPORT FOR THE ANGLE STATE #3 TANK BATTERY (1RP-4670), LEA COUNTY, NEW MEXICO

Dear Olivia Yu,

On behalf of Abo Empire LLC, Souder, Miller & Associates (SMA) has prepared this CLOSURE REPORT that describes the assessment, initial delineation and remediation for a release associated with the Angle State #3 site. The site is located in UNIT J SECTION 9, TOWNSHIP 17S, RANGE 34E, NMPM, Lea County, New Mexico, on State land. Figure 1 illustrates the vicinity and location of the site.

Table 1, below, summarizes information regarding the release.

Table 1: Release information and Site Ranking	
Name	Angle State #3 Tank Battery
Company	Abo Empire, LLC
RP Number	1RP-4670
API Number	30-0025-25347
Location	32.847078°, -103.563366°
Estimated Date of Release	3/15/17
Date Reported to NMOCD	4/7/17
Land Owner	State
Reported To	NMOCD
Source of Release	Tank Battery
Released Material	Oil and Produced Water
Released Volume	Oil 3.5 bbls and Produced Water 40.5 bbls
Recovered Volume	Unknown
Net Release	Unknown
Nearest Waterway	340 feet from unnamed playa
Depth to Groundwater	Estimated to be greater than 100’
Nearest Domestic Water Source	Greater than 1,000 feet
NMOCD Ranking	10
SMA Response Dates	8/25/17, 1/31/17, 4/23/18

1.0 Background

On March 15, 2017 a release of 3.5 bb of oil and 40.5 bbl of produced water was discovered at the Angle State #3 Tank Battery. The water leg came loose on the gun barrel, breaking off the main water valve at the bottom of the tank. The gun barrel drained into the containment area, though overspray was observed to the east of contanment. The release remained inside the containment area. All standing water and oil was removed off site. Contaminated soil was removed during the initial action and sent to R360 Land Farm located in Hobbs, New Mexico for disposal

2.0 Site Ranking and Land Jurisdiction

The release site is located approximately 340 feet east of unnamed playa, with an elevation of approximately 4,076 feet above sea level. SMA searched the New Mexico State Engineer's Office (NMOSE) online water well database for water wells in the vicinity of the release. Thirty wells are located within a three-mile radius of the site. After evaluation of the site using aerial photography and topographic maps, depth to groundwater is estimated to be greater than 100 feet below ground surface (bgs).

Recommended Remediation Action Levels (RRALs) are determined by the site ranking according to the NMOCD *Guidelines for Remediation of Leaks, Spills, and Releases* (1993). Below in Table 2 are the remediation standards and the site ranking for this location. Justification for this site ranking is found in Figure 1 and Appendix B.

Table 2.

Soil Remediation Standards	0 to 9	10 to 19	>19
Benzene	10 PPM	10 PPM	10 PPM
BTEX	50 PPM	50 PPM	50 PPM
TPH	5000 PPM	1000 PPM	100 PPM

Depth to Groundwater	NMOCD Numeric Rank
< 50 BGS = 20	
50' to 99' = 10	
>100' = 0	0
Distance to Nearest Surface Water	**NMOCD Numeric Rank**
< 200' = 20	
200' - 1000' = 10	10
>1000' = 0	
Well Head Protection	**NMOCD Numeric Rank**
<1000' (or <200' domestic) = 20	
> 1000' = 0	0
Total Site Ranking	**10**

3.0 Release Characterization

On August 25, 2017 and January 31, 2018, after receiving 811 clearance, SMA field personnel assessed and characterized the release area. Surface samples (0.5-1 foot bgs) from seven locations (L1-L6 and P1) were collected to characterize and delineate the release. Location P1 is the area of the overspray, as illustrated in Figure 2. Soil samples were field screened for chlorides with a mobile EC unit (EPA 4500). All samples were collected and processed according to NMOCD soil sampling procedures. The samples were sent under chain-of-custody protocols to Hall Environmental Analysis Laboratory for analyses including chlorides by Method 300.0, volatile organics (BTEX) by Method 8021B, and MRO, DRO, and GRO by EPA Method 8015D.

Laboratory results indicated further excavation was necessary due to elevated TPH in much of the area, though no contaminants exceeded RRALs in the area of overspray. Sample locations are depicted on Figure 2. All field screening and laboratory results are summarized in Table 3. Laboratory reports are included in Appendix C.

4.0 Soil Remediation Summary

On April 23, 2018, after approval from area utilities owners via 811, SMA personnel guided excavation and remedial activities of impacted soils. SMA continuously guide the excavation activities by collecting soil samples for field screening with a mobile titration unit (EPA 4500) and calibrated PID. Excavation occurred within an area approximately 45 feet by 45 feet to depths of 1.5 feet bgs. Figure 2 depicts sample locations and area of excavation. Field screening and laboratory results are summarized in Table 3.

Affected soils were removed from the area prior to closure sample collection. Closure samples were collected at the final depth of 1.5 feet bgs at the base of the excavation and from the sidewalls. All confirmation samples were sent under chain-of-custody protocols to Hall Environmental Analysis Laboratory for analysis of chlorides by Method 300.0, volatile organics (BTEX) by Method 8021B, and MRO, DRO, and GRO by EPA Method 8015D. Laboratory reports are included in Appendix C.

Approximately 115 cubic yards of contaminated soil was removed and replaced with clean backfill material returning the surface to previous contours. The contaminated soil was transported to R360 Land Farm located in Hobbs, New Mexico for proper disposal.

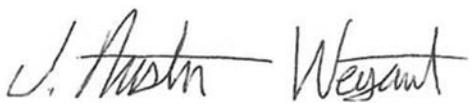
5.0 Scope and Limitations

The scope of our services consisted of the performance for verification of release stabilization, sample collection and field oversight, regulatory liaison, and preparation of this closure report. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Austin Weyant at 575-689-8801 or Shawna Chubbuck at 505-325-7535.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Reviewed by:



Austin Weyant
Project Scientist

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map
Figure 2: Site and Sample Location Map

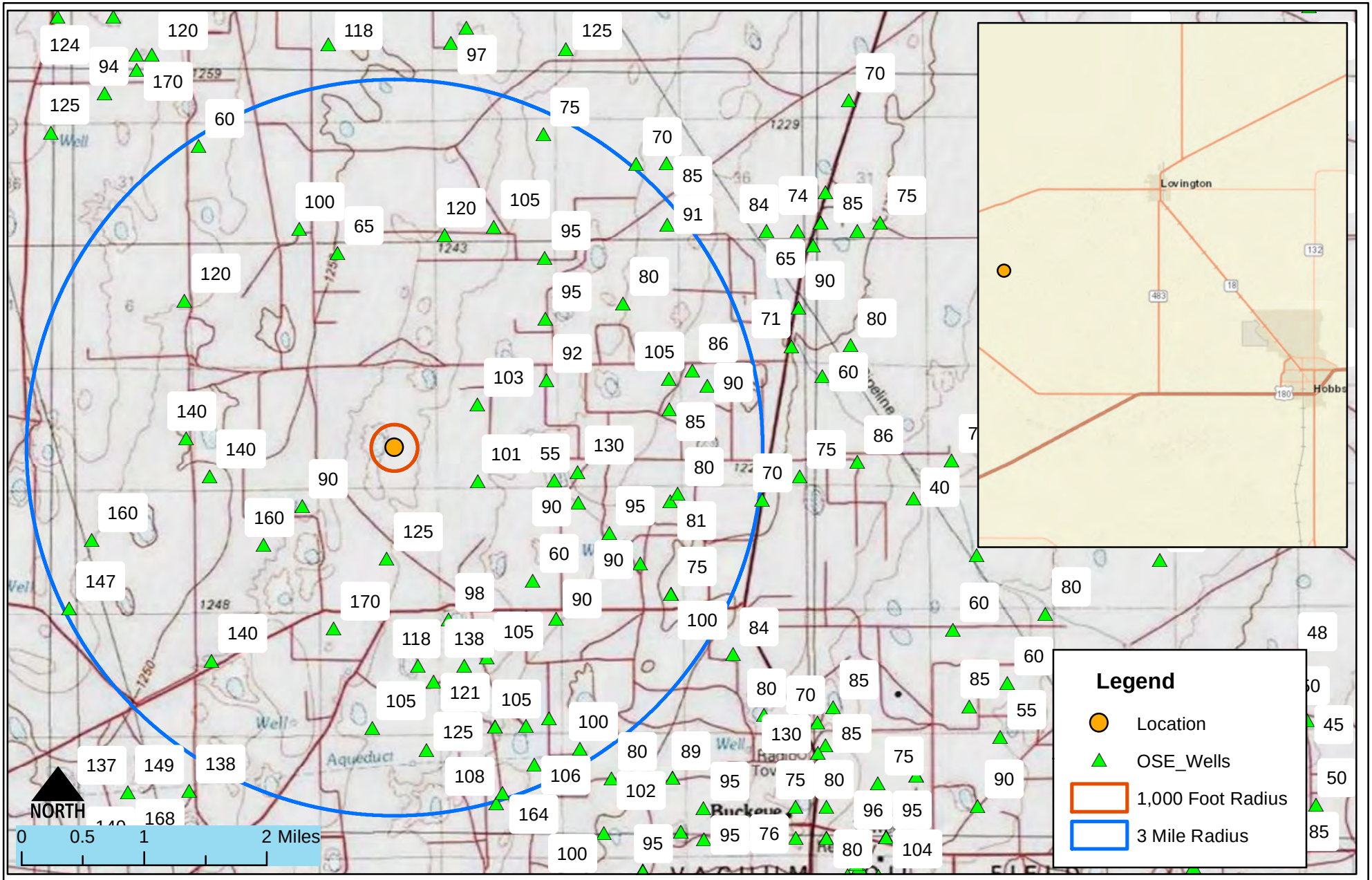
Tables:

Table 3: Summary of Sample Results

Appendices:

Appendix A: Form C141 Final
Appendix B: NMOSE Wells Report
Appendix C: Laboratory Analytical Reports

FIGURE 1
VICINITY AND NMOSE DATA MAP



Vicinity and Well Head Protection Map
Angle State #3- ABO Empire
S:9 T17S, R34E , New Mexico

Figure 1

Document: C:\Users\lcm.CBO\Documents\GIS DATA\MAPS\abo angle state 3 figure 1.mxd

Date Saved: 5/22/2018

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Lucas Middleton
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
www.soudermiller.com
Serving the Southwest & Rocky Mountains

FIGURE 2
SITE AND SAMPLE
LOCATION MAP

Detailed Site and Sample Map
Angle State #3- ABo Empire
S:9 T17S, R34E , New Mexico

Figure 2

Document: C:\Users\lcm.CBO\Documents\GIS DATA\MAPS\abo angle state 3.mxd

Date Saved: 5/22/2018

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TABLE 3
SUMMARY SAMPLE RESULTS

Angle State #3

Table 3

Sample Number on Figure 2	Sample Date	Depth (feet bgs)	Proposed Action	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- Field Screens (ppm)	Cl- Laboratory mg/Kg
NMOCD RRAL's for Site Ranking 10				50 mg/Kg	10 mg/Kg				1000 mg/Kg		
L1	8/25/2017	0.5	Excavted	<0.094	<0.024	<4.7	1000	1400	2400	---	65
	4/23/2018	1	Excavted	---	---	<4.8	11	<46	11	---	---
L2	8/25/2017	0.5	Excavted	<0.098	<0.025	<4.9	2900	4100	7000	---	<30
L2	4/23/2018	1.5	Excavted	---	---	<4.9	89	150	239	---	---
L3	8/25/2017	0.5	Excavted	---	---	---	---	---	---	---	<30
	8/25/2017	1	Excavted	<0.092	<0.023	<4.5	940	1500	2440	---	63
	4/23/2018	1.5	Excavted	<0.099	<0.099	<5.0	210	260	470	---	---
L4	8/25/2017	0.5	in-situ	---	---	---	---	---	---	---	420
L4	4/23/2018	1	in-situ	<0.097	<0.097	<4.8	95	280	375	<350	---
L5	8/25/2017	0.5	Excavted	<0.098	<0.025	<4.9	3000	5100	8100	---	<30
L5	1/31/2017	1	Excavted	<0.093	<0.093	<4.7	110	380	490	---	150
	4/23/2018	1.5	in-situ	---	---	<4.9	<9.3	<46	<46	---	---
L6	8/25/2017	0.5	in-situ	---	---	---	---	---	---	---	<30
	4/23/2018	0.5	in-situ	<0.093	<0.023	<4.7	62	98	160	---	---
P1	1/31/2017	0.5	in-situ	---	---	<4.9	<9.7	<48	<48	---	<30
North SW	4/23/2018	0.5	in-situ	---	---	<5.0	90	300	390	---	---
South SW	4/23/2018	0.5	in-situ	---	---	<5.0	<10	<50	<50	---	---
East SW	4/23/2018	0.5	in-situ	---	---	<4.9	250	680	930	---	---
West SW	4/23/2018	0.5	in-situ	---	---	<4.7	56	160	216	---	---
BG	8/25/2017	0.5	in-situ	---	---	---	---	---	---	---	<30

"--" = Not Analyzed

APPENDIX A
FORM C141 FINAL

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company Abo Empire, LLC	Contact Dan Lewis
Address PO Box 900, Artesia, NM 88211-0900	Telephone No. 575-736-3082
Facility Name Angle State #3	Facility Type Battery

Surface Owner	Mineral Owner	API No. 30 025 25347

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	9	17S	34E	330	South	330	West	Lea

Latitude 32.847078 **°Longitude** -103.563366 NAD83

NATURE OF RELEASE

Type of Release Produced Water and a little oil	Volume of Release 40.5W 3.5 Oil	Volume Recovered
Source of Release Gun Barrel	Date and Hour of Occurrence 3/15/17	Date and Hour of Discovery 3/15/17PM
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The wind caused the Waterleg on the Gun Barrel to come loose, breaking off the main water valve at the bottom of the gun barrel. That caused the Gun Barrel to completely drain inside the containment area.

Describe Area Affected and Cleanup Action Taken.*

Removed the standing produced water and oil. Removed the contaminated soil and hauled it to CRI Land Farm. Repaired the fencing around the Tank Battery containment area.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Dan S Lewis	OIL CONSERVATION DIVISION	
Printed Name: Dan S. Lewis	Approved by Environmental Specialist:	
Title: CFO	Approval Date:	Expiration Date:
E-mail Address: dan@abopet.com	Conditions of Approval:	Attached ☐
Date: 5-3-17 Phone: 575-736-3082		

* Attach Additional Sheets If Necessary

APPENDIX B
NMOSE WELLS REPORT

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 06932	L	LE	3	4	3	10	17S	34E	635536	3634820*	1155	180	101	79
L 06894	L	LE	1	4	1	10	17S	34E	635524	3635825*	1216	175	103	72
L 04768	L	LE		2	2	17	17S	34E	633233	3634478*	1441	190	90	100
L 06896	L	LE	1	1	4	16	17S	34E	634349	3633792*	1449	182	125	57
L 06752	L	LE	4	4	4	10	17S	34E	636542	3634836*	2121	170	55	115
L 07696	L	LE	3	3	2	17	17S	34E	632735	3633968*	2140	200	160	40
L 03241	L	LE		2	2	10	17S	34E	636425	3636145*	2165	122	92	30
L 06760	L	LE	1	1	1	22	17S	34E	635163	3633000*	2345	162	98	64
L 03846 X	L	LE		3	3	11	17S	34E	636847	3634945*	2405	200	130	70
L 06172	L	LE		3	3	08	17S	34E	632019	3634860*	2468	202	140	62
L 04624	L	LE		1	1	21	17S	34E	633659	3632876*	2492	186	170	16
L 03846 X2	L	LE		1	1	14	17S	34E	636853	3634543*	2492	200	90	110
L 09987	L	LE			4	15	17S	34E	636266	3633520*	2492	205	60	145
L 06134	L	LE		2	4	03	17S	34E	636411	3636949*	2596	175	95	80
L 06821	L	LE	2	1	1	04	17S	34E	633680	3637800*	2678	180	65	115
L 07638	L	LE	2	2	4	07	17S	34E	631710	3635356*	2751	206	140	66
L 06897	L	LE	3	4	2	21	17S	34E	634768	3632392*	2861	176	118	58
L 06160	L	LE	3	3	3	34	16S	34E	635079	3638046*	2876	170	120	50
L 03616 S5	L	LE	4	3	1	22	17S	34E	635370	3632398*	2981	245	138	107
L 03616 S4	L	LE		4	1	22	17S	34E	635674	3632507*	2988	244	105	139
L 03846 X5	L	LE		4	1	14	17S	34E	637262	3634149*	3006	200	95	105
L 03616 S7	L	LE	2	2	2	22	17S	34E	636573	3633023*	3061	236	90	146
L 11044	L	LE		4	2	18	17S	34E	631629	3634049*	3069	150		
L 03616 S3	L	LE	2	2	4	21	17S	34E	634974	3632189*	3091	242	121	121
L 05690	L	LE		4	4	32	16S	34E	633170	3638112*	3150	465	100	365
L 06074	L	LE		2	2	03	17S	34E	636395	3637753*	3174	172	95	77

***UTM location was derived from PLSS - see Help**

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 06157	L	LE	4	3	4	34	16S	34E	635725	3638159	3184	165	105	60
L 06876	L	LE	4	4	2	06	17S	34E	631676	3637166*	3386	191	120	71
L 14139 POD1	L	LE	3	1	2	18	17S	34E	631180	3634389	3387	230	138	92
L 04226	L	LE	4	4	4	18	17S	34E	631741	3633143*	3430	166		
L 03011	L	LE				02	17S	34E	637425	3637158*	3533	121	80	41
L 03846 X4	L	LE		1	4	14	17S	34E	637671	3633754*	3537	200	90	110
L 02749	L	LE		4	2	11	17S	34E	638043	3635776*	3624	150	85	65
L 06253	L	LE		2	2	14	17S	34E	638062	3634568*	3664	155	81	74
L 03616 S6	L	LE	4	4	3	21	17S	34E	634177	3631573*	3674	232	105	127
L 11049	L	LE		3	1	20	17S	34E	632056	3632445*	3683	250	140	110
L 05806	L	LE		2	2	11	17S	34E	638036	3636179*	3699	155	105	50
L 07033	L	LE	2	2	2	14	17S	34E	638161	3634667*	3745	135	80	55
L 02724 S	L	LE	4	4	3	22	17S	34E	635739	3631673	3786	242	110	132
L 02724 POD9	L	LE	4	4	3	22	17S	34E	635785	3631601*	3870	240	170	70
L 03398	L	LE		2	2	28	17S	34E	634888	3631285*	3975	242	125	117
L 06771	L	LE	1	1	1	12	17S	34E	638338	3636287*	4018	165	86	79
L 06107	L	LE	4	3	4	22	17S	34E	636188	3631608*	4019	190	105	85
L 07222	L	LE		4	4	22	17S	34E	636492	3631717*	4064	125	125	0
L 03846 X3	L	LE		4	4	14	17S	34E	638080	3633360*	4078	200	100	100
L 06254	L	LE		4	4	14	17S	34E	638080	3633360*	4078	151	75	76
L 09978	L	LE	1	3	1	18	17S	34E	630476	3634015	4165	198	160	38
L 06766	L	LE	4	1	1	12	17S	34E	638538	3636087*	4166	160	90	70
L 09832	L	LE		3	3	06	17S	34E	630449	3636447*	4188	200		
L 01696 S	L	LE			2	27	17S	34E	636302	3631105*	4524	243	106	137
L 10013	L	LE		2	2	34	16S	34E	636370	3639375*	4558	225	75	150
L 07157	L	LE		4	4	35	16S	34E	637998	3638198*	4614	182	91	91
L 03795	L	LE		1	1	26	17S	34E	636901	3631321*	4615	230	100	130
L 02724 POD10	L	LE	1	4	4	27	17S	34E	635884	3630725	4731	250	164	86
L 09169	L	LE	3	1	1	32	16S	34E	631846	3639195*	4742	180	60	120

***UTM location was derived from PLSS - see Help**

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 01883	L		LE	4	4	4	13	17S	33E	630189	3633119*	4766	260	147	113
L 03007	L		LE		1	2	13	17S	34E	639267	3634595*	4850	110	70	40
L 09831	L		LE		4	2	01	17S	33E	630034	3637246*	4859	200		
L 14136 POD1	L		LE	3	3	2	12	17S	33E	629604	3635569	4866	245	141	104
L 10474	L		LE	4	3	2	35	16S	34E	637584	3638995	4887	165	70	95

Average Depth to Water: **107 feet**

Minimum Depth: **55 feet**

Maximum Depth: **170 feet**

Record Count: 60

UTMNAD83 Radius Search (in meters):

Easting (X): 634458.81 **Northing (Y):** 3635236.9 **Radius:** 5000

***UTM location was derived from PLSS - see Help**

APPENDIX C

LABORATORY ANALYTICAL REPORTS

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

May 02, 2018

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: Angle State OrderNo.: 1804D21

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 10 sample(s) on 4/26/2018 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1804D21**
Date Reported: **5/2/2018**

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-1'
Project: Angle State
Collection Date: 4/23/2018 10:37:00 AM
Lab ID: 1804D21-001 **Matrix:** SOIL **Received Date:** 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	11	9.1		mg/Kg	1	4/30/2018 7:49:34 PM	37837
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/30/2018 7:49:34 PM	37837
Surr: DNOP	89.8	70-130		%Rec	1	4/30/2018 7:49:34 PM	37837
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/27/2018 11:32:32 AM	37823
Surr: BFB	90.3	15-316		%Rec	1	4/27/2018 11:32:32 AM	37823

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-1.5'
Project: Angle State
Collection Date: 4/23/2018 10:25:00 AM
Lab ID: 1804D21-002 **Matrix:** SOIL **Received Date:** 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	89	10		mg/Kg	1	5/1/2018 1:22:39 PM	37837
Motor Oil Range Organics (MRO)	150	50		mg/Kg	1	5/1/2018 1:22:39 PM	37837
Surr: DNOP	101	70-130		%Rec	1	5/1/2018 1:22:39 PM	37837
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/27/2018 12:42:59 PM	37823
Surr: BFB	87.6	15-316		%Rec	1	4/27/2018 12:42:59 PM	37823

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L3-1.25'
Project: Angle State
Collection Date: 4/23/2018 10:17:00 AM
Lab ID: 1804D21-003 **Matrix:** SOIL **Received Date:** 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	210	9.1		mg/Kg	1	5/1/2018 1:44:44 PM	37837
Motor Oil Range Organics (MRO)	260	46		mg/Kg	1	5/1/2018 1:44:44 PM	37837
Surr: DNOP	107	70-130		%Rec	1	5/1/2018 1:44:44 PM	37837
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/27/2018 1:06:18 PM	37823
Surr: BFB	87.8	15-316		%Rec	1	4/27/2018 1:06:18 PM	37823
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	4/27/2018 1:06:18 PM	37823
Benzene	ND	0.025		mg/Kg	1	4/27/2018 1:06:18 PM	37823
Toluene	ND	0.050		mg/Kg	1	4/27/2018 1:06:18 PM	37823
Ethylbenzene	ND	0.050		mg/Kg	1	4/27/2018 1:06:18 PM	37823
Xylenes, Total	ND	0.099		mg/Kg	1	4/27/2018 1:06:18 PM	37823
Surr: 4-Bromofluorobenzene	98.4	80-120		%Rec	1	4/27/2018 1:06:18 PM	37823

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L4-1'
Project: Angle State
Collection Date: 4/23/2018 10:49:00 AM
Lab ID: 1804D21-004
Matrix: SOIL
Received Date: 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	95	9.6		mg/Kg	1	5/1/2018 2:06:47 PM	37837
Motor Oil Range Organics (MRO)	280	48		mg/Kg	1	5/1/2018 2:06:47 PM	37837
Surr: DNOP	111	70-130		%Rec	1	5/1/2018 2:06:47 PM	37837
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/27/2018 2:16:00 PM	37823
Surr: BFB	92.3	15-316		%Rec	1	4/27/2018 2:16:00 PM	37823
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	4/27/2018 2:16:00 PM	37823
Benzene	ND	0.024		mg/Kg	1	4/27/2018 2:16:00 PM	37823
Toluene	ND	0.048		mg/Kg	1	4/27/2018 2:16:00 PM	37823
Ethylbenzene	ND	0.048		mg/Kg	1	4/27/2018 2:16:00 PM	37823
Xylenes, Total	ND	0.097		mg/Kg	1	4/27/2018 2:16:00 PM	37823
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	4/27/2018 2:16:00 PM	37823

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L5-1.5'
Project: Angle State
Collection Date: 4/23/2018 10:19:00 AM
Lab ID: 1804D21-005 **Matrix:** SOIL **Received Date:** 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	4/30/2018 9:24:49 PM	37837
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/30/2018 9:24:49 PM	37837
Surr: DNOP	84.0	70-130		%Rec	1	4/30/2018 9:24:49 PM	37837
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/27/2018 2:39:33 PM	37823
Surr: BFB	90.7	15-316		%Rec	1	4/27/2018 2:39:33 PM	37823

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L6-10"
Project: Angle State
Collection Date: 4/23/2018 11:10:00 AM
Lab ID: 1804D21-006
Matrix: SOIL
Received Date: 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	62	9.5		mg/Kg	1	5/1/2018 2:50:59 PM	37837
Motor Oil Range Organics (MRO)	98	48		mg/Kg	1	5/1/2018 2:50:59 PM	37837
Surr: DNOP	110	70-130		%Rec	1	5/1/2018 2:50:59 PM	37837
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/27/2018 3:02:46 PM	37823
Surr: BFB	87.9	15-316		%Rec	1	4/27/2018 3:02:46 PM	37823
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	4/27/2018 3:02:46 PM	37823
Benzene	ND	0.023		mg/Kg	1	4/27/2018 3:02:46 PM	37823
Toluene	ND	0.047		mg/Kg	1	4/27/2018 3:02:46 PM	37823
Ethylbenzene	ND	0.047		mg/Kg	1	4/27/2018 3:02:46 PM	37823
Xylenes, Total	ND	0.093		mg/Kg	1	4/27/2018 3:02:46 PM	37823
Surr: 4-Bromofluorobenzene	99.6	80-120		%Rec	1	4/27/2018 3:02:46 PM	37823

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: North SW
Project: Angle State
Collection Date: 4/23/2018 11:30:00 AM
Lab ID: 1804D21-007 **Matrix:** SOIL **Received Date:** 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	90	9.5		mg/Kg	1	5/1/2018 3:57:28 PM	37837
Motor Oil Range Organics (MRO)	300	48		mg/Kg	1	5/1/2018 3:57:28 PM	37837
Surr: DNOP	107	70-130		%Rec	1	5/1/2018 3:57:28 PM	37837
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/27/2018 3:25:58 PM	37823
Surr: BFB	89.6	15-316		%Rec	1	4/27/2018 3:25:58 PM	37823

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: South SW
Project: Angle State
Collection Date: 4/23/2018 11:15:00 AM
Lab ID: 1804D21-008
Matrix: SOIL
Received Date: 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/1/2018 4:41:41 PM	37837
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/1/2018 4:41:41 PM	37837
Surr: DNOP	94.1	70-130		%Rec	1	5/1/2018 4:41:41 PM	37837
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/27/2018 6:55:34 PM	37823
Surr: BFB	88.1	15-316		%Rec	1	4/27/2018 6:55:34 PM	37823

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: East SW
Project: Angle State
Collection Date: 4/23/2018 11:45:00 AM
Lab ID: 1804D21-009
Matrix: SOIL
Received Date: 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	250	98		mg/Kg	10	5/1/2018 1:00:39 PM	37837
Motor Oil Range Organics (MRO)	680	490		mg/Kg	10	5/1/2018 1:00:39 PM	37837
Surr: DNOP	0	70-130	S	%Rec	10	5/1/2018 1:00:39 PM	37837
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/27/2018 7:19:06 PM	37823
Surr: BFB	90.1	15-316		%Rec	1	4/27/2018 7:19:06 PM	37823

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: Southwest SW
Project: Angle State
Collection Date: 4/23/2018 12:00:00 PM
Lab ID: 1804D21-010
Matrix: SOIL
Received Date: 4/26/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	56	9.2		mg/Kg	1	5/1/2018 5:25:58 PM	37838
Motor Oil Range Organics (MRO)	160	46		mg/Kg	1	5/1/2018 5:25:58 PM	37838
Surr: DNOP	103	70-130		%Rec	1	5/1/2018 5:25:58 PM	37838
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/27/2018 8:05:38 PM	37823
Surr: BFB	85.7	15-316		%Rec	1	4/27/2018 8:05:38 PM	37823

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1804D21**

02-May-18

Client: Souder, Miller & Associates

Project: Angle State

Sample ID	**LCS-37838**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID: **37838**			RunNo: **50909**				
Prep Date:	**4/27/2018**	Analysis Date: **4/30/2018**			SeqNo: **1653303**	Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.0	70	130			
Surr: DNOP	4.8		5.000		96.3	70	130			

Sample ID	**MB-37838**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID: **37838**			RunNo: **50909**				
Prep Date:	**4/27/2018**	Analysis Date: **4/30/2018**			SeqNo: **1653304**	Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		102	70	130			

Sample ID	**MB-37837**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID: **37837**			RunNo: **50907**				
Prep Date:	**4/27/2018**	Analysis Date: **4/30/2018**			SeqNo: **1653419**	Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.1		10.00		81.0	70	130			

Sample ID	**LCS-37837**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID: **37837**			RunNo: **50907**				
Prep Date:	**4/27/2018**	Analysis Date: **4/30/2018**			SeqNo: **1653420**	Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.4	70	130			
Surr: DNOP	3.6		5.000		72.7	70	130			

Sample ID	**LCS-37877**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID: **37877**			RunNo: **50939**				
Prep Date:	**5/1/2018**	Analysis Date: **5/1/2018**			SeqNo: **1654098**	Units: **%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		94.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1804D21**

02-May-18

Client: Souder, Miller & Associates

Project: Angle State

Sample ID	**MB-37877**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID: **37877**			RunNo: **50939**					
Prep Date:	**5/1/2018**	Analysis Date: **5/1/2018**			SeqNo: **1654099**		Units: **%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.7		10.00		97.4	70	130			

Sample ID	**LCS-37865**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID: **37865**			RunNo: **50940**					
Prep Date:	**4/30/2018**	Analysis Date: **5/1/2018**			SeqNo: **1654117**		Units: **%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.9		5.000		78.0	70	130			

Sample ID	**MB-37865**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID: **37865**			RunNo: **50940**					
Prep Date:	**4/30/2018**	Analysis Date: **5/1/2018**			SeqNo: **1654118**		Units: **%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.2		10.00		82.1	70	130			

Sample ID	**1804D21-010AMS**	SampType: **MS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**Southwest SW**	Batch ID: **37838**			RunNo: **50939**					
Prep Date:	**4/27/2018**	Analysis Date: **5/1/2018**			SeqNo: **1654546**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	120	9.5	47.30	56.27	134	55.8	125			S
Surr: DNOP	4.9		4.730		103	70	130			

Sample ID	**1804D21-010AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**Southwest SW**	Batch ID: **37838**			RunNo: **50939**					
Prep Date:	**4/27/2018**	Analysis Date: **5/1/2018**			SeqNo: **1654547**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	92	9.6	47.98	56.27	74.3	55.8	125	26.3	20	R
Surr: DNOP	5.0		4.798		104	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1804D21**

02-May-18

Client: Souder, Miller & Associates

Project: Angle State

Sample ID	**MB-37823**	SampType: **MBLK**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID: **37823**		RunNo: **50883**					
Prep Date:	**4/26/2018**	Analysis Date: **4/27/2018**		SeqNo: **1652266**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	930		1000		92.9	15	316			

Sample ID	**LCS-37823**	SampType: **LCS**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID: **37823**		RunNo: **50883**					
Prep Date:	**4/26/2018**	Analysis Date: **4/27/2018**		SeqNo: **1652267**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.4	75.9	131			
Surr: BFB	1000		1000		99.6	15	316			

Sample ID	**1804D21-001AMS**	SampType: **MS**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**L1-1'**	Batch ID: **37823**		RunNo: **50883**					
Prep Date:	**4/26/2018**	Analysis Date: **4/27/2018**		SeqNo: **1652269**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.8	24.06	0	109	77.8	128			
Surr: BFB	990		962.5		103	15	316			

Sample ID	**1804D21-001AMSD**	SampType: **MSD**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**L1-1'**	Batch ID: **37823**		RunNo: **50883**					
Prep Date:	**4/26/2018**	Analysis Date: **4/27/2018**		SeqNo: **1652270**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	24.88	0	113	77.8	128	6.39	20	
Surr: BFB	1000		995.0		101	15	316	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1804D21**

02-May-18

Client: Souder, Miller & Associates

Project: Angle State

Sample ID **MB-37823**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **37823**	RunNo: **50883**
Prep Date: **4/26/2018**	Analysis Date: **4/27/2018**	SeqNo: **1652297** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID **LCS-37823**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **37823**	RunNo: **50883**
Prep Date: **4/26/2018**	Analysis Date: **4/27/2018**	SeqNo: **1652298** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.94	0.10	1.000	0	93.8	70.1	121			
Benzene	0.99	0.025	1.000	0	99.0	77.3	128			
Toluene	1.0	0.050	1.000	0	99.8	79.2	125			
Ethylbenzene	0.98	0.050	1.000	0	98.4	80.7	127			
Xylenes, Total	3.0	0.10	3.000	0	100	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		105	80	120			

Sample ID **1804D21-003AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **L3-1.25'**	Batch ID: **37823**	RunNo: **50883**
Prep Date: **4/26/2018**	Analysis Date: **4/27/2018**	SeqNo: **1652302** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.93	0.099	0.9901	0	94.3	56.9	130			
Benzene	0.96	0.025	0.9901	0	96.9	68.5	133			
Toluene	0.98	0.050	0.9901	0	99.2	75	130			
Ethylbenzene	0.97	0.050	0.9901	0	97.9	79.4	128			
Xylenes, Total	3.0	0.099	2.970	0	101	77.3	131			
Surr: 4-Bromofluorobenzene	1.0		0.9901		105	80	120			

Sample ID **1804D21-003AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **L3-1.25'**	Batch ID: **37823**	RunNo: **50883**
Prep Date: **4/26/2018**	Analysis Date: **4/27/2018**	SeqNo: **1652303** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.88	0.097	0.9709	0	91.2	56.9	130	5.30	20	
Benzene	0.90	0.024	0.9709	0	92.7	68.5	133	6.42	20	
Toluene	0.91	0.049	0.9709	0	94.2	75	130	7.14	20	
Ethylbenzene	0.91	0.049	0.9709	0	93.6	79.4	128	6.49	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1804D21**

02-May-18

Client: Souder, Miller & Associates

Project: Angle State

Sample ID	**1804D21-003AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**L3-1.25'**	Batch ID:	**37823**	RunNo:	**50883**					
Prep Date:	**4/26/2018**	Analysis Date:	**4/27/2018**	SeqNo:	**1652303**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	2.8	0.097	2.913	0	95.8	77.3	131	7.18	20	
Surr: 4-Bromofluorobenzene	1.0		0.9709		105	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
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HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **1804D21** RcptNo: **1**

Received By: **Erin Melendrez** **4/26/2018 9:15:00 AM**

Completed By: **Ashley Gallegos** **4/26/2018 10:59:06 AM**

Reviewed By: MW 4/26/18

Labeled by: 04/26/18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. 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? _____ 04/26/18

Checked by: _____

Special Handling (if applicable)

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

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

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.8	Good	Yes			

Chain-of-Custody Record

Client: SMA - Carlsbad

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5day

Project Name: Angle State

Project #:

Project Manager: Austin Weyant

Sampler: MRS

On Ice: ☒ Yes ☐ No

Sample Temperature: 4.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1804D21	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
4/23/18	10:37	rock	L1-1'	Ziplock		-001			X													
	10:25	rock	L2-1.5'	ziplock		-002			X													
	10:17	rock	L3-1.25'	Ziplock		-003	X		X													
	10:09	soil	L4-1'	4oz		-004	X		X													
	10:19	rock	L5-1.5'	Ziplock.		-005			X													
	11:10	soil	L6-10"	4oz		-006	X		X													
	11:30	soil	North SW	"		-007			X													
	11:15	soil	South SW	"		-008			X													
	11:45	soil	East SW	"		-009			X													
↓	12:00	soil	Southwest SW	"		-010			X													

Date: 4/24/18 Time: 0930 Relinquished by: M. Tavizian Received by: Date Time 4/25/18 0930

Date: 4/25/18 Time: 1900 Relinquished by: Received by: Courier 4/26/18 ENM Date Time 4/26/18 0915

Remarks: Also Empire

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.