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

October 9, 2017

INFORMATION ONLY

#5E26436-BG1

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

SUBJECT: SOIL REMEDIATION WORK PLAN FOR THE INCIDENT AT THE ANGLE STATE #3, LEA COUNTY, NEW MEXICO

Dear Olivia Yu,

On behalf of Abo Empire LLC, Souder, Miller & Associates (SMA) has prepared this WORK PLAN that describes the assessment, initial delineation and proposed remediation for a release associated with the Angle State #3 site. The site is in UNIT M, 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
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	4.3 Miles from White Lake
Depth to Groundwater	Estimated to be greater than 100’
Nearest Domestic Water Source	Greater than 1,000 feet
NMOCD Ranking	0
SMA Response Dates	Initial: 8/25/17

1.0 Background

The waterleg 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. The release did not move outside of the containment area. All standing water and oil was removed off site. The contaminated soil was removed during the initial action and sent to CRI Land Farm for disposal

2.0 Site Ranking and Land Jurisdiction

The release site is located approximately 4.3 miles east of White Lake, 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. 30 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	
>1000' = 0	0
Well Head Protection	**NMOCD Numeric Rank**
<1000' (or <200' domestic) = 20	
> 1000' = 0	0
Total Site Ranking	**0**

3.0 Release Characterization

On August 25, 2017 after receiving 811 clearance, SMA field personnel assessed the release area. Soil samples were field-screened using an EC meter. Samples were collected to characterize and delineate the release. 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. 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 Workplan

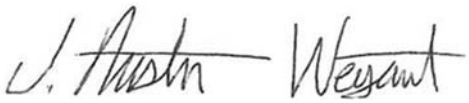
SMA will begin the excavation of affected soils, after the location is plug and abounded (P&A), and with approval from area utilities owners via 811 and NMOCD. SMA will continuously guide the excavation activities by collecting composite soil samples for field screening with a mobile titration unit (EPA 4500) and a calibrated PID. Excavation will occur to depths of one feet bgs around L2, L5 shown in Figure 2 to sufficiently remove the impacted materials to NMOCD requirements. Affected soils will be removed from the area before closure samples are collected at the final depth of excavation and from the sidewalls. Approximately 50 cubic yards of contaminated soil are projected to be removed and replaced with clean backfill material to return the surface to previous contours. The contaminated soil will be transported for proper disposal at Lea Land, near Carlsbad, NM, an NMOCD permitted disposal facility.

5.0 Scope and Limitations

The scope of our services consisted of the performance of assessment sampling, verification of release stabilization, regulatory liaison, and preparation of this work plan. 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



Austin Weyant
Project Scientist

Reviewed by:

Jennifer Knowlton, PE
Senior Engineer II

ATTACHMENTS:

Figures:

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

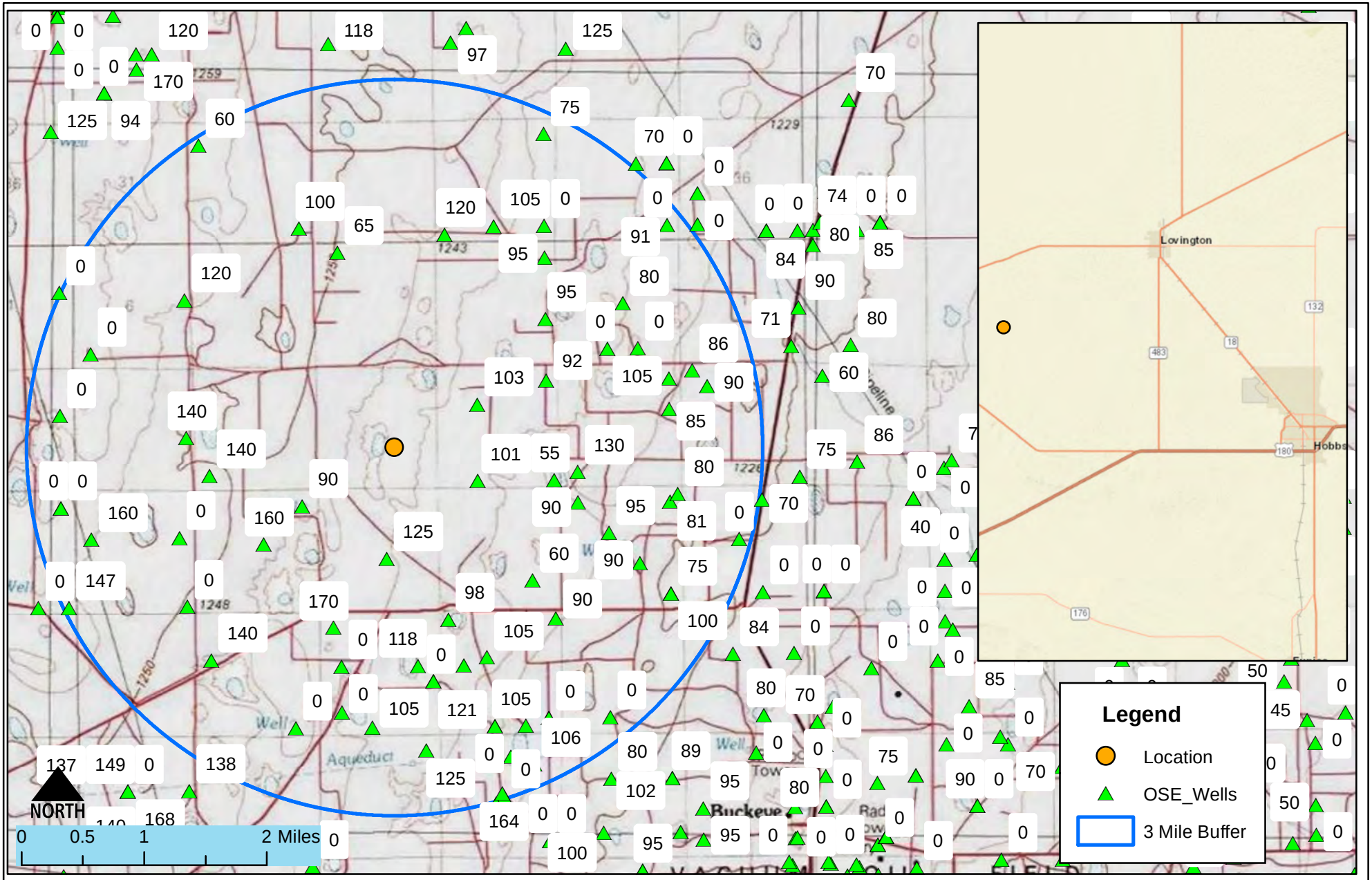
Tables:

Table 3: Summary of Sample Results

Appendices:

Appendix A: Form C141 Initial and 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

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

Drawn Lucas Middleton
Checked
Approved

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

Date Saved: 9/25/2017

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

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

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

Date Saved: 9/25/2017

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

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				5000 mg/Kg		
L1	8/25/2017	0.5	in-situ	<0.094	<0.024	<4.7	1000	1400	2400	---	65
L2	8/25/2017	0.5	in-situ	<0.098	<0.025	<4.9	2900	4100	7000	---	<30
L3	8/25/2017	0.5	in-situ	---	---	---	---	---	---	---	<30
	8/25/2017	1	in-situ	<0.092	<0.023	<4.5	940	1500	2440	---	63
L4	8/25/2017	0.5	in-situ	---	---	---	---	---	---	---	420
L5	8/25/2017	0.5	in-situ	<0.098	<0.025	<4.9	3000	5100	8100	---	<30
L6	8/25/2017	0.5	in-situ	---	---	---	---	---	---	---	<30
BG	8/25/2017	0.5	in-situ	---	---	---	---	---	---	---	<30

"--" = Not Analyzed

APPENDIX A
FORM C141 INITIAL

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

HOBBS OCD
APR 05 2017
RECEIVED

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

X 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 00

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 _____ **Longitude** _____

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 3/15/17 PM
Was Immediate Notice Given? ☐ Yes X☒ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes X☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 2:28 pm, Apr 07, 2017

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 Lewis

Printed Name: Dan S. Lewis

Title: CFO

E-mail Address: dan@abopet.com

Date: 4/3/17 Phone: 575-736-3082

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: OG

Approval Date: 4/7/2017 Expiration Date:

Conditions of Approval: see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

1RP-4670 nOY1709752298 pOY1709753000

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _4/5/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number __1R-_4670_ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _5/7/2017_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

● Nominal detection limits for field and laboratory analyses must be provided.

● Composite sampling is not generally allowed.

● Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

●Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

● If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

● Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

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

September 14, 2017

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

RE: Angel State 3 OrderNo.: 1709047

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 8 sample(s) on 9/1/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-Surface
Project: Angel State 3
Collection Date: 8/25/2017 9:00:00 AM
Lab ID: 1709047-001
Matrix: SOIL
Received Date: 9/1/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	65	30		mg/Kg	20	9/11/2017 7:36:40 PM	33808
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	1000	100		mg/Kg	10	9/7/2017 12:12:41 PM	33721
Motor Oil Range Organics (MRO)	1400	500		mg/Kg	10	9/7/2017 12:12:41 PM	33721
Surr: DNOP	0	70-130	S	%Rec	10	9/7/2017 12:12:41 PM	33721
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/5/2017 1:17:57 PM	33682
Surr: BFB	82.5	54-150		%Rec	1	9/5/2017 1:17:57 PM	33682
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	9/5/2017 1:17:57 PM	33682
Toluene	ND	0.047		mg/Kg	1	9/5/2017 1:17:57 PM	33682
Ethylbenzene	ND	0.047		mg/Kg	1	9/5/2017 1:17:57 PM	33682
Xylenes, Total	ND	0.094		mg/Kg	1	9/5/2017 1:17:57 PM	33682
Surr: 4-Bromofluorobenzene	122	66.6-132		%Rec	1	9/5/2017 1:17:57 PM	33682

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--Surface
Project: Angel State 3
Collection Date: 8/25/2017 9:00:00 AM
Lab ID: 1709047-002 **Matrix:** SOIL **Received Date:** 9/1/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	9/11/2017 7:49:04 PM	33808
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	2900	96		mg/Kg	10	9/7/2017 12:37:36 PM	33721
Motor Oil Range Organics (MRO)	4100	480		mg/Kg	10	9/7/2017 12:37:36 PM	33721
Surr: DNOP	0	70-130	S	%Rec	10	9/7/2017 12:37:36 PM	33721
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/5/2017 2:53:44 PM	33682
Surr: BFB	80.8	54-150		%Rec	1	9/5/2017 2:53:44 PM	33682
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	9/5/2017 2:53:44 PM	33682
Toluene	ND	0.049		mg/Kg	1	9/5/2017 2:53:44 PM	33682
Ethylbenzene	ND	0.049		mg/Kg	1	9/5/2017 2:53:44 PM	33682
Xylenes, Total	ND	0.098		mg/Kg	1	9/5/2017 2:53:44 PM	33682
Surr: 4-Bromofluorobenzene	124	66.6-132		%Rec	1	9/5/2017 2:53:44 PM	33682

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--Surface
Project: Angel State 3
Collection Date: 8/25/2017 9:00:00 AM
Lab ID: 1709047-003
Matrix: SOIL
Received Date: 9/1/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	9/11/2017 8:01:29 PM	33808

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
Project: Angel State 3
Collection Date: 8/25/2017 9:00:00 AM
Lab ID: 1709047-004
Matrix: SOIL
Received Date: 9/1/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	63	30		mg/Kg	20	9/11/2017 8:38:43 PM	33808
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	1500	97		mg/Kg	10	9/7/2017 3:32:28 PM	33721
Motor Oil Range Organics (MRO)	940	490		mg/Kg	10	9/7/2017 3:32:28 PM	33721
Surr: DNOP	0	70-130	S	%Rec	10	9/7/2017 3:32:28 PM	33721
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/5/2017 4:29:35 PM	33682
Surr: BFB	112	54-150		%Rec	1	9/5/2017 4:29:35 PM	33682
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	9/5/2017 4:29:35 PM	33682
Toluene	ND	0.046		mg/Kg	1	9/5/2017 4:29:35 PM	33682
Ethylbenzene	ND	0.046		mg/Kg	1	9/5/2017 4:29:35 PM	33682
Xylenes, Total	ND	0.092		mg/Kg	1	9/5/2017 4:29:35 PM	33682
Surr: 4-Bromofluorobenzene	122	66.6-132		%Rec	1	9/5/2017 4:29:35 PM	33682

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--Surface
Project: Angel State 3
Collection Date: 8/25/2017 9:00:00 AM
Lab ID: 1709047-005
Matrix: SOIL
Received Date: 9/1/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	420	30		mg/Kg	20	9/11/2017 8:51:08 PM	33808

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--Surface
Project: Angel State 3
Collection Date: 8/25/2017 9:00:00 AM
Lab ID: 1709047-006
Matrix: SOIL
Received Date: 9/1/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	9/11/2017 9:03:33 PM	33808
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	3000	92		mg/Kg	10	9/7/2017 2:17:33 PM	33721
Motor Oil Range Organics (MRO)	5100	460		mg/Kg	10	9/7/2017 2:17:33 PM	33721
Surr: DNOP	0	70-130	S	%Rec	10	9/7/2017 2:17:33 PM	33721
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/5/2017 4:53:33 PM	33682
Surr: BFB	77.9	54-150		%Rec	1	9/5/2017 4:53:33 PM	33682
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	9/5/2017 4:53:33 PM	33682
Toluene	ND	0.049		mg/Kg	1	9/5/2017 4:53:33 PM	33682
Ethylbenzene	ND	0.049		mg/Kg	1	9/5/2017 4:53:33 PM	33682
Xylenes, Total	ND	0.098		mg/Kg	1	9/5/2017 4:53:33 PM	33682
Surr: 4-Bromofluorobenzene	117	66.6-132		%Rec	1	9/5/2017 4:53:33 PM	33682

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--Surface
Project: Angel State 3
Collection Date: 8/25/2017 9:00:00 AM
Lab ID: 1709047-007
Matrix: SOIL
Received Date: 9/1/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	9/11/2017 9:15:58 PM	33808

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: B6
Project: Angel State 3
Collection Date: 8/25/2017 9:00:00 AM
Lab ID: 1709047-008
Matrix: SOIL
Received Date: 9/1/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	9/11/2017 9:28:22 PM	33808

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#: **1709047**

14-Sep-17

Client: Souder, Miller & Associates

Project: Angel State 3

Sample ID	**MB-33808**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**33808**	RunNo:	**45542**					
Prep Date:	**9/11/2017**	Analysis Date:	**9/11/2017**	SeqNo:	**1444864**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-33808**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**33808**	RunNo:	**45542**					
Prep Date:	**9/11/2017**	Analysis Date:	**9/11/2017**	SeqNo:	**1444865**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting 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#: **1709047**

14-Sep-17

Client: Souder, Miller & Associates

Project: Angel State 3

Sample ID	**LCS-33721**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**33721**		RunNo:	**45469**					
Prep Date:	**9/6/2017**	Analysis Date:	**9/7/2017**		SeqNo:	**1440795**	Units:	**mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		44	10	50.00	0	88.0	73.2	114			
Surr: DNOP		4.8		5.000		96.9	70	130			

Sample ID	**MB-33721**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**33721**		RunNo:	**45469**					
Prep Date:	**9/6/2017**	Analysis Date:	**9/7/2017**		SeqNo:	**1440796**	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		11		10.00		108	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#: **1709047**

14-Sep-17

Client: Souder, Miller & Associates

Project: Angel State 3

Sample ID	**MB-33682**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**33682**	RunNo:	**45408**					
Prep Date:	**9/1/2017**	Analysis Date:	**9/5/2017**	SeqNo:	**1439055**	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	820		1000		82.4	54	150			

Sample ID	**LCS-33682**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**33682**	RunNo:	**45408**					
Prep Date:	**9/1/2017**	Analysis Date:	**9/5/2017**	SeqNo:	**1439056**	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	96.3	76.4	125			
Surr: BFB	910		1000		90.9	54	150			

Sample ID	**1709047-002AMS**	SampType:	**MS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**L2--Surface**	Batch ID:	**33682**	RunNo:	**45408**					
Prep Date:	**9/1/2017**	Analysis Date:	**9/5/2017**	SeqNo:	**1439059**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	18	4.7	23.72	0	75.7	77.8	128			S
Surr: BFB	840		948.8		88.8	54	150			

Sample ID	**1709047-002AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**L2--Surface**	Batch ID:	**33682**	RunNo:	**45408**					
Prep Date:	**9/1/2017**	Analysis Date:	**9/5/2017**	SeqNo:	**1439060**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	15	4.8	24.02	0	61.0	77.8	128	20.3	20	RS
Surr: BFB	850		960.6		88.3	54	150	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#: **1709047**

14-Sep-17

Client: Souder, Miller & Associates

Project: Angel State 3

Sample ID	**MB-33682**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**33682**	RunNo:	**45408**					
Prep Date:	**9/1/2017**	Analysis Date:	**9/5/2017**	SeqNo:	**1439078**	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	1.3		1.000		128	66.6	132			

Sample ID	**LCS-33682**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**33682**	RunNo:	**45408**					
Prep Date:	**9/1/2017**	Analysis Date:	**9/5/2017**	SeqNo:	**1439079**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	113	80	120			
Toluene	1.1	0.050	1.000	0	113	80	120			
Ethylbenzene	1.1	0.050	1.000	0	112	80	120			
Xylenes, Total	3.4	0.10	3.000	0	115	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		128	66.6	132			

Sample ID	**1709047-001AMS**	SampType:	**MS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**L1-Surface**	Batch ID:	**33682**	RunNo:	**45408**					
Prep Date:	**9/1/2017**	Analysis Date:	**9/5/2017**	SeqNo:	**1439081**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.024	0.9488	0	93.5	80.9	132			
Toluene	0.94	0.047	0.9488	0.009605	97.6	79.8	136			
Ethylbenzene	0.95	0.047	0.9488	0.01008	98.5	79.4	140			
Xylenes, Total	2.8	0.095	2.846	0.01582	99.2	78.5	142			
Surr: 4-Bromofluorobenzene	1.2		0.9488		123	66.6	132			

Sample ID	**1709047-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**L1-Surface**	Batch ID:	**33682**	RunNo:	**45408**					
Prep Date:	**9/1/2017**	Analysis Date:	**9/5/2017**	SeqNo:	**1439082**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	0.9833	0	94.1	80.9	132	4.26	20	
Toluene	0.96	0.049	0.9833	0.009605	97.0	79.8	136	2.88	20	
Ethylbenzene	0.97	0.049	0.9833	0.01008	97.3	79.4	140	2.31	20	
Xylenes, Total	2.9	0.098	2.950	0.01582	98.7	78.5	142	3.06	20	
Surr: 4-Bromofluorobenzene	1.2		0.9833		120	66.6	132	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

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: 1709047 RcptNo: 1

Received By: Erin Melendrez 9/1/2017 8:45:00 AM

Completed By: Ashley Gallegos 9/1/2017 12:27:38 PM

Reviewed By: 9/1/17

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: _____ (<2 or >12 unless noted)

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	1.7	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

Project Name: Angle State #3

Project #:

Project Manager: Austin Weyant

Sampler: Cam

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.8-0.1(CF)=1.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1709047	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)
8-25-17	9:00	Soil	L1-Surface	4oz		-001	X		X					X				
			L2-S "			-002	X		X					X				
			L3-S "			-003	X		X					X				
			L3-I "			-004	X		X					X				
			L4-S "			-005	X		X					X				
			L5-S			-006	X		X					X				
			~~BG~~ L6-S			-007	X		X					X				
			B6			-008								X				

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
8-31-17	8:30			8/31/17	0830	
8/31/17	1900			09/01/17	0815	

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.

Courier