October 10, 2018

#5E27499-BG7

NMOCD District 2
Mr. Mike Bratcher
811 S. First Street
Artesia, New Mexico 88210

SUBJECT: Remediation Plan for the Wabash 20 Fed Com 1H Release (2RP-4840), Artesia, Eddy County, New Mexico

Dear Mr. Bratcher:

On behalf of Marathon Oil Permian LLC (Marathon), Souder, Miller & Associates (SMA) has prepared this Remediation Plan that describes the delineation and proposed remediation for a release of liquids related to oil and gas production activities at the Wabash 20 Fed Com 1H site. The site is in Unit A, Section 20, Township 18S, Range 26E, Eddy County, New Mexico, on Private land. Figure 1 illustrates the vicinity and site location on an USGS 7.5 minute quadrangle map.

Table 1, summarizes information regarding the release.

Table 1: Release Information and Closure Criteria			
Name	Wabash 20 Fed Com 1H	Company	Marathon Oil Permian LLC
API Number	30-015-38568	Location	32.738666°, -104.396174°
Incident Number	2RP-4840		
Estimated Date of Release	Unknown	Date Reported to NMOCD	June 12, 2018
Land Owner	Private	Reported To	NMOCD District 2
Source of Release	Oil storage tank		
Released Volume	Unknown	Released Material	Oil
Recovered Volume	None	Net Release	Unknown
NMOCD Closure Criteria	>100 feet to groundwater		
SMA Response Dates	June 28, 2018		

1.0 Background

On June 12, 2018, a release was discovered at the Wabash 20 Fed Com 1H site. During the removal of two oil tanks from the battery, light staining on rock and the liner was observed. The staining also breached the liner. The liner was then removed and SMA was called to begin initial sampling. Figure 1 illustrates the vicinity and site location, Figure 2 illustrates the release location. The initial C-141 form is included in Appendix A.

2.0 Site Information and Closure Criteria

The Wabash 20 Fed Com 1H is located approximately seven (7) miles south of Artesia, New Mexico on Private land.

As summarized in Table 2 and illustrated in Figure 1, depth to groundwater in the area is estimated to be 168 feet below grade surface (bgs). There are two (2) known water sources within ½-mile of the location, according to the New Mexico Office of the State Engineer (NMOSE) online water well database (https://gis.ose.state.nm.us/gisapps/ose_pod_locations/; accessed 7/6/2018). The nearest significant watercourse is the Rio Penasco, located approximately 1,766 feet to the north of the release site.

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for groundwater depth of greater than 100 feet bgs. Unless a deferral is approved by NMOCD per 19.15.29.12.B.(2), the site will be restored to meet the standards of Table I of 19.15.29.12 NMAC. Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

3.0 Release Characterization Activities and Findings

On June 28, 2018, SMA personnel arrived on site in response to the release associated with Wabash 20 Fed Com 1H. SMA performed site delineation activities by collecting soil samples around the release site and throughout the visibly stained area. Soil samples were field-screened for chloride using an electrical conductivity (EC).

A total of two (2) sample locations (B1 and B2) were investigated using a power auger drill, to twenty (20), and ten (10) feet bgs, respectively. A minimum of two samples were collected at each sampling location and field-screened using the methods above. A total of fourteen (14) samples were collected for laboratory analysis for total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D. Table 3 itemizes the sample results as well as identifying any variances from the typical specification of two samples per boring. Locations for all samples are depicted on Figure 2.

Laboratory samples were collected in accordance with the sampling protocol included in Appendix C. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix D).

Results indicate that the area of impacted is approximately 17 feet bgs. With an impacted area of approximately 45 feet long by 30 feet wide.

4.0 Proposed Soil Remediation Work Plan

SMA proposes excavation of the contaminated soil. The impacted area will be excavated to approximately 17 feet bgs. The horizontal extent is expected to remain under the single tank that was found to be leaking, with an estimated soil volume of approximately 1000 yards. SMA will guide the excavation by collecting composite soil samples for field screening for hydrocarbon impacts using a calibrated MiniRAE 2000 PID.

The release area will be excavated to the NMOCD Closure Criteria as demonstrated in the attached Table 2. Upon completion of the excavation, confirmation samples will be collected and will comprise representative wall and base 5-point composite samples. The confirmation samples will be collected from within the excavation in accordance with the sampling protocol included in Appendix C.

The excavated impacted soil will be placed on a 40-mil, bermed plastic liner for bioremediation utilizing soil oxidizers and fertilizers. Confirmation samples will be collected from the bioremediation stock piles at 90 days and 180 days to ensure successful treatment. Upon confirmation that soil remediation standards have been met, the excavation will be backfilled with the stockpiled soil. At that time, SMA will submit a closure report to the NMOCD. Upon approval by NMOCD, the projected timeline for completion of remediation activities is approximately two-hundred (200) days.

5.0 Scope and Limitations

The scope of our services included: assessment sampling; verifying release stabilization, regulatory liaison, and preparing this remediation 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

Reviewed by:

Heather Patterson
Staff Scientist

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

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

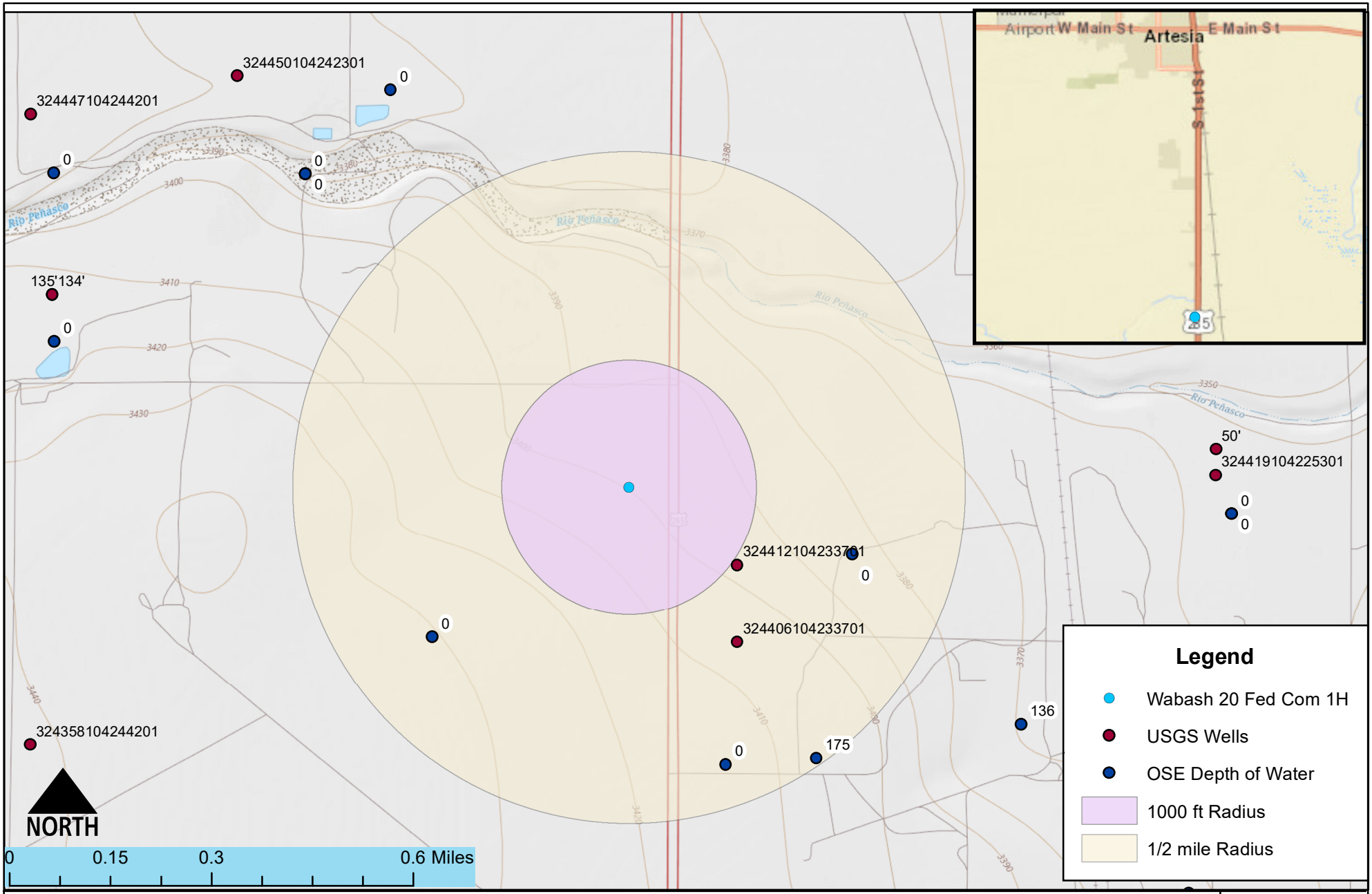
Tables:

Table 2: NMOCD Closure Criteria Justification
Table 3: Summary of Sample Results

Appendices:

Appendix A: Form C141 Initial
Appendix B: NMOSE Wells Report
Appendix C: Sampling Protocol and Field Notes
Appendix D: Laboratory Analytical Reports

FIGURES



Vicinity and Well Head Protection Map
Wabash 20 Fed Com 1H - Marathon
S 20-T18S-R26E, New Mexico

Figure 1

Date Saved: 9/24/2018

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

Drawn Heather Patterson
Checked
Approved

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

Site and Sample Location Map
Wabash 20 Fed Com 1H - Marathon
S 20-T18S-R26E, New Mexico

Figure 2

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

Date Saved: 10/10/2018

Drawn Heather Patterson
Checked
Approved

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TABLES

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	168	NMOSE
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	mulitiple	see Figure 1
Hortizontal Distance to Nearest Significant Watercourse (ft)	1766	see Figure 1

Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC)						
Depth to Groundwater		**Closure Criteria (units in mg/kg)**				
		Chloride *numerical limit or background, whichever is greater	**TPH**	**GRO + DRO**	**BTEX**	**Benzene**
< 50' BGS		600	100		50	10
51' to 100'		10000	2500	1000	50	10
>100'	X	20000	2500	1000	50	10
Surface Water	**yes or no**	**if yes, then**				
<300' from continuously flowing watercourse or other significant watercourse?	n	600	100		50	10
<200' from lakebed, sinkhole or playa lake?	n					
Water Well or Water Source						
<500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	n					
<1000' from fresh water well or spring?	n					
Human and Other Areas						
<300' from an occupied permanent residence, school, hospital, institution or church?	n					
within incorporated municipal boundaries or within a defined municipal fresh water well field?	n					
<100' from wetland?	n					
within area overlying a subsurface mine	n					
within an unstable area?	n					
within a 100-year floodplain?	n					

Wabash 20 Fed Com 1H

Table 3.

Sample Number on Figure 2	Sample Date	Depth (feet bgs)	Proposed Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- Laboratory mg/Kg
NMOCD Closure Criteria				50 mg/Kg	10 mg/Kg	1000			2500	20,000
B1	6/26/2018	surface	excavate	4.47	<0.024	**49**	**7600**	5700	**13349**	310
	6/26/2018	2.5	excavate	--	--	<5.0	35	<50	35	--
	6/26/2018	5	excavate	--	--	33	260	100	393	--
	6/26/2018	7.5	excavate	--	--	**320**	**3200**	1000	**4520**	--
	6/26/2018	10	excavate	--	--	**120**	**2700**	960	**3780**	--
	6/26/2018	12.5	excavate	--	--	**740**	**3,300**	980	**5,020**	--
	6/26/2018	15	excavate	--	--	**570**	**2,000**	580	**3,150**	--
	6/26/2018	17.5	in-situ	--	--	72	730	270	1072	--
	6/26/2018	20	in-situ	--	--	130	180	51	361	--
B2	6/26/2018	surface	excavate	--	--	**19**	**2000**	3000	**5019**	--
	6/26/2018	2.5	in-situ	--	--	100	390	170	660	41
	6/26/2018	5	in-situ	<0.23	<0.024	5.9	<9.8	<49	5.9	<30
	6/26/2018	7.5	in-situ	--	--	5.6	11	<50	16.6	--
	6/26/2018	10	in-situ	--	--	<4.9	34	<50	34	--

"--" = Not Analyzed

APPENDIX A
FORM C141 INITIAL

RECEIVED

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

JUN 29 2018

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

DISTRICT II-ARTESIA O.C.D.

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

nAB1819054736

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Marathon Oil Permian LLC 372098	Contact Callie Karrigan
Address 5555 San Felipe Street, Houston, Texas 77056	Telephone No. 405-202-1028 (cell) 575-297-0956 (office)
Facility Name: Wabash 20 Fed Com 1H	Facility Type Oil and gas production facilities

Surface: Owner: private	Mineral: Owner: federal	API No. : 30-015-38568

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	20	18S	26E	660	North	330	east	Eddy

Latitude 32.738666 **.Longitude** -104.396174

NATURE OF RELEASE

Type of Release: oil	Volume of Release: unknown	Volume Recovered: none
Source of Release: oil tank	Date and Hour of Occurrence unknown	Date and Hour of Discovery 06/12/2018
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Eddy County – Mike Bratcher and Shelly Tucker	
By Whom? Callie Karrigan	Date and Hour 06/13/2018 3:50 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*
Not applicable.

Describe Cause of Problem and Remedial Action Taken.*
Following removal of two oil tanks from the battery, light staining on rock and the liner was observed. Staining also breached the liner.

Describe Area Affected and Cleanup Action Taken.*
The affected area is confined in containment within the foot print of the tank; however, the liner was breached. The release is currently being assessed by SMA and pending lab analysis results to develop a work plan for delineation.

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.

Callie Karrigan Signature:	OIL CONSERVATION DIVISION Approved by Environmental Specialist: Signed By Bratcher	
Printed Name: Callie Karrigan		
Title: HES Environmental Professional	Approval Date: 7/9/18	Expiration Date: N/A
E-mail Address: cnkarrigan@marathonoil.com	Conditions of Approval: See attached	Attached ☐ DRP-4840
Date: 06/29/2018 Phone: 405-202-1028(cell) 575-297-0956 (office)		

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 6/29/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4840 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 2 office in ARTESIA on or before 7/29/2018. 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 Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
RA 01884		ED	1	1	3	21	18S	26E	556741	3621792*	269	127		
RA 11480 POD1		ED	2	1	3	21	18S	26E	556958	3621808	454	199	175	24
RA 03618		ED		3	2	20	18S	26E	556037	3622093*	509	1838		
RA 04309		ED			1	21	18S	26E	557041	3622297*	615	180		
RA 08976		ED	2	3	3	21	18S	26E	556943	3621389*	703	225	120	105
RA 06029		ED		3	3	21	18S	26E	556844	3621290*	738	183	140	43
RA 06102		ED				21	18S	26E	557447	3621893*	921	202	136	66
RA 04283		LE	1	4	3	20	18S	26E	555538	3621384*	1143	158	125	33
RA 02786		CH	1	2	1	28	18S	26E	557148	3620987*	1151	250	60	190
RA 09763		ED	4	1	4	21	18S	26E	557748	3621592*	1273	240	140	100
RA 06828		CH			4	21	18S	26E	557851	3621491*	1402	130	105	25
RA 04287		ED	1	2	4	21	18S	26E	557951	3621792*	1432	170	140	30
RA 05241		ED		3	4	16	18S	26E	557644	3622903*	1463	200	100	100
RA 03181		ED	4	2	3	17	18S	26E	555726	3623199*	1478	200		
RA 04004		ED	3	2	2	21	18S	26E	557948	3622399*	1487	140		
RA 07654		ED		2	4	21	18S	26E	558052	3621693*	1546	180	170	10
RA 03181 REPAR-3	O	ED	1	1	4	17	18S	26E	555929	3623401*	1563	309	100	209
RA 03181 SUP	O	ED	1	1	4	17	18S	26E	555929	3623401*	1563	290	60	230
RA 03181 COMB	O	ED		2	3	17	18S	26E	555627	3623300*	1617	229	55	174
RA 04160		ED	1	4	1	29	18S	26E	555542	3620580*	1693	160	100	60
RA 07408		ED	2	4	4	21	18S	26E	558152	3621389*	1720	155	85	70
RA 09466		ED	3	3	1	22	18S	26E	558353	3621996*	1825	160	70	90
RA 03771		ED	3	1	3	22	18S	26E	558354	3621592*	1862	110	75	35
RA 11506 POD1		ED	1	3	3	22	18S	26E	558290	3621345	1865	160	78	82
RA 03340		ED		3	1	22	18S	26E	558454	3622097*	1931	100	60	40
RA 03580		ED		3	1	22	18S	26E	558454	3622097*	1931	1700		

***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
RA 11952 POD1		ED	4	2	2	28	18S	26E	558153	3620727	2038	170	90	80
RA 04701		ED		3	3	22	18S	26E	558456	3621290*	2040	80	55	25
RA 01296 S3		ED	1	3	3	15	18S	26E	558351	3623003*	2101	230	70	160
RA 01296 S5		ED	1	3	3	15	18S	26E	558351	3623003*	2101	223	35	188
RA 01446 CLW		ED	1	3	3	15	18S	26E	558351	3623003*	2101	165	42	123
RA 02800		ED	1	3	3	15	18S	26E	558351	3623003*	2101	102	30	72
RA 03599		ED	2	1	1	22	18S	26E	558552	3622599*	2123	1765		
RA 09709		ED		2	2	17	18S	26E	556428	3624113*	2158	235	110	125
RA 09286		ED	2	4	4	29	18S	26E	556550	3619778*	2179	300		
RA 03181 CLW	O	ED			1	17	18S	26E	555422	3623902*	2237	250	92	158
RA 02013		ED	2	2	2	17	18S	26E	556527	3624212*	2254	136		
RA 12265 POD1		ED	2	2	2	17	18S	26E	556509	3624232	2275	330	185	145
RA 08812 REPAR		ED		4	4	29	18S	26E	556451	3619679*	2279	350	150	200
RA 01446		ED		1	3	15	18S	26E	558450	3623307*	2348	175		
RA 11179 POD2	RA	ED	4	4	2	16	18S	26E	558180	3623696	2399	71	60	11
RA 03055		ED	1	2	1	27	18S	26E	558757	3620986*	2431	146	85	61
RA 04046		ED			4	28	18S	26E	557859	3619879*	2467	125		
RA 11179 POD1	RA	ED	2	3	2	16	18S	26E	558172	3623807	2475	74	60	14
RA 01462 #3		ED		3	3	09	18S	26E	556830	3624520*	2580	230		
RA 06131		ED		3	3	09	18S	26E	556830	3624520*	2580	225	90	135
RA 01474 REPAR		ED	1	1	1	33	18S	26E	556754	3619377*	2589	200		
RA 01474 SUP		ED	1	1	1	33	18S	26E	556754	3619377*	2589	210		
RA 11682 POD2		ED	4	2	2	16	18S	26E	558236	3623959	2631	98		
RA 03181 SUP REPAR	O	ED	1	1	4	18	18S	26E	554320	3623397*	2635	315	115	200
RA 03598		ED	1	3	2	22	18S	26E	559154	3622198*	2637	1815		
RA 04479		ED	2	4	4	08	18S	26E	556525	3624616*	2658	215	120	95
RA 10386	R	ED	2	4	4	08	18S	26E	556525	3624616*	2658	210	70	140
RA 03421		ED	1	2	2	16	18S	26E	557942	3624213*	2662	665	130	535
RA 03049		ED	1	4	4	08	18S	26E	556325	3624616*	2666	129	60	69

***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
RA 03382		ED	1	3	3	09	18S	26E	556729	3624619*	2669	129		
RA 03181 CLW-3	O	ED		3	2	18	18S	26E	554417	3623702*	2738	334	134	200
RA 05425		ED		4	4	28	18S	26E	558060	3619677*	2746	160	90	70
RA 03181 CLW-2	O	ED		2	2	18	18S	26E	554816	3624106*	2747	258	115	143
RA 04101		ED	3	3	3	08	18S	26E	555114	3624407*	2828	210		
RA 04784		ED				30	18S	26E	554252	3620259*	2839	205	190	15
RA 03732		ED	4	2	4	08	18S	26E	556523	3624820*	2862	200	175	25
RA 05162		ED	3	1	3	09	18S	26E	556727	3624823*	2872	220	120	100
RA 01508		ED	3	2	3	18	18S	26E	553918	3623197*	2889	235		
RA 04136		ED		1	1	32	18S	26E	555246	3619273*	2974	152	90	62
RA 03326		ED		4	4	09	18S	26E	558041	3624518*	2974	75	40	35
RA 01469 2		ED	2	3	3	18	18S	26E	553733	3622993*	2980	300	150	150
RA 01469 REPAR		ED	2	3	3	18	18S	26E	553733	3622993*	2980	230	160	70
RA 01469 SUP		ED	2	3	3	18	18S	26E	553733	3622993*	2980	225	90	135
RA 01508 CLW		ED	2	3	3	18	18S	26E	553733	3622993*	2980	300		
RA 01462		ED		1	3	09	18S	26E	556828	3624924*	2982	163		

Average Depth to Water: **101 feet**

Minimum Depth: **30 feet**

Maximum Depth: **190 feet**

Record Count: 71

UTMNAD83 Radius Search (in meters):

Easting (X): 556527.94 **Northing (Y):** 3621957 **Radius:** 3000

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

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2009 NOV -3 A 8:21

1. GENERAL AND WELL LOCATION

POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
RA-11480	
WELL OWNER NAME(S)	**PHONE (OPTIONAL)**
George n.+Elizabeth J. Bergstrom	
WELL OWNER MAILING ADDRESS	**CITY** / **STATE** / **ZIP**
526 Coleman	Carlsbad / NM / 88220

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	43	57.40	N
	LONGITUDE	104	23	31.60	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS
Well is about 1/4 mile off of the Artesia Hywy north of the old Branding Iron Steakhouse.

2. OPTIONAL

(2.5 ACRE)	(10 ACRE)	(40 ACRE)	(160 ACRE)	SECTION	TOWNSHIP	RANGE
¼	¼	¼	¼	21	18 ☐ NORTH ☑ SOUTH	26 ☑ EAST ☐ WEST

SUBDIVISION NAME	LOT NUMBER	BLOCK NUMBER	UNIT/TRACT

HYDROGRAPHIC SURVEY	MAP NUMBER	TRACT NUMBER

3. DRILLING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1348	Clinton Taylor	Taylor Water Well Service

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
7/12/09	7/15/09	199	210	175

COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☑ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT): 140

DRILLING FLUID: ☐ AIR ☑ MUD ☐ ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
0	179	8 3/4	PVC	Spline	4 1/2	SDR 17	
179	199	8 3/4"	PVC	Spline	4 1/2	SCH 40	.032

4. WATER BEARING STRATA

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)
175	199	24	Conglomerate+Layers of Sand+Gravel	+100

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA	TOTAL ESTIMATED WELL YIELD (GPM)
Air lift while developing.	More than 100.

1/31/10

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION 185.26E.21.312		PAGE 1 OF 2

5. SEAL AND PUMP

TYPE OF PUMP: ☑ SUBMERSIBLE ☐ JET ☐ NO PUMP – WELL NOT EQUIPPED
☐ TURBINE ☐ CYLINDER ☐ OTHER – SPECIFY:

ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
	199	20	8 3/4	3/8" Pea Gravel	3 Yards	Dump
	20	Surface	8 3/4	20 percent Bentonite Slurry	2 Sacks	Tremie

6. GEOLOGIC LOG OF WELL

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
0	1	1	Soil	☐ YES ☑ NO
1	20	19	Caliche	☐ YES ☑ NO
20	37	17	Clay:pnk,sme fn gravel	☐ YES ☑ NO
37	40	3	Conglomerate:gry,tn,lt brn,calc	☐ YES ☑ NO
40	68	28	Clay:wht,slty,sndy in prt	☐ YES ☑ NO
68	84	16	Clay:off wht-sht,sme fn gravel	☐ YES ☑ NO
84	124	40	Clay:dull rd,pnk,sndy	☐ YES ☑ NO
124	130	6	Conglomerate:yel brn,lt brn,lmy	☐ YES ☑ NO
130	160	30	Clay:brn,slty-sndy	☐ YES ☑ NO
160	175	15	Clay:rd brn,vry sndy,small gravel	☐ YES ☑ NO
175	210	35	Layers of Conglomerate:brn,gry,tn,pnk,lmy with fn grn clr-rd sand	☑ YES ☐ NO
			and 1/8"-1/4" gravel	☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO

ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL

7. TEST & ADDITIONAL INFO

WELL TEST
METHOD: ☐ BAILER ☐ PUMP ☑ AIR LIFT ☐ OTHER – SPECIFY:
TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

ADDITIONAL STATEMENTS OR EXPLANATIONS:
Drilled to 210'. Started losing returns at 175'. Lost all returns at 190' and mixed more mud. Lost all returns again at 210'. Ran casing to 199' and gravel packed and grouted well. Developed with air.

8. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

SIGNATURE OF DRILLER — DATE: 11/2/09

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 2 OF 2

APPENDIX C
SAMPLING PROTOCOL & FIELD NOTES

Sampling Protocol

Representatives from SMA chose the Judgmental Sampling Method as described in EPA's Final Sampling Guidance for SW-846, 2002 to adequately quantify contaminant concentrations on the Wabash 20 Fed Com #1H Location. The utility of this particular method functions on the sufficient knowledge of the contaminant, which we possess. This design is also useful when identifying the composition of a release, which we have documented. In addition, this sampling design was chosen for this project because of the locations uniform soil type, the release being contained within a bermed area thus reducing the possibility of migration, and the several operational considerations (such as the liner within the battery and the construction of a new facility) that precluded the implementation of a different statistical design.

The soil samples were collected in laboratory supplied containers in accordance with this sampling protocol, immediately placed on ice and sent under standard chain-of-custody protocols to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico for analysis. A total of fourteen (14) samples were collected for laboratory analysis for total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D.

Sampling Analysis Field Quality Assurance Procedures

A unique sample numbering was used to identify each sample collected and designated for on-site and off-site laboratory analysis. The purpose of this numbering scheme was to provide a tracking system for the retrieval of analytical and field data on each sample. Sample identification numbers were recorded on sample labels or tags, field notes, chain-of-custody records (COC) and all other applicable documentation used during the project. Sample labels were affixed to all sample containers during sampling activities. Information was recorded on each sample container label at the time of sample collection. The information recorded on the labels were as follows: sample identification number; sample type (discrete or composite); site name and area/location number; analysis to be performed; type of chemical preservative present in container; date and time of sample collection; and sample collector's name and initials. All samples were packed in ice in an approved rigid body container, custody sealed signed and shipped to the appropriate laboratory via insured currier service.

COC procedures implemented for the project provided documentation of the handling of each sample from the time of collection until completion of laboratory analysis. A COC form serves as a legal record of possession of the sample. A sample is considered to be under custody if one or more of the following criteria are met: the sample is in the sampler's possession; the sample is in the sampler's view after being in possession; the sample was in the sampler's possession and then was placed into a locked area to prevent tampering; and/or the sample is in a designated secure area. Custody was documented throughout the project field sampling activities by a chain-of custody form initiated each day during which samples are collected. Container custody seals placed on either individual samples or on the rigid body container were used to ensure that no sample tampering occurs between the time the samples are placed into the containers and the time the containers are opened for analysis at the laboratory. Container custody seals were signed and dated by the individual responsible for completing the COC form contained within the container.

Field Screening

Location Name: Wabash 20 Fuel Cam IH

Date: 6-26-18 LCM

Sample Name:	Collection Time:	EC (mS)	Temp (°C)	PID Reading /PF	Soil Color	Primary Soil Type	Moisture Level	Other Remarks/Notes:
BG	10:00	0.01	32.1		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B1-0	10:05	0.19	32.4		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B1-2.5	10:15	0.14	32.3		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B1-5	10:25	0.17	32.3		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B1-7.5	10:35	0.13	32.4		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B1-10	10:45	0.15	32.5		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B1-12.5	10:55	0.14	32.1		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B1-15	11:05	0.17	32.1		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B1-17.5	11:15	0.37	32.4		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	

Field Screening

pg 2 of 2

Location Name: Wabash Creek

Date: 6-26-18

Sample Name:	Collection Time:	EC (mS)	Temp (°C)	PID Reading /PF	Soil Color	Primary Soil Type	Moisture Level	Other Remarks/Notes:
B1-20	11:25	0.19	32		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B2-0	11:35	0.25	36.3		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	odor
B2-2.5	11:45	0.13	34.2		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	11
B2-5	11:55	0.09	34.8		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B2-7.5	12:05	0.09	34.4		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
B2-10	12:15	0.08	34°		Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
					Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
					Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	
					Light Dark Tan Brown Gray Olive Yellow Red	Gravel Rock Sand Silt Clay	Dry Moist Wet	

APPENDIX D

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

July 06, 2018

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

RE: Wabash OrderNo.: 1806H93

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 14 sample(s) on 6/29/2018 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 #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: B1-0
Project: Wabash
Collection Date: 6/26/2018 10:05:00 AM
Lab ID: 1806H93-001 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	310	30		mg/Kg	20	7/3/2018 1:38:53 PM	39028
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	7600	490		mg/Kg	50	7/2/2018 6:25:32 PM	38983
Motor Oil Range Organics (MRO)	5700	2500		mg/Kg	50	7/2/2018 6:25:32 PM	38983
Surr: DNOP	0	70-130	S	%Rec	50	7/2/2018 6:25:32 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	49	4.8		mg/Kg	1	7/2/2018 11:52:35 PM	38982
Surr: BFB	397	15-316	S	%Rec	1	7/2/2018 11:52:35 PM	38982
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	7/2/2018 11:52:35 PM	38982
Toluene	0.17	0.048		mg/Kg	1	7/2/2018 11:52:35 PM	38982
Ethylbenzene	1.2	0.048		mg/Kg	1	7/2/2018 11:52:35 PM	38982
Xylenes, Total	3.1	0.096		mg/Kg	1	7/2/2018 11:52:35 PM	38982
Surr: 4-Bromofluorobenzene	157	80-120	S	%Rec	1	7/2/2018 11:52:35 PM	38982

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: B1-2.5
Project: Wabash
Collection Date: 6/26/2018 10:15:00 AM
Lab ID: 1806H93-002 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	35	9.9		mg/Kg	1	7/2/2018 6:50:33 PM	38983
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/2/2018 6:50:33 PM	38983
Surr: DNOP	109	70-130		%Rec	1	7/2/2018 6:50:33 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/3/2018 12:15:57 AM	38982
Surr: BFB	108	15-316		%Rec	1	7/3/2018 12:15:57 AM	38982

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: B1-5
Project: Wabash
Collection Date: 6/26/2018 10:25:00 AM
Lab ID: 1806H93-003 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	260	10		mg/Kg	1	7/5/2018 10:50:12 AM	38983
Motor Oil Range Organics (MRO)	100	50		mg/Kg	1	7/5/2018 10:50:12 AM	38983
Surr: DNOP	122	70-130		%Rec	1	7/5/2018 10:50:12 AM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	33	4.9		mg/Kg	1	7/3/2018 12:39:18 AM	38982
Surr: BFB	286	15-316		%Rec	1	7/3/2018 12:39:18 AM	38982

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: B1-7.5
Project: Wabash
Collection Date: 6/26/2018 10:35:00 AM
Lab ID: 1806H93-004 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	3200	100		mg/Kg	10	7/2/2018 7:40:14 PM	38983
Motor Oil Range Organics (MRO)	1000	500		mg/Kg	10	7/2/2018 7:40:14 PM	38983
Surr: DNOP	0	70-130	S	%Rec	10	7/2/2018 7:40:14 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	320	5.0		mg/Kg	1	7/3/2018 1:02:38 AM	38982
Surr: BFB	1560	15-316	S	%Rec	1	7/3/2018 1:02:38 AM	38982

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: B1-10
Project: Wabash
Collection Date: 6/26/2018 10:45:00 AM
Lab ID: 1806H93-005 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	2700	100		mg/Kg	10	7/2/2018 8:05:15 PM	38983
Motor Oil Range Organics (MRO)	960	500		mg/Kg	10	7/2/2018 8:05:15 PM	38983
Surr: DNOP	0	70-130	S	%Rec	10	7/2/2018 8:05:15 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	120	5.0		mg/Kg	1	7/3/2018 1:25:56 AM	38982
Surr: BFB	845	15-316	S	%Rec	1	7/3/2018 1:25:56 AM	38982

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: B1-12.5
Project: Wabash
Collection Date: 6/26/2018 10:55:00 AM
Lab ID: 1806H93-006 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	3300	100		mg/Kg	10	7/2/2018 8:30:13 PM	38983
Motor Oil Range Organics (MRO)	980	500		mg/Kg	10	7/2/2018 8:30:13 PM	38983
Surr: DNOP	0	70-130	S	%Rec	10	7/2/2018 8:30:13 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	740	92		mg/Kg	20	7/3/2018 5:09:02 PM	38982
Surr: BFB	292	15-316		%Rec	20	7/3/2018 5:09:02 PM	38982

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: B1-15
Project: Wabash
Collection Date: 6/26/2018 11:05:00 AM
Lab ID: 1806H93-007 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	2000	49		mg/Kg	5	7/5/2018 11:14:45 AM	38983
Motor Oil Range Organics (MRO)	580	250		mg/Kg	5	7/5/2018 11:14:45 AM	38983
Surr: DNOP	90.4	70-130		%Rec	5	7/5/2018 11:14:45 AM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	570	46		mg/Kg	10	7/3/2018 5:32:38 PM	38982
Surr: BFB	357	15-316	S	%Rec	10	7/3/2018 5:32:38 PM	38982

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: B1-17.5
Project: Wabash
Collection Date: 6/26/2018 11:15:00 AM
Lab ID: 1806H93-008 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	730	10		mg/Kg	1	7/5/2018 11:39:17 AM	38983
Motor Oil Range Organics (MRO)	270	50		mg/Kg	1	7/5/2018 11:39:17 AM	38983
Surr: DNOP	119	70-130		%Rec	1	7/5/2018 11:39:17 AM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	72	4.7		mg/Kg	1	7/3/2018 2:35:42 AM	38982
Surr: BFB	540	15-316	S	%Rec	1	7/3/2018 2:35:42 AM	38982

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: B1-20
Project: Wabash
Collection Date: 6/26/2018 11:25:00 AM
Lab ID: 1806H93-009 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	180	9.9		mg/Kg	1	7/2/2018 9:44:40 PM	38983
Motor Oil Range Organics (MRO)	51	50		mg/Kg	1	7/2/2018 9:44:40 PM	38983
Surr: DNOP	115	70-130		%Rec	1	7/2/2018 9:44:40 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	130	4.7		mg/Kg	1	7/3/2018 2:58:59 AM	38982
Surr: BFB	705	15-316	S	%Rec	1	7/3/2018 2:58:59 AM	38982

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: B2-0
Project: Wabash
Collection Date: 6/26/2018 11:35:00 AM
Lab ID: 1806H93-010 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	2000	99		mg/Kg	10	7/5/2018 12:03:52 PM	38983
Motor Oil Range Organics (MRO)	3000	490		mg/Kg	10	7/5/2018 12:03:52 PM	38983
Surr: DNOP	0	70-130	S	%Rec	10	7/5/2018 12:03:52 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	19	4.7		mg/Kg	1	7/3/2018 3:22:16 AM	38982
Surr: BFB	228	15-316		%Rec	1	7/3/2018 3:22:16 AM	38982

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: B2-2.5
Project: Wabash
Collection Date: 6/26/2018 11:45:00 AM
Lab ID: 1806H93-011 **Matrix:** SOIL
Received Date: 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	41	30		mg/Kg	20	7/3/2018 2:16:06 PM	39028
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	390	9.8		mg/Kg	1	7/5/2018 12:28:26 PM	38983
Motor Oil Range Organics (MRO)	170	49		mg/Kg	1	7/5/2018 12:28:26 PM	38983
Surr: DNOP	122	70-130		%Rec	1	7/5/2018 12:28:26 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	100	4.6		mg/Kg	1	7/3/2018 3:45:34 AM	38982
Surr: BFB	580	15-316	S	%Rec	1	7/3/2018 3:45:34 AM	38982

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: B2-5
Project: Wabash
Collection Date: 6/26/2018 11:55:00 AM
Lab ID: 1806H93-012 **Matrix:** SOIL **Received Date:** 6/29/2018 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	7/3/2018 2:28:31 PM	39028
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/2/2018 10:59:07 PM	38983
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/2/2018 10:59:07 PM	38983
Surr: DNOP	107	70-130		%Rec	1	7/2/2018 10:59:07 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	5.9	4.9		mg/Kg	1	7/3/2018 4:08:47 AM	38982
Surr: BFB	124	15-316		%Rec	1	7/3/2018 4:08:47 AM	38982
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	7/3/2018 4:08:47 AM	38982
Toluene	ND	0.049		mg/Kg	1	7/3/2018 4:08:47 AM	38982
Ethylbenzene	ND	0.049		mg/Kg	1	7/3/2018 4:08:47 AM	38982
Xylenes, Total	ND	0.098		mg/Kg	1	7/3/2018 4:08:47 AM	38982
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	7/3/2018 4:08:47 AM	38982

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: B2-7.5
Project: Wabash
Collection Date: 6/26/2018 12:05:00 PM
Lab ID: 1806H93-013 **Matrix:** SOIL **Received Date:** 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	11	10		mg/Kg	1	7/2/2018 11:23:55 PM	38983
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/2/2018 11:23:55 PM	38983
Surr: DNOP	107	70-130		%Rec	1	7/2/2018 11:23:55 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	5.6	5.0		mg/Kg	1	7/3/2018 4:32:06 AM	38982
Surr: BFB	114	15-316		%Rec	1	7/3/2018 4:32:06 AM	38982

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: B2-10
Project: Wabash
Collection Date: 6/26/2018 12:15:00 PM
Lab ID: 1806H93-014
Matrix: SOIL
Received Date: 6/29/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	34	9.9		mg/Kg	1	7/2/2018 11:48:41 PM	38983
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/2/2018 11:48:41 PM	38983
Surr: DNOP	108	70-130		%Rec	1	7/2/2018 11:48:41 PM	38983
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/3/2018 4:55:20 AM	38982
Surr: BFB	118	15-316		%Rec	1	7/3/2018 4:55:20 AM	38982

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#: **1806H93**

06-Jul-18

Client: Souder, Miller & Associates

Project: Wabash

Sample ID	**MB-39028**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**39028**	RunNo:	**52452**					
Prep Date:	**7/3/2018**	Analysis Date:	**7/3/2018**	SeqNo:	**1720782**	Units:	**mg/Kg**			

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

Sample ID	**LCS-39028**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**39028**	RunNo:	**52452**					
Prep Date:	**7/3/2018**	Analysis Date:	**7/3/2018**	SeqNo:	**1720783**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	98.9	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806H93**

06-Jul-18

Client: Souder, Miller & Associates

Project: Wabash

Sample ID	**LCS-38983**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**38983**		RunNo:	**52394**				
Prep Date:	**6/29/2018**	Analysis Date:	**7/2/2018**		SeqNo:	**1718754**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	106	70	130			
Surr: DNOP	5.0		5.000		100	70	130			

Sample ID	**MB-38983**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**38983**		RunNo:	**52471**				
Prep Date:	**6/29/2018**	Analysis Date:	**7/5/2018**		SeqNo:	**1720546**	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	12		10.00		117	70	130			

Sample ID	**MB-39016**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**39016**		RunNo:	**52471**				
Prep Date:	**7/2/2018**	Analysis Date:	**7/5/2018**		SeqNo:	**1720885**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		104	70	130			

Sample ID	**LCS-39016**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**39016**		RunNo:	**52471**				
Prep Date:	**7/2/2018**	Analysis Date:	**7/5/2018**		SeqNo:	**1720928**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		93.8	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#: **1806H93**

06-Jul-18

Client: Souder, Miller & Associates

Project: Wabash

Sample ID	**MB-38982**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**38982**	RunNo:	**52429**					
Prep Date:	**6/29/2018**	Analysis Date:	**7/2/2018**	SeqNo:	**1718684**	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	1000		1000		99.8	15	316			

Sample ID	**LCS-38982**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**38982**	RunNo:	**52429**					
Prep Date:	**6/29/2018**	Analysis Date:	**7/2/2018**	SeqNo:	**1718685**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	75.9	131			
Surr: BFB	1000		1000		104	15	316			

Sample ID	**MB-39008**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**39008**	RunNo:	**52464**					
Prep Date:	**7/2/2018**	Analysis Date:	**7/3/2018**	SeqNo:	**1720264**	Units:	**%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	900		1000		90.2	15	316			

Sample ID	**LCS-39008**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**39008**	RunNo:	**52464**					
Prep Date:	**7/2/2018**	Analysis Date:	**7/3/2018**	SeqNo:	**1720265**	Units:	**%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		103	15	316			

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#: **1806H93**

06-Jul-18

Client: Souder, Miller & Associates

Project: Wabash

Sample ID	**MB-38982**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**38982**	RunNo:	**52429**					
Prep Date:	**6/29/2018**	Analysis Date:	**7/2/2018**	SeqNo:	**1718718**	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	1.1		1.000		107	80	120			

Sample ID	**LCS-38982**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**38982**	RunNo:	**52429**					
Prep Date:	**6/29/2018**	Analysis Date:	**7/2/2018**	SeqNo:	**1718719**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.2	77.3	128			
Toluene	0.96	0.050	1.000	0	95.6	79.2	125			
Ethylbenzene	0.95	0.050	1.000	0	94.9	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	96.9	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID	**MB-39008**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**39008**	RunNo:	**52464**					
Prep Date:	**7/2/2018**	Analysis Date:	**7/3/2018**	SeqNo:	**1720312**	Units:	**%Rec**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID	**LCS-39008**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**39008**	RunNo:	**52464**					
Prep Date:	**7/2/2018**	Analysis Date:	**7/3/2018**	SeqNo:	**1720313**	Units:	**%Rec**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting 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: 1806H93 RcptNo: 1

Received By: **Erin Melendrez** 6/29/2018 8:45:00 AM

Completed By: **Erin Melendrez** 6/29/2018 11:25:47 AM

Reviewed By: JY 6.29.18

LB: Ledm

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? _____

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	1.3	Good	Not Present			

Chain-of-Custody Record

Client: SMA - Cuba Basin

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 5 day

Project Name:

Project #:
Wabash

Project Manager:
Austin Weyant

Sampler: ZCM

On Ice: ☒ Yes ☐ No

Sample Temperature: 7.3-1.0(CF)=1.3

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. 1806H93	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)
6/26/18	10:05	Soil	B1-0	4oz		-001	X		X					X								
	10:15		B1-2.5			-002			X													
	10:25		B1-5			-003			X													
	10:35		B1-7.5			-004			X													
	10:45		B1-10			-005			X													
	10:55		B1-12.5			-006			X													
	11:05		B1-15			-007			X													
	11:15		B1-17.5			-008			X													
	11:25		B1-20			-009			X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
				6/28/18	1300
6/28/18	1900		Courier 6/29/18 ENM	6/29/18	0845

Remarks: Nuvaman oil lot 2

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

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 5 day

Project Name:

Project #:
Wabash

Project Manager:
Austin Weyant

Sampler: CM

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.3-1.0(CF)=1.3

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. 1806175	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)
6/26/18	11:35	Soil	BZ-0	4oz		-013			X									
	11:45		BZ-2.5			-014			X					X				
	11:55		BZ-5			-015	X		X					X				
	12:05		BZ-7.5			-016			X									
	12:15		BZ-10			-017			X									

EDM 6/29/18

Remarks:
Mirman oil
2 of 2

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/28/18	1300			6/28/17	1300
6/28/18	1900		Courier	6/29/18	0845
			ENM	6/29/18	

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.