



September 29, 2017

#5B25501-BG7

NMOCD District II
Mike Bratcher
811 S. First St.
Artesia, NM 88210

SUBJECT: SOIL REMEDIATION WORK PLAN FOR THE INCIDENT AT THE FORD STATE #2, EDDY COUNTY, NEW MEXICO

Dear Mr. Bratcher:

On behalf of Judah Oil 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 Ford State #2. The site is in UNIT F, SECTION 2, TOWNSHIP 22S, RANGE 28E, NMPM, Eddy 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 | Ford State #2 |
| Company | Judah Oil LLC |
| Incident Number | 2RP-4390 |
| API Number | 30-015-22714 |
| Location | 32.42498, -104.06184 |
| Estimated Date of Release | 8/7/2017 |
| Date Reported to NMOCD | 8/7/2017 |
| Land Owner | State |
| Reported To | NMOCD District II |
| Source of Release | Flowline |
| Released Material | Produced Water |
| Released Volume | 5 bbl |
| Recovered Volume | 3 bbl |
| Net Release | 2 bbl |
| Nearest Waterway | 5 Miles West of Location |
| Depth to Groundwater | Estimated to be 55' |
| Nearest Domestic Water Source | Greater than 1,000 feet |
| NMOCD Ranking | 10 |
| SMA Response Dates | Initial: 8/7/2017 |

1.0 Background

A small flowline leak occurred along the surface located approximately 350' east of the Ford State #2. The release occurred in between the ROWs of a DCP high pressure line and an XTO fiberglass water line, with some also in the lease road that leads to the Ford State #1 well pad. The surface impact is approximately 50 feet long by 5 feet wide.

2.0 Site Ranking and Land Jurisdiction

The release site is located approximately 9 miles east of Carlsbad, with an elevation of approximately 3,162 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. 8 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 55 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 | 10 |
| >100' = 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 | 10 |

3.0 Release Characterization

On August 14, 2017 after receiving 811 clearance, SMA field personnel assessed the release area. Soil samples were field-screened using an EC meter. Several sample locations were augured by hand to a maximum depth of 1.5 feet bgs, at which point hard pan caliche was encountered. 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 analysis for MRO, DRO, and GRO by EPA Method 8015D, BTEX by EPA Method 8021, and Chlorides by Method 300. 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.

All samples returned elevated chloride results, but were negative for hydrocarbons. Due to the hardpan caliche found in this area, it is believed that the contamination is predominately on the surface. Soil contaminant concentrations are illustrated in Figure 2.

4.0 Proposed Soil Remediation Work Plan

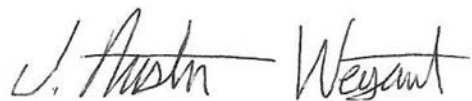
Due to the fact that a majority of this spill is in between a high-pressure gas line and a fiberglass water line, SMA is requesting a variance for the Conditions of Approval for this remediation permit. Getting large equipment of any kind to achieve a 10-foot delineation is not practicable in this location. Instead we propose, after approval from area utilities via 811, to hydrovac the impacted area approximately 2 to 3 feet bgs, till we achieve clean soils or meet refusal. SMA will continuously guide the excavation activities by collecting soil samples for field screening with a mobile EC unit (EPA 4500). All contaminated soils will 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 an NMOCD permitted disposal facility. Closure samples will be collected at the final depth of excavation and from the sidewalls. Upon confirmation of remediation, SMA will submit a closure report to NMOCD.

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

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

Appendix B: NMOSE Wells Report

Appendix C: Laboratory Analytical Reports

FIGURE 1
VICINITY AND NMOSE
DATA MAP

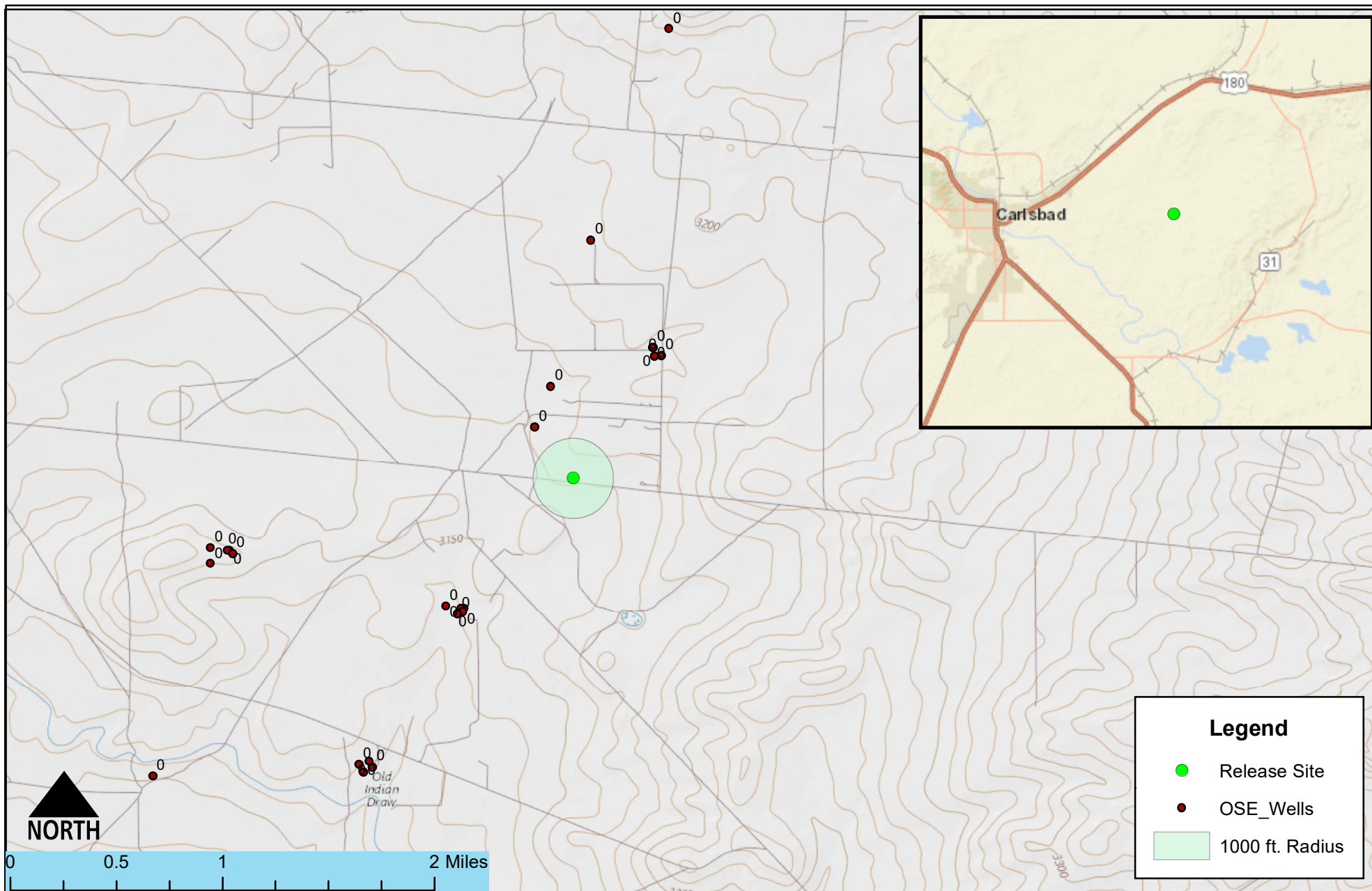


Figure 1

Date Saved:
8/18/2017

Revisions
 By: _____ Date: _____ Descr: _____
 By: _____ Date: _____ Descr: _____
 Copyright 2015 Souder, Miller & Associates - All Rights Reserved

Drawn **Heather Patterson**
 Checked _____
 Approved _____



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

FIGURE 2
SITE AND SAMPLE
LOCATION MAP



Site and Sample Location Map
 Ford State #2 - Judah Oil
 F 2-T22S-R28E, New Mexico

Figure 2


| | | | | | | | |
|--------------------------|--|-------------|-----------|--------------|------------------------------|--|--|
| Date Saved: 8/18/2017 | By: _____ | Date: _____ | Revisions | Descr: _____ | Drawn Checked Approved | Heather Patterson _____ _____ |  201 South Halaguena Street Carlsbad, New Mexico 88221 (575) 689-7040 www.soudermiller.com Serving the Southwest & Rocky Mountains |
| | By: _____ | Date: _____ | | Descr: _____ | | | |
| | Copyright 2015 Souder, Miller & Associates - All Rights Reserved | | | | | | |

TABLE 3
SUMMARY SAMPLE RESULTS

Ford State #2

Table 3.

| Sample Number on Figure 2 | Sample Date | Depth (feet bgs) | Proposed Action | BTEX ppm | Benzene mg/Kg | GRO mg/Kg | DRO mg/Kg | MRO mg/Kg | Total TPH mg/Kg | Cl- Field Screens (ppm) | Cl- Laboratory mg/Kg |
|----------------------------------|-------------|------------------|-----------------|----------|---------------|-----------|-----------|-----------|-----------------|-------------------------|----------------------|
| NMOCD RRAL's for Site Ranking 10 | | | | 50 mg/Kg | 10 mg/Kg | | | | 1000 mg/Kg | | |
| L1 | 8/14/2017 | 0.5 | in-situ | -- | -- | -- | -- | -- | -- | 3030 | 5100 |
| L2 | 8/14/2017 | 0.5 | in-situ | <0.097 | <0.024 | <4.8 | <9.7 | <48 | <63 | 6261 | 9500 |
| | 8/14/2017 | 1 | in-situ | -- | -- | -- | -- | -- | -- | 6592 | -- |
| | 8/14/2017 | 1.5 | in-situ | -- | -- | -- | -- | -- | -- | 6911 | 10000 |
| L3 | 8/14/2017 | 1 | in-situ | -- | -- | -- | -- | -- | -- | 7094 | 8500 |

"--" = Not Analyzed

APPENDIX A
FORM C141 INITIAL

NM OIL CONSERVATION

ARTESIA DISTRICT

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

AUG 17 2017

Form C-141
Revised April 3, 2017

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

RECEIVED

Release Notification and Corrective Action

NAB1726253867

OPERATOR

☒ Initial Report ☐ Final Report

| | | | | |
|-----------------|-------------------------------|--------|---------------|-------------------|
| Name of Company | Judah Oil | 245872 | Contact | Blaise Campanella |
| Address | PO BOX 568, Artesia NM, 88221 | | Telephone No. | 575-748-5488 |
| Facility Name | Ford State #2 | | Facility Type | oil |

| | | | | |
|---------------|-------|---------------|---------|--------------|
| Surface Owner | State | Mineral Owner | API No. | 30-015-22714 |
|---------------|-------|---------------|---------|--------------|

LOCATION OF RELEASE

| | | | | | | | | |
|-------------|---------|----------|-------|---------------|------------------|---------------|----------------|--------|
| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
| F | 02 | 22s | 28e | 1650 | FNL | 1650 | FWL | Eddy |

Latitude 32.42498 Longitude -104.06184 NAD83

NATURE OF RELEASE

| | | | | | |
|-----------------------------|---|---|---------------------------------------|------------------|------|
| Type of Release | Produced Water | Volume of Release | 6bbl | Volume Recovered | 3bbl |
| Source of Release | flowline | Date and Hour of Occurrence | Date and Hour of Discovery 08/07/2017 | | |
| Was Immediate Notice Given? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required | If YES, To Whom? | Crystal Weaver | | |
| By Whom? | Blaise Campanella | Date and Hour | 08/07/2017 1pm | | |
| Was a Watercourse Reached? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | If YES, Volume Impacting the Watercourse. | | | |

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Flowline ruptured because of a bad swedge. The line was repaired and a vac truck was called to collect free liquids. 811 called in.

Describe Area Affected and Cleanup Action Taken.*

Area affected is approximately 5' x 60' and follows along the ROWs of two pipelines. Further remediation efforts will be per an NMOCD approved work plan.

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.

OIL CONSERVATION DIVISION

| | |
|-----------------|--------------------|
| Signature: | |
| Printed Name: | Blaise Campanella |
| Title: | Member/Manager |
| E-mail Address: | judahoil@yahoo.com |
| Date: | 8/10/2017 |
| Phone: | 575-748-5488 |

Approved by Environmental Specialist

Approval Date: 9/19/17

Expiration Date: N/A

Conditions of Approval:

see attached

Attached:

APP-4390

* Attach Additional Sheets If Necessary

9/18/17 AB

Operator/Responsible Party,

The OCD has received the form C-141 you provided on **8/17/17** regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4390 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 II office in Artesia on or before 9/30/17. 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; C₆ thru C₃₆), 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; C₆ thru C₃₆), 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-Code | basin | County | Q 64 | Q 16 | Q 4 | Sec | Tws | Rng | X | Y | Distance | Depth Well | Depth Water | Water Column |
|-------------------------------|--------------|-------|--------|------|------|-----|-----|-----|-----|--------|---------|----------|------------|-------------|--------------|
| CP 01171 POD1 | | | ED | 1 | 4 | 35 | 21S | 28E | | 588814 | 3588862 | 1074 | 70 | | |
| CP 01171 POD3 | | | ED | 1 | 4 | 35 | 21S | 28E | | 588814 | 3588862 | 1074 | 115 | | |
| CP 01171 POD2 | | | ED | 1 | 4 | 35 | 21S | 28E | | 588866 | 3588862 | 1102 | 110 | | |
| C 03533 POD1 | C | | ED | 3 | 4 | 4 | 03 | 22S | 28E | 587377 | 3586934 | 1342 | 55 | | |
| C 03533 POD2 | C | | ED | 3 | 4 | 4 | 03 | 22S | 28E | 587358 | 3586935 | 1355 | 55 | | |
| C 03533 POD3 | C | | ED | 3 | 4 | 4 | 03 | 22S | 28E | 587370 | 3586911 | 1364 | 55 | | |
| C 03533 POD4 | C | | ED | 4 | 3 | 4 | 03 | 22S | 28E | 587331 | 3586892 | 1404 | 55 | | |
| C 03534 POD1 | C | | ED | 4 | 3 | 4 | 03 | 22S | 28E | 587240 | 3586950 | 1427 | 150 | | |

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 8

UTMNAD83 Radius Search (in meters):

Easting (X): 588277.25

Northing (Y): 3587930.79

Radius: 5000

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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 08, 2017

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

RE: Ford State 2

OrderNo.: 1708957

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 4 sample(s) on 8/16/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1708957**

Date Reported: **9/8/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: L1-0.5

Project: Ford State 2

Collection Date: 8/14/2017 12:00:00 PM

Lab ID: 1708957-001

Matrix: SOIL

Received Date: 8/16/2017 9:10:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---------------------------------|--------|-----|------|-------|-----|----------------------|---------------------|
| EPA METHOD 300.0: ANIONS | | | | | | | Analyst: MRA |
| Chloride | 5100 | 150 | | mg/Kg | 100 | 8/24/2017 5:47:22 PM | 33527 |

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1708957**Date Reported: **9/8/2017****CLIENT:** Souder, Miller & Associates**Client Sample ID:** L2-0.5**Project:** Ford State 2**Collection Date:** 8/14/2017 12:15:00 PM**Lab ID:** 1708957-002**Matrix:** SOIL**Received Date:** 8/16/2017 9:10:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|--|--------|----------|------|-------|-----|-----------------------|---------------------|
| EPA METHOD 300.0: ANIONS | | | | | | | Analyst: MRA |
| Chloride | 9500 | 300 | | mg/Kg | 200 | 8/24/2017 5:59:47 PM | 33527 |
| EPA METHOD 8015M/D: DIESEL RANGE ORGANICS | | | | | | | Analyst: TOM |
| Diesel Range Organics (DRO) | ND | 9.7 | | mg/Kg | 1 | 8/22/2017 10:51:04 AM | 33448 |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 8/22/2017 10:51:04 AM | 33448 |
| Surr: DNOP | 100 | 70-130 | | %Rec | 1 | 8/22/2017 10:51:04 AM | 33448 |
| EPA METHOD 8015D: GASOLINE RANGE | | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/18/2017 2:25:19 PM | 33432 |
| Surr: BFB | 88.1 | 54-150 | | %Rec | 1 | 8/18/2017 2:25:19 PM | 33432 |
| EPA METHOD 8021B: VOLATILES | | | | | | | Analyst: NSB |
| Methyl tert-butyl ether (MTBE) | ND | 0.097 | | mg/Kg | 1 | 8/18/2017 2:25:19 PM | 33432 |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/18/2017 2:25:19 PM | 33432 |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/18/2017 2:25:19 PM | 33432 |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/18/2017 2:25:19 PM | 33432 |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/18/2017 2:25:19 PM | 33432 |
| Surr: 4-Bromofluorobenzene | 102 | 66.6-132 | | %Rec | 1 | 8/18/2017 2:25:19 PM | 33432 |

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1708957**

Date Reported: **9/8/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: L2-1.5

Project: Ford State 2

Collection Date: 8/14/2017 12:48:00 PM

Lab ID: 1708957-003

Matrix: SOIL

Received Date: 8/16/2017 9:10:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---------------------------------|--------|-----|------|-------|-----|----------------------|---------------------|
| EPA METHOD 300.0: ANIONS | | | | | | | Analyst: MRA |
| Chloride | 10000 | 750 | | mg/Kg | 500 | 8/28/2017 7:03:54 PM | 33527 |

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1708957**

Date Reported: **9/8/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: L3-1

Project: Ford State 2

Collection Date: 8/14/2017 1:05:00 PM

Lab ID: 1708957-004

Matrix: SOIL

Received Date: 8/16/2017 9:10:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---------------------------------|--------|-----|------|-------|-----|----------------------|---------------------|
| EPA METHOD 300.0: ANIONS | | | | | | | Analyst: MRA |
| Chloride | 8500 | 750 | | mg/Kg | 500 | 8/24/2017 6:12:12 PM | 33527 |

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1708957

08-Sep-17

Client: Souder, Miller & Associates

Project: Ford State 2

| | | | | | | | | | | |
|------------|-----------|-----|--------------------------|-------------|------------------------------------|----------|--------------|------|----------|------|
| Sample ID | MB-33527 | | SampType: mblk | | TestCode: EPA Method 300.0: Anions | | | | | |
| Client ID: | PBS | | Batch ID: 33527 | | RunNo: 45191 | | | | | |
| Prep Date: | 8/23/2017 | | Analysis Date: 8/23/2017 | | SeqNo: 1431122 | | Units: mg/Kg | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | ND | 1.5 | | | | | | | | |

| | | | | | | | | | | |
|------------|-----------|-----|--------------------------|-------------|------------------------------------|----------|--------------|------|----------|------|
| Sample ID | LCS-33527 | | SampType: Ics | | TestCode: EPA Method 300.0: Anions | | | | | |
| Client ID: | LCSS | | Batch ID: 33527 | | RunNo: 45191 | | | | | |
| Prep Date: | 8/23/2017 | | Analysis Date: 8/23/2017 | | SeqNo: 1431123 | | Units: mg/Kg | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | 14 | 1.5 | 15.00 | 0 | 95.7 | 90 | 110 | | | |

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1708957

08-Sep-17

Client: Souder, Miller & Associates

Project: Ford State 2

| | | | | | | | | | | |
|-----------------------------|-----------|-----|--------------------------|-------------|---|----------|--------------|------|----------|------|
| Sample ID | LCS-33448 | | SampType: LCS | | TestCode: EPA Method 8015M/D: Diesel Range Organics | | | | | |
| Client ID: | LCSS | | Batch ID: 33448 | | RunNo: 45117 | | | | | |
| Prep Date: | 8/18/2017 | | Analysis Date: 8/21/2017 | | SeqNo: 1428776 | | Units: mg/Kg | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 50 | 10 | 50.00 | 0 | 101 | 73.2 | 114 | | | |
| Surr: DNOP | 3.9 | | 5.000 | | 77.7 | 70 | 130 | | | |

| | | | | | | | | | | |
|--------------------------------|-----------|--------------------------|-----------|-------------|---|----------|--------------|------|----------|------|
| Sample ID | MB-33448 | SampType: MBLK | | | TestCode: EPA Method 8015M/D: Diesel Range Organics | | | | | |
| Client ID: | PBS | Batch ID: 33448 | | | RunNo: 45117 | | | | | |
| Prep Date: | 8/18/2017 | Analysis Date: 8/21/2017 | | | SeqNo: 1428777 | | Units: mg/Kg | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 8.4 | | 10.00 | | 84.0 | 70 | 130 | | | |

| | | | | | | | | | | |
|-----------------------------|----------------|-----|--------------------------|-------------|---|----------|--------------|------|----------|------|
| Sample ID | 1708957-002AMS | | SampType: MS | | TestCode: EPA Method 8015M/D: Diesel Range Organics | | | | | |
| Client ID: | L2-0.5 | | Batch ID: 33448 | | RunNo: 45117 | | | | | |
| Prep Date: | 8/18/2017 | | Analysis Date: 8/22/2017 | | SeqNo: 1428905 | | Units: mg/Kg | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 51 | 9.5 | 47.66 | 4.544 | 97.5 | 55.8 | 122 | | | |
| Surr: DNOP | 4.6 | | 4.766 | | 95.8 | 70 | 130 | | | |

| | | | | | | | | | | |
|-----------------------------|-----------------|-----|--------------------------|-------------|---|----------|--------------|------|----------|------|
| Sample ID | 1708957-002AMSD | | SampType: MSD | | TestCode: EPA Method 8015M/D: Diesel Range Organics | | | | | |
| Client ID: | L2-0.5 | | Batch ID: 33448 | | RunNo: 45117 | | | | | |
| Prep Date: | 8/18/2017 | | Analysis Date: 8/22/2017 | | SeqNo: 1428906 | | Units: mg/Kg | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 54 | 9.8 | 49.07 | 4.544 | 102 | 55.8 | 122 | 6.45 | 20 | |
| Surr: DNOP | 4.8 | | 4.907 | | 97.3 | 70 | 130 | 0 | 0 | |

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1708957

08-Sep-17

Client: Souder, Miller & Associates

Project: Ford State 2

| | | | | | | | | | | |
|-------------------------------|-----------|-----|--------------------------|-------------|--|----------|--------------|------|----------|------|
| Sample ID | MB-33432 | | SampType: MBLK | | TestCode: EPA Method 8015D: Gasoline Range | | | | | |
| Client ID: | PBS | | Batch ID: 33432 | | RunNo: 45053 | | | | | |
| Prep Date: | 8/17/2017 | | Analysis Date: 8/18/2017 | | SeqNo: 1427097 | | 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 | 900 | | 1000 | | 89.8 | 54 | 150 | | | |

| | | | | | | | | | | |
|-------------------------------|-----------|-----|--------------------------|-------------|--|----------|--------------|------|----------|------|
| Sample ID | LCS-33432 | | SampType: LCS | | TestCode: EPA Method 8015D: Gasoline Range | | | | | |
| Client ID: | LCSS | | Batch ID: 33432 | | RunNo: 45053 | | | | | |
| Prep Date: | 8/17/2017 | | Analysis Date: 8/18/2017 | | SeqNo: 1427098 | | 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 | 96.9 | 76.4 | 125 | | | |
| Surr: BFB | 980 | | 1000 | | 97.8 | 54 | 150 | | | |

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1708957

08-Sep-17

Client: Souder, Miller & Associates

Project: Ford State 2

| Sample ID MB-33432 | SampType: MBLK | | TestCode: EPA Method 8021B: Volatiles | | | | | | | |
|--------------------------------|---------------------------------|-------|--|-------------|---------------------|----------|-----------|------|----------|------|
| Client ID: PBS | Batch ID: 33432 | | RunNo: 45053 | | | | | | | |
| Prep Date: 8/17/2017 | Analysis Date: 8/18/2017 | | SeqNo: 1427128 | | Units: mg/Kg | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Methyl tert-butyl ether (MTBE) | ND | 0.10 | | | | | | | | |
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 103 | 66.6 | 132 | | | |

| Sample ID LCS-33432 | SampType: LCS | | TestCode: EPA Method 8021B: Volatiles | | | | | | | |
|--------------------------------|---------------------------------|-------|--|-------------|---------------------|----------|-----------|------|----------|------|
| Client ID: LCSS | Batch ID: 33432 | | RunNo: 45053 | | | | | | | |
| Prep Date: 8/17/2017 | Analysis Date: 8/18/2017 | | SeqNo: 1427129 | | Units: mg/Kg | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Methyl tert-butyl ether (MTBE) | 0.85 | 0.10 | 1.000 | 0 | 84.6 | 66.5 | 120 | | | |
| Benzene | 0.95 | 0.025 | 1.000 | 0 | 95.3 | 80 | 120 | | | |
| Toluene | 0.93 | 0.050 | 1.000 | 0 | 92.8 | 80 | 120 | | | |
| Ethylbenzene | 0.94 | 0.050 | 1.000 | 0 | 93.6 | 80 | 120 | | | |
| Xylenes, Total | 2.8 | 0.10 | 3.000 | 0 | 94.7 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 104 | 66.6 | 132 | | | |

| Sample ID 1708957-002AMS | SampType: MS | | TestCode: EPA Method 8021B: Volatiles | | | | | | | |
|---------------------------------|---------------------------------|-------|--|-------------|---------------------|----------|-----------|------|----------|------|
| Client ID: L2-0.5 | Batch ID: 33432 | | RunNo: 45053 | | | | | | | |
| Prep Date: 8/17/2017 | Analysis Date: 8/18/2017 | | SeqNo: 1427279 | | Units: mg/Kg | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Methyl tert-butyl ether (MTBE) | 0.84 | 0.092 | 0.9208 | 0 | 91.2 | 72.5 | 138 | | | |
| Benzene | 0.89 | 0.023 | 0.9208 | 0 | 97.0 | 80.9 | 132 | | | |
| Toluene | 0.89 | 0.046 | 0.9208 | 0 | 96.8 | 79.8 | 136 | | | |
| Ethylbenzene | 0.92 | 0.046 | 0.9208 | 0 | 99.5 | 79.4 | 140 | | | |
| Xylenes, Total | 2.8 | 0.092 | 2.762 | 0.02034 | 99.4 | 78.5 | 142 | | | |
| Surr: 4-Bromofluorobenzene | 0.95 | | 0.9208 | | 103 | 66.6 | 132 | | | |

| Sample ID 1708957-002AMSD | SampType: MSD | | TestCode: EPA Method 8021B: Volatiles | | | | | | | |
|----------------------------------|---------------------------------|-------|--|-------------|---------------------|----------|-----------|------|----------|------|
| Client ID: L2-0.5 | Batch ID: 33432 | | RunNo: 45053 | | | | | | | |
| Prep Date: 8/17/2017 | Analysis Date: 8/18/2017 | | SeqNo: 1427280 | | Units: mg/Kg | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Methyl tert-butyl ether (MTBE) | 0.88 | 0.093 | 0.9328 | 0 | 94.7 | 72.5 | 138 | 5.05 | 20 | |
| Benzene | 0.99 | 0.023 | 0.9328 | 0 | 106 | 80.9 | 132 | 10.3 | 20 | |
| Toluene | 0.99 | 0.047 | 0.9328 | 0 | 106 | 79.8 | 136 | 10.4 | 20 | |
| Ethylbenzene | 0.99 | 0.047 | 0.9328 | 0 | 106 | 79.4 | 140 | 7.52 | 20 | |

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1708957

08-Sep-17

Client: Souder, Miller & Associates

Project: Ford State 2

| | | | | | | | | | | |
|----------------------------|--------|--------------------------|-----------|-------------|---------------------------------------|----------|--------------|------|----------|------|
| Sample ID 1708957-002AMSD | | SampType: MSD | | | TestCode: EPA Method 8021B: Volatiles | | | | | |
| Client ID: L2-0.5 | | Batch ID: 33432 | | | RunNo: 45053 | | | | | |
| Prep Date: 8/17/2017 | | Analysis Date: 8/18/2017 | | | SeqNo: 1427280 | | Units: mg/Kg | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Xylenes, Total | 3.0 | 0.093 | 2.799 | 0.02034 | 107 | 78.5 | 142 | 8.91 | 20 | |
| Surr: 4-Bromofluorobenzene | 0.98 | | 0.9328 | | 106 | 66.6 | 132 | 0 | 0 | |

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: SMA-CARLSBAD

Work Order Number: 1708957

RcptNo: 1

Received By: Erin Melendrez

8/16/2017 9:10:00 AM



Completed By: Ashley Gallegos

8/16/2017 10:50:50 AM



Reviewed By:

ENM

8/17/17

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: | <input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person |
| Regarding: | | | |
| Client Instructions: | | | |

17. Additional remarks:

18. Cooler Information

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|-----------|---------|-----------|-------------|---------|-----------|-----------|
| 1 | 2.6 | Good | Yes | | | |

