AE Order Number Banner

Report Description

This report shows an AE Order Number in Barcode format for purposes of scanning. The Barcode format is Code 39.

App Number: pVF1726437775

3RP - 1054

WILLIAMS FOUR CORNERS, LLC

2/9/2018

96

3R-1054

Williams
Lowery Tank Battery

C-141
Remediation Plan

January 2018

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

OIL CONS. DIV DIST. 3
JAN 26 2018

Form C-141
Revised August 8, 2011
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report (Subsequent) ☐ Final Report

Name of Company **Williams Four Corners LLC**	Contact **Aaron Galer**
Address **1755 Arroyo Drive, Bloomfield, NM 87413**	Telephone No. **801-584-6746**
Facility Name **Lowery Tank Battery**	Facility Type **Storage Tank**

Surface Owner **State of New Mexico Lands**	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	**16**	**26N**	**6W**					**Rio Arriba**

Latitude 36.484182 Longitude -107.465462

NATURE OF RELEASE

Type of Release **Produced Water**	Volume of Release **Unknown**	Volume Recovered **Unknown**
Source of Release **Below-grade tank**	Date and Hour of Occurrence **03/26/2013; 9:00 AM**	Date and Hour of Discovery **03/26/2013; 9:00 AM**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ **Not Required**	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ **No**	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* During removal/replacement of a below-grade tank from the location, hydrocarbon impacted soils were encountered. An investigation of the area beneath the below-grade tank was performed to determine the extent of hydrocarbon impacts. No remedial action has taken place at the location. The replacement below-grade tank has not been installed at this time.

9/12/2017 Update: Please see the attached Remediation Plan and Conditions of Approval, as requested.
1/23/2018 Update: Please see the attached Remedial Assessment Work Plan.

Describe Area Affected and Cleanup Action Taken.* The investigation findings are documented in the attached Investigation Report. Additional actions are proposed as documented in the attached Supplemental Site Investigation & Corrective Action Work Plan. It should be noted that groundwater was not encountered during the investigation.

9/12/2017 Update: Please see the attached Remediation Plan and Conditions of Approval, as requested.
1/23/2018 Update: Please see the attached Remedial Assessment 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.

Signature:	OIL CONSERVATION DIVISION
Printed Name: **Kijun Hong**	Approved by Environmental Specialist:
Title: **Environmental Specialist**	Approval Date: 2/9/2018 Expiration Date:
E-mail Address: **Kijun.Hong@williams.com**	Conditions of Approval: – 7 Attached ☒
Date: **1/23/2018** Phone: **505-632-4475**	

* Attach Additional Sheets If Necessary

NJK1331055855

Fields, Vanessa, EMNRD

From: Fields, Vanessa, EMNRD
Sent: Friday, February 9, 2018 1:40 PM
To: 'Galer, Aaron'; Webre, Matt; 'Hong, Kijun'; Bohannon, Jodi
Cc: Martin, Ed; Foley, Brandon M.; Perrin, Charlie, EMNRD; Powell, Brandon, EMNRD; Smith, Cory, EMNRD
Subject: RE: Lowery Tank Battery Status

Aaron,

OCD has approved Williams proposed delineation plan for the Lowery Tank Battery received hardcopy on January 26, 2018 with the following conditions of approval. These conditions of approval will be attached to the hard copy.

Conditions of Approval:

- Following the NMOCD Guidelines for Remediation's of Leaks, Spills and Releases the remediation's levels for soils at the Lowery Tank Battery are as follows 10 mg/kg Benzene, 50 mg/kg BTEX and 100 mg/kg TPH

    - Williams will fully delineate the release both horizontally and vertically. Boreholes that exceeded 100ppm OVM or exhibit heavy staining and/or apparent hydrocarbon impacts will be considered impacted until sampled.

    - Delineation must be completed by April 9, 2018.

    - Horizontal delineation of soil impacts 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). Soil sampling must be both within the impacted area and beyond.

    - Vertical delineation of soil impacts 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), 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 the sites closure standards must be demonstrated as existing above the water table.

    - Composite sampling will not be allowed for delineation.

    - 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

Aaron Galer | Williams | Environmental Specialist IV | **Environmental Programs**
Office: 801-584-6746 | Cell: 801-244-1219 | 295 Chipeta Way, SLC, UT 84108

From: Fields, Vanessa, EMNRD [mailto:Vanessa.Fields@state.nm.us]
Sent: Tuesday, January 16, 2018 1:55 PM
To: Galer, Aaron <Aaron.Galer@Williams.com>; Webre, Matt <Matt.Webre@Williams.com>
Cc: Powell, Brandon, EMNRD <Brandon.Powell@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Foley, Brandon M. <bfoley@slo.state.nm.us>
Subject: RE: Lowery Tank Battery Status

Aaron,

Thank you for the report. After a quick review of LTE's report it was noted that all three water samples were destroyed during shipment to Hall Laboratory. I was unware that this occurred. Why was the OCD not notified that this occurred and why was new water samples not collected.

Please let me know.

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Fields, Vanessa, EMNRD
Sent: Tuesday, January 16, 2018 12:56 PM
To: 'Galer, Aaron' <Aaron.Galer@Williams.com>; 'Webre, Matt' <Matt.Webre@Williams.com>
Cc: Powell, Brandon, EMNRD <Brandon.Powell@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; 'Foley, Brandon M.' <bfoley@slo.state.nm.us>
Subject: RE: Lowery Tank Battery Status

Good afternoon Aaron,

As per the conditions of approval for the Lowery Tank Battery Williams would submit the finding of the delineation, along with the report including corrective actions to the OCD by January 14, 2018. As of today, I have not received this report.

Could you please let me know when the report will be submitted to the OCD.

Thank you,

Vanessa Fields

Thank you,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Fields, Vanessa, EMNRD
Sent: Thursday, November 9, 2017 2:36 PM
To: 'Galer, Aaron' <Aaron.Galer@Williams.com>; Webre, Matt <Matt.Webre@Williams.com>
Cc: Martin, Ed <emartin@slo.state.nm.us>; Foley, Brandon M. <bfoley@slo.state.nm.us>; Perrin, Charlie, EMNRD <charlie.perrin@state.nm.us>; Perrin, Charlie, EMNRD <charlie.perrin@state.nm.us>; Powell, Brandon, EMNRD <Brandon.Powell@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: RE: Lowery Tank Battery Status

Good afternoon Aaron,

The OCD has set up a conference call with the State Land office on Tuesday November 14, 2017 at 1:00 pm. and request Williams be in attendance so we can all get on the same page with the necessary access agreements required for delineation on the Lowery Tank Battery .

Williams is welcome to join the OCD at the District III office for the conference call, and/or may call in from a remote area.

A conference line and code will be provided on Monday November 13, 2017 .

Thank you,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Galer, Aaron [mailto:Aaron.Galer@Williams.com]
Sent: Monday, November 6, 2017 10:19 AM
To: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Cc: Foley, Brandon M. <bfoley@slo.state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: RE: Lowery Tank Battery Status

Aaron,

OCD has approved Williams proposed delineation plan for the lowery Tank Battery received via email 8/29/17 with the following conditions of approval. These conditions of approval will be attached to the hard copy when received.

Conditions of Approval:

- Following the NMOCD Guidelines for Remediation's of Leaks, Spills and Releases the remediation's levels for soils at the Lowery Tank Battery are as follows 10 mg/kg Benzene, 50 mg/kg BTEX and 100 mg/kg TPH

    - Williams will fully delineate the release both horizontally and vertically. Boreholes that exceeded 100ppm OVM or exhibit heavy staining and/or apparent hydrocarbon impacts will be considered impacted until sampled.

    - Delineation must be completed by November 11, 2017.

    - Horizontal delineation of soil impacts 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). Soil sampling must be both within the impacted area and beyond.

    - Vertical delineation of soil impacts 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), 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 the sites closure standards must be demonstrated as existing above the water table.

    - Composite sampling will not be allowed for delineation

    - 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).

    - Within 30 days of completion of delineation Williams will submit to the OCD a delineation report and proposed alternative remediation plan.

Please let me know if you have any questions.

Thank you,

APTIM
6380 South Fiddlers Green, Suite 310
Greenwood Village, CO 80111
Tel: +1 303 741 7700
Fax: +1 303 741 7479

Remedial Assessment Work Plan

Lowery Tank Battery

Lowery Tank Battery
Rio Arriba County, New Mexico

January 18, 2018

Prepared for:

Williams Four Corners LLC

Prepared by:

APTIM Environmental & Infrastructure, Inc.

6380 South Fiddlers Green, Suite 310
Greenwood Village, CO 80111
United States
www.APTIM.com

APTIM

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List of Figures

LT Environmental, Inc.
348 East 2nd Avenue
Durango, Colorado 81301
T 970.385.1096 | F 303.433.1432

January 12, 2018

Ms. Vanessa Fields
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

RE: Subsurface Investigation Report
Williams Four Corners LLC
Lowery Tank Battery
Rio Arriba County, New Mexico

Dear Ms. Fields:

LT Environmental, Inc. (LTE), on behalf of Williams Four Corners LLC (Williams), presents this report documenting investigation of the subsurface soil at the Lowery Tank Battery (Site). The release source was unknown, but was likely a historical unlined production pit. Initial remediation and delineation activities are detailed in the previously submitted *Limited Site Investigation – Lowery Tank Battery*, dated September 3, 2013 by Southwest Geoscience, and in the *Interim Corrective Action and Supplemental Environmental Site Investigation Report*, dated June 16, 2015 by Apex TITAN. This report describes additional soil delineation efforts and associated soil analytical results.

SITE DESCRIPTION AND HISTORY

The Site is in the northeast quarter of the southeast quarter of Section 16, Township 26 North, and Range 6 West in Rio Arriba County, New Mexico, as depicted on Figure 1. The Site currently consists of one 400-barrel (bbl) condensate/produced water tank, one 250-bbl below grade tank, two polyethylene tanks containing glycol and methanol, and all are located within a lined secondary containment. Based on the New Mexico Oil Conservation Division (NMOCD) site ranking of 30, the following remediation action levels apply: 10 milligrams per kilogram (mg/kg) for benzene, 50 mg/kg for total benzene, toluene, ethylbenzene, and xylenes (BTEX), and 100 mg/kg for total petroleum hydrocarbons (TPH).

While moving a below-grade tank at the Site in early 2013, Williams observed petroleum hydrocarbon-impacted soil under the tank. The observed impact was believed to be from the historical unlined pit. A limited environmental site investigation and excavation was conducted during March 2013.

SOIL SAMPLING

The site investigation occurred from December 11 to December 14, 2017. LTE advanced eight soil borings (SB-16 through SB-23) utilizing a CME 55 truck mounted hollow-stem auger drill rig

in and around the release location and collected field screened samples every 5 feet of continuous drilling. The soil borings were advanced to depths between 40 and 50 feet below ground surface where refusal was encountered or no hydrocarbon soil impacts were observed. Samples were screened in the field for volatile organic compounds (VOCs) using a photo-ionization detector (PID) equipped with a 10.6 electron volt lamp per methods in accordance with the NMOCD Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993. Soil samples with the highest PID values and a sample from the bottom of each borehole were submitted for confirmation laboratory analysis. The soil samples were collected directly into pre-cleaned glass jars, labeled with location, date, time, sampler, and method of analysis and immediately placed on ice. The samples were shipped at 4 degrees Celsius (°C) under strict chain-of-custody procedures to Hall Environmental Analytical Laboratory Sciences (Hall) in Albuquerque, New Mexico, for analysis of BTEX using United States Environmental Protection Agency (USEPA) Method 8021 and TPH-gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) per USEPA Method 8015. A Site Map with soil boring locations is depicted on Figure 2.

During the delineation activities, groundwater was encountered in SB-16 and SB-21; groundwater was not observed in any other soil borings. A groundwater sample could not be collected from SB-16 before a temporary well could be set, as the borehole collapsed. Groundwater was encountered in SB-21 at approximately 45 feet below ground surface. A groundwater grab sample was collected from SB-21 using a disposable bailer and submitted to Hall for analysis of BTEX; however, all three sample containers were destroyed during shipment via courier to Hall and no laboratory analysis was completed. No groundwater data are available from this investigation. Soil boring logs are included as Attachment 1.

RESULTS

Sixteen soil samples were collected and submitted for laboratory analysis between December 11 and December 14, 2017, from soil borings SB-16 through SB-23. PID values from field-screened soil ranged from 0 parts per million (ppm) in soil borings SB-18 and SB-19 to 2,850 ppm in SB-16.

Laboratory analytical results indicated that total BTEX and total TPH concentrations from soil samples SB-16 @ 25'- 30', SB16 @ 47'- 50', SB21 @ 33'- 35', and SB-22 @ 28' – 30' exceeded the applicable NMOCD remediation action levels for this Site. All remaining soil samples submitted for analysis were in compliance with the NMOCD remediation action levels for benzene, total BTEX, and total TPH. The analytical results are presented on Figure 3 and are summarized in Table 1 with the field data. The complete Hall laboratory analytical reports are included as Attachment 2.

CONCLUSIONS

Based on the analytical results from the soil investigation indicating presence of soil exceeding NMOCD remediation action levels, as well as observation of groundwater in two of the boreholes,

Williams will submit an additional work plan to completely define the extent of the impacted soil and groundwater.

LTE appreciates the opportunity to provide this report to Williams. If you have any questions or comments, do not hesitate to contact me at (970) 385-1096 or via email at aager@ltenv.com.

Sincerely,

LT ENVIRONMENTAL, INC.

Danny Burns
Project Geologist

Ashley Ager, M.S., P.G.
Senior Geologist, V.P.

Attachments:

Figure 1 – Location Map
Figure 2 – Site Map
Figure 3 – Soil Sample Analytical Results
Table 1 – Soil Analytical Results
Attachment 1 – Soil Boring Logs
Attachment 2 – Laboratory Analytical Reports

FIGURES

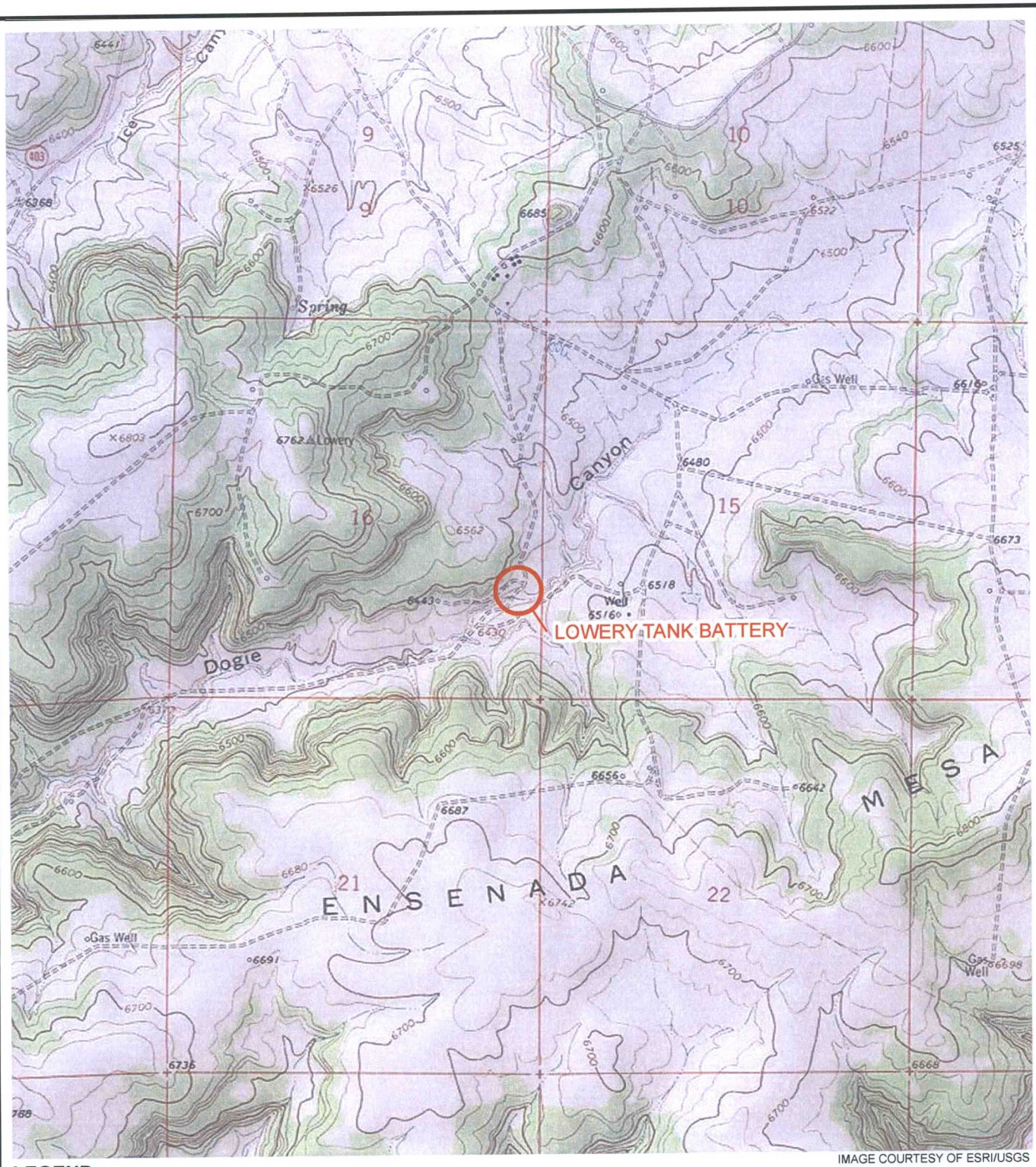


IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

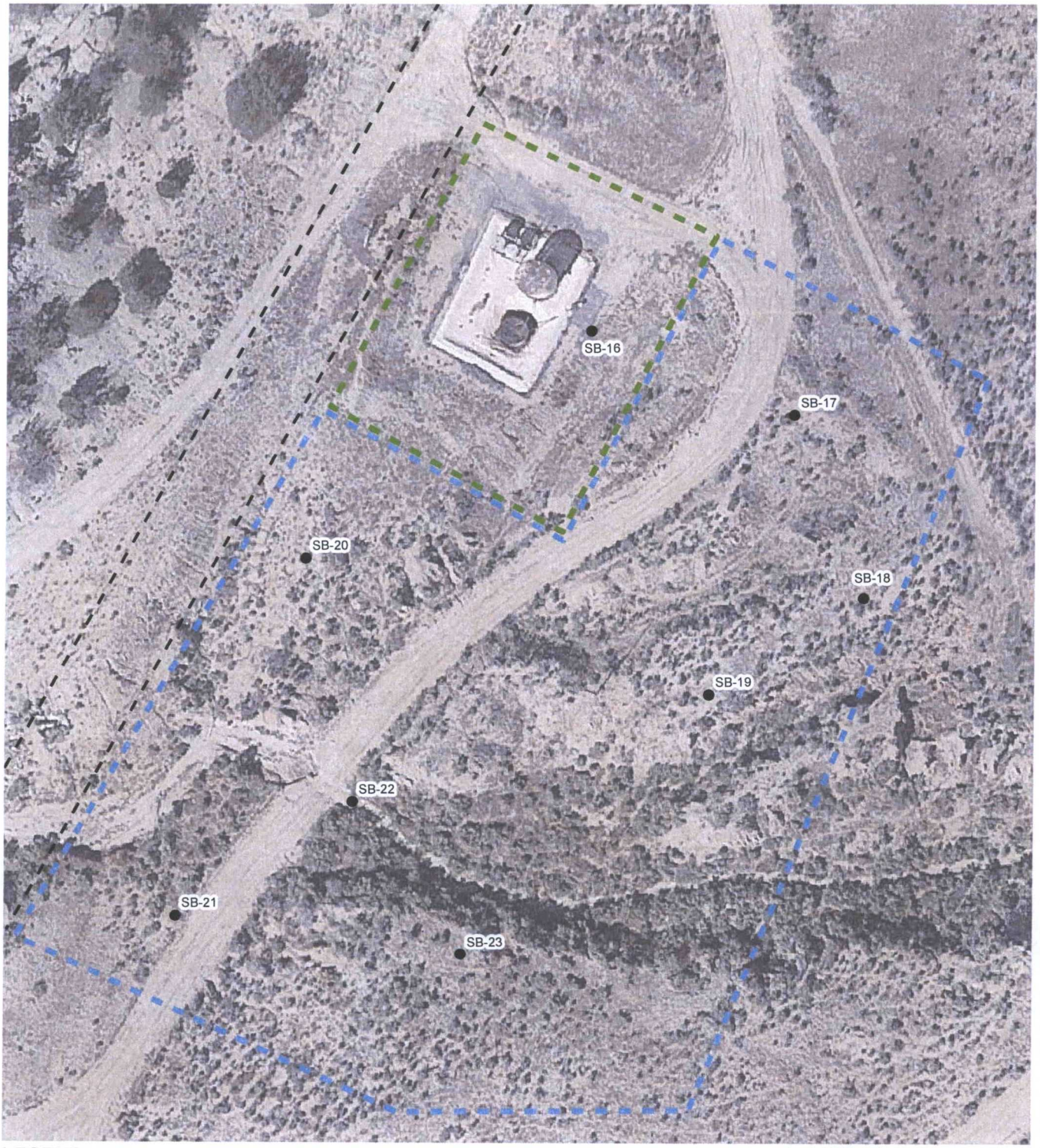
N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
LOWERY TANK BATTERY
NESE SEC 16 T26N R6W
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

P:\Williams Four Corners\GIS\MXD\034017014_LOWERY TANK BATTERY\034017014_FIG01_SL.mxd

TABLE



LEGEND

- SOIL BORING
- PIPELINE RIGHT-OF-WAY
- EXISTING LEASE BOUNDARY
- PLANNED ADDITIONAL LEASE BOUNDARY

IMAGE COURTESY OF GOOGLE EARTH 2016

0 60 120

Feet

N

FIGURE 2
SITE MAP
LOWERY TANK BATTERY
NESE SEC 16 T26N R6W
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

P:\Williams Four Corners\GIS\MXD\034017014_LOWERY TANK BATTERY\034017014_FIG02_SITE.mxd

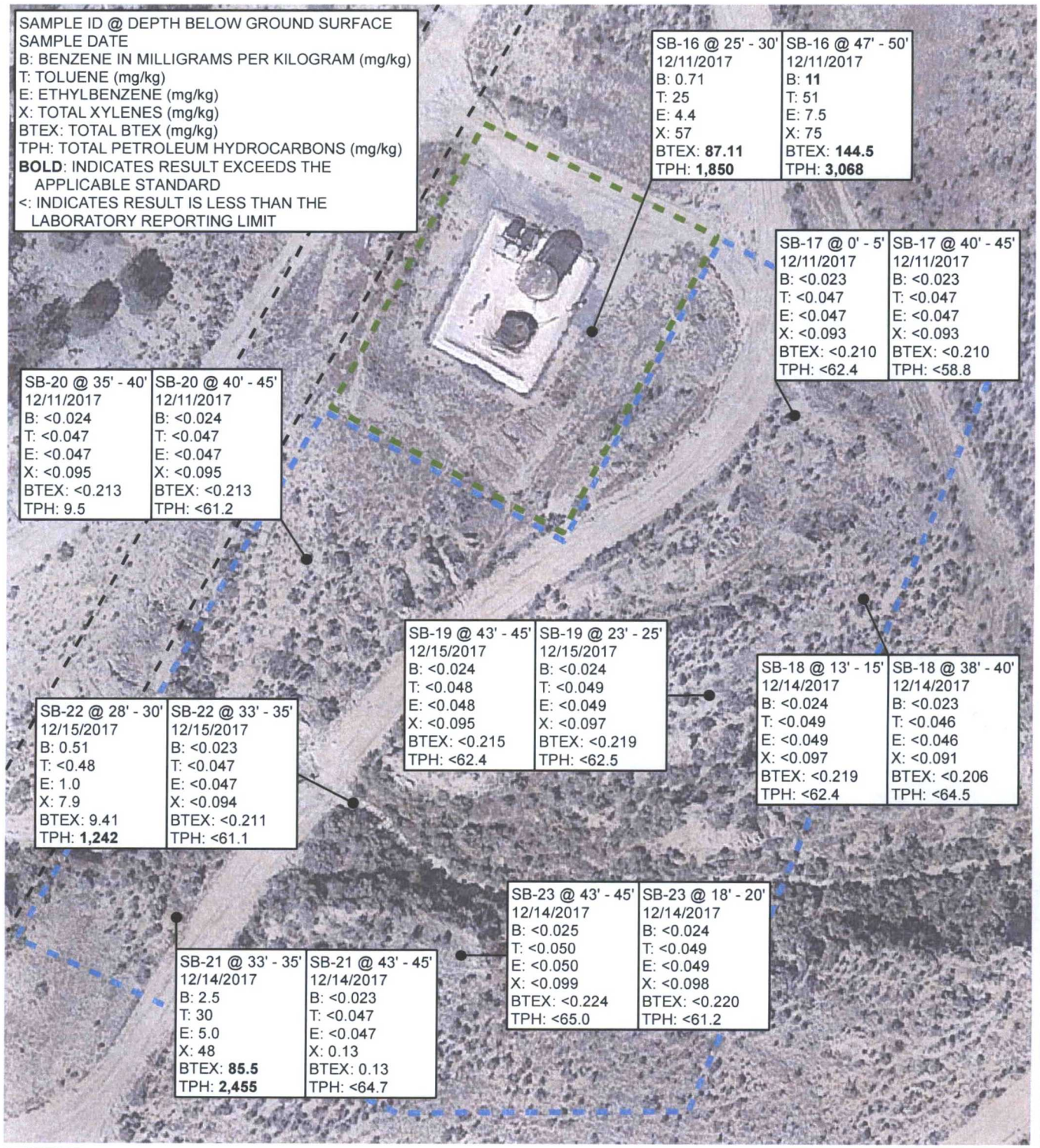


IMAGE COURTESY OF GOOGLE EARTH 2016

LEGEND

- SOIL BORING
- PIPELINE RIGHT-OF-WAY
- EXISTING LEASE BOUNDARY
- PLANNED ADDITIONAL LEASE BOUNDARY

0 60 120
Feet

N

FIGURE 3
SOIL ANALYTICAL RESULTS
LOWERY TANK BATTERY
NESE SEC 16 T26N R6W
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

P:\Williams Four Corners\GIS\MXD\034017014_LOWERY TANK BATTERY\034017014_FIG03_SOIL_ANALY_DEC_2017.mxd

Legend

- EXISTING SOIL BORING
- PROPOSED MONITORING WELL
- EXISTING LEASE BOUNDARY
- PLANNED ADDITIONAL LEASE BOUNDARY

N

0 25 50 100 Feet

Williams Four Corners LLC

PROPOSED MONITORING WELLS
LOWERY TANK BATTERY
NESE SEC 16 T26N R6W
RIO ARRIBA COUNTY, NEW MEXICO

Figure 4

APTIM

Aptim Environmental & Infrastructure, Inc.
6380 South Fiddlers Green, Suite 310
Greenwood Village, CO 80111

1.0 INTRODUCTION

1.1 BACKGROUND

In December 2017, the State of New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (NMOCD) approved the "Interim Corrective Action and Supplemental Environmental Site Investigation Report" dated June 16, 2015 and authorized Williams Field Services LLC (Williams) to proceed with the proposed delineation activities at the Lowery Tank Battery site in Rio Arriba County, New Mexico. **Figure 1** presents a site location map. Investigation conducted by Williams has identified soil contamination originating from the former 250 bbl below-grade tank (BGT) at the site which has the potential to impact the groundwater. **Figure 2** presents a site map with locations of borings completed to date. Impacted soil has been observed over 250 feet downgradient of the release area. The primary contaminants of concern (COCs) are benzene; total benzene, toluene, ethylbenzene, xylenes (BTEX); total petroleum hydrocarbons-gasoline range organics (TPH-GRO), TPH-diesel range organics (TPH-DRO; and total TPH.

In response to the detection of the release, Williams initiated assessment activities.

- In 2013, impacted soils were discovered while removing a 250 bbl BGT associated with natural gas gathering;
- In November 2013, approximately 954 cubic yards of TPH and BTEX impacted soil were removed from the area beneath the former BGT. The impacted soil was transported to the Envirotech, Inc. landfill located near Hilltop, New Mexico for final disposition;
- In June 2015, Williams submitted "Interim Corrective Action and Supplemental Environmental Site Investigation Report" to NMOCD which summarized previous activities and outlined plans for assessment and corrective action;
- In August 2017, the NMOCD inquired on the progress of the project. The NMOCD subsequently approved the proposed delineation plan with the stipulation that the work was to be competed in 30-days;
- In December 2017, approval was received from the New Mexico State Land Office to proceed with the NMOCD required soil delineation. The phase II delineation activities were conducted the following week which included the collection of soil samples from borings SB-16 through SB-23. Groundwater was encountered at two of the soil borings;
- As of January 2018, the distal and west lateral extents of the impacted soil and groundwater were not delineated.

Additional activities are recommended to complete the delineation of COCs in the soil and determine the nature and extent of the COCs in the shallow aquifer.

1.2 OBJECTIVES

Based on the NMOCD site ranking of 30, the following remediation action levels apply: 10 milligrams per kilogram (mg/kg) for benzene, 50 mg/kg for total BTEX, and 100 mg/kg for total petroleum hydrocarbons (TPH). This Work Plan was prepared with the following objectives:

- Delineate the horizontal and vertical extent of impacted soils originated from the former 250 bbl BGT;
- Delineate the groundwater contamination;
- Collect data to support remedial planning efforts.

2.0 SCOPE OF WORK

2.1 SCOPE DEVELOPMENT

As a result of excavation and prior assessment activities, the following key observations were made:

- Elevated concentrations of benzene, total BTEX, TPH-GRO, TPH-DRO and Total TPH exceeding the NMOCD action levels were detected in the soil;
- Impacted soil extends down to the water table adjacent to the release area (SB-16);
- While groundwater is not readily apparent in many of the soil borings, the presence of hydrocarbons in subsurface soil at distances from the source appears indicative of contaminant migration with intermittent presence of groundwater;
- The extent of hydrocarbons is delineated to the north and east extents;
- Groundwater was only observed at two soil borings; SB-16 at 49 feet bgs and SB-21 at 40 feet bgs;
- The lithology in the impacted areas included unconsolidated silts, sands, and clay. The sands, silty sands become compacted and semi-consolidated below 45 to 50 feet.

2.2 SOIL BORINGS

The delineation of hydrocarbons in the soil will be completed through the advancement of soil borings, soil sampling, and laboratory analysis. The locations of the proposed borings are presented on **Figure 3**. Locations were selected based on the previous soil boring data. Final locations will be determined in the field.

Specifically, the scope of work includes:

- The locations for the proposed borings and monitoring wells will be marked and utility location notifications performed;
- Five soil borings (**Figure 3**) will be installed to an approximate total depth of 50 feet bgs (to saturated soils). Drilling will be advanced using best available techniques to obtain adequate samples and observe unsaturated and saturated lithology;
- The soil column from each soil boring will be screened for VOC vapors using a PID and the lithology logged;
- At each boring location, samples will be continuously sampled for logging and field screening purposes. Two soil samples from each boring will be submitted for laboratory analysis. One soil sample from the 5-foot interval with the highest recorded PID reading and one from the 5-foot interval adjacent to the water table will be submitted to the laboratory for BTEX analysis using method 8260B and TPH-GRO (C6-C10), TPH-DRO (C10-C20), and TPH-MRO (C28-C40) using method 8015.

2.3 MONITORING WELLS

Because groundwater has not been readily apparent in many historic borings, monitoring wells will be installed to evaluate the potential impact to groundwater. The locations for the proposed monitoring wells is presented on **Figure 4**. Four of the five new soil borings will be completed as monitoring wells and four prior boring locations will be recompleted as monitoring wells. The final locations will be determined based on the ability to safely access the locations with drilling equipment given the terrain and the results of the field screening at the proposed soil boring locations.

Impacted soil was observed extending to the underlying groundwater beneath the release area at soil boring SB-16. Groundwater has been observed at soil borings SB-16 and SB-21, but no analytical data for the groundwater is available.

The depth to groundwater will be recorded to determine the direction of groundwater flow and the hydraulic gradient. The wells are anticipated to be completed at an approximate depth of 5 feet below the water table (observed water). The actual depth of the wells will be based on the observations of the geologist onsite.

Specifically, the scope of work includes:

- The locations for the proposed monitoring wells will be marked and utility location notifications performed;
- Groundwater monitoring wells are proposed based on the available data and include the following:
    - MW-1 will be installed near existing SB-16 to monitor COC concentrations near the source areas.
    - MW-2 will be installed between existing SB-19 and SB-22 to monitor COC concentrations to the east.
    - MW-3 will be installed near existing SB-21 to monitor COC concentrations where elevated concentrations were observed in the soil column.
    - MW-4 will be installed near existing SB-23 to monitor COC concentrations to the southeast.
    - MW-5 will be installed to the northwest of former SB-13 to monitor COC concentrations to the west.
    - MW-6 and MW-7 will at the two proposed soil boring locations to the south to monitor COC concentrations near the distal extent of the plume.
- The anticipated total depth of the monitoring wells is 50 feet bgs or a minimum of 5 feet below the measured water table.
- Drilling will be advanced using best available techniques to obtain adequate samples and observe unsaturated and saturated lithology;
- Wells will be constructed as follows:
    - 2-inch diameter, schedule 40 PVC casing,
    - 5 feet of 2-inch diameter, 0.010-inch machine slotted, schedule 40 PVC well screen,
    - 20/40 silica filter sand extending from terminus of the borehole to 2 feet above the top of the well screen,
    - A minimum of 2 feet of bentonite chip annular seal on top of the filter pack,
    - Fill the remaining annulus space with bentonite grout or chips to 1 foot from the surface,
    - Installation of either flush-mount or well box surface completion.
- The monitoring wells will be developed to improve the hydraulic communication between the well and the surrounding formation; and,
- The wells will be surveyed to the site benchmark.

2.4 GROUNDWATER SAMPLING

Groundwater sampling activities will be performed a minimum of 2 weeks following well installation and development. This time period will allow the formation to equilibrate following the disturbance and assure the potentiometric surface and groundwater samples are representative of the site condition.

Specifically, the scope of work includes:

- Recording the depth to groundwater (and LNAPL if present) in all monitoring wells using an interface probe capable of measuring to 0.01 feet;
- Purging each well of three well volumes;
- Collecting groundwater samples and analyzing the samples for BTEX using method 8260B and TPH-GRO (C6-C10), TPH-DRO (C10-C20), and TPH-MRO (C28-C40) using method 8015M;
- Collect groundwater samples from all monitoring wells for biological process parameters. Parameters to be measured in the field include oxidation-reduction potential (ORP), pH, temperature, conductivity, dissolved oxygen (DO), and ferrous iron. Additional parameters to be included and analyzed by the laboratory include alkalinity, nitrate, sulfate, and manganese.

One blind duplicate sample will be collected during each sampling event. The duplicate sample will be analyzed for the same chemical suite as the record samples. Each sample cooler will contain a trip blank that will be analyzed for BTEX. Samples will be maintained under chain-of-custody procedures and delivered to the designated laboratory.

2.5 DECONTAMINATION

All equipment that has the potential to come into contact with the sample media will be decontaminated prior to and following use. This includes, but is not limited to, hand auger, discrete samplers, mixing bowls, etc.

Decontamination of the groundwater samplers, sample rods, hand auger, and small sampling equipment will be conducted using new 5-gallon buckets or equivalent to contain decontamination fluids. Equipment will be cleaned using an Alconox/water solution, then rinsed with deionized (DI) water prior to and following use.

Decontamination fluids will be changed frequently based on visual observation. Waste decontamination fluids will be placed in an appropriately labeled 55-gallon drum for temporary storage

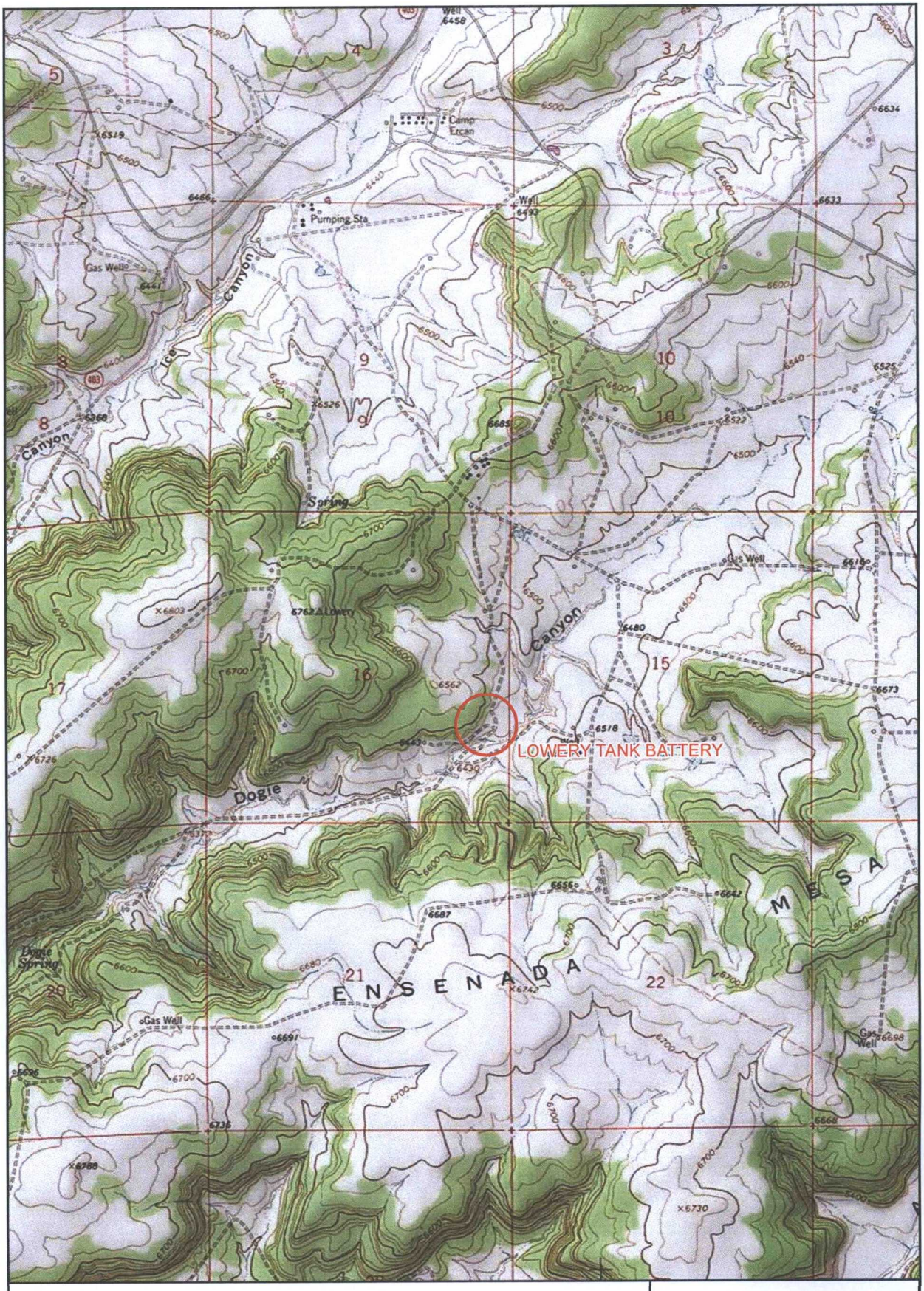
2.6 REPORTING

Within 30 days following receipt of final analytical results for these delineation activities, a delineation report will be prepared and will include description of activities performed, figures of soil analytical results, figures of groundwater flow and analytical results, along with proposed plans for additional delineation actions required.

3.0 IMPLEMENTATION SCHEDULE

The schedule is anticipated to be sequenced in the following manner upon approval:

1. Soil boring and monitoring well installation – initiated within 30 days following authorization to proceed.
2. Monitoring well sampling – approximately 14 days following well installation.
3. Delineation Reporting and Preliminary Remedial Design – within 30 days following receipt of final analytical results.



Legend

SITE LOCATION

Williams Four Corners LLC

SITE LOCATION MAP
LOWERY TANK BATTERY
NESE SEC 16 T26N R6W
RIO ARRIBA COUNTY, NEW MEXICO

Figure 1

APTIM

Aptim Environmental & Infrastructure, Inc.
6380 South Fiddlers Green, Suite 310
Greenwood Village, CO 80111

Legend

- EXISTING SOIL BORING
- EXISTING LEASE BOUNDARY
- PLANNED ADDITIONAL LEASE BOUNDARY

N

0 25 50 100 Feet

Williams Four Corners LLC

SITE MAP
LOWERY TANK BATTERY
NESE SEC 16 T26N R6W
RIO ARRIBA COUNTY, NEW MEXICO

Figure 2

APTIM

Aptim Environmental & Infrastructure, Inc.
6380 South Fiddlers Green, Suite 310
Greenwood Village, CO 80111

Legend

- EXISTING SOIL BORING
- PROPOSED MONITORING WELL
- CONTINGENCY MONITORING WELLS
- EXISTING LEASE BOUNDARY
- PLANNED ADDITIONAL LEASE BOUNDARY

N

0 40 80 160 Feet

Williams Four Corners LLC

PROPOSED MONITORING WELLS
LOWERY TANK BATTERY
NESE SEC 16 T26N R6W
RIO ARRIBA COUNTY, NEW MEXICO

Figure 3

APTIM

Aptim Environmental & Infrastructure, Inc.
6380 South Fiddlers Green, Suite 310
Greenwood Village, CO 80111

Legend

- EXISTING SOIL BORING
- PROPOSED SOIL BORINGS
- EXISTING LEASE BOUNDARY
- PLANNED ADDITIONAL LEASE BOUNDARY

N

0 25 50 100 Feet

Williams Four Corners LLC

PROPOSED SOIL BORINGS
LOWERY TANK BATTERY
NESE SEC 16 T26N R6W
RIO ARRIBA COUNTY, NEW MEXICO

Figure 3

APTIM

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Greenwood Village, CO 80111

TABLE 1
SOIL ANALYTICAL RESULTS

LOWERY TANK BATTERY
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

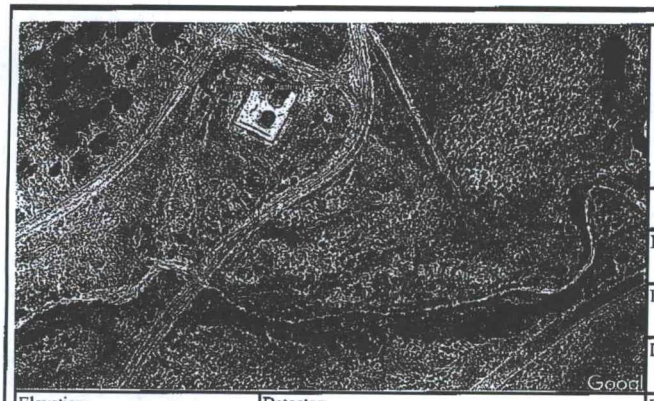
Sample ID	Sample Date	Vapor (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	Total TPH (mg/kg)
Borehole Samples											
SB-16 @ 25' - 30'	12/11/2017	2,850	0.71	25	4.4	57	**87.11**	1,500	350	<46	**1,850**
SB-16 @ 47' - 50'	12/11/2017	1,601	**11**	51	7.5	75	**144.5**	3,000	68	<49	**3,068**
SB-17 @ 0' - 5'	12/11/2017	1.9	<0.023	<0.047	<0.047	<0.093	<0.210	<4.7	<9.7	<48	<62.4
SB-17 @ 40' - 45'	12/11/2017	0.2	<0.023	<0.047	<0.047	<0.093	<0.210	<4.7	<9.1	<45	<58.8
SB-18 @ 13' - 15'	12/14/2017	0	<0.024	<0.049	<0.049	<0.097	<0.219	<4.9	<9.5	<48	<62.4
SB-18 @ 38' - 40'	12/14/2017	0	<0.023	<0.046	<0.046	<0.091	<0.206	<4.6	<9.9	<50	<64.5
SB-19 @ 23' - 25'	12/15/2017	1.2	<0.024	<0.049	<0.049	<0.097	<0.219	<4.9	<9.5	<48	<62.5
SB-19 @ 43' - 45'	12/15/2017	0	<0.024	<0.048	<0.048	<0.095	<0.215	<4.8	<9.6	<48	<62.4
SB-20 @ 35' - 40'	12/11/2017	2,269	<0.024	<0.047	<0.047	<0.095	<0.213	9.6	<9.1	<46	9.5
SB-20 @ 40' - 45'	12/11/2017	558	<0.024	<0.047	<0.047	<0.095	<0.213	<4.7	<9.5	<47	<61.2
SB-21 @ 33' - 35'	12/14/2017	2,038	2.5	30	5.0	48	**85.5**	2,400	55	<47	**2,455**
SB-21 @ 43' - 45'	12/14/2017	346	<0.023	<0.047	<0.047	0.13	0.13	<4.7	<10	<50	<64.7
SB-22 @ 28' - 30'	12/15/2017	1,425	0.51	<0.48	1.0	7.9	9.41	1,200	42	<47	**1,242**
SB-22 @ 33' - 35'	12/15/2017	24.1	<0.023	<0.047	<0.047	<0.094	<0.211	<4.7	<9.4	<47	<61.1
SB-23 @ 18' - 20'	12/14/2017	4.1	<0.024	<0.049	<0.049	<0.098	<0.220	<4.9	<9.3	<47	<61.2
SB-23 @ 43' - 45'	12/14/2017	0	<0.025	<0.050	<0.050	<0.099	<0.224	<5.0	<10	<50	<65.0
NMOCD Closure Criteria		NE	10	NE	NE	NE	50	NE	NE	NE	100

NOTES:

BTEX - benzene, toluene, ethylbenzene, total xylenes
DRO - diesel range organics
GRO - gasoline range organics
MRO - motor oil range organics
mg/kg - milligrams per kilogram
NMOCD - New Mexico Oil Conservation Division
NE - not established
ppm - parts per million
TPH - total petroleum hydrocarbons
< - indicates result is less than the stated laboratory reporting limit
BOLD indicates result exceeds applicable standard

ATTACHMENT 1

SOIL BORING LOGS



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Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-16	Project: Lowery Tank Battery
Date: 12/11/17	Project Number: 034017014
Logged By: Eric Carroll	Drilled By: Geomat
Elevation: 6,450	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter: 7.5"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth: 50'	Depth to Water: 49'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	moist	0.0	NO		0 1 2 3 4 5	1	50%	SP	Compact, Dark brown, med-fn Sand NO Stain/odor	
	moist	0.0	NO		6 7 8 9 10	2	50%	SP	SAA No Stain/odor	
	moist	0.2	NO		11 12 13 14 15	3	50%	SP	SAA No Stain/odor	

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Boring/Well #	SB-16
Project:	Lowery Tank Battery
Project #	034017014
Date	12/11/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15				SAA	
					16					
	moist	76.1	NO		17	4	70%	SP	No stain / slight odor	
					18					
					19					
					20					
					21				Compact, lt brown, med sand	
					22					
	Dry	1176	No		23	5	70%	SP	No stain, strong odor	
					24					
					25					
					26				Compact, lt brown, med sand	
					27				trace coal	
	Dry	2850	NO	25-30'	28	6	100%	SP	No Stain	
					29				Strong odor	
					30					
					31				Compact lt reddish brown fn sand	
					32				trace coal	
	Dry	2137	NO		33	7	100%	SP	No stain	
					34				Strong odor	
					35					
					36					
					37					

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Boring/Well #	SB-16
Project:	Lowery Tank Battery
Project #	034017014
Date	12/11/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
	Dry	2397	Yes		38	8	100%	SP	Compact lt reddish brown fn sand grey Staining Strong odor	
					39					
					40					
	moist	1066	Yes		41	9	20%	SP	Compact lt reddish brown fn sand black Staining Strong odor	
					42					
					43					
					44					
					45					
	Wet	1601	Yes	45-50'	46	10	40%	S	Switched to SS Compact lt reddish brown fn sand Staining and odor	
					47					
					48					
					49					
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-17		Project: Lowery Tank Battery	
Date: 12/11/17		Project Number: 034017014	
Logged By: Eric Carroll		Drilled By: Geomat	
Elevation: 6,450	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: ~~10-20 Silica Sand~~		Seal: ~~Bentonite Chips~~	Grout: Bentonite Slurry
Casing Type: ~~Schedule 40 PVC~~		Diameter: 2" Length: NA	Hole Diameter: 7.5' / Depth to Liquid: NA
Screen Type: ~~Schedule 40 PVC~~	Slot: 0.010"	Diameter: 2" Length: NA	Total Depth: 45' / Depth to Water: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	Dry	1.9	NO		0–5	1	100%	SP	Compact, lt brown, med-fn sand Some organics NO Stain/odor	
	Dry	1.1	NO		6–10	2	100%	SP	Loose, lt brown med-fn sand No Stain/odor	
	Dry	1.1	NO		11–15	3	70%	SP	SAA No Stain/odor	

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Boring/Well #	SB-17
Project:	Lowery Tank Battery
Project #	034017014
Date	12/11/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	Dry	1.3	NO		15–20	4	100%	SP	SAA NO Stain/odor	
	Dry	0.8	NO		21–25	5	100%	SP	SAA NO Stain/odor	
	Dry	0.4	NO		26–30	6	100%	SP	Compact, lt reddish brown, fn sand NO Stain/odor	
	Dry	0.4	NO		31–35	7	80%		SAA NO Stain/odor	

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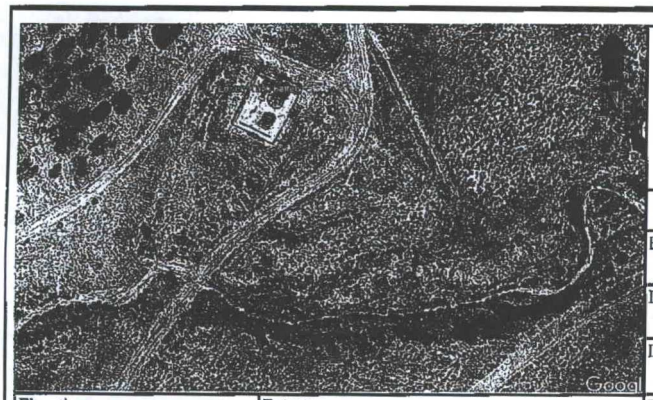
Boring/Well #	SB-17
Project:	Lowery Tank Battery
Project #	034017014
Date	12/4/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
	Dry	0.3	NO		38	8	100%	SW-SP	Compact, lt red/brown, silty sand	
					39				No stain/odor	
					40					
					41					
					42	9		SW-SP		
	Dry	0.2	NO		43		100%			
					44					
					45					
					46					
					47					
					48					
					49					
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-18		Project: Lowery Tank Battery	
Date: 12-14-17		Project Number: 034017014	
Logged By: Eric Carroll		Drilled By: Geomat	
Elevation: 6,450	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand		Seal: Bentonite Chips	Grout: Bentonite Slurry
Casing Type: ~~Schedule 40 PVC~~		Diameter: 2" Length: NA	Hole Diameter: 7.5" / Depth to Liquid: NA
Screen Type: ~~Schedule 40 PVC~~	Slot: 0.010"	Diameter: 2" Length: NA	Total Depth: 40' / Depth to Water: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	Dry	0.0	No		0–5	1	60 %	SP	loose, lt reddish brown, med-fn sand No stain/odor	
	Dry	0.0	No		6–10	2	60 %	SP	SAA No stain/odor	
	Dry	0.0	No		11–15	3	100 %	SP	SAA No stain/odor	

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Boring/Well #	SB-18
Project:	Lowery Tank Battery
Project #	034017014
Date	12/14/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16				loose, lt reddish brown coarse sand	
	Dry	0.0	No		17	4	60%	SP		
					18				No stain/odor	
					19					
					20					
					21				compact dark brown, Silty Sand	
					22	5	100%	SW-SP		
	Dry	0.0	No		23				No stain/odor	
					24					
					25					
					26				SAA	
					27					
	Dry	0.0	No		28	6	100%	SW-SP	No stain/odor	
					29					
					30					
					31				Compact Dark red/brown Silty Sand	
					32			SW-SP		
	moist	0.0	No		33	7	80%		No stain/odor	
					34					
					35					
					36					
					37					

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Boring/Well #	SP-18
Project:	Lowery Tank Battery
Project #	034017014
Date	12/14/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
	moist	0.0	NO		38	B			compact, Dark grey, Silty sand some clay, Rust mottling	
					39					
					40				NO Stain/odor	
					41					
					42					
					43					
					44					
					45					
					46					
					47					
					48					
					49					
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-19	Project: Lowery Tank Battery
Date: 12/15/17	Project Number: 034017014
Logged By: Eric Carroll	Drilled By: Geomat
Elevation: 6,450 / Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips	Grout: Bentonite Slurry
Casing Type: Schedule 40 PVC	Diameter: 2" / Length: NA	Hole Diameter: 7.5" / Depth to Liquid: NA
Screen Type: Schedule 40 PVC / Slot: 0.010"	Diameter: 2" / Length: NA	Total Depth: 45' / Depth to Water: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	Dry	0.0	NP		0–5	1	50%	SP	loose, lt brown, med-fn Sand NO Stain/odor	
	Dry	0.0	NP		6–10	2	70%	SP	SAA NO Stain/odor	
	Dry	0.0	NP		11–15	3	100%	SP	Compact, lt brown, med-fn Sand NO Stain/odor	

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Boring/Well #	SB-19
Project:	Lowery Tank Battery
Project #	034017014
Date	12/15/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
	Dry	0.0	NO		16	4	100%	SM-SP	Compact, dark brown, silty sand	
					17				NO Stain/odor	
					18					
					19					
					20					
					21				SAA	
	Dry	1.2	NO	23'-25' 10:00	22	5	100%	SM-SP	NO Stain/odor	
					23					
					24					
					25					
					26				Compact dark brown silty sand w/ white mottling	
					27			SM-SP		
	Dry	0.0	NO		28	6	100%		NO Stain/odor	
					29					
					30					
					31			SM-SP	SAA	
					32	7	100%			
	Dry	0.0	NO		33				NO Stain/odor	
					34					
					35					
					36	8		SM-SP	SAA	
					37					

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Boring/Well #	
Project:	Lowery Tank Battery
Project #	034017014
Date	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
	moist	0.0	NO		38	8	100%	SP	lt brown coarse Sand	
					39				NO Stain/Odor	
					40					
					41				loose lt brown coarse sand	
	moist	0.0	NO	43'-45' 10:45	42	9	100%		NO Stain/odor	
					43					
					44					
					45					
					46					
					47					
					48					
					49					
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					

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Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-20		Project: Lowery Tank Battery	
Date: 12/11/17		Project Number: 034017014	
Logged By: Eric Carroll		Drilled By: Geomat	
Elevation: 6,450	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: ~~10-20 Silica Sand~~		Seal: Bentonite Chips	Grout: Bentonite Slurry
Casing Type: ~~Schedule 40 PVC~~		Diameter: 2" Length: NA	Hole Diameter: 7.5" / Depth to Liquid: NA
Screen Type: ~~Schedule 40 PVC~~	Slot: ~~0.010"~~	Diameter: 2" Length: NA	Total Depth: 45' / Depth to Water: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					0					
					1			SP	loose, brown, med-fn sand	
	Moist	17.1	NO		2	1	80%		NO Stain/odor	
					3					
					4					
					5					
					6				Compact, lt brown, med-fn sand	
					7	2	70%	SP		
	Dry	12.1	NO		8				NO Stain/odor	
					9					
					10					
					11				loose, lt brown, fn sand	
					12	3	100%	SP		
	Dry	10.1	NO		13				NO Stain/odor	
					14					
					15					

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Boring/Well #	SB-20
Project:	Lowery Tank Battery
Project #	034017014
Date	12/11/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	Dry	8.7	NO		15–20	4	80%	SP	Compact, lt brown, med-fn sand NO Stain/Odor	
	Dry	9.4	NO		21–25	5	100%	SP	SAA NO Stain/odor	
	Dry	6.7	NO		26–30	6	100%	SP	Very compact, lt reddish brown fn sand w/ thin shale lenses NO Stain/odor	
	Dry	9.5	NO		31–35	7	100%	SP	Compact, lt reddish brown fn sand Purple mottling NO Stain/odor	
					36–37					

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Boring/Well #	SB-20
Project:	Lowery Tank Battery
Project #	034017014
Date	12/11

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
	Dry	2269	yes	35-40	38			SW-SP	Compact, lt ~~brown~~ grey ~~&~~ silty Sand, ~~brown~~ green ~~&~~ stain, slight odor	
					39					
					40					
					41			SW-SP	Compact, grey silty sand no stain / slight odor	
	Dry	558	NO	40-45	42					
					43					
					44			SW-SP	compact dark red silty sand no stain, slight odor	
					45					
					46					
					47					
					48					
					49					
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					

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LT Environmental, Inc.
848 E. 2nd Ave
Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-21	Project: Lowery Tank Battery
Date: 12/14/17	Project Number: 034017014
Logged By: Eric Carroll	Drilled By: Geomat
Elevation: 6,450	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter: 7.5"	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth: 45'	Depth to Water: 40'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	Dry	0.0	NO		0–5	1	100%	SP	loose, lt reddish brown, med-fn Sand NO Stain/oder	
	moist	0.0	NO		6–10	2	100%	SP	SAA NO Stain/odor	
	moist	0.0	NO		11–15	3	70%	SP	Compact, dark brown, med-fn Sand NO Stain/odor	

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LT Environmental, Inc.

Boring/Well #	SB-21
Project:	Lowery Tank Battery
Project #	034017014
Date	12/4/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16				SAA	
	moist	0.0	No		17	4	100%	SP		
					18				No stain/odor	
					19					
					20					
					21				Compact, Dark brown w/gray	
					22	5	100%		Silty Sand, some clay	
	moist	0.0	No		23			SM-SP	No stain/odor	
					24					
					25					
					26				SAA	
					27	6	100%	SM-SP		
	moist	0.0	No		28				No stain/odor	
					29					
					30					
					31				Compact, Dark red brown	
					32	7	100%	SM-SP	Silty Sand.	
	moist	2038	Yes		33				Staining @ 32' down	
					34				Strong odor	
					35					
					36					
					37					

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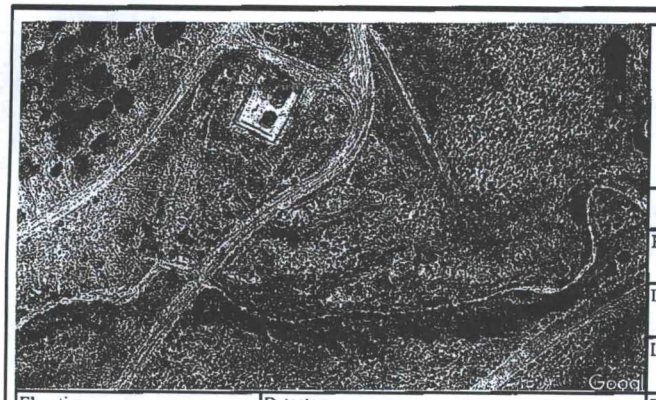
LT Environmental, Inc.

Boring/Well #	SB-21
Project:	Lowery Tank Battery
Project #	034017014
Date	12/14/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
	moist	1777	YES		38				~~SAA~~ Staining / strong odor	
					39					
					40					
					41				Switched to SS	
	wet	346	NO		42			SM-SP	100%, saturated, lt brown silty sand	
					43					
					44				No stain/odor	
					45					
					46					
					47				TD = 45'	
					48					
					49				water sample grabbed from soil boring	
					50					
					51					
					52				water lt brown cloudy turbid w/ strong odor	
					53					
					54					
					55					
					56					
					57					
					58					
					59					



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LT Environmental, Inc.
848 E. 2nd Ave
Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-22	Project: Lowery Tank Battery
Date: 12/15/17	Project Number: 034017014
Logged By: Eric Carroll	Drilled By: Geomat
Elevation: 6,450	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: NA
Hole Diameter: 7.5"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 35'	Depth to Water: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	moist	0.5	NO		0–5	1	40%	SP	loose lt brown med-fn Sand NO Stain/odor	
	moist	0.0	No		6–10	2	60 %	SP	SAA NO Stain/odor	
	moist	0.0	NO		11–15	3	less 8%	SM-SP	Compact dark brown Silty Sand No stain/odor	

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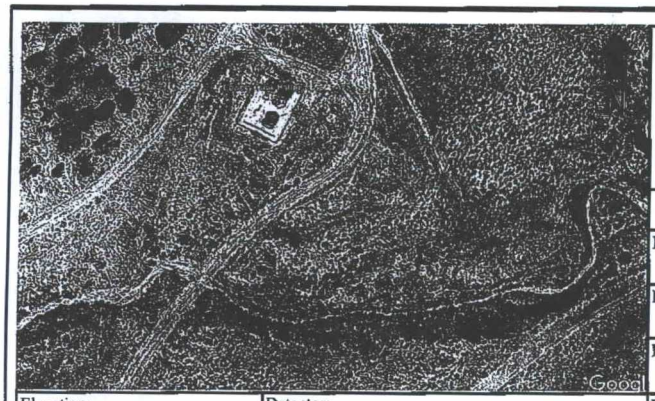
LT Environmental, Inc.

Boring/Well #	SB-22
Project:	Lowery Tank Battery
Project #	034017014
Date	12/15/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	moist	0.0	NO		15–20	4	100 %	SM-SP	SAA NO Stain/odor	
	moist	0.0	NO		21–25	5	80 %	SP	100% lt brown, coarse Sand. NO Stain/odor	
	moist	1425	Yes	28'-30'	26–30			SM-SP	Compact reddish brown Silty Sand Staining @ 28' Strong odor	
	moist	24.1	NO	33'-35'	31–35		100 %	SM-SP	Compact Dark brown Silty ~~Silty~~ Sand Stain ends @ 31' ~~NO Stain/odor~~ No odor	
					36–37					



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848 E. 2nd Ave
Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB-23	Project: Lowery Tank Battery
Date: 12/14/17	Project Number: 034017014
Logged By: Eric Carroll	Drilled By: Geomat
Elevation: 6,450	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: NA
Hole Diameter: 7.5"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 45'	Depth to Water: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	Dry	0.0	No		0 1 2 3 4 5	1	50 %	SP	loose, lt brown, med-fn Sand No Stain/odor	
	Dry	0.0	No		6 7 8 9 10	2	50 %		SAA No Stain/odor	
	Dry	0.0	No		11 12 13 14 15	3	100 %		SAA No Stain/odor	

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LT Environmental, Inc.

Boring/Well #	SB-23
Project:	Lowery Tank Battery
Project #	034017014
Date	12/14/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16				lt brown coarse sand	
					17	4	100%	SP	some white mottles	
	Dry	4.1	No		18				No Stain/odor	
					19					
					20					
					21			SM-SP	Compact Dark brown silty sand	
	moist	0.0	No		22	5				
					23		100		No stain/odor	
					24					
					25					
					26			SM-SP	SAA	
	moist	0.0	No		27					
					28	6	100	SP	loose lt brown, medium fn sand	
	moist	1.2	No		29				No Stain/odor	
					30					
					31				Compact lt reddish brown med-fn sand	
					32					
	moist	0.0	No		33	7	100		Rust mottling	
					34				No Stain/odor	
					35					
					36					
					37					

Compliance » Engineering » Remediation
LT Environmental, Inc.

Boring/Well #	SB-23
Project:	Lowery Tank Battery
Project #	034017014
Date	12/14/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
	moist	0.0	NP		38	S	8	SP	SAA NO Stain/odor	
					39					
					40					
					41				Compact greyish brown to med-fn sand, trace silt/clay	
	moist	0.0	NP		42	9	10	SP		
					43				NO Stain/oder	
					44					
					45					
					46					
					47				TD = 45'	
					48					
					49					
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					

ATTACHMENT 2

LABORATORY ANALYTICAL REPORTS

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

December 21, 2017

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Lowery Tank Battery OrderNo.: 1712A54

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 6 sample(s) on 12/16/2017 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712A54**
Date Reported: **12/21/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A54-001 **Matrix:** SOIL

Client Sample ID: SB-18 13'-15'
Collection Date: 12/14/2017 9:30:00 AM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/20/2017 8:23:08 PM	35589
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/20/2017 8:23:08 PM	35589
Surr: DNOP	85.0	70-130		%Rec	1	12/20/2017 8:23:08 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/20/2017 7:45:21 PM	35592
Surr: BFB	107	15-316		%Rec	1	12/20/2017 7:45:21 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	12/20/2017 7:45:21 PM	35592
Benzene	ND	0.024		mg/Kg	1	12/20/2017 7:45:21 PM	35592
Toluene	ND	0.049		mg/Kg	1	12/20/2017 7:45:21 PM	35592
Ethylbenzene	ND	0.049		mg/Kg	1	12/20/2017 7:45:21 PM	35592
Xylenes, Total	ND	0.097		mg/Kg	1	12/20/2017 7:45:21 PM	35592
Surr: 4-Bromofluorobenzene	97.0	80-120		%Rec	1	12/20/2017 7:45:21 PM	35592

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A54-002 **Matrix:** SOIL

Client Sample ID: SB-18 38'-40'
Collection Date: 12/14/2017 10:00:00 AM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/20/2017 8:44:55 PM	35589
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/20/2017 8:44:55 PM	35589
Surr: DNOP	95.7	70-130		%Rec	1	12/20/2017 8:44:55 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/20/2017 8:09:06 PM	35592
Surr: BFB	108	15-316		%Rec	1	12/20/2017 8:09:06 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.091		mg/Kg	1	12/20/2017 8:09:06 PM	35592
Benzene	ND	0.023		mg/Kg	1	12/20/2017 8:09:06 PM	35592
Toluene	ND	0.046		mg/Kg	1	12/20/2017 8:09:06 PM	35592
Ethylbenzene	ND	0.046		mg/Kg	1	12/20/2017 8:09:06 PM	35592
Xylenes, Total	ND	0.091		mg/Kg	1	12/20/2017 8:09:06 PM	35592
Surr: 4-Bromofluorobenzene	98.3	80-120		%Rec	1	12/20/2017 8:09:06 PM	35592

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A54-003 **Matrix:** SOIL

Client Sample ID: SB-21 33'-35'
Collection Date: 12/14/2017 11:15:00 AM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	55	9.5		mg/Kg	1	12/20/2017 9:06:51 PM	35589
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/20/2017 9:06:51 PM	35589
Surr: DNOP	98.1	70-130		%Rec	1	12/20/2017 9:06:51 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	2400	93		mg/Kg	20	12/20/2017 11:01:04 AM	35592
Surr: BFB	234	15-316		%Rec	20	12/20/2017 11:01:04 AM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	1.9		mg/Kg	20	12/20/2017 11:01:04 AM	35592
Benzene	2.5	0.46		mg/Kg	20	12/20/2017 11:01:04 AM	35592
Toluene	30	0.93		mg/Kg	20	12/20/2017 11:01:04 AM	35592
Ethylbenzene	5.0	0.93		mg/Kg	20	12/20/2017 11:01:04 AM	35592
Xylenes, Total	48	1.9		mg/Kg	20	12/20/2017 11:01:04 AM	35592
Surr: 4-Bromofluorobenzene	112	80-120		%Rec	20	12/20/2017 11:01:04 AM	35592

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A54-004 **Matrix:** SOIL

Client Sample ID: SB-21 43'-45'
Collection Date: 12/14/2017 12:00:00 PM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/20/2017 9:28:41 PM	35589
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/20/2017 9:28:41 PM	35589
Surr: DNOP	98.5	70-130		%Rec	1	12/20/2017 9:28:41 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/20/2017 8:32:56 PM	35592
Surr: BFB	113	15-316		%Rec	1	12/20/2017 8:32:56 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	12/20/2017 8:32:56 PM	35592
Benzene	ND	0.023		mg/Kg	1	12/20/2017 8:32:56 PM	35592
Toluene	ND	0.047		mg/Kg	1	12/20/2017 8:32:56 PM	35592
Ethylbenzene	ND	0.047		mg/Kg	1	12/20/2017 8:32:56 PM	35592
Xylenes, Total	0.13	0.093		mg/Kg	1	12/20/2017 8:32:56 PM	35592
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	12/20/2017 8:32:56 PM	35592

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A54-005 **Matrix:** SOIL

Client Sample ID: SB-23 18'-20'
Collection Date: 12/14/2017 2:00:00 PM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/20/2017 10:12:31 PM	35589
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/20/2017 10:12:31 PM	35589
Surr: DNOP	91.9	70-130		%Rec	1	12/20/2017 10:12:31 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/20/2017 8:56:36 PM	35592
Surr: BFB	108	15-316		%Rec	1	12/20/2017 8:56:36 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.098		mg/Kg	1	12/20/2017 8:56:36 PM	35592
Benzene	ND	0.024		mg/Kg	1	12/20/2017 8:56:36 PM	35592
Toluene	ND	0.049		mg/Kg	1	12/20/2017 8:56:36 PM	35592
Ethylbenzene	ND	0.049		mg/Kg	1	12/20/2017 8:56:36 PM	35592
Xylenes, Total	ND	0.098		mg/Kg	1	12/20/2017 8:56:36 PM	35592
Surr: 4-Bromofluorobenzene	97.6	80-120		%Rec	1	12/20/2017 8:56:36 PM	35592

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A54-006 **Matrix:** SOIL

Client Sample ID: SB-33 43'-45'
Collection Date: 12/14/2017 2:40:00 PM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/20/2017 10:34:24 PM	35589
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/20/2017 10:34:24 PM	35589
Surr: DNOP	98.5	70-130		%Rec	1	12/20/2017 10:34:24 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/20/2017 9:20:24 PM	35592
Surr: BFB	110	15-316		%Rec	1	12/20/2017 9:20:24 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	12/20/2017 9:20:24 PM	35592
Benzene	ND	0.025		mg/Kg	1	12/20/2017 9:20:24 PM	35592
Toluene	ND	0.050		mg/Kg	1	12/20/2017 9:20:24 PM	35592
Ethylbenzene	ND	0.050		mg/Kg	1	12/20/2017 9:20:24 PM	35592
Xylenes, Total	ND	0.099		mg/Kg	1	12/20/2017 9:20:24 PM	35592
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	12/20/2017 9:20:24 PM	35592

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#: **1712A54**

21-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **LCS-35589**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35589**	RunNo: **47873**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535639** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.5	73.2	114			
Surr: DNOP	4.9		5.000		97.8	70	130			

Sample ID **MB-35589**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35589**	RunNo: **47873**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535640** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		102	70	130			

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#: **1712A54**

21-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **MB-35592**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535301** 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	1100		1000		108	15	316			

Sample ID **LCS-35592**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535302** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	5.0	25.00	0	123	75.9	131			
Surr: BFB	1200		1000		121	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#: **1712A54**

21-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **MB-35592**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535333** 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	0.98		1.000		97.8	80	120			

Sample ID **LCS-35592**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535334** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.86	0.10	1.000	0	86.5	70.1	121			
Benzene	0.91	0.025	1.000	0	91.0	77.3	128			
Toluene	0.94	0.050	1.000	0	93.8	79.2	125			
Ethylbenzene	0.94	0.050	1.000	0	94.0	80.7	127			
Xylenes, Total	2.8	0.10	3.000	0	93.3	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	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: **WILLIAMS FOUR CORN** Work Order Number: **1712A54** RcptNo: 1

Received By: **Isaiah Ortiz** 12/16/2017 9:00:00 AM

Completed By: **Michelle Garcia** 12/18/2017 3:36:21 PM

Reviewed By: JMO 12/18/17

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 ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
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 ☐	Checked by: _____

Special Handling (if applicable)

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

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

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer
Mailing Address: 17755 Arroyo Dr.
Bloomfield, NM 87413
Phone #:
email or Fax#: aaron.galer@williams.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Lowery Tank Battery
Project #: Danny Burns - LTE
Project Manager:
Sampler: E. Carroll
On Ice: ☒ Yes ☐ No
Sample Temperature: 2.0

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1712A51	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)
12/14/17	09:30	Soil	SB-18 13'-15'	1 4oz	Cool	001	X		X									
	10:00		SB-18 38'-40'			002	X		X									
	11:15		SB-21 33'-35'			003	X		X									
	12:00		SB-21 43'-45'			004	X		X									
	14:00		SB-23 18'-20'			005	X		X									
	14:40		SB-33 43'-45'			006	X		X									

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/15/17	14:40	Eric Carroll		12/15/17	1746
12/15/17	1844			12/16/17	09:00

Remarks: Please cc to: dburns@ltenv.com

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.

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

December 27, 2017

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Lowery Tank Battery OrderNo.: 1712A56

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/16/2017 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712A56**
Date Reported: **12/27/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A56-001 **Matrix:** SOIL

Client Sample ID: SB-19 23'-25'
Collection Date: 12/15/2017 10:00:00 AM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/20/2017 10:56:20 PM	35589
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/20/2017 10:56:20 PM	35589
Surr: DNOP	100	70-130		%Rec	1	12/20/2017 10:56:20 PM	35589
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/20/2017 10:55:43 PM	35592
Surr: BFB	111	15-316		%Rec	1	12/20/2017 10:55:43 PM	35592
EPA METHOD 8021B: VOLATILES							Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	12/20/2017 10:55:43 PM	35592
Benzene	ND	0.024		mg/Kg	1	12/20/2017 10:55:43 PM	35592
Toluene	ND	0.049		mg/Kg	1	12/20/2017 10:55:43 PM	35592
Ethylbenzene	ND	0.049		mg/Kg	1	12/20/2017 10:55:43 PM	35592
Xylenes, Total	ND	0.097		mg/Kg	1	12/20/2017 10:55:43 PM	35592
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	12/20/2017 10:55:43 PM	35592

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

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A56-002 **Matrix:** SOIL

Client Sample ID: SB-19 43'-45'
Collection Date: 12/15/2017 10:45:00 AM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/20/2017 11:18:01 PM	35589
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/20/2017 11:18:01 PM	35589
Surr: DNOP	99.3	70-130		%Rec	1	12/20/2017 11:18:01 PM	35589
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/20/2017 11:19:30 PM	35592
Surr: BFB	109	15-316		%Rec	1	12/20/2017 11:19:30 PM	35592
EPA METHOD 8021B: VOLATILES							Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	12/20/2017 11:19:30 PM	35592
Benzene	ND	0.024		mg/Kg	1	12/20/2017 11:19:30 PM	35592
Toluene	ND	0.048		mg/Kg	1	12/20/2017 11:19:30 PM	35592
Ethylbenzene	ND	0.048		mg/Kg	1	12/20/2017 11:19:30 PM	35592
Xylenes, Total	ND	0.095		mg/Kg	1	12/20/2017 11:19:30 PM	35592
Surr: 4-Bromofluorobenzene	98.5	80-120		%Rec	1	12/20/2017 11:19:30 PM	35592

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A56-003 **Matrix:** SOIL

Client Sample ID: SB-22 28'-30'
Collection Date: 12/15/2017 11:30:00 AM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**
Diesel Range Organics (DRO)	42	9.4		mg/Kg	1	12/21/2017 12:17:34 PM	35589
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/21/2017 12:17:34 PM	35589
Surr: DNOP	105	70-130		%Rec	1	12/21/2017 12:17:34 PM	35589
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**
Gasoline Range Organics (GRO)	1200	48		mg/Kg	10	12/20/2017 11:43:17 PM	35592
Surr: BFB	255	15-316		%Rec	10	12/20/2017 11:43:17 PM	35592
EPA METHOD 8021B: VOLATILES							Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	0.97		mg/Kg	10	12/20/2017 11:43:17 PM	35592
Benzene	0.51	0.24		mg/Kg	10	12/20/2017 11:43:17 PM	35592
Toluene	ND	0.48		mg/Kg	10	12/20/2017 11:43:17 PM	35592
Ethylbenzene	1.0	0.48		mg/Kg	10	12/20/2017 11:43:17 PM	35592
Xylenes, Total	7.9	0.97		mg/Kg	10	12/20/2017 11:43:17 PM	35592
Surr: 4-Bromofluorobenzene	110	80-120		%Rec	10	12/20/2017 11:43:17 PM	35592

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712A56-004 **Matrix:** SOIL

Client Sample ID: SB-22 33'-35'
Collection Date: 12/15/2017 12:00:00 PM
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/21/2017 12:02:01 AM	35589
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/21/2017 12:02:01 AM	35589
Surr: DNOP	102	70-130		%Rec	1	12/21/2017 12:02:01 AM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/21/2017 12:07:05 AM	35592
Surr: BFB	112	15-316		%Rec	1	12/21/2017 12:07:05 AM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.094		mg/Kg	1	12/21/2017 12:07:05 AM	35592
Benzene	ND	0.023		mg/Kg	1	12/21/2017 12:07:05 AM	35592
Toluene	ND	0.047		mg/Kg	1	12/21/2017 12:07:05 AM	35592
Ethylbenzene	ND	0.047		mg/Kg	1	12/21/2017 12:07:05 AM	35592
Xylenes, Total	ND	0.094		mg/Kg	1	12/21/2017 12:07:05 AM	35592
Surr: 4-Bromofluorobenzene	99.6	80-120		%Rec	1	12/21/2017 12:07:05 AM	35592

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#: **1712A56**

27-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **LCS-35589**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35589**	RunNo: **47873**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535639** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.5	73.2	114			
Surr: DNOP	4.9		5.000		97.8	70	130			

Sample ID **MB-35589**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35589**	RunNo: **47873**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535640** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		102	70	130			

Sample ID **LCS-35648**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35648**	RunNo: **47948**
Prep Date: **12/21/2017**	Analysis Date: **12/21/2017**	SeqNo: **1536262** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		91.5	70	130			

Sample ID **MB-35648**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35648**	RunNo: **47948**
Prep Date: **12/21/2017**	Analysis Date: **12/21/2017**	SeqNo: **1536263** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.3		10.00		92.7	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#: **1712A56**

27-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **MB-35592**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535301** 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	1100		1000		108	15	316			

Sample ID **LCS-35592**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535302** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	5.0	25.00	0	123	75.9	131			
Surr: BFB	1200		1000		121	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#: **1712A56**

27-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **MB-35592**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535333** 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	0.98		1.000		97.8	80	120			

Sample ID **LCS-35592**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535334** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.86	0.10	1.000	0	86.5	70.1	121			
Benzene	0.91	0.025	1.000	0	91.0	77.3	128			
Toluene	0.94	0.050	1.000	0	93.8	79.2	125			
Ethylbenzene	0.94	0.050	1.000	0	94.0	80.7	127			
Xylenes, Total	2.8	0.10	3.000	0	93.3	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	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: WILLIAMS FOUR CORN Work Order Number: 1712A55 RcptNo: 1

Received By: Isaiah Ortiz 12/16/2017 9:00:00 AM I Ortiz
Completed By: Michelle Garcia 12/18/2017 3:45:09 PM Michelle Garcia
Reviewed By: DDS 12/19/17

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 ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
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 ☐	Checked by:

Special Handling (if applicable)

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

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

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer
Mailing Address: 17755 Arroyo Dr.
Bloomfield, NM 87413
Phone #:
email or Fax#: aaron.galer@williams.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Lowery Tank Battery
Project #:
Project Manager: Danny Burns - LTE
Sampler: E. Carroll
On Ice: ☒ Yes ☐ No
Sample Temperature: 2.0

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. 1712456	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)
12/15/17	10:00	Soil	SB-19 23'-25'	1 4oz	Cool	001	X		X													
↓	10:45	↓	SB-19 43'-45'	↓	↓	002	X		X													
	11:30		SB-22 28'-30'			003	X		X													
↓	12:00	↓	SB-22 33'-35'	↓	↓	004	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/15/17	14:40	Ecce Carroll		12/15/17	1440
Date:	Time:	Relinquished by:	Received by:	Date	Time
12/15/17	1824			12/16/17	09:00

Remarks: Please cc to: dburns@ltenv.com

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.

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

December 20, 2017

Danny Burns
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Lowery Tank Battery

OrderNo.: 1712737

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 6 sample(s) on 12/13/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712737**
Date Reported: **12/20/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712737-001 **Matrix:** SOIL

Client Sample ID: SB-16 25'-30'
Collection Date: 12/11/2017 11:00:00 AM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	350	9.2		mg/Kg	1	12/19/2017 4:48:33 PM	35562
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/19/2017 4:48:33 PM	35562
Surr: DNOP	104	70-130		%Rec	1	12/19/2017 4:48:33 PM	35562
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	1500	46		mg/Kg	10	12/14/2017 7:41:23 PM	35496
Surr: BFB	571	15-316	S	%Rec	10	12/14/2017 7:41:23 PM	35496
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.71	0.23		mg/Kg	10	12/14/2017 7:41:23 PM	35496
Toluene	25	0.46		mg/Kg	10	12/14/2017 7:41:23 PM	35496
Ethylbenzene	4.4	0.46		mg/Kg	10	12/14/2017 7:41:23 PM	35496
Xylenes, Total	57	0.93		mg/Kg	10	12/14/2017 7:41:23 PM	35496
Surr: 4-Bromofluorobenzene	139	80-120	S	%Rec	10	12/14/2017 7:41:23 PM	35496

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712737-002 **Matrix:** SOIL

Client Sample ID: SB-16 47'-50'
Collection Date: 12/11/2017 11:30:00 AM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	68	9.9		mg/Kg	1	12/19/2017 5:54:47 PM	35562
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/19/2017 5:54:47 PM	35562
Surr: DNOP	97.6	70-130		%Rec	1	12/19/2017 5:54:47 PM	35562
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	3000	96		mg/Kg	20	12/15/2017 2:07:14 PM	35496
Surr: BFB	214	15-316		%Rec	20	12/15/2017 2:07:14 PM	35496
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	11	0.48		mg/Kg	20	12/15/2017 2:07:14 PM	35496
Toluene	51	0.96		mg/Kg	20	12/15/2017 2:07:14 PM	35496
Ethylbenzene	7.5	0.96		mg/Kg	20	12/15/2017 2:07:14 PM	35496
Xylenes, Total	75	1.9		mg/Kg	20	12/15/2017 2:07:14 PM	35496
Surr: 4-Bromofluorobenzene	120	80-120		%Rec	20	12/15/2017 2:07:14 PM	35496

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712737-003 **Matrix:** SOIL

Client Sample ID: SB-20 35'-40'
Collection Date: 12/11/2017 1:00:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	12/19/2017 6:16:40 PM	35562
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/19/2017 6:16:40 PM	35562
Surr: DNOP	96.5	70-130		%Rec	1	12/19/2017 6:16:40 PM	35562
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	9.5	4.7		mg/Kg	1	12/15/2017 2:54:22 PM	35496
Surr: BFB	93.0	15-316		%Rec	1	12/15/2017 2:54:22 PM	35496
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/15/2017 2:54:22 PM	35496
Toluene	ND	0.047		mg/Kg	1	12/15/2017 2:54:22 PM	35496
Ethylbenzene	ND	0.047		mg/Kg	1	12/15/2017 2:54:22 PM	35496
Xylenes, Total	ND	0.095		mg/Kg	1	12/15/2017 2:54:22 PM	35496
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	1	12/15/2017 2:54:22 PM	35496

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712737-004 **Matrix:** SOIL

Client Sample ID: SB-20 40'-45'
Collection Date: 12/11/2017 1:00:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/19/2017 6:38:45 PM	35562
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/19/2017 6:38:45 PM	35562
Surr: DNOP	83.2	70-130		%Rec	1	12/19/2017 6:38:45 PM	35562
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/14/2017 8:52:19 PM	35496
Surr: BFB	118	15-316		%Rec	1	12/14/2017 8:52:19 PM	35496
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/14/2017 8:52:19 PM	35496
Toluene	ND	0.047		mg/Kg	1	12/14/2017 8:52:19 PM	35496
Ethylbenzene	ND	0.047		mg/Kg	1	12/14/2017 8:52:19 PM	35496
Xylenes, Total	ND	0.095		mg/Kg	1	12/14/2017 8:52:19 PM	35496
Surr: 4-Bromofluorobenzene	99.9	80-120		%Rec	1	12/14/2017 8:52:19 PM	35496

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712737-005 **Matrix:** SOIL

Client Sample ID: SB-17 0'-5'
Collection Date: 12/11/2017 2:45:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/19/2017 7:00:45 PM	35562
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/19/2017 7:00:45 PM	35562
Surr: DNOP	74.5	70-130		%Rec	1	12/19/2017 7:00:45 PM	35562
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/14/2017 9:15:54 PM	35496
Surr: BFB	116	15-316		%Rec	1	12/14/2017 9:15:54 PM	35496
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	12/14/2017 9:15:54 PM	35496
Toluene	ND	0.047		mg/Kg	1	12/14/2017 9:15:54 PM	35496
Ethylbenzene	ND	0.047		mg/Kg	1	12/14/2017 9:15:54 PM	35496
Xylenes, Total	ND	0.093		mg/Kg	1	12/14/2017 9:15:54 PM	35496
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	12/14/2017 9:15:54 PM	35496

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: Williams Four Corners
Project: Lowery Tank Battery
Lab ID: 1712737-006 **Matrix:** SOIL

Client Sample ID: SB-17 40'-45'
Collection Date: 12/11/2017 3:15:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	12/19/2017 7:22:51 PM	35562
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	12/19/2017 7:22:51 PM	35562
Surr: DNOP	82.4	70-130		%Rec	1	12/19/2017 7:22:51 PM	35562
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/14/2017 9:39:35 PM	35496
Surr: BFB	115	15-316		%Rec	1	12/14/2017 9:39:35 PM	35496
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	12/14/2017 9:39:35 PM	35496
Toluene	ND	0.047		mg/Kg	1	12/14/2017 9:39:35 PM	35496
Ethylbenzene	ND	0.047		mg/Kg	1	12/14/2017 9:39:35 PM	35496
Xylenes, Total	ND	0.093		mg/Kg	1	12/14/2017 9:39:35 PM	35496
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	12/14/2017 9:39:35 PM	35496

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#: **1712737**

20-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **LCS-35586** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **35586** RunNo: **47873**
Prep Date: **12/19/2017** Analysis Date: **12/19/2017** SeqNo: **1532225** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		89.2	70	130			

Sample ID **MB-35586** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **35586** RunNo: **47873**
Prep Date: **12/19/2017** Analysis Date: **12/19/2017** SeqNo: **1532226** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.9		10.00		89.2	70	130			

Sample ID **1712737-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SB-16 25'-30'** Batch ID: **35562** RunNo: **47873**
Prep Date: **12/18/2017** Analysis Date: **12/19/2017** SeqNo: **1534485** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	280	9.3	46.25	352.0	-155	55.8	125			S
Surr: DNOP	4.7		4.625		102	70	130			

Sample ID **1712737-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SB-16 25'-30'** Batch ID: **35562** RunNo: **47873**
Prep Date: **12/18/2017** Analysis Date: **12/19/2017** SeqNo: **1534486** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	420	9.4	47.08	352.0	141	55.8	125	39.6	20	RS
Surr: DNOP	4.7		4.708		99.9	70	130	0	0	

Sample ID **LCS-35562** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **35562** RunNo: **47873**
Prep Date: **12/18/2017** Analysis Date: **12/19/2017** SeqNo: **1534506** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	88.3	73.2	114			
Surr: DNOP	4.5		5.000		89.9	70	130			

Sample ID **MB-35562** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **35562** RunNo: **47873**
Prep Date: **12/18/2017** Analysis Date: **12/19/2017** SeqNo: **1534507** 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								

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#: **1712737**

20-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **MB-35562**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35562**	RunNo: **47873**
Prep Date: **12/18/2017**	Analysis Date: **12/19/2017**	SeqNo: **1534507** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.4		10.00		94.3	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
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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#: **1712737**

20-Dec-17

Client: Williams Four Corners
Project: Lowery Tank Battery

Sample ID **MB-35496**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35496**	RunNo: **47788**
Prep Date: **12/13/2017**	Analysis Date: **12/14/2017**	SeqNo: **1528542** 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	1300		1000		130	15	316			

Sample ID **LCS-35496**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35496**	RunNo: **47788**
Prep Date: **12/13/2017**	Analysis Date: **12/14/2017**	SeqNo: **1528543** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	30	5.0	25.00	0	118	75.9	131			
Surr: BFB	1300		1000		135	15	316			

Sample ID **1712737-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SB-16 47'-50'**	Batch ID: **35496**	RunNo: **47788**
Prep Date: **12/13/2017**	Analysis Date: **12/14/2017**	SeqNo: **1528549** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	3000	4.9	24.37	2604	1790	77.8	128			ES
Surr: BFB	12000		974.7		1220	15	316			S

Sample ID **1712737-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SB-16 47'-50'**	Batch ID: **35496**	RunNo: **47788**
Prep Date: **12/13/2017**	Analysis Date: **12/14/2017**	SeqNo: **1528550** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	3500	4.7	23.32	2604	3640	77.8	128	12.7	20	ES
Surr: BFB	11000		932.8		1170	15	316	0	0	S

Sample ID **MB-35517**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35517**	RunNo: **47817**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530380** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	960		1000		96.2	15	316			

Sample ID **LCS-35517**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35517**	RunNo: **47817**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530381** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	970		1000		96.9	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#: **1712737**

20-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **MB-35496** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **35496** RunNo: **47788**

Prep Date: **12/13/2017** Analysis Date: **12/14/2017** SeqNo: **1528572** 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		112	80	120			

Sample ID **LCS-35496** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **35496** RunNo: **47788**

Prep Date: **12/13/2017** Analysis Date: **12/14/2017** SeqNo: **1528573** 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	93.6	77.3	128			
Toluene	0.96	0.050	1.000	0	95.6	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	95.5	80.7	127			
Xylenes, Total	2.8	0.10	3.000	0	94.3	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Sample ID **1712737-001AMS** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **SB-16 25'-30'** Batch ID: **35496** RunNo: **47788**

Prep Date: **12/13/2017** Analysis Date: **12/14/2017** SeqNo: **1528576** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.7	0.24	0.9434	0.7144	106	80.9	132			
Toluene	21	0.47	0.9434	24.61	-404	79.8	136			S
Ethylbenzene	4.8	0.47	0.9434	4.406	42.6	79.4	140			S
Xylenes, Total	50	0.94	2.830	57.40	-274	78.5	142			S
Surr: 4-Bromofluorobenzene	13		9.434		136	80	120			S

Sample ID **1712737-001AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **SB-16 25'-30'** Batch ID: **35496** RunNo: **47788**

Prep Date: **12/13/2017** Analysis Date: **12/14/2017** SeqNo: **1528577** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.5	0.23	0.9285	0.7144	86.2	80.9	132	12.2	20	
Toluene	19	0.46	0.9285	24.61	-634	79.8	136	10.5	20	S
Ethylbenzene	4.6	0.46	0.9285	4.406	17.7	79.4	140	5.07	20	S
Xylenes, Total	48	0.93	2.786	57.40	-348	78.5	142	3.98	20	S
Surr: 4-Bromofluorobenzene	13		9.285		135	80	120	0	0	S

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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#: **1712737**

20-Dec-17

Client: Williams Four Corners

Project: Lowery Tank Battery

Sample ID **MB-35517**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35517**	RunNo: **47817**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530395** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		114	80	120			

Sample ID **LCS-35517**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35517**	RunNo: **47817**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530396** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		110	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
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HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: WILLIAMS FOUR CORN Work Order Number: 1712737 RcptNo: 1

Received By: Anne Thorne 12/13/2017 7:00:00 AM Anne Thorne
Completed By: Michelle Garcia 12/13/2017 9:33:41 AM Michelle Garcia
Reviewed By: DDS 12/13/17

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 ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
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 ☐	Checked by:

Special Handling (if applicable)

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

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

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners

Aaron Galer

Mailing Address: 17755 Arroyo Dr.

Bloomfield, NM 87413

Phone #:

email or Fax#: aaron.galer@williams.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☒ EDD (Type) PDF

Turn-Around Time:

☒ Standard ☐ Rush _____

Project Name: Lowery Tank Battery

Project #:

Project Manager: Danny Burns - LTE

Sampler: Eric Carroll

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

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. 1712737	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)
12/11/17	11:00	Soil	SB-16 25'-30'	1 4oz	cool	-001	X		X									
	11:30		SB-16 47'-50'			-002	X		X									
	13:00		SB-20 35'-40'			-003	X		X									
	13:20		SB-20 40'-45'			-004	X		X									
	14:45		SB-17 0'-5'			-005	X		X									
	15:15		SB-17 40'-45'			-006	X		X									

Date	Time	Relinquished by	Received by	Date	Time
12/12/17	13:30			12-12-17	1330
12-12-17	1530			12/12/17	1530

Remarks:

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.