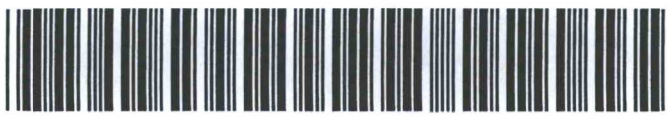
AE Order Number Banner

Report Description

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



App Number: pJK1424834050

3RP - 1013

Williams Four Corners, LLC

3/1/2018

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

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 ☐ Final Report

Name of Company: **Williams Four Corners LLC**	Contact: **Kijun Hong**
Address: **1755 Arroyo Dr., Farmington, NM 87413**	Telephone No.: **(505) 632-4475**
Facility Name: **Lateral L-2**	Facility Type: **Pipeline**

Surface Owner: **BLM**	Mineral Owner	BLM Project No. **NMNM0013315**

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	**14**	**28N**	**10W**					**San Juan**

Latitude 36.6602 **Longitude** -107.8595

NATURE OF RELEASE

Type of Release: **Natural Gas**	Volume of Release: **144 MCF**	Volume Recovered: **0 MCF**
Source of Release: **Pipeline**	Date and Hour of Occurrence: **07/20/2017 at 4:00 PM**	Date and Hour of Discovery: **07/20/2017 at 4:00 PM**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? **NA**	
By Whom? **NA**	Date and Hour: **NA**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. **NA**	

If a Watercourse was Impacted, Describe Fully.*
NA

Describe Cause of Problem and Remedial Action Taken.*
Line leak discovered by survey crew. Leak has been repaired

Describe Area Affected and Cleanup Action Taken.*
Currently in progress.

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: 8/31/2017 Expiration Date:
E-mail Address: **kijun.hong@williams.com**	Conditions of Approval: — Attached ☐
Date: **08/2/2017** Phone: **(505) 632-4475**	

* Attach Additional Sheets If Necessary

NVF1724832528

OIL CONS. DIV DIST. 3

AUG 07 2017

3

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 8/7/17 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _____ has been assigned. **Please refer to this case number in all future correspondence.**
NVF1724832528

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District III office in 30 days_ on or before** 9/7/17**. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

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

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

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

- Composite sampling is not generally allowed.

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

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

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

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

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

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

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

OIL CONS. DIV DIST. 3

FEB 12 2018

District I
1625 N. French Dr., Hobbs, NM 88240
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811 S. First St., Artesia, NM 88210
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State of New Mexico
Energy Minerals and Natural Resources

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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 ☐ Final Report

Name of Company: **Williams Four Corners LLC**	Contact: **Kijun Hong**
Address: **1755 Arroyo Dr., Farmington, NM 87413**	Telephone No.: **(505) 632-4475**
Facility Name: **Kutz Government 7**	Facility Type: **Pipeline**

Surface Owner: **State of NM**	Mineral Owner	BLM Project No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	**3**	**27N**	**10W**					**San Juan**

Latitude 36.598556 Longitude -107.887000

NATURE OF RELEASE

Type of Release: **Natural Gas**	Volume of Release: **Gas loss calculation pending Liquids estimated at 10 BBLs**	Volume Recovered: **0 MCF**
Source of Release: **Pipeline**	Date and Hour of Occurrence: **1/26/2018 @ 2:30 PM**	Date and Hour of Discovery: **1/26/2018 @ 3:30 PM**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Vanessa Fields**	
By Whom? **Kijun Hong**	Date and Hour: **1/26/2018@4:36PM**	
Was a Watercourse Reached? ☒ Yes ☐ No	If YES, Volume Impacting the Watercourse. **Approximately 1 BBL of produced water/condensate mix impacted a dry wash to the south of the location.**	

If a Watercourse was Impacted, Describe Fully.* **Approximately 10 BBLs of produced water/condensate mix was released from the pipeline failure and ran about 180ft down the lease road to reached the dry wash to the south and impacted about 60ft of the wash.**

Describe Cause of Problem and Remedial Action Taken.*
Failure of the pipeline resulted in a gas/liquids release which ran down the lease road and reached/impacted a dry wash to the south of the location. Upon discovery, the well was shut in, and the upstream meter valve and downstream tie in valve were closed to isolate the failed section of pipeline. A crew was dispatched the next morning to begin remediation.

Describe Area Affected and Cleanup Action Taken.*
Clean up currently in progress.

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 Approved by Environmental Specialist:
Printed Name: **Kijun Hong**	
Title: **Environmental Specialist**	Approval Date: 2/22/18 Expiration Date:
E-mail Address: **kijun.hong@williams.com**	Conditions of Approval: -7 Attached ☒
Date: **2/8/2018** Phone: **(505) 632-4475**	

* Attach Additional Sheets If Necessary

NVF1805335187

3

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 2/12/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _____ has been assigned. **Please refer to this case number in all future correspondence.**

NVF1805335187

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District III office in 30 days_ on or before_____. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

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- Composite sampling is not generally allowed.

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

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

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

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

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Energy Minerals and Natural Resources

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

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 ☒ Final Report

Name of Company Williams Four Corners LLC	Contact Michael Hannan
Address 1755 Arroyo Drive	Telephone No. 505-632-4807
Facility Name Royce Canyon Former Drip Tank Location	Facility Type Former Tank Battery

Surface Owner Private	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
E	11	29N	6W					San Juan

Latitude 36.741548° N **Longitude** -107.43981° W

NATURE OF RELEASE

Type of Release Petroleum Hydrocarbons	Volume of Release unknown	Volume Recovered see attached remedial report
Source of Release Historical Operations	Date and Hour of Occurrence Unknown	Date and Hour of Discovery June 27, 2017
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. Not Applicable	

If a Watercourse was Impacted, Describe Fully.*

Not Applicable

NMOCD
FEB 28 2018
DISTRICT III

Describe Cause of Problem and Remedial Action Taken.*

See attached remedial report.

Describe Area Affected and Cleanup Action Taken.*

See attached remedial report.

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: Michael Hannan	OIL CONSERVATION DIVISION
Printed Name: Michael Hannan	Approved by Environmental Specialist:
Title: Engineer, Sr.	Approval Date: 2/28/18 Expiration Date:
E-mail Address: michael.hannan@williams.com	Conditions of Approval: — Attached ☐
Date: 2/28/2018 Phone: 505-632-4807	

* Attach Additional Sheets If Necessary

#NCS1725641456

122

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

February 16, 2018

Mr. Cory Smith
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

RE: Soil Boring Delineation and Excavation Confirmation Sampling Summary Report
Royce Canyon Former Drip Tank
Williams Four Corners LLC
Rio Arriba County, New Mexico

Dear Mr. Smith:

LT Environmental, Inc. (LTE), on behalf of Williams Four Corners LLC (Williams), conducted a preliminary subsurface investigation consisting of soil borings and subsequent confirmation soil sampling events following excavation remediation activities at the Royce Canyon Former Drip Tank (Site) located in the southwest quarter of the northwest quarter of Section 11, Township 29 North, and Range 6 West in the San Juan Basin in Rio Arriba County, New Mexico (Figure 1).

BACKGROUND

Soil at the Site was believed to be impacted by petroleum hydrocarbons due to historical releases from a former drip tank in use at the convergence of several natural gas lines. Suspected impacted soil was confirmed by a 5-point composite soil sample collected on October 5, 2015, containing a concentration of 1,700 milligram per kilogram (mg/kg) total petroleum hydrocarbons (TPH)-diesel range organics (DRO). No benzene, toluene, ethylbenzene, or total xylenes (BTEX) or TPH-gasoline range organics (GRO) and TPH-motor oil range organics (MRO) were detected. Based on those results, Williams advanced potholes to approximately 4 feet to 5 feet below ground surface (bgs) in the corners of the former drip tank bermed area. Field observations indicated the northeast corner of the area was impacted, but no visual soil impacts were observed in the northwest, southwest, or southeast corners during the preliminary shallow subsurface investigation.

Groundwater at the Site is estimated to be greater than 100 feet bgs. There is no water well or livestock well within 1,000 feet of the Site. The closest livestock well is approximately 1,459 feet northwest of the Site. The nearest surface water is a dry wash located approximately 258 feet southwest of the Site. Based on these criteria, New Mexico Oil Conservation Division (NMOCD) site ranking for remediation action levels is a 10. Per this ranking, the NMOCD remediation action levels for benzene is 10 mg/kg, total BTEX is 50 mg/kg, and total TPH (sum of TPH-GRO, TPH-DRO, and TPH-MRO) is 1,000 mg/kg.

SOIL BORING DELINEATION SUMMARY AND RESULTS

On October 19, 20, 26, and 27, 2017 and November 15-16, 2017, LTE conducted a subsurface soil investigation to laterally and vertically define soil impacts at the Site. LTE advanced 14 soil borings (BH01 through BH14) using a CME 55 truck-mounted hollow-stem auger drill rig in and around the suspected historical release location. Soil boring locations are depicted on Figure 2. Soil borings were logged by an LTE geologist and described using the Unified Soil Classification System to delineate hydrocarbon impacts in the subsurface. The intervals from immediately beneath the ground surface and then every five feet thereafter were screened 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 collected from the section of core with the highest PID values and a soil 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, and delivered 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 8260/8021 and TPH-GRO, DRO, and MRO per USEPA Method 8015. Soil boring logs are included in Attachment 1.

Laboratory analytical results indicated that total BTEX and total TPH concentrations from soil samples BH01@3-5', BH02@13'-15', and BH05@10' exceeded the applicable remediation action levels for this Site. The total BTEX concentration exceedances ranged from 88.1 mg/kg in BH02@13-15' to 317.8 mg/kg in BH05@10'. The total TPH exceedances ranged from 1,348 mg/kg in BH02@13-15' to 10,300 mg/kg in BH01@3-5'. All remaining borehole soil samples submitted for laboratory analysis were in compliance with the applicable remediation action levels for benzene, total BTEX, and total TPH. The analytical results and field screening data are summarized in Table 1. The complete laboratory analytical reports are included as Attachment 2.

EXCAVATION ACTIVITIES AND CONFIRMATION SAMPLE RESULTS

NORTH EAST EXCAVTION

Following receipt of the soil boring laboratory analytical results, it was determined that excavation of the soil impacts within the former drip tank area would be the correct approach to remediation based on lithology, concentration, and extent of historical impacts to soil. Beginning in November 2017, Williams excavated at the identified subsurface impacts near boreholes BH01 and BH02 on the northeast side of the former drip tank area (Figure 2). On November 27, 2017, Williams personnel collected 5-point composite confirmation soil samples from the sidewalls and floor of the excavation under the observation of the NMOCD. A total of six sidewall and two floor confirmation soil samples were collected and submitted to Hall for analysis of BTEX and TPH following the same procedures previously described. Laboratory analytical results indicated all eight confirmation soil samples were in compliance with the applicable remediation action levels

for benzene, total BTEX, and total TPH. The excavation extent and soil sample locations are depicted on Figure 3.

SOUTH WEST EXCAVTION

The excavation crew then moved to the area surrounding borehole BH05 where soil impacts were previously identified, to begin a second excavation southwest of an existing pipeline. Between December 6 and December 27, 2017, there were five separate confirmation soil sampling events conducted in the presence of the NMOCD to determine if additional remediation was necessary. Upon receiving the laboratory analytical results from each confirmation sampling event, any excavation areas represented by a composite confirmation sample that exhibited benzene, total BTEX, or total TPH concentrations that exceeded the applicable remediation action levels were designated for further excavation. Following additional excavation, subsequent confirmation soil samples were collected under the supervision of the NMOCD. A total of ten sidewall samples and two floor samples were collected to confirm the excavated area was in compliance with the applicable remediation action levels for benzene, total BTEX, and total TPH. The excavation extent and soil sample locations are depicted on Figure 3.

In total, approximately 3,068 cubic yards of soil were excavated and transported for disposal. Two soil samples were collected from the overburden stockpile on site confirming that the soil was in compliance with remediation action levels to be used for backfill. Analytical results for soil samples are presented in Table 1, and the complete laboratory analytical reports are included as Attachment 2.

CONCLUSIONS

Fourteen soil borings were advanced around the former drip tank location to define the lateral and vertical extent of impacts. Laboratory analytical results identified the areas where excavation would be necessary. Groundwater was not encountered in any borehole.

Excavation confirmation soil samples did not exhibit any BTEX or total TPH concentrations that exceeded NMOCD remediation action levels, and confirmed that Williams had successfully remediated the historical impacts to the soil. Williams requests that a No Further Action Status be granted by the NMOCD for closure of this Site.

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

Sincerely,

LT ENVIRONMENTAL, INC.

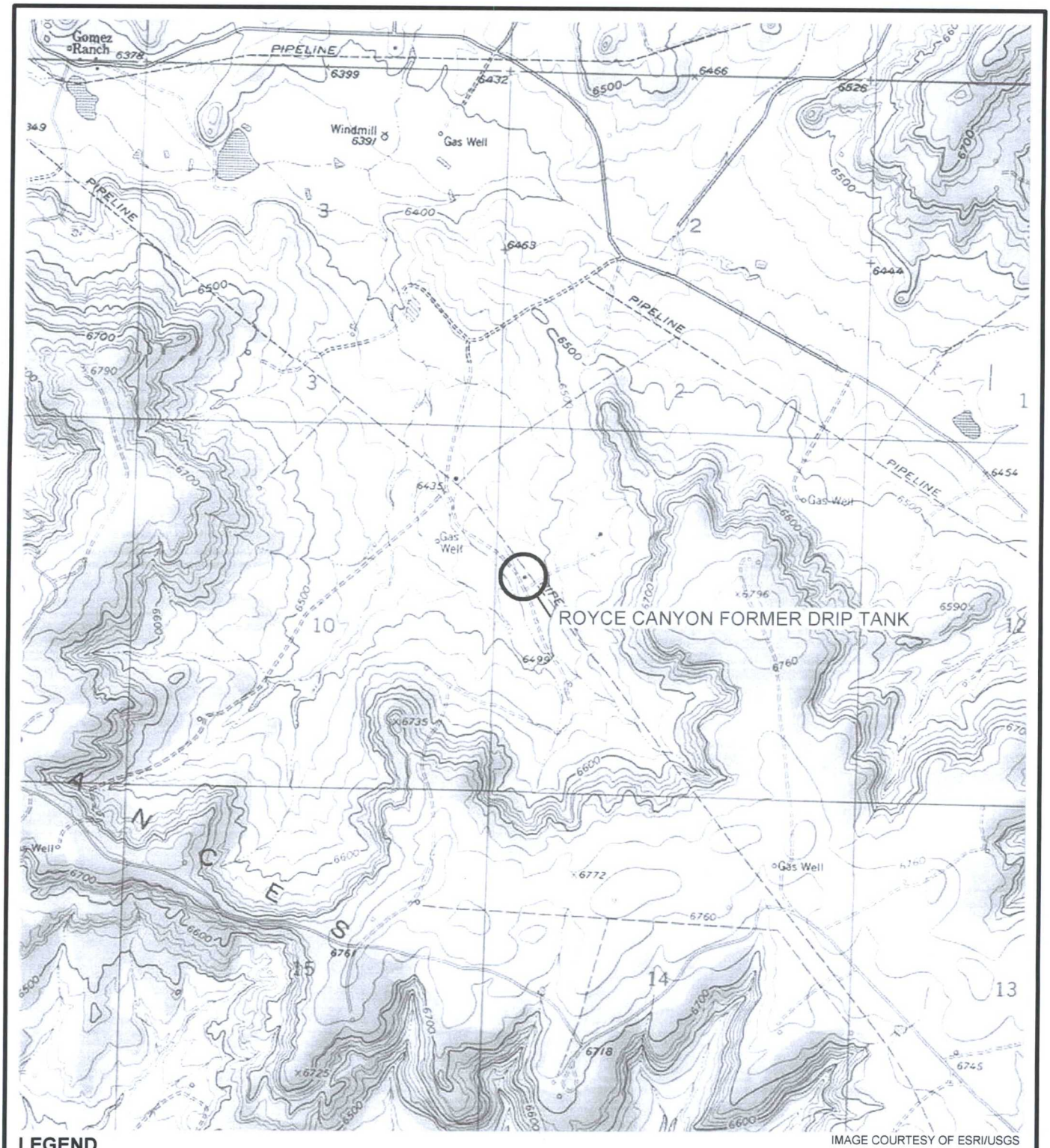
Danny Burns
Project Geologist

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

Attachments:

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

FIGURES



LEGEND

○ SITE LOCATION

0 2,000 4,000

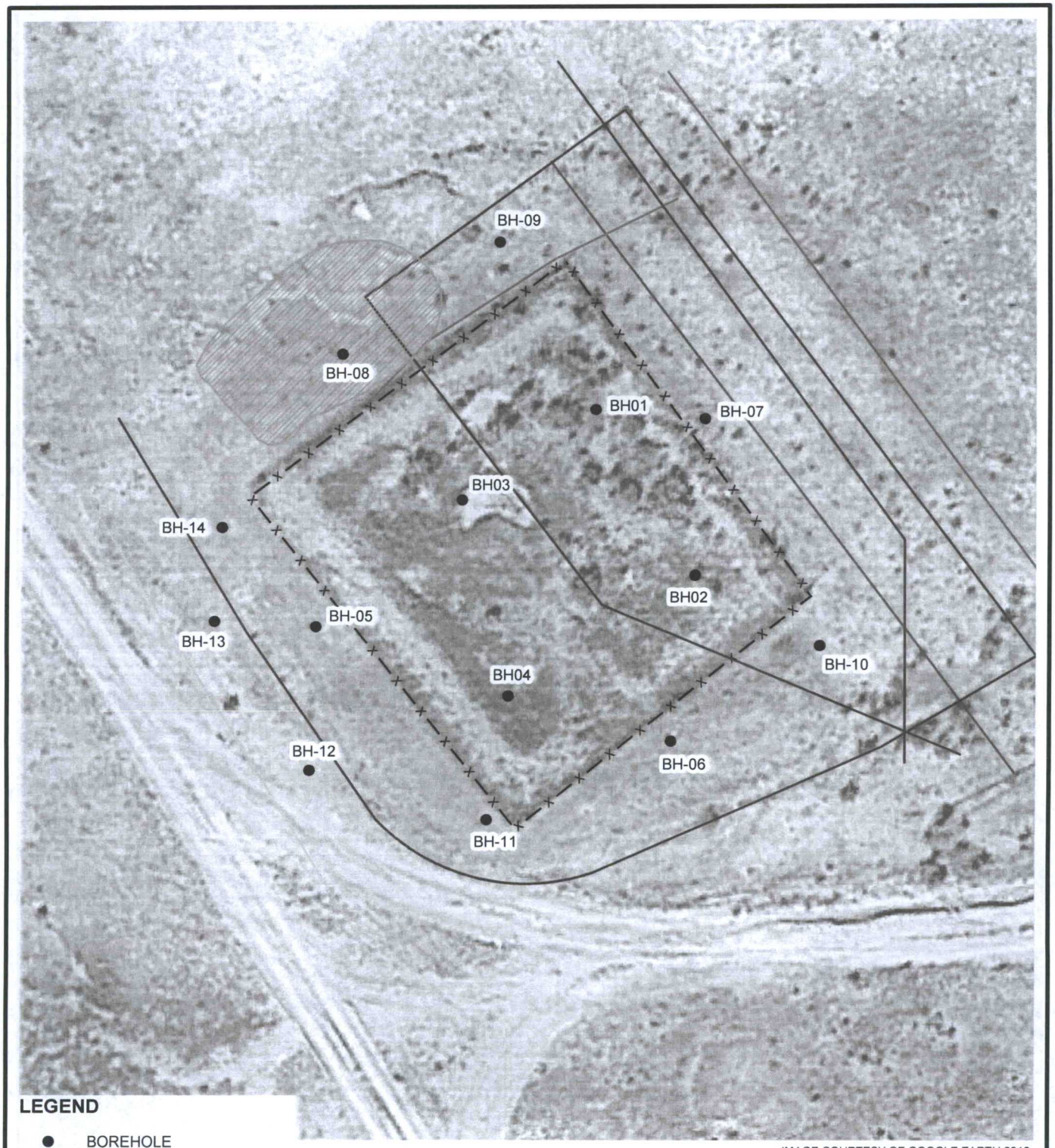
Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
ROYCE CANYON FORMER DRIP TANK
SWNW SEC 11 T29N R6W
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

P:\Williams Four Corners\GIS\MXD\034017013_ROYCE CANYON\034017013_FIG01_SL_2017.mxd



LEGEND

- BOREHOLE
- FENCE
- HILCORP 6" PIPELINE
- WFS 20" PIPELINE
- WFS 30" PIPELINE
- WFS 4" PIPELINE
- WFS PIPELINE
- WFS UNKNOWN PIPELINE
- OVERBURDEN STOCK PILE

IMAGE COURTESY OF GOOGLE EARTH 2016

0 30 60

Feet

N

FIGURE 2
SITE - BOREHOLE LOCATION MAP
ROYCE CANYON FORMER DRIP TANK
SWNW SEC 11 T29N R6W
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

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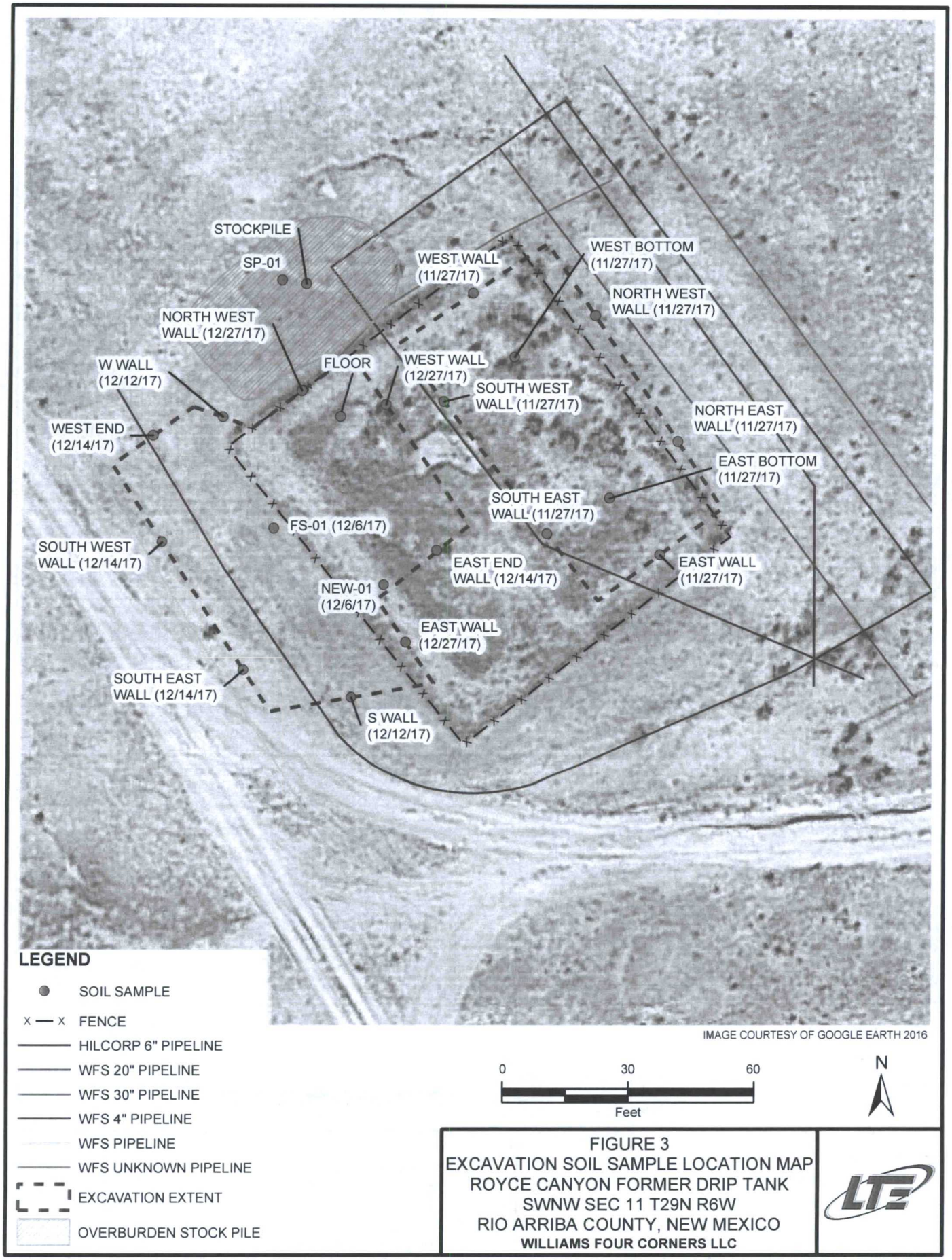

FIGURE 3
EXCAVATION SOIL SAMPLE LOCATION MAP
ROYCE CANYON FORMER DRIP TANK
SWNW SEC 11 T29N R6W
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

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TABLES

TABLE 1
SOIL ANALYTICAL RESULTS

ROYCE CANYON FORMER DRIP TANK
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

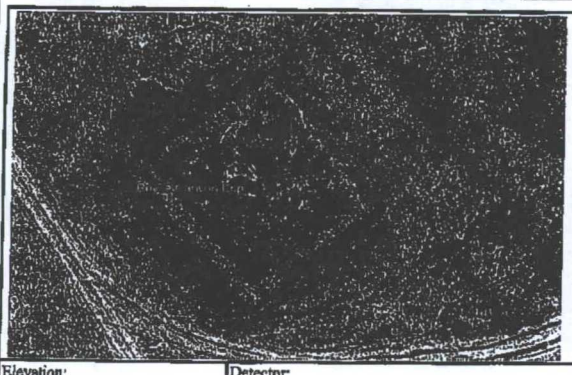
Sample ID	Sample Date	Vapor (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/kg)
Borehole Samples											
BH01 @ 3-5'	10/19/2017	1,183	5.0	60	14	220	**299**	5,600	2,400	2,300	**10,300**
BH01 @ 15-17'	10/19/2017	964	<0.018	0.093	<0.037	0.44	0.533	21	26	<48	47
BH01 @ 33-35'	10/19/2017	105	0.045	0.46	<0.047	0.38	0.885	<4.7	<9.4	<47	<61.1
BH02 @ 13-15'	10/19/2017	827	<0.12	25	5.1	58	**88.1**	1,100	180	68	**1,348**
BH02 @ 24-25'	10/19/2017	84	<0.024	<0.049	<0.049	<0.097	<0.219	<4.9	<9.5	<47	<61.4
BH03 @ 0-5'	10/19/2017	1,685	0.40	8.1	1.3	17	26.80	440	290	<47	730
BH03 @ 33-35'	10/19/2017	361	<0.024	0.069	<0.048	<0.097	0.069	<4.8	51	<50	51
BH04 @ 19-20'	10/19/2017	1,165	0.11	0.90	0.14	1.6	2.75	71	<9.3	<46	71
BH04 @ 34-35'	10/19/2017	764	0.22	1.8	0.18	2.7	4.9	54	39	<46	93
BH05 @ 10'	10/26/2017	1,194	3.8	110	14	190	**317.8**	6,000	570	290	**6,860**
BH05 @ 45'	10/26/2017	31	<0.024	0.15	<0.048	<0.096	0.15	<4.8	<9.6	<48	<62.4
BH06 @ 35'	10/27/2017	1,902	0.083	0.63	<0.047	0.98	1.693	10	37	<48	47
BH06 @ 50'	10/27/2017	488	<0.025	0.17	<0.049	0.15	0.32	<4.9	<9.3	<47	<61.2
BH07 @ 20'	10/27/2017	352	<0.025	<0.050	<0.050	<0.10	<0.225	<5.0	19	<50	19
BH07 @ 30'	10/27/2017	15	<0.024	<0.049	<0.049	<0.097	<0.219	<4.9	<8.4	<42	<55.3
BH08 @ 15'	10/27/2017	701	<0.024	<0.047	<0.047	<0.095	<0.213	<4.7	<10	<51	<65.7
BH08 @ 35'	10/27/2017	77	0.030	0.15	<0.049	0.16	0.340	<4.9	<9.5	<47	<61.4
BH09 @ 20-22'	11/15/2017	309	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	38	<48	38
BH09 @ 33-35'	11/15/2017	29	0.084	0.45	<0.046	0.21	0.74	<4.6	<9.2	<46	<59.8
BH10 @ 23-25'	11/15/2017	114	0.048	0.30	<0.049	0.22	0.57	<4.9	31	<47	31
BH10 @ 28-30'	11/15/2017	78	<0.024	<0.048	<0.048	<0.095	<0.215	<4.8	26	<47	26
BH11 @ 38-40'	11/16/2017	1,994	<0.025	0.057	<0.050	0.20	0.257	6.7	<9.7	<49	6.7
BH11 @ 48-50'	11/16/2017	65	<0.023	<0.047	<0.047	<0.093	<0.210	<4.7	<9.3	<46	<60
BH12 @ 23-25'	11/16/2017	169	<0.024	<0.048	<0.048	<0.095	<0.215	<4.8	15	<46	15
BH12 @ 28-30'	11/16/2017	72	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	<9.7	<48	<62.5
BH13 @ 23-25'	11/16/2017	308	<0.025	<0.049	<0.049	<0.099	<0.222	<4.9	21	<46	21
BH13 @ 33-35'	11/16/2017	121	0.031	0.24	<0.048	0.470	0.741	<4.8	<9.8	<49	<63.6
BH14 @ 8-10'	11/16/2017	2,166	<0.25	2.3	<0.49	28	30.3	810	120	<48	930
BH14 @ 28-30'	11/16/2017	253	0.93	6.0	0.23	6.3	13.46	46	<10	<50	46
North East Excavation Confirmation Samples											
North East Wall	11/27/2017	NM	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	<9.6	<48	<62.4
North West Wall	11/27/2017	NM	<0.023	<0.046	<0.046	<0.093	<0.208	<4.6	<9.3	<46	<59.9
South East Wall	11/27/2017	NM	<0.024	<0.047	0.056	0.37	0.426	25	16	<47	41
South West Wall	11/27/2017	NM	<0.046	<0.092	0.22	1.5	1.72	68	110	<46	178
East Wall	11/27/2017	NM	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	<10	<50	<64.8
West Wall	11/27/2017	NM	<0.12	1.5	0.47	6.7	8.67	160	38	<46	198
East Bottom	11/27/2017	NM	0.14	3.4	1.3	16	20.8	360	100	<48	460
West Bottom	11/27/2017	NM	<0.050	0.91	0.19	2.6	3.70	52	21	<52	73
South West Excavation Confirmation Samples											
NEW-01	12/6/2017	556	<0.10	<0.21	<0.21	<0.41	<0.93	44	28	<46	72
FS-01	12/6/2017	1,740	0.25	4.0	0.67	9.5	14.42	300	75	<49	375
W Wall	12/12/2017	NM	<0.19	<0.38	<0.38	2.8	2.8	120	48	<47	168
S Wall	12/12/2017	NM	<0.020	<0.040	<0.040	<0.081	<0.181	9.4	30	<48	39.4
West End	12/14/2017	NM	<0.12	<0.24	<0.24	<0.48	<1.08	<24	<9.7	<48	<81.7
South East Wall	12/14/2017	NM	<0.097	<0.19	<0.19	0.66	0.66	49	25	<48	74
South West Wall	12/14/2017	NM	<0.10	<0.20	<0.20	<0.40	<0.90	<20	<9.7	<48	<77.7
East End Wall	12/19/2017	NM	<0.12	1.4	0.34	5.7	7.44	110	28	<48	138
North West Wall	12/27/2017	NM	0.76	13	1.6	20	35.36	730	47	<51	777
West Wall	12/27/2017	NM	<0.44	3.3	0.99	19	23.29	640	110	<49	750
East Wall	12/27/2017	NM	<0.094	<0.19	<0.19	0.76	0.76	35	14	<51	49
Floor	12/27/2017	NM	<0.11	0.34	<0.21	1.2	1.54	45	41	<48	86
Overburden Stockpile Confirmation Samples											
Stockpile	11/27/2017	NM	<0.024	<0.048	<0.048	<0.095	<0.215	<4.8	<9.6	<48	<62.4
SP-01	12/6/2017	86.5	<0.10	<0.21	<0.21	<0.41	<0.93	<21	19	49	68
NMOCD Closure Criteria			**10**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**NE**	**1,000**

NOTES:

BTEX - benzene, toluene, ethylbenzene, total xylenes
DRO - diesel range organics
GRO - gasoline range organics
mg/kg - milligrams per kilogram
MRO - motor oil range organics
NMOCD - New Mexico Oil Conservation Division
NE - not established
NM - not measured
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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848 E. 2nd Ave
Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH01	Project: Royce Canyon Former Drip Tank
Date: 10-19-17	Project Number: 034017013
Logged By: Daniel Burns	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter:	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth: 35'	Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
low	Slt. moist				0				Lt grayish brown topsoil/ previously disturbed. Loam	
					1					
					2					
low	V. moist	984	yes strong		3				dark gray to black fn. sandy silt w/ organics, swampy + hlf. med. plastic. stain/odor. → mod.-strong.	
					4					
low	moist	1183	yes		5				Dark gray - med. silty sand.	
					6					
low	Dry-slt. moist	1170	yes	S-8'	7				gray med. sand w/ some silt. strong odor / stain	
			slight		8					
Med	Dry	625	No	8-10	9				Reddish brown, fn. sandy silt, slightly consolidated. No stain, mod. odor	
					10				Olive fn. sandy siltstone, w/ lense of dense cemented purple siltstn. Hard.	
Hard	Dry	192		10-11	11				11' refusal w/ continuous sampler	
					12				switch to Split spoon, auger down to 15', hard @ approx. 14'-15'.	
					13					
					14					
hard.					15					

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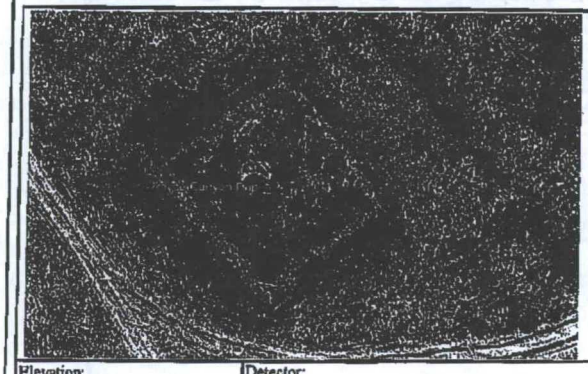
Boring/Well #	BH01
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10-19-17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
Hard.	Dry	984	No		16		.6" split spoon		Lt gray, fn-med sand w/ silt. mostly consolidated/cemented. Musty, degreded. HC/produced water odor.	
					17					
					18					
					19					
V. Hard.	Dry	54.7	No		20		3"		V. lt. gray med. sand, stn. well cemented. slt. odor. Not enough for 4oz jar	
					21					
					22					
V. Hard.	Dry	235	No		23		6"		Lt. gray med. sand stn. cemented. slt. odor. no stain	
					24					
V. Hard	Dry	184	No		25		6"		SAA /	
					26					
					27					
					28					
					29					
V. Hard	Dry	317.	No		30		4"		SAA.	
					31					
					32					
					33					
Hard	Dry	105	No	BH01 @ 33-35 10-20-17 09:40	34		12"		Gray fn. sand silt. No stain, v. slt. odor, but.	
					35				- Refusal	
					36					
					37					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH02	Project: Royce Canyon Former Drip Tank
Date: 10-20-17	Project Number: 034017013
Logged By: Daniel Burns	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter:	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth: 25'	Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					0					
	Dry				1				Lt Brown topsoil/loam w/ organics. No stain/odor	
Low					2					
					3		4'		Fn. silty sand.	
	Dry	0.0	No		4				No stain/odor	
					5					
					6				Lt. Brown silty med. sand. No stain/odor	
					7					
Low	Dry	0.0	No		8					
					9		2'		Likely approaching siltstone and limited recovery, switching to split-spoon sampling. Auger to 15'	
					10					
					11				split spoon ~~12-17'~~ 13-15'	
					12					
					13					
Med Hard	Dry	827	No		14		8"		Lt. Brownish gray v. fn. silty sandstone with some sandy siltstone. Moderate degraded gassy HC odor.	
					15					

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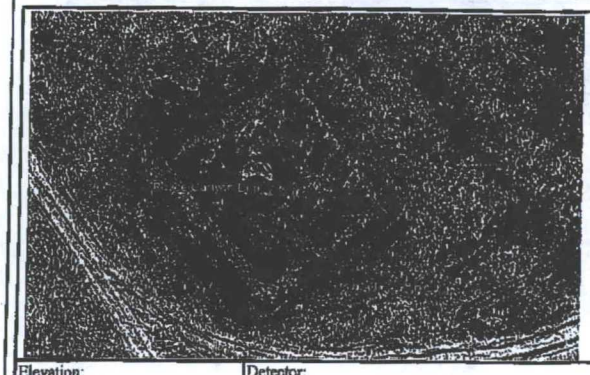
Boring/Well #	BH02
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10-20-17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16					
					17					
					18					
					19					
V. Hard	Dry	1,512	No		20		4"		V. Lt. gray med. s. stn., Hard, well cemented. Mod. HC grassy odor. ☆ No. 1 enough material for 4 oz. sample jar.	
					21					
					22					
					23					
V.V. Hard	Dry	84.1	No		24		4"		V. Lt. gray. med. s. stn. Cemented. V. H. HC odor. No stain. Refusal cannot go deeper.	
					25					
					26					
					27					
					28					
					29					
					30					
					31					
					32					
					33					
					34					
					35					
					36					
					37					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH03	Project: Royce Canyon Former Drip Tank
Date: 10-20-17	Project Number: 034017013
Logged By: Daniel Burns	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter:	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth: 35'	Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					0					
Low	Dry	1,685	slight		1		4.5		Brown, dense, low-plasticity fn. sandy silt. Sour, diesely odor; old/degraded HC.	
					2					
					3				slighty grayish brown fn. sandy silt. Organic/manure like and diesel odor.	
	Dry	1573	yes		4					
					5					
			yes		6		X			
Low	Dry	1484			7		41		SAA, lt. grayish brown fn sandy silt. coarsening downward. Dieselish odor.	
					8					
		941	yes		9				Lt. yellowish/gray fine silty med fn. sand. ~~sand~~ sit. stain, mod. sweet gas/conden. odor.	
					10					
Med Hard	Dry	961			11				Lt. grayish tan, siltstone w/ sand moderate cement. Mod. stain/odor.	
					12				switch to split spoon	
					13					
med. Hard	Dry	935	NVo		14		12"		Gray, med. sand stone. w/ silt. med. cement. Mod. sweet HC odor	
					15					

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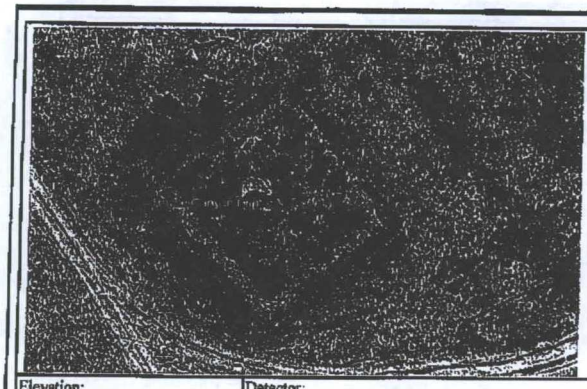
Boring/Well #	BH03
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10-20-17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16					
					17					
					18					
V. Hard	Dry	708	No		19		8"		Lt. V. lt. gray med. sand stn. Hard, cemented. Mod. sweet grassy HC odor.	
					20					
					21					
					22					
					23					
					24					
Hard	Dry	783	No		25		6"		Lt. gray med. sand stn. slt-mod. sweet HC odor.	
					26					
					27					
					28					
					29					
Hard.	Dry	538	No		30		6"		SAA. Med. s. stn. slt. HC odor	
					31					
					32					
					33					
very Hard	Dry	361	No	BH03 @ 53-35	34		12"		Lt. gray med. s. stn. slt. HC odor., damp odor	
					35					
				10-20-17 14:00	36				Refusal @ 35', unit advance any further.	
					37					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH04	Project: Royce Canyon Former Drip Tank
Date: 10-20-17	Project Number: 034017013
Logged By: Daniel Burns	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter:	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth:	Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
low	Dry	35.4	No		0 1 2 3 4 5				Lt. Brown fn sandy silt. organics, V. slt. odor, No stain.	
low	Dry	26.4	No		6 7 8 9 10				SAA. No stain, V. slight odor. Switch to split spoon	
med Hard	Dry	183	No		11 12 13				Lt. tan/olive siltstone w/ sand. Med. cement. slight odor (HC)	
Med. Hard	Dry	808	No		14 15				Lt. brownish gray med sandstn. w/ silt. slt. sweet HC odor.	

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Boring/Well #	BH04
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10-20-17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
V. Hard	Dry	1,165	No		19–20		8"		V. lt. gray med fn sand stone. Hard well cemented. No stain mod. sweet degraded HC gassy odor	
V. Hard	Dry	919	No		24–25		4"		gray med s. stn. well cemented. Mod. sweet + musty degraded HC gassy odor.	
V Hard	Dry	792	No		29–30				v. lt gray med. s. stn, cemented, mod. sweet/musty degraded gas odor	
V Hard	Dry	764	No	BH04 @34 -35	34–35				Gray med. stn. v. hard, cemented, mod – strong musty degraded gas odor.	

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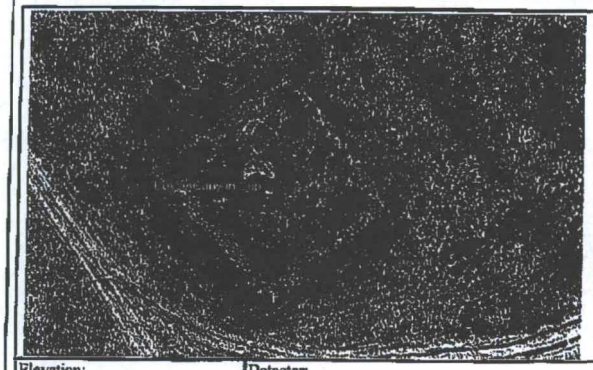
Boring/Well #	BH04
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10-20-17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
V.V. Hard	Dry	74.1	No		38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59		2"		lt. bluish gray, v. dense, consolidated + cemented siltstone. Refusal, can't advance further, OVM readings due to slough/cutting debris of sandstone above blue siltstone. No recovery for 4 oz jar.	



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Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-05	Project: Royce Canyon Former Drip Tank
Date: 10/26/2017	Project Number: 034017013
Logged By: Daniel Burns	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
Gravel Pack: ~~10-20 Silica Sand~~	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: ~~Schedule 40 PVC~~	Diameter: 2" Length: NA
Hole Diameter: 2"	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				Hydrovac Pothole to 8'	
					1					
					2					
					3					
					4					
					5					
					6					
					7					
					8					
					9					
					10					
	moist	1194	NO		11	1			• Brown Fn Sand, trace Silt Strong odor, No Staining	
					12					
					13					
					14					
					15					

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Boring/Well #	BH05
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10/26/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
			NO		15				lt brown w/white/grey mottles	
	DRY	87.6	~~NO~~		16	2			fn sand, trace silt Strong odor	
					17				NO Staining	
					18					
					19					
					20					
	DRY	589.0	~~NO~~		21	3			SAA	
					22					
					23					
					24					
					25					
	DRY	603.8	NO		26	4			SAA	
					27					
					28					
					29					
					30				lt brown, vry fine sand	
	DRY	106.1	NO		31	5			NO Staining, Slight odor	
					32					
					33					
					34					
					35					
	DRY	146.3	NO		36	6			SAA	
					37					

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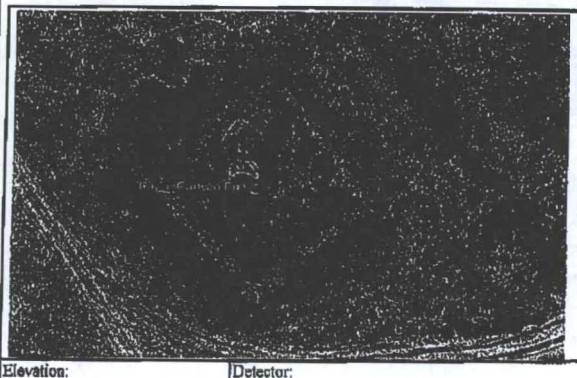
Boring/Well #	BH05
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	01/26/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
					38					
					39					
					40				~~tb br~~ white/grey fn Sand	
	DRY	184.0	NO		41	7			NO Stain/odor	
					42					
					43					
					44					
					45					
	DRY	30.6	NO		46	8			SAA	
					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: BH - 06	Project: Royce Canyon Former Drip Tank
Date: 10/27/17	Project Number: 034017013
Logged By: Eric Carroll ~~Daniel Burns~~	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
Gravel Pack: ~~10-20 Silica Sand~~	Seal: ~~Bentonite Chips~~
Grout: Bentonite Slurry	
Casing Type: ~~Schedule 40 PVC~~	Diameter: 2" Length: NA
Hole Diameter: 2"	Depth to Liquid: NA
Screen Type: ~~Schedule 40 PVC~~	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 50'	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				Hydrovac Pothole to 8'	
					1					
					2					
					3					
					4					
					5					
					6					
					7					
					8					
					9					
					10					
	DRy	dry	NO		11	1		SM-SW	lt brown, med - fn sand, some silt No stain/odor	
					12					
					13					
					14					
					15					

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Boring/Well #	BH06
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10/27/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
	DRY	1.8	NO		16	2		SM-SW	SAA NO Staining/odor	
					17					
					18					
					19					
					20					
	DRY	17.7	NO		21	3		SM-SW	Very lt brown grey, fn sand, trace silt No Stain/Odor	
					22					
					23					
					24					
					25				white/grey ~~lt brown w/ white/grey staining~~	
	DRY	1210	NO ~~Yes~~		26	4		SM-~~SW~~	fn sand slight odor	
					27					
					28					
					29					
					30					
	DRY	452	NO ~~Yes~~		31	5		SM-~~SW~~	SAA White staining Strong odor	
					32					
					33					
					34					
					35					
	DRY	1902	NO ~~Yes~~		36	6		SM	SAA White staining, Slight odor	
					37					

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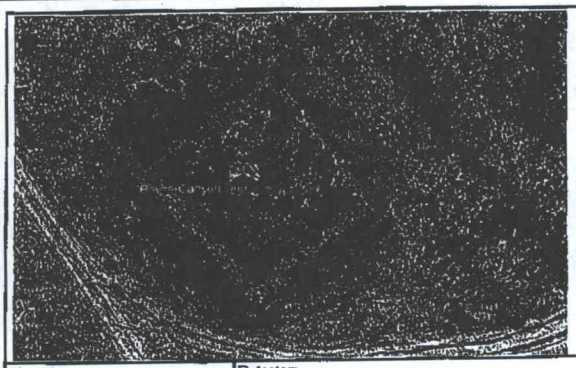
Boring/Well #	BH06
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10/27/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
					38					
					39					
					40				white grey ~~f brown w/ white staining~~	
	DRy	139.3	NO ~~NO~~		41	7		SM	fn sand slight odor	
					42				NO stain	
					43					
					44					
					45					
					46				white/grey fn sand	
	DRy	362.3	NO		47	8		SM	NO staining / odor	
					48					
					49					
					50					
					51				light grey fn sand	
	DRy	468.7	NO		52	9		SM	NO staining / odor	
					53					
					54				50' bottom of hole	
					55				out of drill stem	
					56					
					57					
					58					
					59					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-07	Project: Royce Canyon Former Drip Tank
Date: 10/27/2017	Project Number: 034017013
Logged By: Eric Carroll ~~Daniel Burns~~	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
Gravel Pack: ~~10-20 Silica Sand~~	Seal: ~~Bentonite Chips~~
Grout: Bentonite Slurry	
Casing Type: ~~Schedule 40 PVC~~	Diameter: 2" Length: NA
Hole Diameter: 7"	Depth to Liquid: NA
Screen Type: ~~Schedule 40 PVC~~ Slot: 0.010"	Diameter: 2" Length: NA
Total Depth: 30'	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				Hydrovac pothole to 8'	
					1					
					2					
					3					
					4					
					5					
					6					
					7					
					8					
					9					
					10					
	DRY	1.2	NC		11	1		SM-SW	lt brown med/fn sand trace silt	
					12				NO Stain/odor	
					13					
					14					
					15					

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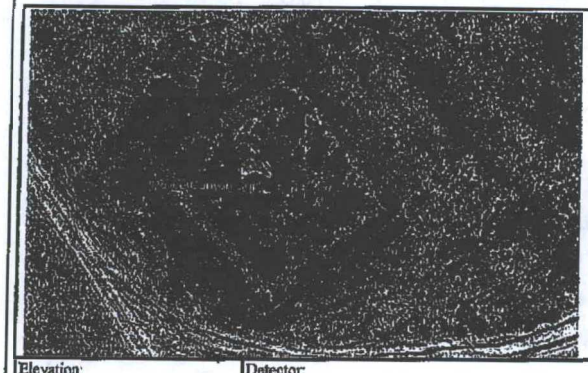
Boring/Well #	BH07
Project:	Royce Canyon Fonner Drip Tank
Project #	034017013
Date	10/27/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	DRY	133.8	YES		15 16 17	2		SM-SW	lt brown ~~light~~ some staining med/fn sand, trace silt, slight odor	
	DRY	352.3	NO		18 19 20 21 22	3		SM-SW	lt brown, fn sand, trace silt NO stain/odor	
	DRY	16.3	NO		23 24 25 26 27	4		SM	white lt grey fn sand w gravel NO stain/odor	
	DRY	14.8	NO		28 29 30 31 32	5		SM	white lt. grey fn sand w/gravel NO stain/odor	
					33 34 35 36 37				30' total depth	



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-08	Project: Royce Canyon Former Drip Tank
Date: 10/27/2017	Project Number: 034017013
Logged By: Eric Carroll ~~Daniel Burns~~	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
Gravel Pack: ~~10-20 Silica Sand~~	Seal: Bentonite Chips
Grout: Bentonite Slurry	
Casing Type: ~~Schedule~~ 40 PVC	Diameter: 2" Length: NA
Hole Diameter: 2"	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
					0				Hydrovac pothole to 8'	
					1					
					2					
					3					
					4					
					5					
					6					
					7					
					8					
					9					
					10					
	moist	28.6	NO		11	1		SW	Brown reddish brown fn Sand w/ Silt, cohesive	
					12				NO Staining/odor	
					13					
					14					
					15					

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Boring/Well #	BH08
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10/27/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	DRY	700.5	NO		15 16 17	2		SM-SW	light brown, grey mottling, med/fn Sand, trace Silt No Staining Strong odor	
					18 19 20				White lt grey fn Sand	
	DRY	359.6	NO		21 22	3		SM	No Staining Slight odor	
					23 24 25				White fine Sand	
	DRY	303.8	NO		26 27	4		SM	No Staining ~~Fodor~~ Slight odor	
					28 29 30					
	DRY	294.6	NO		31 32	5		SM	SAA No Staining Slight odor	
					33 34 35					
	DRY	77.4	NO		36 37	6			SAA No Staining Slight odor	

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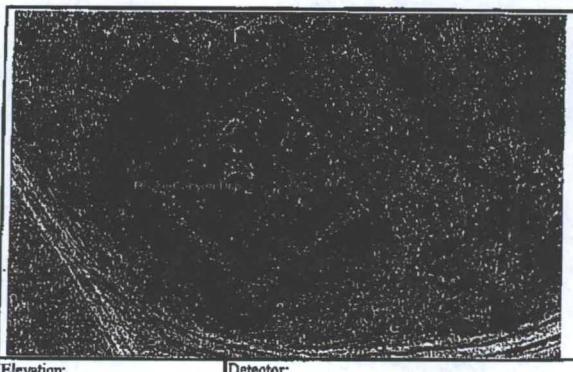
Boring/Well #	BH08
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	10/27/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
					38				Stopped @ 35' due to resistance Total depth 35'	
					39					
					40					
					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: BH-09	Project: Royce Canyon Former Drip Tank
Date: 11-15-17	Project Number: 034017013
Logged By: Eric Carroll	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Split Spoon ~~Continuous~~
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
					0				Hydrovac Pothole to 5'	
					1					
					2					
					3					
					4					
					5					
	moist	—	No		6				It ~~brown~~ orangish brown sand, some silt	
					7				No stain/odor	
					8					
					9					
					10					
15										
	DRY	1.4	No		11	1	100%	SW-SM	It orangish brown sand, trace silt	
					12				No stain/odor	
					13					
					14					
					15					

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Boring/Well #	BH-9
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	11/15/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
75	DRY	2.4	NO		15					
					16	2	20%	SM-SW	lt brown med-fn Sand, trace silt	
					17				No stain/odor	
					18					
					19					
					20				SAA	
80	DRY	30.9	NO	20'-21'	21	3	70%	SM	lt grey fn sand, No stain	
					22				Slight odor	
					23					
					24					
					25					
36	DRY	56.4	NO		26	4	50%	SM	SAA	
					27				No stain/odor	
					28					
					29					
					30					
	DRY	~~1000~~ 112	NO		31	5	15%	SM	SAA	
					32				No stain/odor	
					33					
					34					
					35					
	DRY	29.1	NO	~~35'-36'~~ 35'-35'	36	6	100%	SM	Dark grey/brown Very fn sand	
					37				No Stain/odor	

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-10	Project: Royce Canyon Former Drip Tank
Date: 11-15-17	Project Number: 034017013
Logged By: Eric Carroll	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
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: 30'	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					
					2					
					3					
					4					
					5					
	moist	1.9	NO		6	1	80%	SW-SM	lt brown sand, some silt, w/ organics No stain/odor	
					7					
					8					
					9					
					10					
	moist	2.7	NO		11	2	100%	SW-SM	lt reddish brown sand, trace silt small coal pieces ~.5-2.0mm No stain/odor	
					12					
					13					
					14					
					15					

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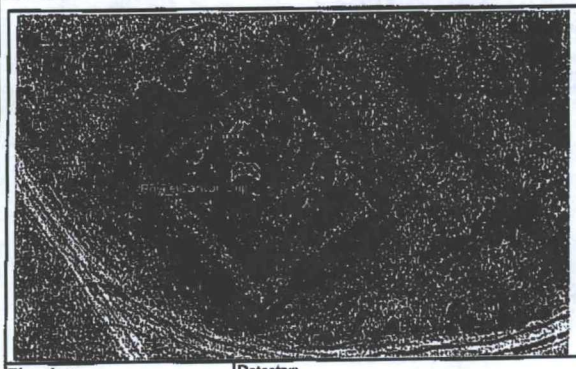
Boring/Well #	BH-10
Project:	Royce Canyon Fonner Drip Tank
Project #	034017013
Date	11/15/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15				lt brown fn sand, trace silt,	
	DRY	5.2	NO		16	3		SW-SM	No stain/odor	
					17					
					18					
					19					
					20				SAA	
	DRY	45.2	NO		21	4		SM	lt grey very fn. sand.	
					22				NO stain Slight odor	
					23					
					24					
					25					
	DRY	114	NO	23'-25'	26	5		SM	SAA	
					27				No stain/odor	
					28					
					29					
					30				SAA	
	DRY	77.9	NO	28'-30'	31	6		SM	No stain/odor	
					32					
					33					
					34				Stopped @ 30' due to	
					35				resistance.	
					36					
					37					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-11	Project: Royce Canyon Former Drip Tank
Date: 11-16-17	Project Number: 034017013
Logged By: Eric Carroll	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Split Spoon ~~Continuous~~
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:
Screen Type: ~~Schedule 40 PVC~~	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 50'	Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				Topsoil w/ organics dark brown red/brown	
					1					
					2					
					3					
					4					
					5					
	moist	9.8	No		6	1	100%	SW-SM	lt. ~~red~~ brown med/fn sand, some silt No stain/odor	
					7					
					8					
					9					
					10				SAA	
	moist	5.3	No		11	2	100%	SW-SM	No stain/odor	
					12					
					13					
					14				SAA	
	Dry	1.3	No		15	3	50%	SW-SM	No stain/odor	

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Boring/Well #	BH11
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	11/16/17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16					
					17					
					18					
					19	4	40%	SW-SM	lt grey/brown fn sand, trace silts	
	Dry	1870	No	[redacted]	20				No stain/odor	
					21					
					22					
					23					
					24	5	20%	SM	lt grey (white) fn. Sand	
	Dry	1303	No		25				No stain, slight odor	
					26					
					27					
					28					
					29	6	30%	SM	white/lt.grey fn sand, trace coal, No stain, slight odor	
	Dry	471	No		30					
					31					
					32					
					33					
					34	7	70%	SM	~~Sand~~ lt brown, white, fn sand	
	Dry	824	No		35				No stain, slight odor	
					36					
					37					

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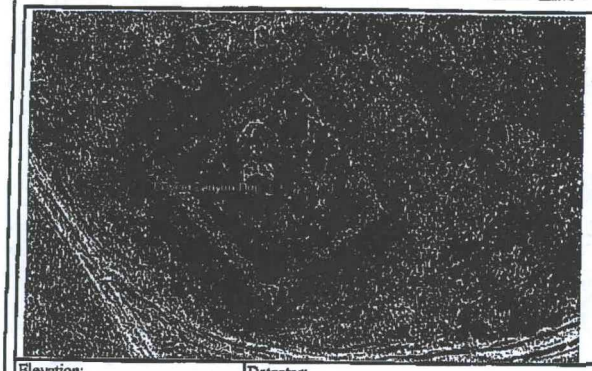
Boring/Well #	BH-11
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	11-16-17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					37					
	DRY	1994	NO	38'-40'	38	8	60%	SM	lt grey brown vry fn sand NO stain, slight odor	
					39					
					40					
					41					
					42					
					43					
	DRY	1186	NO		44	9	50%	SM	SAA NO stain, slight odor	
					45					
					46					
					47					
					48					
	DRY	64.7	NO	48'-50'	49	10	40%	SM	SAA NO stain/odor	
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-17	Project: Royce Canyon Former Drip Tank
Date: 11-16-17	Project Number: 034017013
Logged By: Eric Carroll	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Split Spoon ~~Continuous~~
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: 30'	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				Hydrovac to 5'	
					1					
					2					
					3					
					4					
					5					
					6					
					7					
					8					
					9					
	moist	5.3	No		10	1	50%	SW-SM	lt. reddish brown Sand, some silt No stain/odor	
					11					
					12					
					13					
					14				lt. reddish brown, f-m sand, trace silt	
	moist	8.7	No		15	2	30%		No stain/odor	

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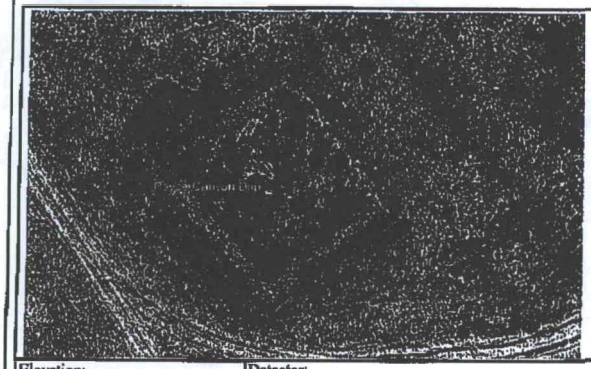
Boring/Well #	BH-12
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	11-16-17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16					
					17					
					18					
					19				white fn sand, w/ cobbles	
	DRY	27.7	NO		20	3	6%	SM	NO stain/odor	
					21					
					22					
					23					
					24				SAA	
	DRY	169	NO	23'-25'	25	4	30%	SM	NO stain/odor	
					26					
					27					
					28					
					29				SAA	
	DRY	71.8	NO	28'-30'	30	5		SM	NO stain/odor	
					31					
					32					
					33					
					34					
					35					
					36					
					37					



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

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

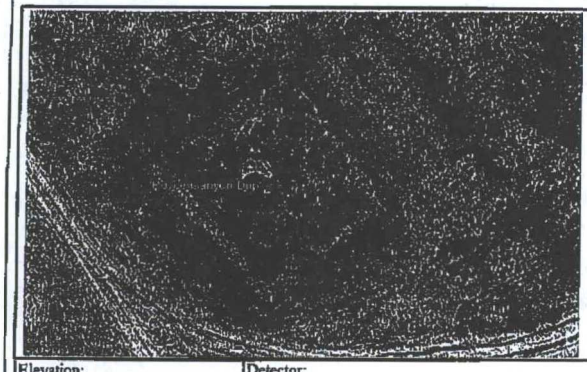
Boring/Well Number: BH-13	Project: Royce Canyon Former Drip Tank
Date: 11-16-17	Project Number: 034017013
Logged By: Eric Carroll	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Split Spoon ~~Continuous~~
Gravel Pack: 10-20 Silica Sand	Seal: ~~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
					0				Hydrovac pothole to 5'	
					1					
					2					
					3					
					4					
					5					
					6					
					7					
					8					
					9	1	80%	SW-SM	lt reddish brown sand, some silt	
	moist	6.2	NO		10				NO Stain/odor	
					11					
					12					
					13				SAA	
					14	2	80%	SW-SM		
	moist	54.3	NO		15				lt grey brown sand NO stain strong odor	

Compliance « Engineering « Remediation
LT Environmental, Inc.

Boring/Well #	BH-13
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	11-16-17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15				grey sand, strong odor from cuttings	
					16					
					17					
					18					
					19	3	20%	SM	lt grey brown fn sand,	
	DRY	148	NO		20				No Stain, Strong odor	
					21					
					22					
					23					
					24	4	60%	SM	lt greyish brown fn sand	
	DRY	308	NO	23'-25'	25				No Stain, slight odor	
					26					
					27					
					28					
					29	5	70%	SM	lt brown, fn sand, w/ cobbles	
	DRY	138	NO		30				No Stain, No odor	
					31					
					32					
					33					
					34	6		SM	lt brown, fn sand,	
	DRY	121	NO	33'-35'	35				No Stain/odor	
					36					
					37					



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

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-14	Project: Royce Canyon Former Drip Tank
Date: 11-16-17	Project Number: 034017013
Logged By: Eric Carroll	Drilled By: Geomat Engineering
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous
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:
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	3.2	No		4-5	1	70%	SW-SM	lt [redacted]brown, sand, some silt organic mat NO Stain/odor	
	moist	2166	No	8'-10'	9-10	2	100%	SW-SM	lt. reddish brown, sand, some silt trace coal NO Stain, Strong odor	
	DRY	1742	NO		14-15	3	40%	SM	greyish brown, sand, NO Stain, Strong odor	

Compliance » Engineering » Remediation
LT Environmental, Inc.

Boring/Well #	BH-14
Project:	Royce Canyon Former Drip Tank
Project #	034017013
Date	11-16-17

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16					
					17					
					18					
					19				lt grey sand, w cobbles Strong odor	
	DRY	467	Yes grey		20	4	50%	SM	light brown sand w/cobbles	
			NO		21				NO Stain, Strong odor	
					22					
					23					
					24				lt brown fn sand w/ grey Staining	
	DRY	474	Yes grey		25	5	50%	SM	Strong odor	
					26					
					27					
					28					
					29				Dark brown, fn sand	
	DRY	253	NO	28'-30'	30	6		SM	NO Stain/odor	
					31					
					32					
					33					
					34					
					35					
					36					
					37					

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

October 31, 2017

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

RE: Royce Canyon Former Drip Tank OrderNo.: 1710C96

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 9 sample(s) on 10/25/2017 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 **1710C96**
Date Reported: **10/31/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Client Sample ID: BH01@3-5'
Project: Royce Canyon Former Drip Tank
Collection Date: 10/19/2017 3:00:00 PM
Lab ID: 1710C96-001 **Matrix:** MEOH (SOIL) **Received Date:** 10/25/2017 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	5600	75		mg/Kg	20	10/25/2017 11:27:11 AM	G46636
Surr: BFB	89.1	70-130		%Rec	20	10/25/2017 11:27:11 AM	G46636
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	2400	98		mg/Kg	10	10/25/2017 1:14:32 PM	34618
Motor Oil Range Organics (MRO)	2300	490		mg/Kg	10	10/25/2017 1:14:32 PM	34618
Surr: DNOP	0	70-130	S	%Rec	10	10/25/2017 1:14:32 PM	34618
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	5.0	0.38		mg/Kg	20	10/25/2017 11:27:11 AM	34583
Toluene	60	0.75		mg/Kg	20	10/25/2017 11:27:11 AM	34583
Ethylbenzene	14	0.75		mg/Kg	20	10/25/2017 11:27:11 AM	34583
Xylenes, Total	220	7.5		mg/Kg	100	10/25/2017 12:24:54 PM	34583
Surr: 1,2-Dichloroethane-d4	65.7	70-130	S	%Rec	20	10/25/2017 11:27:11 AM	34583
Surr: 4-Bromofluorobenzene	92.3	70-130		%Rec	20	10/25/2017 11:27:11 AM	34583
Surr: Dibromofluoromethane	81.0	70-130		%Rec	20	10/25/2017 11:27:11 AM	34583
Surr: Toluene-d8	104	70-130		%Rec	20	10/25/2017 11:27:11 AM	34583

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
Client Sample ID: BH01@15-17'
Project: Royce Canyon Former Drip Tank
Collection Date: 10/19/2017 4:20:00 PM
Lab ID: 1710C96-002
Matrix: MEOH (SOIL)
Received Date: 10/25/2017 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**
Gasoline Range Organics (GRO)	21	3.7		mg/Kg	1	10/25/2017 12:53:45 PM	G46636
Surr: BFB	80.0	70-130		%Rec	1	10/25/2017 12:53:45 PM	G46636
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**
Diesel Range Organics (DRO)	26	9.7		mg/Kg	1	10/25/2017 12:18:45 PM	34618
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/25/2017 12:18:45 PM	34618
Surr: DNOP	81.9	70-130		%Rec	1	10/25/2017 12:18:45 PM	34618
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: **DJF**
Benzene	ND	0.018		mg/Kg	1	10/25/2017 12:53:45 PM	34583
Toluene	0.093	0.037		mg/Kg	1	10/25/2017 12:53:45 PM	34583
Ethylbenzene	ND	0.037		mg/Kg	1	10/25/2017 12:53:45 PM	34583
Xylenes, Total	0.44	0.074		mg/Kg	1	10/25/2017 12:53:45 PM	34583
Surr: 1,2-Dichloroethane-d4	93.5	70-130		%Rec	1	10/25/2017 12:53:45 PM	34583
Surr: 4-Bromofluorobenzene	92.1	70-130		%Rec	1	10/25/2017 12:53:45 PM	34583
Surr: Dibromofluoromethane	97.4	70-130		%Rec	1	10/25/2017 12:53:45 PM	34583
Surr: Toluene-d8	104	70-130		%Rec	1	10/25/2017 12:53:45 PM	34583

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: Royce Canyon Former Drip Tank
Lab ID: 1710C96-003 **Matrix:** SOIL

Client Sample ID: BH01@33-35'
Collection Date: 10/20/2017 9:40:00 AM
Received Date: 10/25/2017 8:00:00 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	10/26/2017 5:55:32 PM	34633
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/26/2017 5:55:32 PM	34633
Surr: DNOP	87.0	70-130		%Rec	1	10/26/2017 5:55:32 PM	34633
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/27/2017 1:54:15 AM	34614
Surr: BFB	83.8	15-316		%Rec	1	10/27/2017 1:54:15 AM	34614
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.045	0.023		mg/Kg	1	10/27/2017 1:54:15 AM	34614
Toluene	0.46	0.047		mg/Kg	1	10/27/2017 1:54:15 AM	34614
Ethylbenzene	ND	0.047		mg/Kg	1	10/27/2017 1:54:15 AM	34614
Xylenes, Total	0.38	0.093		mg/Kg	1	10/27/2017 1:54:15 AM	34614
Surr: 4-Bromofluorobenzene	94.9	80-120		%Rec	1	10/27/2017 1:54:15 AM	34614

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

Analytical Report
Lab Order **1710C96**
Date Reported: **10/31/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon Former Drip Tank
Lab ID: 1710C96-004 **Matrix:** SOIL

Client Sample ID: BH02@13-15'
Collection Date: 10/20/2017 10:50:00 AM
Received Date: 10/25/2017 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	180	9.3		mg/Kg	1	10/26/2017 6:20:19 PM	34633
Motor Oil Range Organics (MRO)	68	47		mg/Kg	1	10/26/2017 6:20:19 PM	34633
Surr: DNOP	95.0	70-130		%Rec	1	10/26/2017 6:20:19 PM	34633
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	1100	24		mg/Kg	5	10/27/2017 2:17:30 AM	34614
Surr: BFB	426	15-316	S	%Rec	5	10/27/2017 2:17:30 AM	34614
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.12		mg/Kg	5	10/27/2017 2:17:30 AM	34614
Toluene	25	2.4		mg/Kg	50	10/27/2017 10:07:42 PM	34614
Ethylbenzene	5.1	0.24		mg/Kg	5	10/27/2017 2:17:30 AM	34614
Xylenes, Total	58	0.49		mg/Kg	5	10/27/2017 2:17:30 AM	34614
Surr: 4-Bromofluorobenzene	116	80-120		%Rec	5	10/27/2017 2:17:30 AM	34614

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: Royce Canyon Former Drip Tank
Lab ID: 1710C96-005 **Matrix:** SOIL

Client Sample ID: BH02@24-25'
Collection Date: 10/20/2017 11:20:00 AM
Received Date: 10/25/2017 8:00:00 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	10/26/2017 6:45:09 PM	34633
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/26/2017 6:45:09 PM	34633
Surr: DNOP	79.0	70-130		%Rec	1	10/26/2017 6:45:09 PM	34633
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/27/2017 10:31:05 PM	34614
Surr: BFB	82.1	15-316		%Rec	1	10/27/2017 10:31:05 PM	34614
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/27/2017 10:31:05 PM	34614
Toluene	ND	0.049		mg/Kg	1	10/27/2017 10:31:05 PM	34614
Ethylbenzene	ND	0.049		mg/Kg	1	10/27/2017 10:31:05 PM	34614
Xylenes, Total	ND	0.097		mg/Kg	1	10/27/2017 10:31:05 PM	34614
Surr: 4-Bromofluorobenzene	93.2	80-120		%Rec	1	10/27/2017 10:31:05 PM	34614

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
Client Sample ID: BH03@0-5'
Project: Royce Canyon Former Drip Tank
Collection Date: 10/20/2017 1:00:00 PM
Lab ID: 1710C96-006 **Matrix:** SOIL
Received Date: 10/25/2017 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	290	9.4		mg/Kg	1	10/26/2017 7:09:56 PM	34633
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/26/2017 7:09:56 PM	34633
Surr: DNOP	104	70-130		%Rec	1	10/26/2017 7:09:56 PM	34633
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	440	50		mg/Kg	10	10/27/2017 2:40:50 AM	34614
Surr: BFB	183	15-316		%Rec	10	10/27/2017 2:40:50 AM	34614
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.40	0.25		mg/Kg	10	10/27/2017 2:40:50 AM	34614
Toluene	8.1	0.50		mg/Kg	10	10/27/2017 2:40:50 AM	34614
Ethylbenzene	1.3	0.50		mg/Kg	10	10/27/2017 2:40:50 AM	34614
Xylenes, Total	17	1.0		mg/Kg	10	10/27/2017 2:40:50 AM	34614
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	10	10/27/2017 2:40:50 AM	34614

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
Client Sample ID: BH03@33-35'
Project: Royce Canyon Former Drip Tank
Collection Date: 10/20/2017 2:00:00 PM
Lab ID: 1710C96-007 **Matrix:** SOIL
Received Date: 10/25/2017 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	51	10		mg/Kg	1	10/26/2017 7:34:43 PM	34633
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/26/2017 7:34:43 PM	34633
Surr: DNOP	93.6	70-130		%Rec	1	10/26/2017 7:34:43 PM	34633
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/28/2017 12:04:44 AM	34614
Surr: BFB	82.4	15-316		%Rec	1	10/28/2017 12:04:44 AM	34614
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/28/2017 12:04:44 AM	34614
Toluene	0.069	0.048		mg/Kg	1	10/28/2017 12:04:44 AM	34614
Ethylbenzene	ND	0.048		mg/Kg	1	10/28/2017 12:04:44 AM	34614
Xylenes, Total	ND	0.097		mg/Kg	1	10/28/2017 12:04:44 AM	34614
Surr: 4-Bromofluorobenzene	94.0	80-120		%Rec	1	10/28/2017 12:04:44 AM	34614

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
Client Sample ID: BH04@19-20'
Project: Royce Canyon Former Drip Tank
Collection Date: 10/20/2017 3:15:00 PM
Lab ID: 1710C96-008 **Matrix:** SOIL
Received Date: 10/25/2017 8:00:00 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	10/26/2017 7:59:29 PM	34633
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/26/2017 7:59:29 PM	34633
Surr: DNOP	88.5	70-130		%Rec	1	10/26/2017 7:59:29 PM	34633
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	71	9.2		mg/Kg	2	10/28/2017 12:28:15 AM	34614
Surr: BFB	111	15-316		%Rec	2	10/28/2017 12:28:15 AM	34614
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.11	0.046		mg/Kg	2	10/28/2017 12:28:15 AM	34614
Toluene	0.90	0.092		mg/Kg	2	10/28/2017 12:28:15 AM	34614
Ethylbenzene	0.14	0.092		mg/Kg	2	10/28/2017 12:28:15 AM	34614
Xylenes, Total	1.6	0.18		mg/Kg	2	10/28/2017 12:28:15 AM	34614
Surr: 4-Bromofluorobenzene	99.2	80-120		%Rec	2	10/28/2017 12:28:15 AM	34614

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: Royce Canyon Former Drip Tank
Lab ID: 1710C96-009 **Matrix:** SOIL

Client Sample ID: BH04@34-35'
Collection Date: 10/20/2017 4:00:00 PM
Received Date: 10/25/2017 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	39	9.1		mg/Kg	1	10/26/2017 8:24:15 PM	34633
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/26/2017 8:24:15 PM	34633
Surr: DNOP	92.0	70-130		%Rec	1	10/26/2017 8:24:15 PM	34633
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	54	4.8		mg/Kg	1	10/28/2017 12:51:40 AM	34614
Surr: BFB	233	15-316		%Rec	1	10/28/2017 12:51:40 AM	34614
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.22	0.024		mg/Kg	1	10/28/2017 12:51:40 AM	34614
Toluene	1.8	0.048		mg/Kg	1	10/28/2017 12:51:40 AM	34614
Ethylbenzene	0.18	0.048		mg/Kg	1	10/28/2017 12:51:40 AM	34614
Xylenes, Total	2.7	0.095		mg/Kg	1	10/28/2017 12:51:40 AM	34614
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	10/28/2017 12:51:40 AM	34614

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#: **1710C96**

31-Oct-17

Client: Williams Four Corners

Project: Royce Canyon Former Drip Tank

Sample ID **LCS-34618**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **34618**	RunNo: **46629**
Prep Date: **10/25/2017**	Analysis Date: **10/25/2017**	SeqNo: **1485341** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.5	73.2	114			
Surr: DNOP	4.0		5.000		79.6	70	130			

Sample ID **MB-34618**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **34618**	RunNo: **46629**
Prep Date: **10/25/2017**	Analysis Date: **10/25/2017**	SeqNo: **1485342** 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	7.5		10.00		74.6	70	130			

Sample ID **LCS-34633**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **34633**	RunNo: **46662**
Prep Date: **10/25/2017**	Analysis Date: **10/26/2017**	SeqNo: **1487179** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.3	73.2	114			
Surr: DNOP	4.9		5.000		97.4	70	130			

Sample ID **MB-34633**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **34633**	RunNo: **46662**
Prep Date: **10/25/2017**	Analysis Date: **10/26/2017**	SeqNo: **1487180** 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		100	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#: **1710C96**

31-Oct-17

Client: Williams Four Corners

Project: Royce Canyon Former Drip Tank

Sample ID **MB-34583**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **34583**	RunNo: **46638**
Prep Date: **10/24/2017**	Analysis Date: **10/25/2017**	SeqNo: **1485976** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	830		1000		83.4	15	316			

Sample ID **LCS-34583**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **34583**	RunNo: **46638**
Prep Date: **10/24/2017**	Analysis Date: **10/25/2017**	SeqNo: **1485977** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	920		1000		91.8	15	316			

Sample ID **MB-34614**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **34614**	RunNo: **46672**
Prep Date: **10/25/2017**	Analysis Date: **10/26/2017**	SeqNo: **1487505** 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	810		1000		81.3	15	316			

Sample ID **LCS-34614**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **34614**	RunNo: **46672**
Prep Date: **10/25/2017**	Analysis Date: **10/26/2017**	SeqNo: **1487506** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	75.9	131			
Surr: BFB	980		1000		97.8	15	316			

Sample ID **MB-34651**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **34651**	RunNo: **46704**
Prep Date: **10/26/2017**	Analysis Date: **10/27/2017**	SeqNo: **1488208** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	870		1000		87.2	15	316			

Sample ID **LCS-34651**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **34651**	RunNo: **46704**
Prep Date: **10/26/2017**	Analysis Date: **10/27/2017**	SeqNo: **1488209** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		99.0	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#: **1710C96**

31-Oct-17

Client: Williams Four Corners

Project: Royce Canyon Former Drip Tank

Sample ID **MB-34583**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **34583**	RunNo: **46638**
Prep Date: **10/24/2017**	Analysis Date: **10/25/2017**	SeqNo: **1486008** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		99.6	80	120			

Sample ID **LCS-34583**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **34583**	RunNo: **46638**
Prep Date: **10/24/2017**	Analysis Date: **10/25/2017**	SeqNo: **1486009** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID **MB-34614**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **34614**	RunNo: **46672**
Prep Date: **10/25/2017**	Analysis Date: **10/26/2017**	SeqNo: **1487537** 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	0.94		1.000		93.9	80	120			

Sample ID **LCS-34614**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **34614**	RunNo: **46672**
Prep Date: **10/25/2017**	Analysis Date: **10/26/2017**	SeqNo: **1487538** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	98.4	77.3	128			
Toluene	0.97	0.050	1.000	0	97.4	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	95.5	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	97.2	81.6	129			
Surr: 4-Bromofluorobenzene	0.98		1.000		97.7	80	120			

Sample ID **MB-34651**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **34651**	RunNo: **46704**
Prep Date: **10/26/2017**	Analysis Date: **10/27/2017**	SeqNo: **1488248** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		99.7	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710C96**

31-Oct-17

Client: Williams Four Corners

Project: Royce Canyon Former Drip Tank

Sample ID **LCS-34651**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **34651**	RunNo: **46704**
Prep Date: **10/26/2017**	Analysis Date: **10/27/2017**	SeqNo: **1488249** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		100	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710C96**

31-Oct-17

Client: Williams Four Corners

Project: Royce Canyon Former Drip Tank

Sample ID **mb-34583**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **34583**	RunNo: **46636**
Prep Date: **10/24/2017**	Analysis Date: **10/25/2017**	SeqNo: **1486152** 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: 1,2-Dichloroethane-d4	0.50		0.5000		99.8	70	130			
Surr: 4-Bromofluorobenzene	0.44		0.5000		88.0	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			

Sample ID **lcs-34583**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS**	Batch ID: **34583**	RunNo: **46636**
Prep Date: **10/24/2017**	Analysis Date: **10/25/2017**	SeqNo: **1486153** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	95.9	70	130			
Toluene	0.96	0.050	1.000	0	95.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.43		0.5000		86.5	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		93.0	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			

Sample ID **mb-34614**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **34614**	RunNo: **46686**
Prep Date: **10/25/2017**	Analysis Date: **10/26/2017**	SeqNo: **1487592** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.44		0.5000		87.1	70	130			
Surr: Dibromofluoromethane	0.55		0.5000		110	70	130			
Surr: Toluene-d8	0.50		0.5000		100	70	130			

Sample ID **lcs-34614**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS**	Batch ID: **34614**	RunNo: **46686**
Prep Date: **10/25/2017**	Analysis Date: **10/26/2017**	SeqNo: **1487593** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.55		0.5000		109	70	130			
Surr: 4-Bromofluorobenzene	0.44		0.5000		88.7	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		97.7	70	130			
Surr: Toluene-d8	0.50		0.5000		101	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#: **1710C96**

31-Oct-17

Client: Williams Four Corners

Project: Royce Canyon Former Drip Tank

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **G46636**	RunNo: **46636**
Prep Date:	Analysis Date: **10/25/2017**	SeqNo: **1486155** 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	410		500.0		81.1	70	130			

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G46636**	RunNo: **46636**
Prep Date:	Analysis Date: **10/25/2017**	SeqNo: **1486156** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	70	130			
Surr: BFB	410		500.0		82.7	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

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: 1710C96 RcptNo: 1

Received By: Sophia Campuzano 10/25/2017 7:00:00 AM
Completed By: Erin Melendrez 10/25/2017 8:26:16 AM
Reviewed By: 10/25/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

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

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

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners
– Attn: Aaron Galer
Mailing Address: 295 Chipeta Way
Salt Lake City, UT 84108
Phone #: 801-584-6796
email or Fax#: aaron.galer@williams.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) PDF

Turn-Around Time: See comments for T.A.T.
☐ Standard ☒ Rush
Project Name: Royce Canyon Former Drip Tank
Project #:
Project Manager: Williams – A. Galer
LTE – D. Burns
Sampler: Danny Burns
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.4 + 0.5 (CF) = 1.9 -0.2 1.2 see

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. 1710096	Analysis Request: 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)
10-19	~~15:00~~ ~~15:20~~	DB S	BH01@3-5'	1-4oz	cool	-001	X		X									
↓ DB	~~15:00~~	16:20	BH01@15-17'			-002	X		X									
10-20	09:40		BH01@33-35'			-003	X		X									
	10:50		BH02@13-15'			-004	X		X									
	11:20		BH02@24-25'			-005	X		X									
	13:00		BH03@0-5'			-006	X		X									
	14:00		BH03@33-35'			-007	X		X									
	15:15		BH04@19-20'			-008	X		X									
↓	16:00	↓	BH04@34-35'	↓	↓	-009	X		X									

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/24/17	1331			10/24/17	1331
Date:	Time:	Relinquished by:	Received by:	Date	Time
10/24/17	1921			10/25/17	0800

Remarks: same day results for BH01@3-5' BH01@15-17'

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

November 06, 2017

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

RE: Royce Canyon OrderNo.: 1710F93

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 8 sample(s) on 10/31/2017 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 **1710F93**
Date Reported: **11/6/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1710F93-001 **Matrix:** SOIL

Client Sample ID: BH-05 10'
Collection Date: 10/26/2017 2:00:00 PM
Received Date: 10/31/2017 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	570	9.6		mg/Kg	1	11/3/2017 9:21:08 PM	34780
Motor Oil Range Organics (MRO)	290	48		mg/Kg	1	11/3/2017 9:21:08 PM	34780
Surr: DNOP	105	70-130		%Rec	1	11/3/2017 9:21:08 PM	34780
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	6000	240		mg/Kg	50	11/3/2017 10:18:26 AM	34772
Surr: BFB	214	15-316		%Rec	50	11/3/2017 10:18:26 AM	34772
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	4.9		mg/Kg	50	11/3/2017 10:18:26 AM	34772
Benzene	3.8	1.2		mg/Kg	50	11/3/2017 10:18:26 AM	34772
Toluene	110	2.4		mg/Kg	50	11/3/2017 10:18:26 AM	34772
Ethylbenzene	14	2.4		mg/Kg	50	11/3/2017 10:18:26 AM	34772
Xylenes, Total	190	4.9		mg/Kg	50	11/3/2017 10:18:26 AM	34772
Surr: 4-Bromofluorobenzene	98.2	80-120		%Rec	50	11/3/2017 10:18:26 AM	34772

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: Royce Canyon
Lab ID: 1710F93-002 **Matrix:** SOIL

Client Sample ID: BH-05 45'
Collection Date: 10/26/2017 2:15:00 PM
Received Date: 10/31/2017 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	11/3/2017 9:43:15 PM	34780
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/3/2017 9:43:15 PM	34780
Surr: DNOP	77.2	70-130		%Rec	1	11/3/2017 9:43:15 PM	34780
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/3/2017 12:39:20 PM	34772
Surr: BFB	81.7	15-316		%Rec	1	11/3/2017 12:39:20 PM	34772
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	11/3/2017 12:39:20 PM	34772
Benzene	ND	0.024		mg/Kg	1	11/3/2017 12:39:20 PM	34772
Toluene	0.15	0.048		mg/Kg	1	11/3/2017 12:39:20 PM	34772
Ethylbenzene	ND	0.048		mg/Kg	1	11/3/2017 12:39:20 PM	34772
Xylenes, Total	ND	0.096		mg/Kg	1	11/3/2017 12:39:20 PM	34772
Surr: 4-Bromofluorobenzene	88.2	80-120		%Rec	1	11/3/2017 12:39:20 PM	34772

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

Analytical Report
Lab Order **1710F93**
Date Reported: **11/6/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1710F93-003 **Matrix:** SOIL

Client Sample ID: BH-06 35'
Collection Date: 10/27/2017 7:30:00 AM
Received Date: 10/31/2017 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	37	9.6		mg/Kg	1	11/3/2017 10:05:39 PM	34780
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/3/2017 10:05:39 PM	34780
Surr: DNOP	86.7	70-130		%Rec	1	11/3/2017 10:05:39 PM	34780
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	10	4.7		mg/Kg	1	11/3/2017 1:49:36 PM	34772
Surr: BFB	107	15-316		%Rec	1	11/3/2017 1:49:36 PM	34772
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.094		mg/Kg	1	11/3/2017 1:49:36 PM	34772
Benzene	0.083	0.024		mg/Kg	1	11/3/2017 1:49:36 PM	34772
Toluene	0.63	0.047		mg/Kg	1	11/3/2017 1:49:36 PM	34772
Ethylbenzene	ND	0.047		mg/Kg	1	11/3/2017 1:49:36 PM	34772
Xylenes, Total	0.98	0.094		mg/Kg	1	11/3/2017 1:49:36 PM	34772
Surr: 4-Bromofluorobenzene	95.2	80-120		%Rec	1	11/3/2017 1:49:36 PM	34772

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
Client Sample ID: BH-06 50'
Project: Royce Canyon
Collection Date: 10/27/2017 7:50:00 AM
Lab ID: 1710F93-004
Matrix: SOIL
Received Date: 10/31/2017 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	11/3/2017 10:27:47 PM	34780
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/3/2017 10:27:47 PM	34780
Surr: DNOP	80.9	70-130		%Rec	1	11/3/2017 10:27:47 PM	34780
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/3/2017 2:12:48 PM	34772
Surr: BFB	87.0	15-316		%Rec	1	11/3/2017 2:12:48 PM	34772
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.098		mg/Kg	1	11/3/2017 2:12:48 PM	34772
Benzene	ND	0.025		mg/Kg	1	11/3/2017 2:12:48 PM	34772
Toluene	0.17	0.049		mg/Kg	1	11/3/2017 2:12:48 PM	34772
Ethylbenzene	ND	0.049		mg/Kg	1	11/3/2017 2:12:48 PM	34772
Xylenes, Total	0.15	0.098		mg/Kg	1	11/3/2017 2:12:48 PM	34772
Surr: 4-Bromofluorobenzene	94.8	80-120		%Rec	1	11/3/2017 2:12:48 PM	34772

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: Royce Canyon
Lab ID: 1710F93-005 **Matrix:** SOIL

Client Sample ID: BH-07 20'
Collection Date: 10/27/2017 8:20:00 AM
Received Date: 10/31/2017 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	19	10		mg/Kg	1	11/3/2017 10:49:57 PM	34780
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/3/2017 10:49:57 PM	34780
Surr: DNOP	86.0	70-130		%Rec	1	11/3/2017 10:49:57 PM	34780
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/3/2017 2:36:10 PM	34772
Surr: BFB	85.2	15-316		%Rec	1	11/3/2017 2:36:10 PM	34772
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	11/3/2017 2:36:10 PM	34772
Benzene	ND	0.025		mg/Kg	1	11/3/2017 2:36:10 PM	34772
Toluene	ND	0.050		mg/Kg	1	11/3/2017 2:36:10 PM	34772
Ethylbenzene	ND	0.050		mg/Kg	1	11/3/2017 2:36:10 PM	34772
Xylenes, Total	ND	0.10		mg/Kg	1	11/3/2017 2:36:10 PM	34772
Surr: 4-Bromofluorobenzene	92.3	80-120		%Rec	1	11/3/2017 2:36:10 PM	34772

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
Client Sample ID: BH-07 30'
Project: Royce Canyon
Collection Date: 10/27/2017 8:45:00 AM
Lab ID: 1710F93-006
Matrix: SOIL
Received Date: 10/31/2017 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	8.4		mg/Kg	1	11/3/2017 11:12:02 PM	34780
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	11/3/2017 11:12:02 PM	34780
Surr: DNOP	81.7	70-130		%Rec	1	11/3/2017 11:12:02 PM	34780
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/3/2017 2:59:31 PM	34772
Surr: BFB	82.0	15-316		%Rec	1	11/3/2017 2:59:31 PM	34772
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	11/3/2017 2:59:31 PM	34772
Benzene	ND	0.024		mg/Kg	1	11/3/2017 2:59:31 PM	34772
Toluene	ND	0.049		mg/Kg	1	11/3/2017 2:59:31 PM	34772
Ethylbenzene	ND	0.049		mg/Kg	1	11/3/2017 2:59:31 PM	34772
Xylenes, Total	ND	0.097		mg/Kg	1	11/3/2017 2:59:31 PM	34772
Surr: 4-Bromofluorobenzene	89.0	80-120		%Rec	1	11/3/2017 2:59:31 PM	34772

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: Royce Canyon
Lab ID: 1710F93-007 **Matrix:** SOIL

Client Sample ID: BH-08 15'
Collection Date: 10/27/2017 10:30:00 AM
Received Date: 10/31/2017 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/3/2017 11:34:18 PM	34780
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	11/3/2017 11:34:18 PM	34780
Surr: DNOP	86.2	70-130		%Rec	1	11/3/2017 11:34:18 PM	34780
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/3/2017 6:31:03 PM	34772
Surr: BFB	94.4	15-316		%Rec	1	11/3/2017 6:31:03 PM	34772
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	11/3/2017 6:31:03 PM	34772
Benzene	ND	0.024		mg/Kg	1	11/3/2017 6:31:03 PM	34772
Toluene	ND	0.047		mg/Kg	1	11/3/2017 6:31:03 PM	34772
Ethylbenzene	ND	0.047		mg/Kg	1	11/3/2017 6:31:03 PM	34772
Xylenes, Total	ND	0.095		mg/Kg	1	11/3/2017 6:31:03 PM	34772
Surr: 4-Bromofluorobenzene	92.3	80-120		%Rec	1	11/3/2017 6:31:03 PM	34772

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: Royce Canyon
Lab ID: 1710F93-008 **Matrix:** SOIL

Client Sample ID: BH-08 35'
Collection Date: 10/27/2017 10:50:00 AM
Received Date: 10/31/2017 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	11/3/2017 11:56:18 PM	34780
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/3/2017 11:56:18 PM	34780
Surr: DNOP	86.7	70-130		%Rec	1	11/3/2017 11:56:18 PM	34780
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/3/2017 6:54:20 PM	34772
Surr: BFB	86.1	15-316		%Rec	1	11/3/2017 6:54:20 PM	34772
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	11/3/2017 6:54:20 PM	34772
Benzene	0.030	0.025		mg/Kg	1	11/3/2017 6:54:20 PM	34772
Toluene	0.15	0.049		mg/Kg	1	11/3/2017 6:54:20 PM	34772
Ethylbenzene	ND	0.049		mg/Kg	1	11/3/2017 6:54:20 PM	34772
Xylenes, Total	0.16	0.099		mg/Kg	1	11/3/2017 6:54:20 PM	34772
Surr: 4-Bromofluorobenzene	92.2	80-120		%Rec	1	11/3/2017 6:54:20 PM	34772

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#: **1710F93**

06-Nov-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID **LCS-34793**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **34793**	RunNo: **46863**
Prep Date: **11/3/2017**	Analysis Date: **11/3/2017**	SeqNo: **1494698** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.4		5.000		87.7	70	130			

Sample ID **MB-34780**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **34780**	RunNo: **46863**
Prep Date: **11/2/2017**	Analysis Date: **11/3/2017**	SeqNo: **1494699** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.0		10.00		79.8	70	130			

Sample ID **MB-34793**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **34793**	RunNo: **46863**
Prep Date: **11/3/2017**	Analysis Date: **11/3/2017**	SeqNo: **1494700** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.0		10.00		80.3	70	130			

Sample ID **LCS-34780**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **34780**	RunNo: **46863**
Prep Date: **11/2/2017**	Analysis Date: **11/3/2017**	SeqNo: **1494944** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.1	73.2	114			
Surr: DNOP	4.4		5.000		88.4	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#: **1710F93**

06-Nov-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID **MB-34772**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **34772**	RunNo: **46867**
Prep Date: **11/2/2017**	Analysis Date: **11/3/2017**	SeqNo: **1495077** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	820		1000		82.3	15	316			

Sample ID **LCS-34772**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **34772**	RunNo: **46867**
Prep Date: **11/2/2017**	Analysis Date: **11/3/2017**	SeqNo: **1495078** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	75.9	131			
Surr: BFB	940		1000		94.4	15	316			

Sample ID **1710F93-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH-05 45'**	Batch ID: **34772**	RunNo: **46867**
Prep Date: **11/2/2017**	Analysis Date: **11/3/2017**	SeqNo: **1495084** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.9	24.34	1.475	112	77.8	128			
Surr: BFB	920		973.7		94.7	15	316			

Sample ID **1710F93-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH-05 45'**	Batch ID: **34772**	RunNo: **46867**
Prep Date: **11/2/2017**	Analysis Date: **11/3/2017**	SeqNo: **1495085** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.8	23.79	1.475	115	77.8	128	0.368	20	
Surr: BFB	950		951.5		99.8	15	316	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710F93**

06-Nov-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID **MB-34772**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **34772**	RunNo: **46867**
Prep Date: **11/2/2017**	Analysis Date: **11/3/2017**	SeqNo: **1495117** 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	0.93		1.000		93.3	80	120			

Sample ID **LCS-34772**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **34772**	RunNo: **46867**
Prep Date: **11/2/2017**	Analysis Date: **11/3/2017**	SeqNo: **1495118** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.83	0.10	1.000	0	83.2	70.1	121			
Benzene	0.92	0.025	1.000	0	91.8	77.3	128			
Toluene	0.92	0.050	1.000	0	92.1	79.2	125			
Ethylbenzene	0.91	0.050	1.000	0	91.3	80.7	127			
Xylenes, Total	2.8	0.10	3.000	0	92.4	81.6	129			
Surr: 4-Bromofluorobenzene	0.94		1.000		94.4	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: **1710F93** RcptNo: **1**

Received By: **Richie Eriacho** **10/31/2017 8:15:00 AM** RE

Completed By: **Richie Eriacho** **10/31/2017 2:32:46 PM** RE

Reviewed By: DDS 11/2/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good				

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer
Mailing Address:

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: Royce Canyon
Project #: 034017013
Project Manager: Williams: Aaron Galer
LTE : Donny Burns
Sampler: Eric Carroll
On Ice: ☒ Yes ☐ No
Sample Temperature: C4

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. 1710F93	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)
10/26/17	14:00	S	BH-05 10'	1 4oz	none	-001	X		X									
10/26/17	14:15	S	BH-05 45'			-002	X		X									
10/27/17	07:30		BH-06 35'			-003	X		X									
	07:50		BH-06 50'			-004	X		X									
	08:20		BH-07 20'			-005	X		X									
	08:45		BH-07 30'			-006	X		X									
	10:30		BH-08 15'			-007	X		X									
	10:50		BH-08 35'			-008	X		X									

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/30/17	18:20			10/30/17	1820
10/31/17	7040			10/31/17	0815

Remarks:
CC to: dburns@ltenv.com
aager@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

November 27, 2017

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

RE: Royce Canyon OrderNo.: 1711921

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 12 sample(s) on 11/17/2017 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 **1711921**
Date Reported: **11/27/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1711921-001 **Matrix:** SOIL

Client Sample ID: BH-9 20'-22'
Collection Date: 11/15/2017 11:50:00 AM
Received Date: 11/17/2017 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	38	9.5		mg/Kg	1	11/20/2017 1:19:42 PM	35063
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/20/2017 1:19:42 PM	35063
Surr: DNOP	85.7	70-130		%Rec	1	11/20/2017 1:19:42 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/20/2017 12:24:50 PM	35054
Surr: BFB	109	15-316		%Rec	1	11/20/2017 12:24:50 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	11/20/2017 12:24:50 PM	35054
Benzene	ND	0.024		mg/Kg	1	11/20/2017 12:24:50 PM	35054
Toluene	ND	0.048		mg/Kg	1	11/20/2017 12:24:50 PM	35054
Ethylbenzene	ND	0.048		mg/Kg	1	11/20/2017 12:24:50 PM	35054
Xylenes, Total	ND	0.096		mg/Kg	1	11/20/2017 12:24:50 PM	35054
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	11/20/2017 12:24:50 PM	35054

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: Royce Canyon
Lab ID: 1711921-002 **Matrix:** SOIL

Client Sample ID: BH-9 33'-35'
Collection Date: 11/15/2017 1:00:00 PM
Received Date: 11/17/2017 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	11/20/2017 3:11:59 PM	35063
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/20/2017 3:11:59 PM	35063
Surr: DNOP	80.1	70-130		%Rec	1	11/20/2017 3:11:59 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	11/20/2017 1:36:00 PM	35054
Surr: BFB	102	15-316		%Rec	1	11/20/2017 1:36:00 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	11/20/2017 1:36:00 PM	35054
Benzene	0.084	0.023		mg/Kg	1	11/20/2017 1:36:00 PM	35054
Toluene	0.45	0.046		mg/Kg	1	11/20/2017 1:36:00 PM	35054
Ethylbenzene	ND	0.046		mg/Kg	1	11/20/2017 1:36:00 PM	35054
Xylenes, Total	0.21	0.093		mg/Kg	1	11/20/2017 1:36:00 PM	35054
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	11/20/2017 1:36:00 PM	35054

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: Royce Canyon
Lab ID: 1711921-003 **Matrix:** SOIL

Client Sample ID: BH-10 23'-25'
Collection Date: 11/15/2017 2:00:00 PM
Received Date: 11/17/2017 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	31	9.5		mg/Kg	1	11/20/2017 3:40:11 PM	35063
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/20/2017 3:40:11 PM	35063
Surr: DNOP	78.3	70-130		%Rec	1	11/20/2017 3:40:11 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/20/2017 2:47:28 PM	35054
Surr: BFB	102	15-316		%Rec	1	11/20/2017 2:47:28 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.098		mg/Kg	1	11/20/2017 2:47:28 PM	35054
Benzene	0.048	0.024		mg/Kg	1	11/20/2017 2:47:28 PM	35054
Toluene	0.30	0.049		mg/Kg	1	11/20/2017 2:47:28 PM	35054
Ethylbenzene	ND	0.049		mg/Kg	1	11/20/2017 2:47:28 PM	35054
Xylenes, Total	0.22	0.098		mg/Kg	1	11/20/2017 2:47:28 PM	35054
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	11/20/2017 2:47:28 PM	35054

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: Royce Canyon
Lab ID: 1711921-004 **Matrix:** SOIL

Client Sample ID: BH-10 28'-30'
Collection Date: 11/15/2017 2:25:00 PM
Received Date: 11/17/2017 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	26	9.3		mg/Kg	1	11/20/2017 4:07:57 PM	35063
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/20/2017 4:07:57 PM	35063
Surr: DNOP	81.9	70-130		%Rec	1	11/20/2017 4:07:57 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/20/2017 3:10:47 PM	35054
Surr: BFB	98.5	15-316		%Rec	1	11/20/2017 3:10:47 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	11/20/2017 3:10:47 PM	35054
Benzene	ND	0.024		mg/Kg	1	11/20/2017 3:10:47 PM	35054
Toluene	ND	0.048		mg/Kg	1	11/20/2017 3:10:47 PM	35054
Ethylbenzene	ND	0.048		mg/Kg	1	11/20/2017 3:10:47 PM	35054
Xylenes, Total	ND	0.095		mg/Kg	1	11/20/2017 3:10:47 PM	35054
Surr: 4-Bromofluorobenzene	96.1	80-120		%Rec	1	11/20/2017 3:10:47 PM	35054

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: Royce Canyon
Lab ID: 1711921-005 **Matrix:** SOIL

Client Sample ID: BH-11 38'-40'
Collection Date: 11/16/2017 10:00:00 AM
Received Date: 11/17/2017 7:50:00 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	11/20/2017 4:36:12 PM	35063
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/20/2017 4:36:12 PM	35063
Surr: DNOP	74.3	70-130		%Rec	1	11/20/2017 4:36:12 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	6.7	5.0		mg/Kg	1	11/20/2017 3:34:14 PM	35054
Surr: BFB	108	15-316		%Rec	1	11/20/2017 3:34:14 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	11/20/2017 3:34:14 PM	35054
Benzene	ND	0.025		mg/Kg	1	11/20/2017 3:34:14 PM	35054
Toluene	0.057	0.050		mg/Kg	1	11/20/2017 3:34:14 PM	35054
Ethylbenzene	ND	0.050		mg/Kg	1	11/20/2017 3:34:14 PM	35054
Xylenes, Total	0.20	0.099		mg/Kg	1	11/20/2017 3:34:14 PM	35054
Surr: 4-Bromofluorobenzene	92.9	80-120		%Rec	1	11/20/2017 3:34:14 PM	35054

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: Royce Canyon
Lab ID: 1711921-006 **Matrix:** SOIL

Client Sample ID: BH-11 48'-50'
Collection Date: 11/16/2017 10:30:00 AM
Received Date: 11/17/2017 7:50:00 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	11/20/2017 5:04:05 PM	35063
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/20/2017 5:04:05 PM	35063
Surr: DNOP	72.2	70-130		%Rec	1	11/20/2017 5:04:05 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/20/2017 3:57:42 PM	35054
Surr: BFB	91.0	15-316		%Rec	1	11/20/2017 3:57:42 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	11/20/2017 3:57:42 PM	35054
Benzene	ND	0.023		mg/Kg	1	11/20/2017 3:57:42 PM	35054
Toluene	ND	0.047		mg/Kg	1	11/20/2017 3:57:42 PM	35054
Ethylbenzene	ND	0.047		mg/Kg	1	11/20/2017 3:57:42 PM	35054
Xylenes, Total	ND	0.093		mg/Kg	1	11/20/2017 3:57:42 PM	35054
Surr: 4-Bromofluorobenzene	91.2	80-120		%Rec	1	11/20/2017 3:57:42 PM	35054

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

Analytical Report
Lab Order **1711921**
Date Reported: **11/27/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1711921-007 **Matrix:** SOIL

Client Sample ID: BH-12 23'-25'
Collection Date: 11/16/2017 11:40:00 AM
Received Date: 11/17/2017 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	15	9.3		mg/Kg	1	11/21/2017 6:24:20 PM	35063
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/21/2017 6:24:20 PM	35063
Surr: DNOP	84.9	70-130		%Rec	1	11/21/2017 6:24:20 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/20/2017 6:41:48 PM	35054
Surr: BFB	93.6	15-316		%Rec	1	11/20/2017 6:41:48 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	11/20/2017 6:41:48 PM	35054
Benzene	ND	0.024		mg/Kg	1	11/20/2017 6:41:48 PM	35054
Toluene	ND	0.048		mg/Kg	1	11/20/2017 6:41:48 PM	35054
Ethylbenzene	ND	0.048		mg/Kg	1	11/20/2017 6:41:48 PM	35054
Xylenes, Total	ND	0.095		mg/Kg	1	11/20/2017 6:41:48 PM	35054
Surr: 4-Bromofluorobenzene	91.2	80-120		%Rec	1	11/20/2017 6:41:48 PM	35054

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: Royce Canyon
Lab ID: 1711921-008 **Matrix:** SOIL

Client Sample ID: BH-12 28'-30'
Collection Date: 11/16/2017 12:00:00 PM
Received Date: 11/17/2017 7:50:00 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	11/21/2017 6:46:19 PM	35063
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/21/2017 6:46:19 PM	35063
Surr: DNOP	82.5	70-130		%Rec	1	11/21/2017 6:46:19 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/20/2017 7:05:04 PM	35054
Surr: BFB	92.3	15-316		%Rec	1	11/20/2017 7:05:04 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	11/20/2017 7:05:04 PM	35054
Benzene	ND	0.024		mg/Kg	1	11/20/2017 7:05:04 PM	35054
Toluene	ND	0.048		mg/Kg	1	11/20/2017 7:05:04 PM	35054
Ethylbenzene	ND	0.048		mg/Kg	1	11/20/2017 7:05:04 PM	35054
Xylenes, Total	ND	0.096		mg/Kg	1	11/20/2017 7:05:04 PM	35054
Surr: 4-Bromofluorobenzene	89.3	80-120		%Rec	1	11/20/2017 7:05:04 PM	35054

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: Royce Canyon
Lab ID: 1711921-009 **Matrix:** SOIL

Client Sample ID: BH-13 23'-25'
Collection Date: 11/16/2017 1:20:00 PM
Received Date: 11/17/2017 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	21	9.3		mg/Kg	1	11/20/2017 6:27:00 PM	35063
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/20/2017 6:27:00 PM	35063
Surr: DNOP	73.9	70-130		%Rec	1	11/20/2017 6:27:00 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/20/2017 7:28:35 PM	35054
Surr: BFB	91.0	15-316		%Rec	1	11/20/2017 7:28:35 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	11/20/2017 7:28:35 PM	35054
Benzene	ND	0.025		mg/Kg	1	11/20/2017 7:28:35 PM	35054
Toluene	ND	0.049		mg/Kg	1	11/20/2017 7:28:35 PM	35054
Ethylbenzene	ND	0.049		mg/Kg	1	11/20/2017 7:28:35 PM	35054
Xylenes, Total	ND	0.099		mg/Kg	1	11/20/2017 7:28:35 PM	35054
Surr: 4-Bromofluorobenzene	90.8	80-120		%Rec	1	11/20/2017 7:28:35 PM	35054

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

Analytical Report
Lab Order **1711921**
Date Reported: **11/27/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1711921-010 **Matrix:** SOIL

Client Sample ID: BH-13 33'-35'
Collection Date: 11/16/2017 1:40:00 PM
Received Date: 11/17/2017 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	11/20/2017 6:54:31 PM	35063
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/20/2017 6:54:31 PM	35063
Surr: DNOP	71.7	70-130		%Rec	1	11/20/2017 6:54:31 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/20/2017 7:51:53 PM	35054
Surr: BFB	91.4	15-316		%Rec	1	11/20/2017 7:51:53 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	11/20/2017 7:51:53 PM	35054
Benzene	0.031	0.024		mg/Kg	1	11/20/2017 7:51:53 PM	35054
Toluene	0.24	0.048		mg/Kg	1	11/20/2017 7:51:53 PM	35054
Ethylbenzene	ND	0.048		mg/Kg	1	11/20/2017 7:51:53 PM	35054
Xylenes, Total	0.47	0.096		mg/Kg	1	11/20/2017 7:51:53 PM	35054
Surr: 4-Bromofluorobenzene	89.4	80-120		%Rec	1	11/20/2017 7:51:53 PM	35054

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

Analytical Report
Lab Order **1711921**
Date Reported: **11/27/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1711921-011 **Matrix:** SOIL

Client Sample ID: BH-14 8'-10'
Collection Date: 11/16/2017 2:30:00 PM
Received Date: 11/17/2017 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	120	9.6		mg/Kg	1	11/20/2017 7:22:01 PM	35063
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/20/2017 7:22:01 PM	35063
Surr: DNOP	78.6	70-130		%Rec	1	11/20/2017 7:22:01 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	810	49		mg/Kg	10	11/20/2017 10:50:23 AM	35054
Surr: BFB	480	15-316	S	%Rec	10	11/20/2017 10:50:23 AM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.98		mg/Kg	10	11/20/2017 10:50:23 AM	35054
Benzene	ND	0.25		mg/Kg	10	11/20/2017 10:50:23 AM	35054
Toluene	2.3	0.49		mg/Kg	10	11/20/2017 10:50:23 AM	35054
Ethylbenzene	ND	0.49		mg/Kg	10	11/20/2017 10:50:23 AM	35054
Xylenes, Total	28	0.98		mg/Kg	10	11/20/2017 10:50:23 AM	35054
Surr: 4-Bromofluorobenzene	117	80-120		%Rec	10	11/20/2017 10:50:23 AM	35054

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
Client Sample ID: BH-14 28'-30'
Project: Royce Canyon
Collection Date: 11/16/2017 3:00:00 PM
Lab ID: 1711921-012 **Matrix:** SOIL **Received Date:** 11/17/2017 7:50:00 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	11/20/2017 7:49:40 PM	35063
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/20/2017 7:49:40 PM	35063
Surr: DNOP	79.0	70-130		%Rec	1	11/20/2017 7:49:40 PM	35063
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	46	4.9		mg/Kg	1	11/20/2017 8:15:14 PM	35054
Surr: BFB	112	15-316		%Rec	1	11/20/2017 8:15:14 PM	35054
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	11/20/2017 8:15:14 PM	35054
Benzene	0.93	0.025		mg/Kg	1	11/20/2017 8:15:14 PM	35054
Toluene	6.0	0.49		mg/Kg	10	11/21/2017 11:01:29 AM	35054
Ethylbenzene	0.23	0.049		mg/Kg	1	11/20/2017 8:15:14 PM	35054
Xylenes, Total	6.3	0.099		mg/Kg	1	11/20/2017 8:15:14 PM	35054
Surr: 4-Bromofluorobenzene	95.4	80-120		%Rec	1	11/20/2017 8:15:14 PM	35054

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#: **1711921**

27-Nov-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID **LCS-35063**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35063**	RunNo: **47227**
Prep Date: **11/18/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506597** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.4	73.2	114			
Surr: DNOP	4.3		5.000		86.7	70	130			

Sample ID **MB-35063**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35063**	RunNo: **47227**
Prep Date: **11/18/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506598** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.3		10.00		83.3	70	130			

Sample ID **1711921-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH-9 20'-22'**	Batch ID: **35063**	RunNo: **47227**
Prep Date: **11/18/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506625** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	83	9.5	47.30	37.57	96.8	55.8	125			
Surr: DNOP	4.3		4.730		91.0	70	130			

Sample ID **1711921-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH-9 20'-22'**	Batch ID: **35063**	RunNo: **47227**
Prep Date: **11/18/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506626** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	91	9.2	46.04	37.57	116	55.8	125	8.75	20	
Surr: DNOP	4.3		4.604		93.2	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711921**

27-Nov-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID **MB-35054**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35054**	RunNo: **47231**
Prep Date: **11/17/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506894** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		99.6	15	316			

Sample ID **LCS-35054**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35054**	RunNo: **47231**
Prep Date: **11/17/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506898** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	106	75.9	131			
Surr: BFB	1200		1000		117	15	316			

Sample ID **1711921-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH-9 20'-22'**	Batch ID: **35054**	RunNo: **47231**
Prep Date: **11/17/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506929** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.9	24.27	0	107	77.8	128			
Surr: BFB	1200		970.9		119	15	316			

Sample ID **1711921-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH-9 20'-22'**	Batch ID: **35054**	RunNo: **47231**
Prep Date: **11/17/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506935** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.9	24.49	0	102	77.8	128	3.26	20	
Surr: BFB	1200		979.4		118	15	316	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711921**

27-Nov-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID **MB-35054**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35054**	RunNo: **47231**
Prep Date: **11/17/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506973** 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	0.99		1.000		99.2	80	120			

Sample ID **LCS-35054**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35054**	RunNo: **47231**
Prep Date: **11/17/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506974** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.90	0.10	1.000	0	90.1	70.1	121			
Benzene	0.97	0.025	1.000	0	97.1	77.3	128			
Toluene	0.96	0.050	1.000	0	95.6	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	95.7	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	96.2	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID **1711921-002AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH-9 33'-35'**	Batch ID: **35054**	RunNo: **47231**
Prep Date: **11/17/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506981** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.88	0.094	0.9416	0	93.4	72.5	138			
Benzene	1.0	0.024	0.9416	0.08440	96.7	80.9	132			
Toluene	1.5	0.047	0.9416	0.4510	113	79.8	136			
Ethylbenzene	0.92	0.047	0.9416	0.02033	95.7	79.4	140			
Xylenes, Total	3.0	0.094	2.825	0.2149	100	78.5	142			
Surr: 4-Bromofluorobenzene	0.98		0.9416		104	80	120			

Sample ID **1711921-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH-9 33'-35'**	Batch ID: **35054**	RunNo: **47231**
Prep Date: **11/17/2017**	Analysis Date: **11/20/2017**	SeqNo: **1506982** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.92	0.099	0.9872	0	93.7	72.5	138	5.04	20	
Benzene	1.0	0.025	0.9872	0.08440	96.6	80.9	132	4.24	20	
Toluene	1.6	0.049	0.9872	0.4510	114	79.8	136	3.93	20	
Ethylbenzene	0.95	0.049	0.9872	0.02033	94.6	79.4	140	3.47	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711921**

27-Nov-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID	**1711921-002AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**BH-9 33'-35'**	Batch ID:	**35054**	RunNo:	**47231**					
Prep Date:	**11/17/2017**	Analysis Date:	**11/20/2017**	SeqNo:	**1506982**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	3.2	0.099	2.962	0.2149	99.2	78.5	142	3.35	20	
Surr: 4-Bromofluorobenzene	1.0		0.9872		106	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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: 1711921 RcptNo: 1

Received By: Erin Melendrez 11/17/2017 7:50:00 AM

Completed By: Michelle Garcia 11/17/2017 9:36:23 AM Michelle Garcia

Reviewed By: ENM 11/17/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# 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	4.1	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer
Mailing Address: 295 Chipeta Way
Salt Lake City, UT
Phone #: 801-584-6746
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: Royce Canyon
Project #: 034017013
Project Manager: Williams: Aaron Galer
LTE: Danny Burns
Sampler: Eric Carroll
On Ice: ☒ Yes ☐ No
Sample Temperature: 5.2-1.1(C-F)=4.1

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. 1711921	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)
11-15-17	11:50	Soil	BH-9 20'-22'	1 4oz	Cool	001	X		X									
	13:00		BH-9 33'-35'			002	X		X									
	14:00		BH-10 23'-25'			003	X		X									
	14:25		BH-10 28'-30'			004	X		X									
11-16-17	10:00		BH-11 38'-40'			005	X		X									
	10:30		BH-11 48'-50'			006	X		X									
	11:40		BH-12 23'-25'			007	X		X									
	12:00		BH-12 28'-30'			008	X		X									
	13:20		BH-13 23'-25'			009	X		X									
	13:40		BH-13 33'-35'			010	X		X									
	14:30		BH-14 8'-10'			011	X		X									
	15:00		BH-14 28'-30'			012	X		X									

Date:	Time:	Relinquished by:	Received by	Date Time
11-16-17	16:30			11/16/17 1630
Date:	Time:	Relinquished by:	Received by	Date Time
11/16/17	1910			11/17/17 0750

Remarks: Please cc to: aager@LTEnv.com
dburns@LTEnv.com

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 08, 2017

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

RE: Royce Canyon OrderNo.: 1712358

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 6 sample(s) on 12/7/2017 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 **1712358**
Date Reported: **12/8/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1712358-001 **Matrix:** SOIL

Client Sample ID: NWW-01
Collection Date: 12/6/2017 2:15:00 PM
Received Date: 12/7/2017 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)	110	9.5		mg/Kg	1	12/7/2017 8:58:14 AM	35371
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/7/2017 8:58:14 AM	35371
Surr: DNOP	103	70-130		%Rec	1	12/7/2017 8:58:14 AM	35371
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	1600	100		mg/Kg	20	12/7/2017 9:40:43 AM	G47604
Surr: BFB	220	15-316		%Rec	20	12/7/2017 9:40:43 AM	G47604
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	1.3	0.51		mg/Kg	20	12/7/2017 9:40:43 AM	B47604
Toluene	24	1.0		mg/Kg	20	12/7/2017 9:40:43 AM	B47604
Ethylbenzene	3.9	1.0		mg/Kg	20	12/7/2017 9:40:43 AM	B47604
Xylenes, Total	51	2.0		mg/Kg	20	12/7/2017 9:40:43 AM	B47604
Surr: 4-Bromofluorobenzene	119	80-120		%Rec	20	12/7/2017 9:40:43 AM	B47604

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

Analytical Report
Lab Order **1712358**
Date Reported: **12/8/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1712358-002 **Matrix:** SOIL

Client Sample ID: NEW-01
Collection Date: 12/6/2017 2:17:00 PM
Received Date: 12/7/2017 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)	28	9.1		mg/Kg	1	12/7/2017 9:22:31 AM	35371
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/7/2017 9:22:31 AM	35371
Surr: DNOP	102	70-130		%Rec	1	12/7/2017 9:22:31 AM	35371
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	44	21		mg/Kg	5	12/7/2017 10:04:27 AM	G47604
Surr: BFB	161	15-316		%Rec	5	12/7/2017 10:04:27 AM	G47604
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.10		mg/Kg	5	12/7/2017 10:04:27 AM	B47604
Toluene	ND	0.21		mg/Kg	5	12/7/2017 10:04:27 AM	B47604
Ethylbenzene	ND	0.21		mg/Kg	5	12/7/2017 10:04:27 AM	B47604
Xylenes, Total	1.5	0.41		mg/Kg	5	12/7/2017 10:04:27 AM	B47604
Surr: 4-Bromofluorobenzene	113	80-120		%Rec	5	12/7/2017 10:04:27 AM	B47604

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

Analytical Report
Lab Order **1712358**
Date Reported: **12/8/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1712358-003 **Matrix:** SOIL

Client Sample ID: SEW-01
Collection Date: 12/6/2017 2:19:00 PM
Received Date: 12/7/2017 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)	220	9.8		mg/Kg	1	12/7/2017 9:46:54 AM	35371
Motor Oil Range Organics (MRO)	59	49		mg/Kg	1	12/7/2017 9:46:54 AM	35371
Surr: DNOP	102	70-130		%Rec	1	12/7/2017 9:46:54 AM	35371
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	1200	77		mg/Kg	10	12/7/2017 10:28:10 AM	G47604
Surr: BFB	258	15-316		%Rec	10	12/7/2017 10:28:10 AM	G47604
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	1.3	0.39		mg/Kg	10	12/7/2017 10:28:10 AM	B47604
Toluene	17	0.77		mg/Kg	10	12/7/2017 10:28:10 AM	B47604
Ethylbenzene	2.6	0.77		mg/Kg	10	12/7/2017 10:28:10 AM	B47604
Xylenes, Total	36	1.5		mg/Kg	10	12/7/2017 10:28:10 AM	B47604
Surr: 4-Bromofluorobenzene	119	80-120		%Rec	10	12/7/2017 10:28:10 AM	B47604

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

Analytical Report
Lab Order **1712358**
Date Reported: **12/8/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1712358-004 **Matrix:** SOIL

Client Sample ID: SWW-01
Collection Date: 12/6/2017 2:21:00 PM
Received Date: 12/7/2017 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)	160	10		mg/Kg	1	12/7/2017 10:11:24 AM	35371
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	12/7/2017 10:11:24 AM	35371
Surr: DNOP	102	70-130		%Rec	1	12/7/2017 10:11:24 AM	35371
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	3100	43		mg/Kg	10	12/7/2017 10:51:58 AM	G47604
Surr: BFB	412	15-316	S	%Rec	10	12/7/2017 10:51:58 AM	G47604
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	8.1	0.22		mg/Kg	10	12/7/2017 10:51:58 AM	B47604
Toluene	61	4.3		mg/Kg	100	12/7/2017 12:03:23 PM	B47604
Ethylbenzene	5.4	0.43		mg/Kg	10	12/7/2017 10:51:58 AM	B47604
Xylenes, Total	72	0.87		mg/Kg	10	12/7/2017 10:51:58 AM	B47604
Surr: 4-Bromofluorobenzene	133	80-120	S	%Rec	10	12/7/2017 10:51:58 AM	B47604

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: Royce Canyon
Lab ID: 1712358-005 **Matrix:** SOIL

Client Sample ID: FS-01
Collection Date: 12/6/2017 2:23:00 PM
Received Date: 12/7/2017 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)	75	9.8		mg/Kg	1	12/7/2017 10:35:43 AM	35371
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/7/2017 10:35:43 AM	35371
Surr: DNOP	105	70-130		%Rec	1	12/7/2017 10:35:43 AM	35371
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	300	40		mg/Kg	10	12/7/2017 11:15:48 AM	G47604
Surr: BFB	195	15-316		%Rec	10	12/7/2017 11:15:48 AM	G47604
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.25	0.20		mg/Kg	10	12/7/2017 11:15:48 AM	B47604
Toluene	4.0	0.40		mg/Kg	10	12/7/2017 11:15:48 AM	B47604
Ethylbenzene	0.67	0.40		mg/Kg	10	12/7/2017 11:15:48 AM	B47604
Xylenes, Total	9.5	0.80		mg/Kg	10	12/7/2017 11:15:48 AM	B47604
Surr: 4-Bromofluorobenzene	119	80-120		%Rec	10	12/7/2017 11:15:48 AM	B47604

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

Analytical Report
Lab Order **1712358**
Date Reported: **12/8/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Royce Canyon
Lab ID: 1712358-006 **Matrix:** SOIL

Client Sample ID: SP-01
Collection Date: 12/6/2017 2:25:00 PM
Received Date: 12/7/2017 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)	19	9.4		mg/Kg	1	12/7/2017 11:00:09 AM	35371
Motor Oil Range Organics (MRO)	49	47		mg/Kg	1	12/7/2017 11:00:09 AM	35371
Surr: DNOP	105	70-130		%Rec	1	12/7/2017 11:00:09 AM	35371
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	21		mg/Kg	5	12/7/2017 11:39:34 AM	G47604
Surr: BFB	116	15-316		%Rec	5	12/7/2017 11:39:34 AM	G47604
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.10		mg/Kg	5	12/7/2017 11:39:34 AM	B47604
Toluene	ND	0.21		mg/Kg	5	12/7/2017 11:39:34 AM	B47604
Ethylbenzene	ND	0.21		mg/Kg	5	12/7/2017 11:39:34 AM	B47604
Xylenes, Total	ND	0.41		mg/Kg	5	12/7/2017 11:39:34 AM	B47604
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	5	12/7/2017 11:39:34 AM	B47604

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#: **1712358**

08-Dec-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID **LCS-35273** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **35273** RunNo: **47491**
Prep Date: **12/1/2017** Analysis Date: **12/5/2017** SeqNo: **1517262** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		84.5	70	130			

Sample ID **MB-35273** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **35273** RunNo: **47491**
Prep Date: **12/1/2017** Analysis Date: **12/5/2017** SeqNo: **1517264** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.4		10.00		93.9	70	130			

Sample ID **LCS-35371** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **35371** RunNo: **47491**
Prep Date: **12/7/2017** Analysis Date: **12/7/2017** SeqNo: **1520257** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	83.5	73.2	114			
Surr: DNOP	3.8		5.000		75.9	70	130			

Sample ID **MB-35371** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **35371** RunNo: **47491**
Prep Date: **12/7/2017** Analysis Date: **12/7/2017** SeqNo: **1520259** 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	9.4		10.00		93.9	70	130			

Sample ID **LCS-35365** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **35365** RunNo: **47518**
Prep Date: **12/6/2017** Analysis Date: **12/7/2017** SeqNo: **1520345** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		89.3	70	130			

Sample ID **MB-35365** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **35365** RunNo: **47518**
Prep Date: **12/6/2017** Analysis Date: **12/7/2017** SeqNo: **1520346** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.8		10.00		98.2	70	130			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712358**

08-Dec-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G47604**	RunNo: **47604**
Prep Date:	Analysis Date: **12/7/2017**	SeqNo: **1521463** 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		115	15	316			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G47604**	RunNo: **47604**
Prep Date:	Analysis Date: **12/7/2017**	SeqNo: **1521464** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.7	75.9	131			
Surr: BFB	1200		1000		124	15	316			

Sample ID **1712358-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **NWW-01**	Batch ID: **G47604**	RunNo: **47604**
Prep Date:	Analysis Date: **12/7/2017**	SeqNo: **1521465** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	2000	100	508.6	1647	73.1	77.8	128			S
Surr: BFB	45000		20350		221	15	316			

Sample ID **1712358-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **NWW-01**	Batch ID: **G47604**	RunNo: **47604**
Prep Date:	Analysis Date: **12/7/2017**	SeqNo: **1521466** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	2000	100	508.6	1647	66.7	77.8	128	1.63	20	S
Surr: BFB	45000		20350		223	15	316	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712358**

08-Dec-17

Client: Williams Four Corners

Project: Royce Canyon

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B47604**	RunNo: **47604**
Prep Date:	Analysis Date: **12/7/2017**	SeqNo: **1521495** 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		109	80	120			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B47604**	RunNo: **47604**
Prep Date:	Analysis Date: **12/7/2017**	SeqNo: **1521496** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.5	77.3	128			
Toluene	0.96	0.050	1.000	0	96.2	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	96.0	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	95.1	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		112	80	120			

Sample ID **1712358-002AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **NEW-01**	Batch ID: **B47604**	RunNo: **47604**
Prep Date:	Analysis Date: **12/7/2017**	SeqNo: **1521497** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.10	4.139	0	99.5	80.9	132			
Toluene	4.2	0.21	4.139	0	101	79.8	136			
Ethylbenzene	4.2	0.21	4.139	0	101	79.4	140			
Xylenes, Total	14	0.41	12.42	1.480	98.6	78.5	142			
Surr: 4-Bromofluorobenzene	4.7		4.139		114	80	120			

Sample ID **1712358-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **NEW-01**	Batch ID: **B47604**	RunNo: **47604**
Prep Date:	Analysis Date: **12/7/2017**	SeqNo: **1521498** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.3	0.10	4.139	0	105	80.9	132	5.21	20	
Toluene	4.5	0.21	4.139	0	109	79.8	136	7.06	20	
Ethylbenzene	4.3	0.21	4.139	0	104	79.4	140	2.88	20	
Xylenes, Total	14	0.41	12.42	1.480	102	78.5	142	3.14	20	
Surr: 4-Bromofluorobenzene	4.8		4.139		116	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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: 1712358 RcptNo: 1

Received By: Anne Thorne 12/7/2017 7:00:00 AM Anne Thorne
Completed By: Anne Thorne 12/7/2017 7:15:20 AM Anne Thorne
Reviewed By: DDS 12/7/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

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

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

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer
Mailing Address: 295 Chipeta Way
SLC, Utah 84108
Phone #: 801-584-6746
email or Fax#: aaron.galer@williams.com
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush Same day
Project Name: Royce Canyon
Project #: ~~03401703~~ direct bill Williams
Project Manager: Dany Burns
Sampler: Josh Adams
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.3

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and # (12/07/17 A)	Preservative Type	HEAL No. 1712358	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)
12-6-17	1415	soil	NWW-01	(1) 4oz Meoh kit	cool	-001	X		X									
	1417		NEW-01			-002	X		X									
	1419		SEW-01			-003	X		X									
	1421		SWW-01			-004	X		X									
	1423		FS-01			-005	X		X									
	1425		SP-01			-006	X		X									

Date:	Time:	Relinquished by:	Received by:	Date	Time
12-6-17	1545			12/6/17	1545
12/6/17	1940			12/07/17	0700

Remarks:
cc: aager@ltenv.com
dburns@ltenv.com
DIRECT BILL WILLIAMS

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

January 02, 2018

Kijun Hong
Williams Field Services
188 Co. Rd 4900
Bloomfield, NM 87413
TEL:
FAX

RE: TRK S Royce Canyon OrderNo.: 1712E88

Dear Kijun Hong:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/28/2017 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 **1712E88**
Date Reported: **1/2/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: TRK S Royce Canyon
Lab ID: 1712E88-001 **Matrix:** SOIL

Client Sample ID: North West Wall Composite
Collection Date: 12/27/2017 1:20:00 PM
Received Date: 12/28/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	99	30		mg/Kg	20	12/28/2017 10:57:34 AM	35754
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **AG**	
Gasoline Range Organics (GRO)	730	95		mg/Kg	20	12/28/2017 10:07:42 AM	G48062
Surr: BFB	98.8	70-130		%Rec	20	12/28/2017 10:07:42 AM	G48062
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	47	10		mg/Kg	1	12/28/2017 10:32:11 AM	35750
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	12/28/2017 10:32:11 AM	35750
Surr: DNOP	89.2	70-130		%Rec	1	12/28/2017 10:32:11 AM	35750
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	0.76	0.48		mg/Kg	20	12/28/2017 10:07:42 AM	R48062
Toluene	13	0.95		mg/Kg	20	12/28/2017 10:07:42 AM	R48062
Ethylbenzene	1.6	0.95		mg/Kg	20	12/28/2017 10:07:42 AM	R48062
Xylenes, Total	20	1.9		mg/Kg	20	12/28/2017 10:07:42 AM	R48062
Surr: 4-Bromofluorobenzene	97.8	70-130		%Rec	20	12/28/2017 10:07:42 AM	R48062
Surr: Toluene-d8	98.8	70-130		%Rec	20	12/28/2017 10:07:42 AM	R48062

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

Analytical Report
Lab Order **1712E88**
Date Reported: **1/2/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: TRK S Royce Canyon
Lab ID: 1712E88-002 **Matrix:** SOIL

Client Sample ID: West Wall Compsite
Collection Date: 12/27/2017 1:30:00 PM
Received Date: 12/28/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	100	30		mg/Kg	20	12/28/2017 11:09:59 AM	35754
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **AG**	
Gasoline Range Organics (GRO)	640	88		mg/Kg	20	12/28/2017 10:30:37 AM	G48062
Surr: BFB	96.2	70-130		%Rec	20	12/28/2017 10:30:37 AM	G48062
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	110	9.8		mg/Kg	1	12/28/2017 10:54:20 AM	35750
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/28/2017 10:54:20 AM	35750
Surr: DNOP	91.7	70-130		%Rec	1	12/28/2017 10:54:20 AM	35750
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	0.44		mg/Kg	20	12/28/2017 10:30:37 AM	R48062
Toluene	3.3	0.88		mg/Kg	20	12/28/2017 10:30:37 AM	R48062
Ethylbenzene	0.99	0.88		mg/Kg	20	12/28/2017 10:30:37 AM	R48062
Xylenes, Total	19	1.8		mg/Kg	20	12/28/2017 10:30:37 AM	R48062
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	20	12/28/2017 10:30:37 AM	R48062
Surr: Toluene-d8	101	70-130		%Rec	20	12/28/2017 10:30:37 AM	R48062

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 Field Services
Project: TRK S Royce Canyon
Lab ID: 1712E88-003 **Matrix:** SOIL

Client Sample ID: East Wall Composite
Collection Date: 12/27/2017 1:40:00 PM
Received Date: 12/28/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	52	30		mg/Kg	20	12/28/2017 11:22:24 AM	35754
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **AG**	
Gasoline Range Organics (GRO)	35	19		mg/Kg	5	12/28/2017 10:53:24 AM	G48062
Surr: BFB	103	70-130		%Rec	5	12/28/2017 10:53:24 AM	G48062
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	14	10		mg/Kg	1	12/28/2017 11:16:17 AM	35750
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	12/28/2017 11:16:17 AM	35750
Surr: DNOP	89.4	70-130		%Rec	1	12/28/2017 11:16:17 AM	35750
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	0.094		mg/Kg	5	12/28/2017 10:53:24 AM	R48062
Toluene	ND	0.19		mg/Kg	5	12/28/2017 10:53:24 AM	R48062
Ethylbenzene	ND	0.19		mg/Kg	5	12/28/2017 10:53:24 AM	R48062
Xylenes, Total	0.76	0.37		mg/Kg	5	12/28/2017 10:53:24 AM	R48062
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	5	12/28/2017 10:53:24 AM	R48062
Surr: Toluene-d8	103	70-130		%Rec	5	12/28/2017 10:53:24 AM	R48062

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

Analytical Report
Lab Order **1712E88**
Date Reported: **1/2/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: TRK S Royce Canyon
Lab ID: 1712E88-004 **Matrix:** SOIL

Client Sample ID: Floor Comp
Collection Date: 12/27/2017 1:50:00 PM
Received Date: 12/28/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	280	30		mg/Kg	20	12/28/2017 11:34:48 AM	35754
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **AG**	
Gasoline Range Organics (GRO)	45	21		mg/Kg	5	12/28/2017 11:16:12 AM	G48062
Surr: BFB	104	70-130		%Rec	5	12/28/2017 11:16:12 AM	G48062
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	41	9.6		mg/Kg	1	12/28/2017 11:38:12 AM	35750
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/28/2017 11:38:12 AM	35750
Surr: DNOP	92.1	70-130		%Rec	1	12/28/2017 11:38:12 AM	35750
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	0.11		mg/Kg	5	12/28/2017 11:16:12 AM	R48062
Toluene	0.34	0.21		mg/Kg	5	12/28/2017 11:16:12 AM	R48062
Ethylbenzene	ND	0.21		mg/Kg	5	12/28/2017 11:16:12 AM	R48062
Xylenes, Total	1.2	0.43		mg/Kg	5	12/28/2017 11:16:12 AM	R48062
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	5	12/28/2017 11:16:12 AM	R48062
Surr: Toluene-d8	101	70-130		%Rec	5	12/28/2017 11:16:12 AM	R48062

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#: **1712E88**

02-Jan-18

Client: Williams Field Services

Project: TRK S Royce Canyon

Sample ID	**MB-35754**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**35754**		RunNo:	**48072**				
Prep Date:	**12/28/2017**	Analysis Date:	**12/28/2017**		SeqNo:	**1540947**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-35754**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**35754**		RunNo:	**48072**				
Prep Date:	**12/28/2017**	Analysis Date:	**12/28/2017**		SeqNo:	**1540948**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.7	90	110			

Sample ID	**MB-35754**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**35754**		RunNo:	**48100**				
Prep Date:	**12/28/2017**	Analysis Date:	**12/28/2017**		SeqNo:	**1542381**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-35754**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**35754**		RunNo:	**48100**				
Prep Date:	**12/28/2017**	Analysis Date:	**12/28/2017**		SeqNo:	**1542382**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712E88**

02-Jan-18

Client: Williams Field Services

Project: TRK S Royce Canyon

Sample ID **LCS-35750**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35750**	RunNo: **48061**
Prep Date: **12/28/2017**	Analysis Date: **12/28/2017**	SeqNo: **1540460** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.8	73.2	114			
Surr: DNOP	4.1		5.000		81.6	70	130			

Sample ID **MB-35750**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35750**	RunNo: **48061**
Prep Date: **12/28/2017**	Analysis Date: **12/28/2017**	SeqNo: **1540461** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.9		10.00		89.0	70	130			

Sample ID **1712E88-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **North West Wall Co**	Batch ID: **35750**	RunNo: **48061**
Prep Date: **12/28/2017**	Analysis Date: **12/28/2017**	SeqNo: **1541389** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	77	10	50.25	46.75	60.5	55.8	125			
Surr: DNOP	4.4		5.025		87.5	70	130			

Sample ID **1712E88-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **North West Wall Co**	Batch ID: **35750**	RunNo: **48061**
Prep Date: **12/28/2017**	Analysis Date: **12/28/2017**	SeqNo: **1541390** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	72	9.7	48.73	46.75	52.6	55.8	125	6.42	20	S
Surr: DNOP	4.3		4.873		88.4	70	130	0	0	

Sample ID **LCS-35724**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35724**	RunNo: **48061**
Prep Date: **12/27/2017**	Analysis Date: **12/28/2017**	SeqNo: **1541392** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		83.7	70	130			

Sample ID **MB-35724**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35724**	RunNo: **48061**
Prep Date: **12/27/2017**	Analysis Date: **12/28/2017**	SeqNo: **1541393** Units: **%Rec**

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

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#: **1712E88**

02-Jan-18

Client: Williams Field Services

Project: TRK S Royce Canyon

Sample ID **MB-35724**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35724**	RunNo: **48061**
Prep Date: **12/27/2017**	Analysis Date: **12/28/2017**	SeqNo: **1541393** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.5		10.00		85.4	70	130			

Sample ID **LCS-35758**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35758**	RunNo: **48061**
Prep Date: **12/28/2017**	Analysis Date: **12/29/2017**	SeqNo: **1542276** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.1		5.000		82.3	70	130			

Sample ID **MB-35758**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35758**	RunNo: **48061**
Prep Date: **12/28/2017**	Analysis Date: **12/29/2017**	SeqNo: **1542278** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.3		10.00		83.4	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#: **1712E88**

02-Jan-18

Client: Williams Field Services

Project: TRK S Royce Canyon

Sample ID **rb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **PBS** Batch ID: **R48062** RunNo: **48062**

Prep Date: Analysis Date: **12/28/2017** SeqNo: **1540475** 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: 1,2-Dichloroethane-d4	0		0.5000		0	70	130			S
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.4	70	130			
Surr: Dibromofluoromethane	0		0.5000		0	70	130			S
Surr: Toluene-d8	0.51		0.5000		101	70	130			

Sample ID **100ng btex lcs** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **BatchQC** Batch ID: **R48062** RunNo: **48062**

Prep Date: Analysis Date: **12/28/2017** SeqNo: **1542074** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	80	120			
Toluene	0.99	0.050	1.000	0	99.4	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.3	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.4	80	120			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.6	70	130			
Surr: Toluene-d8	0.50		0.5000		99.3	70	130			

Sample ID **1712e88-002ams** SampType: **MS4** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **West Wall Compsite** Batch ID: **R48062** RunNo: **48062**

Prep Date: Analysis Date: **12/28/2017** SeqNo: **1542090** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	0.44	17.67	0.1749	101	80	120			
Toluene	20	0.88	17.67	3.278	95.3	80	120			
Ethylbenzene	18	0.88	17.67	0.9940	94.8	80	120			
Xylenes, Total	69	1.8	53.00	19.22	94.6	80	120			
Surr: 4-Bromofluorobenzene	7.8		8.834		88.4	70	130			
Surr: Toluene-d8	8.8		8.834		99.4	70	130			

Sample ID **1712e88-002amsd** SampType: **MSD4** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **West Wall Compsite** Batch ID: **R48062** RunNo: **48062**

Prep Date: Analysis Date: **12/28/2017** SeqNo: **1542091** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	17	0.44	17.67	0.1749	97.6	80	120	3.51	0	
Toluene	19	0.88	17.67	3.278	90.8	80	120	4.02	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712E88**

02-Jan-18

Client: Williams Field Services

Project: TRK S Royce Canyon

Sample ID **1712e88-002amsd**	SampType: **MSD4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **West Wall Compsite**	Batch ID: **R48062**	RunNo: **48062**
Prep Date:	Analysis Date: **12/28/2017**	SeqNo: **1542091** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethylbenzene	17	0.88	17.67	0.9940	93.0	80	120	1.86	0	
Xylenes, Total	65	1.8	53.00	19.22	85.5	80	120	7.17	0	
Surr: 4-Bromofluorobenzene	7.8		8.834		88.7	70	130	0	0	
Surr: Toluene-d8	8.8		8.834		100	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712E88**

02-Jan-18

Client: Williams Field Services

Project: TRK S Royce Canyon

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **G48062**	RunNo: **48062**
Prep Date:	Analysis Date: **12/28/2017**	SeqNo: **1540545** 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	490		500.0		97.8	70	130			

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G48062**	RunNo: **48062**
Prep Date:	Analysis Date: **12/28/2017**	SeqNo: **1540649** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.7	70	130			
Surr: BFB	470		500.0		93.5	70	130			

Sample ID **1712e88-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **North West Wall Co**	Batch ID: **G48062**	RunNo: **48062**
Prep Date:	Analysis Date: **12/28/2017**	SeqNo: **1541443** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1300	95	477.1	725.2	114	64.7	142			
Surr: BFB	9100		9542		95.5	70	130			

Sample ID **1712e88-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **North West Wall Co**	Batch ID: **G48062**	RunNo: **48062**
Prep Date:	Analysis Date: **12/28/2017**	SeqNo: **1541444** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1200	95	477.1	725.2	107	64.7	142	2.75	20	
Surr: BFB	9300		9542		97.4	70	130	0	0	

Qualifiers:

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

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 FIELD SERVI Work Order Number: 1712E88 RcptNo: 1

Received By: Anne Thorne 12/28/2017 7:10:00 AM Anne Thorne
Completed By: Anne Thorne 12/28/2017 7:19:10 AM Anne Thorne
Reviewed By: DDS 12/28/17

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: WFS

Mailing Address: 1755 ARROYO DR
Bloomfield NM 87413

Phone #: 505-632-4475

email or Fax#: Kijun-Hong@williams.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time: Same day
☐ Standard ☑ Rush 12-28-17

Project Name: TRK-5-ROYCE CANYON

Project #:

Project Manager: KIJUN HONG

Sampler: Morgan Killion

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.6

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 # (AT 12/28/17)	Preservative Type	HEAL No. 1712E88	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)	GH				Air Bubbles (Y or N)
12/27/17	1:20	soil	North west wall composite	1-402 MeoH kit		001	X		X									X				
12/27/17	1:30	soil	west wall composite	1-402		002	X		X									X				
12/27/17	1:40	soil	East wall composite	1-402		003	X		X									X				
12/27/17	1:50	soil	Floor comp.	1-402		004	X		X									X				
							AT 12/28/17															

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/27/17	1440	Morgan Killion		12/27/17	1940
12/28/17	0740			12/28/17	0710

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.