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: pVF1733153109

3RP - 1058

Williams Four Corners, LLC

2/22/2018

93

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

☒ Subsequent 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: **Hargrave RP F-2**	Facility Type: **Pipeline**

Surface Owner: **BLM**	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
K	**16**	**27N**	**10W**					**San Juan**

Latitude 36.5749 **Longitude** -107.9033

NATURE OF RELEASE

Type of Release: **Natural Gas**	Volume of Release: **41.09 MCF**	Volume Recovered: **0 MCF**
Source of Release: **Pipeline.**	Date and Hour of Occurrence: **09/28/2017 at 11:30 AM**	Date and Hour of Discovery: **09/28/2017 at 11:30 AM** **Soil threshold was exceeded on 10/17/2017**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Vanessa Fields**	
By Whom? **Chris Lucero**	Date and Hour: **10/17/2017 @ 10:00 AM**	
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.*
Natural gas and liquids released from a leak in the pipeline. The section was isolated and shut-in upon discovery.

Describe Area Affected and Cleanup Action Taken.*
Clean up currently in progress. Approximately 3,000 yards of impacted soil have been trucked off site for disposal and 3,000 yards of clean dirt have been stock piled on site for back fill so far.

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: 3/5/18 Expiration Date:
E-mail Address: **kijun.hong@williams.com**	Conditions of Approval: - 7 Attached ☒
Date: **11/6/2017** Phone: **(505) 632-4475**	

* Attach Additional Sheets If Necessary

NVF1733148730

State of New Mexico
Energy, Minerals and Natural Resources Department

March 5, 2018

Mr. Aaron Galer
Williams Four Corners LLC.
295 Chipeta Way
Salt Lake City, Utah 84108

Re: Hargrave RP F-2 (3RP-1058)
Groundwater Monitoring Work Plan

Dear Mr. Galer,

OCD has reviewed the subject work plan. OCD approves this work plan with the following conditions.

1.) Additional monitor well to be installed in the Northwest area of previous excavation.
2.) Provide District III staff with a schedule of major activities of tasks in your work plan
3.) Provide District III staff at least 72 hours prior notice of major activities in the schedule so that staff can witness activities.
4.) Collect two QA/QC samples as described in 6.8 of LTE's groundwater sampling plan.

Randolph Bayliss, P.E.
Hydrologist
505-476-3084

Vanessa Fields
Environmental Specialist
505-334-6178 ext. 119

Cc: Jim Griswold, Brandon Powell, Cory Smith

Fields, Vanessa, EMNRD

From: Fields, Vanessa, EMNRD
Sent: Thursday, January 4, 2018 3:34 PM
To: 'Daniel Burns'
Cc: Thomas, Leigh; Galer, Aaron; Ashley Ager; Smith, Cory, EMNRD
Subject: RE: Hargrave RP F-2 - Proposed Remediation Workplan

Good afternoon Danny,

The OCD grants approval of Williams proposed work plan for the Hargrave RP F-2. Please submit a hardcopy with a subsequent C-141.

Please ensure to receive surface owner approval before proceeding with the amendment.

Thank you,

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

From: Daniel Burns [mailto:dburns@ltenv.com]
Sent: Thursday, January 4, 2018 12:06 PM
To: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Cc: Thomas, Leigh <l1thomas@blm.gov>; Galer, Aaron <Aaron.Galer@Williams.com>; Ashley Ager <aager@ltenv.com>
Subject: Hargrave RP F-2 - Proposed Remediation Workplan

Vanessa,

Please see the attached remediation workplan regarding the Hargrave RP F-2 location. We are tentatively scheduled to resume excavation activities next week, so if you would review and approve at your earliest convenience, that would be much appreciated. The excavation will continue in the north (NW-1) and east (EW-1) walls where samples indicated soil impacts remain. We'll schedule confirmation soil sampling with you and have the results rushed prior to backfill and applying the prescribed groundwater amendment. Our working schedule is to begun backfilling the week of the 15th.

Let us know if you have any questions.

Thank you,
Danny Burns
Project Geologist

January 25, 2018

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

RE: Proposed Groundwater Monitoring Workplan
Hargrave RP F-2 Pipeline Release
Environmental Order # 3RP-1058
Williams Four Corners LLC
San Juan County, New Mexico

Dear Ms. Fields:

LT Environmental, Inc. (LTE), on behalf of Williams Four Corners LLC (Williams), proposes the following work plan to install a groundwater monitoring network following initial remediation activities at the Hargrave RP F-2 pipeline release (Site) located in the northeast quarter of the southwest quarter of Section 16 within Township 27 North and Range 10 West in the San Juan Basin in San Juan County, New Mexico (Figure 1).

BACKGROUND/INITIAL EXCAVATION AND DELINEATION

Soil at the Site was impacted by petroleum hydrocarbons following a release from the Hargrave RP F-2 natural gas pipeline encountered on September 28, 2017. Upon discovery, the pipeline was isolated and shut in. Williams began excavation immediately, and excavated over 3,000 cubic yards of impacted soil.

On November 27 and 28, 2017, LTE advanced eight borings to delineate potential soil and groundwater impacts outside of the excavation (Figure 2). Boreholes were advanced using a CME 55 drill rig with hollow stem auger techniques in all directions around the existing excavation extent. Soil from the borings was described and field screened every five feet for volatile organic compounds (VOCs) with a photo-ionization detector (PID) equipped with a 10.6 electron volt lamp per methods in accordance with the New Mexico Oil Conservation Division (NMOCD) *Guidelines for Remediation of Leaks, Spills and Releases*, August 13, 1993. The sample with the highest field screening value as well as the bottom of each soil boring were collected from each borehole and submitted to Hall Environmental Analysis Laboratory (Hall) for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (EPA) Method 8021, and total petroleum hydrocarbon (TPH) – gasoline range organics (GRO), diesel range organics (DRO), motor oil range organics (MRO) by EPA Method 8015. Laboratory analytical results from the soil delineation activities are presented in Table 1 and complete laboratory analytical reports are included in Attachment 1. All samples collected from the

boreholes at the Site were in compliance with the NMOCD remediation action levels for BTEX and TPH based on a site ranking of 20. Soil boring locations are presented on Figure 2.

On November 28 and December 6, 2017, excavation confirmation soil samples were collected from the sidewalls of the existing excavation extent. An excavator bucket was used to collect 5-point composite sidewall confirmation soil samples. The samples were spaced approximately every 25 to 30 linear feet along the sidewall. Samples were submitted to Hall for analysis of BTEX and TPH – GRO, DRO and MRO. Laboratory analytical results from the excavation confirmation samples are presented in Table 1. Results of the laboratory analyses indicated that the excavation confirmation soil samples collected in the northern half of the eastern wall (EW-1) and the western half of the northern wall (NW-1) exhibited TPH concentrations of 713 milligrams per kilogram (mg/kg) and 160 mg/kg, respectively, which exceeded the NMOCD remediation standards. Excavation confirmation soil sample EW-1 also exhibited a total BTEX concentration of 64.08 mg/kg that exceeds the applicable standard. No excavation confirmation soil samples were collected from the base of the excavation, as groundwater had infiltrated in and filled the base of the excavation.

A grab sample of the excavation groundwater was collected via peristaltic pump and submitted to Hall for analysis of BTEX, TPH-GRO, DRO, and MRO. The excavation groundwater sample laboratory analytical results are summarized in Table 2 and the laboratory analytical report is included in Attachment 1. Laboratory analytical results indicate the excavation groundwater exhibited a benzene concentration of 310 micrograms per liter (µg/L) which exceeds the New Mexico Water Quality Control Commission (NMWQCC) standard for benzene of 10 µg/L. Excavation confirmation soil and groundwater sample locations are presented on Figure 2.

ADDITIONAL EXCAVATION AND GROUNDWATER AMENDMENT APPLICATION

Since laboratory analytical results from excavation confirmation soil samples exceeded NMOCD remediation action levels, Williams conducted additional excavation of the remaining impacted sidewalls (EW-1 and NW-1). Following excavation, confirmation soil samples were collected in the presence of the NMOCD by Williams personnel on January 16, 2018 to ensure hydrocarbon impacts have been removed laterally via additional excavation activities. Samples were submitted to Hall for analysis of BTEX by EPA Method 8021 and TPH –GRO, DRO, and MRO by EPA Method 8015. In total, an estimated 6,500 cubic yards of soil impacts were excavated and transported for disposal at the landfarm facility operated by Envirotech Inc. in Hilltop, New Mexico. Additional excavation confirmation soil samples and the total excavation area is presented in Figure 2.

Laboratory analytical results from the two additional confirmation soil samples (East Area 6 Point and North West 6 Point) are in compliance with the NMOCD remediation standards and are presented in Table 1.

Following the receipt of excavation confirmation soil sample laboratory results and prior to backfill, LTE added 750 pounds of a groundwater amendment (BOS200®) to the base of the excavation footprint. The groundwater amendment ensures that any remaining recalcitrant impacts to the saturated zone are mitigated. The BOS200® groundwater amendment is a mix of activated carbon, petroleum consuming microbes, calcium sulfate (gypsum), and nutrients. The product remediates hydrocarbons in the groundwater and saturated sediments through biological degradation of the hydrocarbon compounds. The product was applied directly to the smear zone during backfilling where the activated carbon will attract any hydrocarbons and adsorb them to the carbon matrix, where the hydrocarbons are co-located with microbes, nutrients, and electron acceptors. As the hydrocarbons are adsorbed into the activated carbon, the microbes use the hydrocarbons as a food source for respiratory and metabolic processes. The microbes metabolize the hydrocarbons that are adsorbed to the activated carbon. Gypsum at low concentrations is added to the mix to ensure proper mass of electron acceptors (the bacteria may use available oxygen or the supplemental sulfate) in order for the facultative bacteria to consume the hydrocarbons. The hydrocarbons are transformed via the microbial action to the innocuous products of carbon dioxide and water, which escape the activated carbon matrix and allow for re-adsorption of additional hydrocarbons. The technology has thus been coined a "trap and treat" technology, as the activated carbon immediately removes hydrocarbons (trap) in preparation for bioremediation processes (treat).

PROPOSED GROUNDWATER MONITORING WORKPLAN

Since impacted groundwater was encountered during excavation activities at the Site, LTE proposes the installation of five groundwater monitoring wells to monitor any residual impact and evaluate the efficacy of the BOS200® amendment. Three monitoring wells will be located outside the excavation area, with two wells located within the excavation area to be installed after the excavation is backfilled and pipelines replaced. The proposed monitoring well locations are shown in Figure 2.

Each new monitoring well be installed by via a hollow stem auger drilling rig. Continuous soil samples will be logged by an LTE geologist and described using the Unified Soil Classification System (USCS). The intervals from immediately beneath the ground surface and then every five feet thereafter will be screened for volatile aromatic hydrocarbons as well as any soil that is stained or has a hydrocarbon odor using a PID. If PID concentrations exceed 100 parts per million (ppm) in any of the soil samples, the sample will be submitted to Hall for analysis of BTEX by EPA Method 8021 TPH –GRO, DRO, and MRO by EPA Method 8015.

The monitoring wells will be installed to a depth of approximately 20 feet below ground surface. Monitoring wells will be constructed of schedule 40, 2-inch diameter polyvinyl chloride (PVC) and include 10 feet of 0.01-inch machine slotted flush-threaded PVC well screen. LTE will set at least 5 feet of screen beneath the water table and approximately 5 feet above to allow for seasonal fluctuations and a proper seal during well construction. A clean 10-20 grade silica sand gravel

pack will be placed from the bottom of the boring to one foot above the top of the screen. At least two feet of 3/8-inch natural bentonite chips will be set above the gravel pack to the ground surface.

At least 24 hours after installation, the new monitoring wells will be developed utilizing an electrical submersible pump. LTE personnel will remove a minimum of 10 saturated well casing volumes of water while monitoring the pH, electrical conductivity, and temperature until these parameters stabilize and turbidity is reduced to the greatest extent possible.

LTE will complete all work in accordance with industry-accepted practices. LTE will survey the new groundwater monitoring wells after construction with a Trimble® GeoExplorer® 6000 series Global Positioning System (GPS) to determine the latitude and longitude. Top-of-casing elevations will be surveyed to an accuracy of no less than plus or minus (±) 0.01 feet so that groundwater flow direction and gradient can be determined. Field activities will be documented in a bound field book and soil descriptions will be documented on a boring log. Observations to be noted on the boring log will include, but not be limited to, lithology, moisture content, staining, soil boring depth, latitude, longitude, project number, and comments. Monitoring well construction details will be documented on a well completion log. All down-hole drilling equipment will be thoroughly decontaminated prior to each use. If impacted soil is identified within a borehole, cuttings will be drummed and transported to the Envirotech, Inc. Landfarm in Hilltop, New Mexico.

At least one week after completion of monitoring well installation and development, groundwater sampling will be conducted using a peristaltic pump with dedicated tubing for low-flow sampling. LTE will measure depth to groundwater and total depth of the monitoring wells with a Keck® oil/water interface probe prior to sampling. As water is removed from the monitoring wells, pH, electric conductivity, and temperature will be monitored utilizing an in-line flow cell.

Once monitoring wells are properly purged, groundwater samples for laboratory analysis will be collected by filling pre-cleaned vials with zero headspace to prevent degradation of the sample and plastic bottles with appropriate preservatives. All groundwater samples will be labeled with the date and time of collection, well designation, project name, collector's name, and parameters to be analyzed. The samples will be immediately chilled by placing them in a cooler with ice. The cooler will be delivered to Hall following proper chain-of-custody procedures for analysis of BTEX according to EPA Method 8260.

Groundwater will be monitored quarterly until eight consecutive quarters show results that are below NMWQCC standards in the two monitoring wells within the excavation and the two downgradient monitoring wells. After the initial sampling event, the upgradient monitoring well will be used for groundwater elevation monitoring only. Quarterly groundwater monitoring will be documented and submitted in annual reports to the NMOCD. Reports will include groundwater elevations, relevant figures, including site location and potentiometric surface maps, and analytical results. The initial annual report will include soil boring and monitoring well completion logs.

LTE appreciates the opportunity to provide this proposed work plan to the NMOCD. If you have any questions or comments regarding this plan, do not hesitate to contact me at (970) 385-1096 or via email at aager@ltenv.com or Aaron Galer at Williams at (801) 584-6746 or Aaron.Galer@Williams.com.

Sincerely,

LT ENVIRONMENTAL, INC.

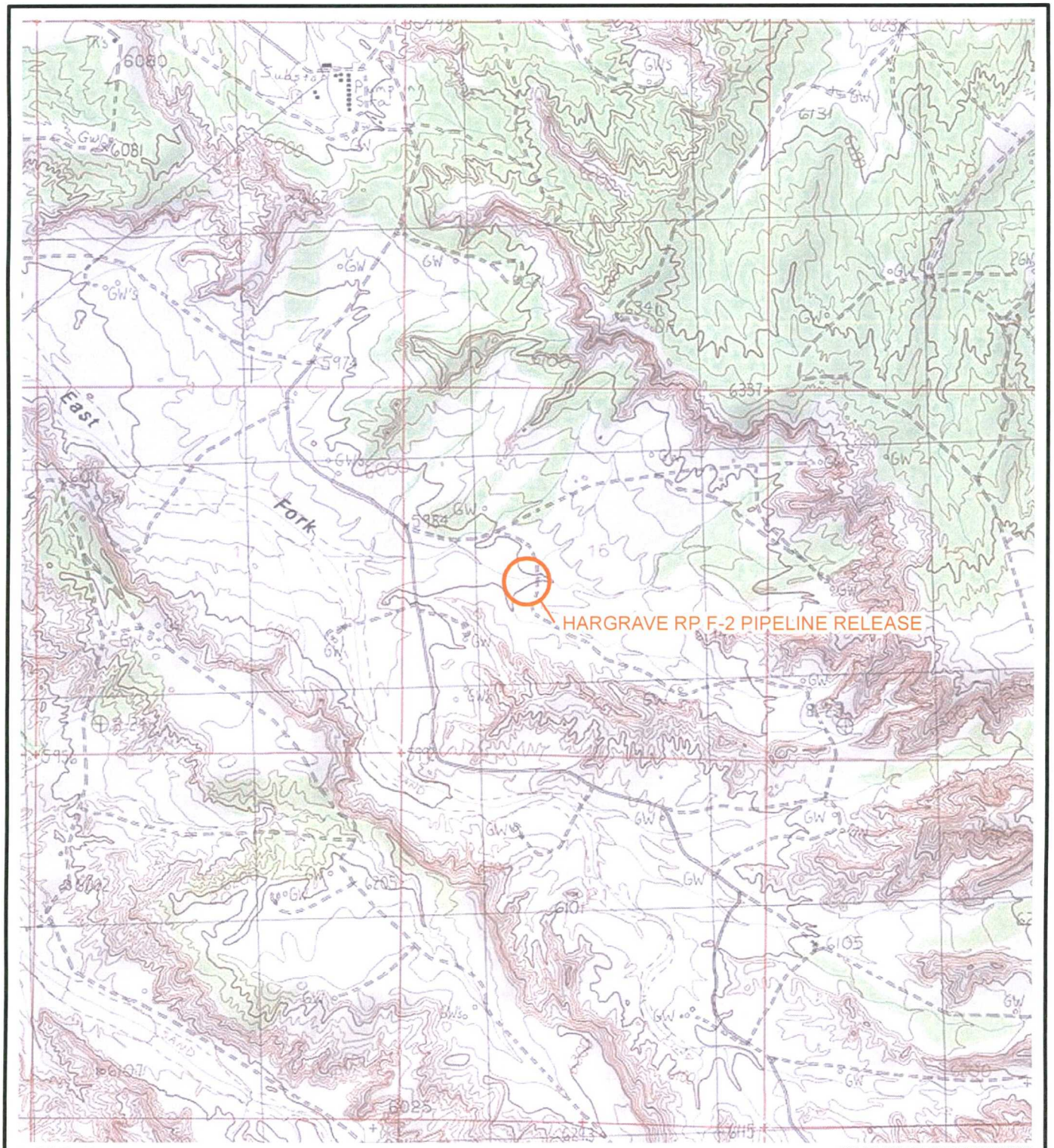
Danny Burns
Project Geologist

Ashley Ager, M.S., P.G.
Senior Geologist, VP of Regional Offices

cc: Brandon Powell, Cory Smith – NMOCD

Attachments
Figure 1 – Site Location Map
Figure 2 – Site Map
Table 1 – Soil Analytical Results
Table 2 – Groundwater Analytical Results
Attachment 1 – Laboratory Analytical Reports

FIGURES



LEGEND

IMAGE COURTESY OF ESRI/USGS

SITE LOCATION

0 2,000 4,000

Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
HARGRAVE RP F-2 PIPELINE RELEASE
NESW SEC 16 T27N R10W
SAN JUAN COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

P:\Williams Four Corners\GIS\MXD\034017003_HARGRAVE\034017003_HARGRAVE_FIG01_SL.mxd

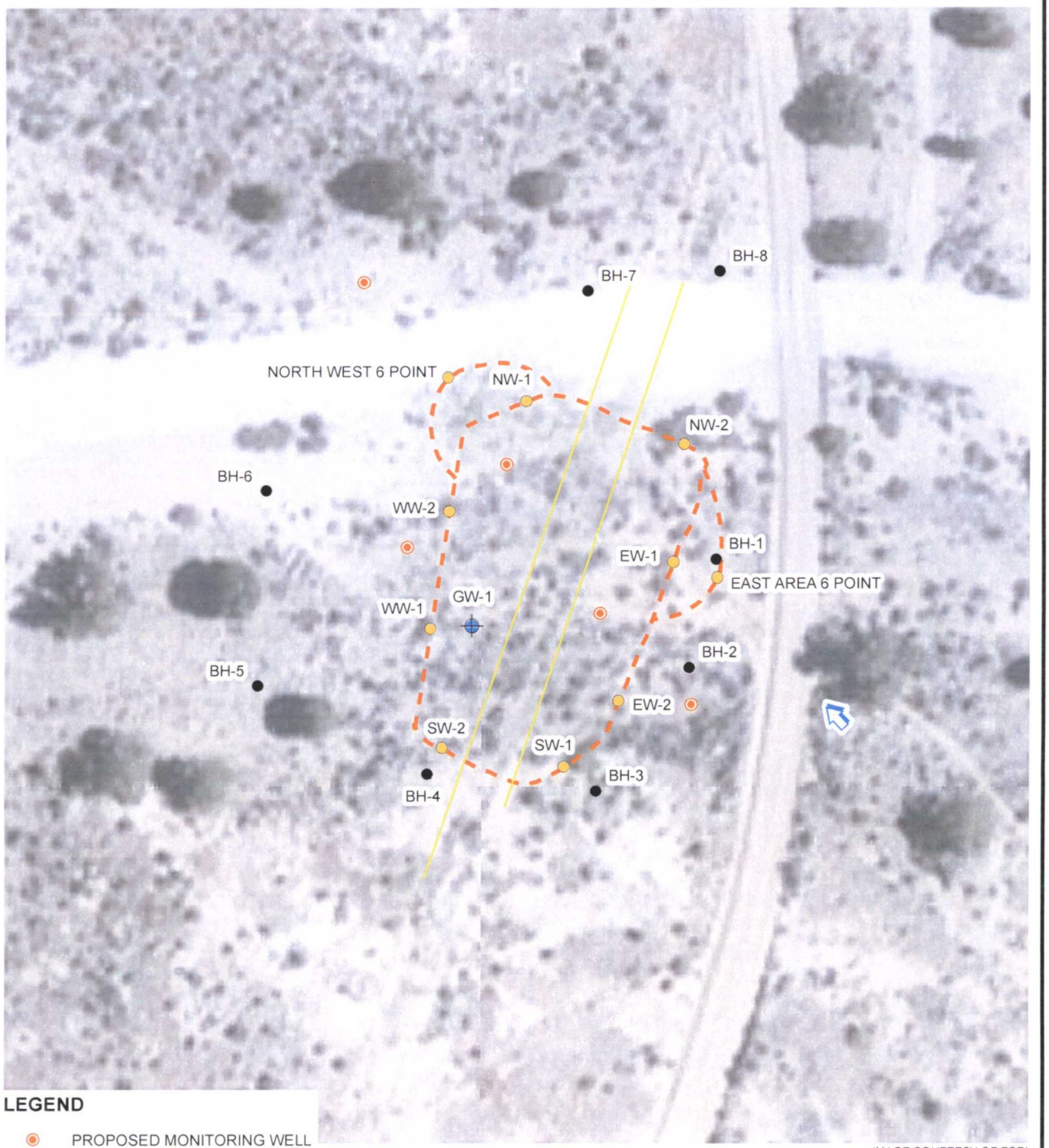


FIGURE 2
SITE MAP
HARGRAVE RP F-2 PIPELINE RELEASE
NESW SEC 16 T27N R10W
SAN JUAN COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

P:\Williams Four Corners\GIS\MXD\034017003_HARGRAVE\034017003_HARGRAVE_FIG01_SITE.mxd

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS

HARGRAVE RP F-2 PIPELINE RELEASE
SAN JUAN 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)
Soil Boring - Delineation Samples											
BH1 @ 4-5'	11/27/2017	7.0	<0.024	<0.048	<0.048	<0.097	<0.217	<4.8	<9.1	<46	<59.9
BH1 @ 18-20'	11/27/2017	1.9	<0.024	<0.049	<0.049	<0.098	<0.220	<4.9	11	<50	11
BH2 @ 4-5'	11/27/2017	22.3	<0.023	<0.046	<0.046	<0.092	<0.207	<4.6	<9.8	<49	<63.4
BH2 @ 18-20'	11/27/2017	2.4	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	<9.6	<48	<62.4
BH3 @ 8-10'	11/27/2017	7.5	<0.024	<0.048	<0.048	<0.097	<0.217	<4.8	<9.8	<49	<63.6
BH3 @ 18-20'	11/27/2017	1.9	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	<9.5	<47	<61.3
BH4 @ 13-15'	11/27/2017	15.1	<0.024	<0.048	<0.048	<0.095	<0.215	<4.8	<9.8	<49	<63.6
BH4 @ 23-25'	11/27/2017	0.9	<0.024	<0.047	<0.047	<0.095	<0.213	<4.7	<9.7	<48	<62.4
BH5 @ 8-10'	11/28/2017	5.4	<0.025	<0.049	<0.049	<0.099	<0.222	<4.9	<9.3	<46	<60.2
BH5 @ 23-25'	11/28/2017	0.9	<0.024	<0.048	<0.048	<0.097	<0.217	<4.8	<9.6	<48	<62.4
BH6 @ 13-15'	11/28/2017	4.6	<0.025	<0.049	<0.049	<0.099	<0.222	<4.9	<9.6	<48	<62.5
BH6 @ 23-25'	11/28/2017	2.8	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	<9.2	<46	<60
BH7 @ 8-10'	11/28/2017	4.1	<0.024	<0.047	<0.047	<0.095	<0.213	<4.7	<9.9	<49	<63.6
BH7 @ 18-20'	11/28/2017	0.9	<0.024	<0.047	<0.047	<0.095	<0.213	<4.7	11	<49	11
BH8 @ 3-5'	11/28/2017	3.1	<0.023	<0.047	<0.047	<0.093	<0.210	<4.7	<9.7	<48	<62.4
BH8 @ 23-25'	11/28/2017	0.9	<0.023	<0.047	<0.047	<0.093	<0.210	<4.7	<9.1	<46	<59.8
Excavation Confirmation Samples											
SW-1	11/28/2017	34.3	<0.024	<0.048	<0.048	<0.097	<0.217	<4.8	<9.7	<48	<62.5
SW-2	11/28/2017	1,891	0.024	0.49	0.1	1.3	1.91	14	<10	<50	14
EW-1	11/28/2017	1,564	0.78	15	4.3	44	**64.08**	680	33	<49	**713**
EW-2	11/28/2017	1,936	0.065	0.65	0.092	0.88	1.69	6.0	<9.6	<48	6.0
NW-1	11/28/2017	1,924	1.9	16	2.3	20	40.20	160	<9.8	<49	**160**
NW-2	11/28/2017	2,134	0.55	5.8	1.1	11	18.45	90	<9.7	<48	90
WW-1	12/6/2017	1,998	<0.12	1.1	0.68	6.9	8.68	100	<9.7	<48	100
WW-2	12/6/2017	2,048	<0.025	0.63	0.19	2.0	2.82	13	<10	<50	13
East Area 6 Point	1/16/2018	NM	<0.019	<0.039	<0.039	<0.077	<0.174	<3.9	<9.7	<48	<61.6
North West 6 Point	1/16/2018	NM	0.41	1.7	0.15	1.3	3.56	62	<9.7	<49	62
NMOCD Closure Criteria			**10**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**NE**	**100**

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
ppm - parts per million
NE - not established
NM - not measured
TPH- total petroleum hydrocarbons
< - indicates result is less than the stated laboratory reporting limit
BOLD indicates result exceeds applicable standard

TABLE 2
GROUNDWATER ANALYTICAL RESULTS

HARGRAVE RP F-2 PIPELINE RELEASE
SAN JUAN COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS LLC

Sample ID	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	GRO (mg/L)	DRO (mg/L)	MRO (mg/L)
GW-1	12/6/2017	**310**	600	21	250	3.4	1.8	<5.0
NMWQCC Standard		10	750	750	620	NE	NE	NE

Notes:

µg/L - micrograms per liter
mg/L - milligrams per liter
NMWQCC - New Mexico Water Quality Control Commission
NE - not established
< - indicates result is below laboratory detection limit
BOLD indicates result exceeds the NMWQCC standard

ATTACHMENT

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

Kijun Hong
Williams Field Services
1755 Arroyo Dr.,
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Har Grave RP F 2 OrderNo.: 1710E47

Dear Kijun Hong:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/27/2017 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 **1710E47**
Date Reported: **10/31/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: Har Grave RP F 2
Lab ID: 1710E47-001
Matrix: MEOH (SOIL)
Client Sample ID: Hargrave RP F-2 Bottom Comp
Collection Date: 10/26/2017 1:45:00 PM
Received Date: 10/27/2017 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	10/27/2017 1:27:30 PM	34680
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	8.1		mg/Kg	1	10/27/2017 10:38:46 AM	34675
Motor Oil Range Organics (MRO)	ND	40		mg/Kg	1	10/27/2017 10:38:46 AM	34675
Surr: DNOP	93.3	70-130		%Rec	1	10/27/2017 10:38:46 AM	34675
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.5		mg/Kg	1	10/27/2017 10:48:49 AM	G46704
Surr: BFB	85.6	15-316		%Rec	1	10/27/2017 10:48:49 AM	G46704
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.017		mg/Kg	1	10/27/2017 10:48:49 AM	B46704
Toluene	0.038	0.035		mg/Kg	1	10/27/2017 10:48:49 AM	B46704
Ethylbenzene	ND	0.035		mg/Kg	1	10/27/2017 10:48:49 AM	B46704
Xylenes, Total	ND	0.070		mg/Kg	1	10/27/2017 10:48:49 AM	B46704
Surr: 4-Bromofluorobenzene	98.1	80-120		%Rec	1	10/27/2017 10:48:49 AM	B46704

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#: **1710E47**

31-Oct-17

Client: Williams Field Services

Project: Har Grave RP F 2

Sample ID	**MB-34680**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**34680**		RunNo:	**46707**				
Prep Date:	**10/27/2017**	Analysis Date:	**10/27/2017**		SeqNo:	**1488562**	Units:	**mg/Kg**		

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

Sample ID	**LCS-34680**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**34680**		RunNo:	**46707**				
Prep Date:	**10/27/2017**	Analysis Date:	**10/27/2017**		SeqNo:	**1488563**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.8	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#: **1710E47**

31-Oct-17

Client: Williams Field Services

Project: Har Grave RP F 2

Sample ID **LCS-34675**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **34675**	RunNo: **46696**
Prep Date: **10/27/2017**	Analysis Date: **10/27/2017**	SeqNo: **1487893** 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	96.5	73.2	114			
Surr: DNOP	4.2		5.000		83.0	70	130			

Sample ID **MB-34675**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **34675**	RunNo: **46696**
Prep Date: **10/27/2017**	Analysis Date: **10/27/2017**	SeqNo: **1487894** 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	9.1		10.00		91.1	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#: **1710E47**

31-Oct-17

Client: Williams Field Services

Project: Har Grave RP F 2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G46704**	RunNo: **46704**
Prep Date:	Analysis Date: **10/27/2017**	SeqNo: **1488186** 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	830		1000		83.3	15	316			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G46704**	RunNo: **46704**
Prep Date:	Analysis Date: **10/27/2017**	SeqNo: **1488187** 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	98.8	75.9	131			
Surr: BFB	960		1000		96.1	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#: **1710E47**

31-Oct-17

Client: Williams Field Services

Project: Har Grave RP F 2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B46704**	RunNo: **46704**
Prep Date:	Analysis Date: **10/27/2017**	SeqNo: **1488226** 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	0.98		1.000		98.1	80	120			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B46704**	RunNo: **46704**
Prep Date:	Analysis Date: **10/27/2017**	SeqNo: **1488227** 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	96.3	77.3	128			
Toluene	0.94	0.050	1.000	0	94.4	79.2	125			
Ethylbenzene	0.93	0.050	1.000	0	93.3	80.7	127			
Xylenes, Total	2.8	0.10	3.000	0	93.8	81.6	129			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.5	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			

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:

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- 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: 1710E47 RcptNo: 1

Received By: Sophia Campuzano 10/27/2017 8:00:00 AM

Completed By: Ashley Gallegos 10/27/2017 8:42:45 AM

Reviewed By: 10/27/17

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	3.1	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

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 10-27-17

Project Name: Hargrove RP F-2

Project #:

Project Manager: KIJUN HONG

Sampler: morgan.killion@williams.com cc

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.9+0.2(CF)=3.1

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1710E47	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,NO3,NO2,PO4,SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride				Air Bubbles (Y or N)
10/26/17	1:45	Soil	Hargrove RP F-2 Bottom comp.	1-402	ICE	-001	X		X									X				

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/26/17	1530	Morgan Killion	[illegible]	10/26/17	1530
10/26/17	1941	[illegible] Watts	[illegible]	10/27/17	0800

Remarks: cc: Morgan Killion (see email Above Sampler)

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

December 06, 2017

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

RE: Hargrave RP F 2 OrderNo.: 1711E00

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 11 sample(s) on 11/30/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Hargrave RP F 2
Lab ID: 1711E00-001 **Matrix:** SOIL

Client Sample ID: BH-1 4'-5'
Collection Date: 11/27/2017 9:30:00 AM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	12/4/2017 7:02:27 PM	35267
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/4/2017 7:02:27 PM	35267
Surr: DNOP	95.0	70-130		%Rec	1	12/4/2017 7:02:27 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/1/2017 3:12:35 PM	35250
Surr: BFB	111	15-316		%Rec	1	12/1/2017 3:12:35 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	12/1/2017 3:12:35 PM	35250
Benzene	ND	0.024		mg/Kg	1	12/1/2017 3:12:35 PM	35250
Toluene	ND	0.048		mg/Kg	1	12/1/2017 3:12:35 PM	35250
Ethylbenzene	ND	0.048		mg/Kg	1	12/1/2017 3:12:35 PM	35250
Xylenes, Total	ND	0.097		mg/Kg	1	12/1/2017 3:12:35 PM	35250
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	12/1/2017 3:12:35 PM	35250

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: Hargrave RP F 2
Lab ID: 1711E00-002 **Matrix:** SOIL

Client Sample ID: BH-1 18'-20'
Collection Date: 11/27/2017 10:00:00 AM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	11	10		mg/Kg	1	12/4/2017 8:08:04 PM	35267
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/4/2017 8:08:04 PM	35267
Surr: DNOP	92.5	70-130		%Rec	1	12/4/2017 8:08:04 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/1/2017 6:47:06 PM	35250
Surr: BFB	111	15-316		%Rec	1	12/1/2017 6:47:06 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.098		mg/Kg	1	12/1/2017 6:47:06 PM	35250
Benzene	ND	0.024		mg/Kg	1	12/1/2017 6:47:06 PM	35250
Toluene	ND	0.049		mg/Kg	1	12/1/2017 6:47:06 PM	35250
Ethylbenzene	ND	0.049		mg/Kg	1	12/1/2017 6:47:06 PM	35250
Xylenes, Total	ND	0.098		mg/Kg	1	12/1/2017 6:47:06 PM	35250
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	12/1/2017 6:47:06 PM	35250

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: Hargrave RP F 2
Lab ID: 1711E00-003 **Matrix:** SOIL

Client Sample ID: BH-2 4'-5'
Collection Date: 11/27/2017 10:30:00 AM
Received Date: 11/30/2017 7:40:00 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	12/4/2017 8:30:00 PM	35267
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/4/2017 8:30:00 PM	35267
Surr: DNOP	94.5	70-130		%Rec	1	12/4/2017 8:30:00 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/1/2017 7:10:56 PM	35250
Surr: BFB	109	15-316		%Rec	1	12/1/2017 7:10:56 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.092		mg/Kg	1	12/1/2017 7:10:56 PM	35250
Benzene	ND	0.023		mg/Kg	1	12/1/2017 7:10:56 PM	35250
Toluene	ND	0.046		mg/Kg	1	12/1/2017 7:10:56 PM	35250
Ethylbenzene	ND	0.046		mg/Kg	1	12/1/2017 7:10:56 PM	35250
Xylenes, Total	ND	0.092		mg/Kg	1	12/1/2017 7:10:56 PM	35250
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	12/1/2017 7:10:56 PM	35250

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: Hargrave RP F 2
Lab ID: 1711E00-004 **Matrix:** SOIL

Client Sample ID: BH-2 18'-20'
Collection Date: 11/27/2017 10:50:00 AM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/4/2017 8:51:50 PM	35267
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/4/2017 8:51:50 PM	35267
Surr: DNOP	89.4	70-130		%Rec	1	12/4/2017 8:51:50 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/1/2017 7:34:49 PM	35250
Surr: BFB	109	15-316		%Rec	1	12/1/2017 7:34:49 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	12/1/2017 7:34:49 PM	35250
Benzene	ND	0.024		mg/Kg	1	12/1/2017 7:34:49 PM	35250
Toluene	ND	0.048		mg/Kg	1	12/1/2017 7:34:49 PM	35250
Ethylbenzene	ND	0.048		mg/Kg	1	12/1/2017 7:34:49 PM	35250
Xylenes, Total	ND	0.096		mg/Kg	1	12/1/2017 7:34:49 PM	35250
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	12/1/2017 7:34:49 PM	35250

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

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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: Hargrave RP F 2
Lab ID: 1711E00-005 **Matrix:** SOIL

Client Sample ID: BH-3 8'-10'
Collection Date: 11/27/2017 11:00:00 AM
Received Date: 11/30/2017 7:40:00 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	12/4/2017 9:13:42 PM	35267
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/4/2017 9:13:42 PM	35267
Surr: DNOP	89.6	70-130		%Rec	1	12/4/2017 9:13:42 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/1/2017 7:58:41 PM	35250
Surr: BFB	111	15-316		%Rec	1	12/1/2017 7:58:41 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	12/1/2017 7:58:41 PM	35250
Benzene	ND	0.024		mg/Kg	1	12/1/2017 7:58:41 PM	35250
Toluene	ND	0.048		mg/Kg	1	12/1/2017 7:58:41 PM	35250
Ethylbenzene	ND	0.048		mg/Kg	1	12/1/2017 7:58:41 PM	35250
Xylenes, Total	ND	0.097		mg/Kg	1	12/1/2017 7:58:41 PM	35250
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	12/1/2017 7:58:41 PM	35250

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: Hargrave RP F 2
Lab ID: 1711E00-006 **Matrix:** SOIL

Client Sample ID: BH-3 18'-20'
Collection Date: 11/27/2017 11:30:00 AM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/4/2017 9:35:26 PM	35267
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/4/2017 9:35:26 PM	35267
Surr: DNOP	90.5	70-130		%Rec	1	12/4/2017 9:35:26 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/1/2017 8:22:31 PM	35250
Surr: BFB	112	15-316		%Rec	1	12/1/2017 8:22:31 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	12/1/2017 8:22:31 PM	35250
Benzene	ND	0.024		mg/Kg	1	12/1/2017 8:22:31 PM	35250
Toluene	ND	0.048		mg/Kg	1	12/1/2017 8:22:31 PM	35250
Ethylbenzene	ND	0.048		mg/Kg	1	12/1/2017 8:22:31 PM	35250
Xylenes, Total	ND	0.096		mg/Kg	1	12/1/2017 8:22:31 PM	35250
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	12/1/2017 8:22:31 PM	35250

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: Hargrave RP F 2
Lab ID: 1711E00-007 **Matrix:** SOIL

Client Sample ID: BH-4 13'-15'
Collection Date: 11/27/2017 12:00:00 PM
Received Date: 11/30/2017 7:40:00 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	12/4/2017 9:57:18 PM	35267
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/4/2017 9:57:18 PM	35267
Surr: DNOP	90.0	70-130		%Rec	1	12/4/2017 9:57:18 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/1/2017 8:46:17 PM	35250
Surr: BFB	113	15-316		%Rec	1	12/1/2017 8:46:17 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	12/1/2017 8:46:17 PM	35250
Benzene	ND	0.024		mg/Kg	1	12/1/2017 8:46:17 PM	35250
Toluene	ND	0.048		mg/Kg	1	12/1/2017 8:46:17 PM	35250
Ethylbenzene	ND	0.048		mg/Kg	1	12/1/2017 8:46:17 PM	35250
Xylenes, Total	ND	0.095		mg/Kg	1	12/1/2017 8:46:17 PM	35250
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	12/1/2017 8:46:17 PM	35250

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: Hargrave RP F 2
Lab ID: 1711E00-008 **Matrix:** SOIL

Client Sample ID: BH-4 23'-25'
Collection Date: 11/27/2017 12:30:00 PM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/4/2017 10:19:20 PM	35267
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/4/2017 10:19:20 PM	35267
Surr: DNOP	90.6	70-130		%Rec	1	12/4/2017 10:19:20 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/1/2017 9:09:55 PM	35250
Surr: BFB	112	15-316		%Rec	1	12/1/2017 9:09:55 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	12/1/2017 9:09:55 PM	35250
Benzene	ND	0.024		mg/Kg	1	12/1/2017 9:09:55 PM	35250
Toluene	ND	0.047		mg/Kg	1	12/1/2017 9:09:55 PM	35250
Ethylbenzene	ND	0.047		mg/Kg	1	12/1/2017 9:09:55 PM	35250
Xylenes, Total	ND	0.095		mg/Kg	1	12/1/2017 9:09:55 PM	35250
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	12/1/2017 9:09:55 PM	35250

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: Hargrave RP F 2
Lab ID: 1711E00-009
Matrix: SOIL
Client Sample ID: BH-8 3'-5'
Collection Date: 11/28/2017 3:10:00 PM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/4/2017 10:41:05 PM	35267
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/4/2017 10:41:05 PM	35267
Surr: DNOP	88.7	70-130		%Rec	1	12/4/2017 10:41:05 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/1/2017 9:33:43 PM	35250
Surr: BFB	112	15-316		%Rec	1	12/1/2017 9:33:43 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	12/1/2017 9:33:43 PM	35250
Benzene	ND	0.023		mg/Kg	1	12/1/2017 9:33:43 PM	35250
Toluene	ND	0.047		mg/Kg	1	12/1/2017 9:33:43 PM	35250
Ethylbenzene	ND	0.047		mg/Kg	1	12/1/2017 9:33:43 PM	35250
Xylenes, Total	ND	0.093		mg/Kg	1	12/1/2017 9:33:43 PM	35250
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	12/1/2017 9:33:43 PM	35250

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: Hargrave RP F 2
Lab ID: 1711E00-010 **Matrix:** SOIL

Client Sample ID: BH-8 23'-25'
Collection Date: 11/28/2017 3:35:00 PM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	12/4/2017 11:02:54 PM	35267
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/4/2017 11:02:54 PM	35267
Surr: DNOP	89.9	70-130		%Rec	1	12/4/2017 11:02:54 PM	35267
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/1/2017 9:57:29 PM	35250
Surr: BFB	112	15-316		%Rec	1	12/1/2017 9:57:29 PM	35250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	12/1/2017 9:57:29 PM	35250
Benzene	ND	0.023		mg/Kg	1	12/1/2017 9:57:29 PM	35250
Toluene	ND	0.047		mg/Kg	1	12/1/2017 9:57:29 PM	35250
Ethylbenzene	ND	0.047		mg/Kg	1	12/1/2017 9:57:29 PM	35250
Xylenes, Total	ND	0.093		mg/Kg	1	12/1/2017 9:57:29 PM	35250
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	12/1/2017 9:57:29 PM	35250

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: Hargrave RP F 2
Lab ID: 1711E00-011
Matrix: AQUEOUS
Client Sample ID: BH-6
Collection Date: 11/28/2017 4:00:00 PM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	14	1.0		mg/L	1	12/4/2017 5:12:54 PM	35255
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/4/2017 5:12:54 PM	35255
Surr: DNOP	117	77.5-161		%Rec	1	12/4/2017 5:12:54 PM	35255
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/5/2017 6:42:44 PM	GW4752
Surr: BFB	111	69.3-150		%Rec	1	12/5/2017 6:42:44 PM	GW4752
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0	P	µg/L	1	12/1/2017 5:02:00 PM	R47456
Toluene	ND	1.0	P	µg/L	1	12/1/2017 5:02:00 PM	R47456
Ethylbenzene	ND	1.0	P	µg/L	1	12/1/2017 5:02:00 PM	R47456
Xylenes, Total	ND	1.5	P	µg/L	1	12/1/2017 5:02:00 PM	R47456
Surr: 1,2-Dichloroethane-d4	85.3	70-130	P	%Rec	1	12/1/2017 5:02:00 PM	R47456
Surr: 4-Bromofluorobenzene	94.4	70-130	P	%Rec	1	12/1/2017 5:02:00 PM	R47456
Surr: Dibromofluoromethane	97.8	70-130	P	%Rec	1	12/1/2017 5:02:00 PM	R47456
Surr: Toluene-d8	96.7	70-130	P	%Rec	1	12/1/2017 5:02:00 PM	R47456

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#: **1711E00**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **1711E00-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH-1 4'-5'**	Batch ID: **35267**	RunNo: **47491**
Prep Date: **12/1/2017**	Analysis Date: **12/4/2017**	SeqNo: **1517233** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.3	46.38	0	97.4	55.8	125			
Surr: DNOP	4.2		4.638		90.9	70	130			

Sample ID **1711E00-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH-1 4'-5'**	Batch ID: **35267**	RunNo: **47491**
Prep Date: **12/1/2017**	Analysis Date: **12/4/2017**	SeqNo: **1517234** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.5	47.62	0	96.3	55.8	125	1.44	20	
Surr: DNOP	4.2		4.762		88.8	70	130	0	0	

Sample ID **LCS-35267**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35267**	RunNo: **47491**
Prep Date: **12/1/2017**	Analysis Date: **12/4/2017**	SeqNo: **1517261** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.2	73.2	114			
Surr: DNOP	4.3		5.000		85.2	70	130			

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-35267**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35267**	RunNo: **47491**
Prep Date: **12/1/2017**	Analysis Date: **12/4/2017**	SeqNo: **1517263** 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		93.6	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

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#: **1711E00**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

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			

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#: **1711E00**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **MB-35255**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **35255**	RunNo: **47459**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1515499** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.80		1.000		80.0	77.5	161			

Sample ID **LCS-35255**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **35255**	RunNo: **47459**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1515784** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	100	92.3	135			
Surr: DNOP	0.47		0.5000		94.1	77.5	161			

Sample ID **LCS-35301**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **35301**	RunNo: **47491**
Prep Date: **12/4/2017**	Analysis Date: **12/5/2017**	SeqNo: **1517943** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	0.41		0.5000		82.5	77.5	161			

Sample ID **MB-35301**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **35301**	RunNo: **47491**
Prep Date: **12/4/2017**	Analysis Date: **12/5/2017**	SeqNo: **1517944** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	0.97		1.000		97.2	77.5	161			

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#: **1711E00**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **MB-35250**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35250**	RunNo: **47477**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516120** 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		110	15	316			

Sample ID **LCS-35250**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35250**	RunNo: **47477**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516121** 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	105	75.9	131			
Surr: BFB	1200		1000		123	15	316			

Sample ID **1711E00-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH-1 18'-20'**	Batch ID: **35250**	RunNo: **47477**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516131** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	32	4.7	23.74	0	134	77.8	128			S
Surr: BFB	1200		949.7		127	15	316			

Sample ID **1711E00-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH-1 18'-20'**	Batch ID: **35250**	RunNo: **47477**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516132** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	32	4.6	22.96	0	137	77.8	128	1.18	20	S
Surr: BFB	1200		918.3		129	15	316	0	0	

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G47528**	RunNo: **47528**
Prep Date:	Analysis Date: **12/5/2017**	SeqNo: **1518203** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		114	15	316			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G47528**	RunNo: **47528**
Prep Date:	Analysis Date: **12/5/2017**	SeqNo: **1518204** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1200		1000		123	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#: **1711E00**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **GW47528**	RunNo: **47528**
Prep Date:	Analysis Date: **12/5/2017**	SeqNo: **1518208** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	23		20.00		114	69.3	150			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **GW47528**	RunNo: **47528**
Prep Date:	Analysis Date: **12/5/2017**	SeqNo: **1518209** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	103	75.8	123			
Surr: BFB	25		20.00		123	69.3	150			

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#: **1711E00**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **MB-35250**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35250**	RunNo: **47477**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516154** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		105	80	120			

Sample ID **LCS-35250**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35250**	RunNo: **47477**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516155** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.99	0.10	1.000	0	98.6	70.1	121			
Benzene	1.0	0.025	1.000	0	104	77.3	128			
Toluene	1.0	0.050	1.000	0	104	79.2	125			
Ethylbenzene	1.0	0.050	1.000	0	101	80.7	127			
Xylenes, Total	3.0	0.10	3.000	0	100	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Sample ID **1711E00-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH-1 4'-5'**	Batch ID: **35250**	RunNo: **47477**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516164** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.1	0.097	0.9737	0	117	72.5	138			
Benzene	1.1	0.024	0.9737	0	117	80.9	132			
Toluene	1.2	0.049	0.9737	0	119	79.8	136			
Ethylbenzene	1.1	0.049	0.9737	0	117	79.4	140			
Xylenes, Total	3.4	0.097	2.921	0	116	78.5	142			
Surr: 4-Bromofluorobenzene	1.1		0.9737		110	80	120			

Sample ID **1711E00-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH-1 4'-5'**	Batch ID: **35250**	RunNo: **47477**
Prep Date: **11/30/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516165** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.1	0.093	0.9276	0	117	72.5	138	5.17	20	
Benzene	1.1	0.023	0.9276	0	117	80.9	132	5.40	20	
Toluene	1.1	0.046	0.9276	0	117	79.8	136	6.64	20	
Ethylbenzene	1.1	0.046	0.9276	0	115	79.4	140	7.00	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#: **1711E00**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID	**1711E00-001AMSD**	SampType:	**MSD**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**BH-1 4'-5'**	Batch ID:	**35250**		RunNo:	**47477**				
Prep Date:	**11/30/2017**	Analysis Date:	**12/1/2017**		SeqNo:	**1516165**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	3.1	0.093	2.783	0	112	78.5	142	7.90	20	
Surr: 4-Bromofluorobenzene	1.0		0.9276		109	80	120	0	0	

Sample ID	**RB**	SampType:	**MBLK**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**PBS**	Batch ID:	**B47528**		RunNo:	**47528**				
Prep Date:		Analysis Date:	**12/5/2017**		SeqNo:	**1518237**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		108	80	120			

Sample ID	**100NG BTEX LCS**	SampType:	**LCS**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**LCSS**	Batch ID:	**B47528**		RunNo:	**47528**				
Prep Date:		Analysis Date:	**12/5/2017**		SeqNo:	**1518238**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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#: **1711E00**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R47456**	RunNo: **47456**
Prep Date:	Analysis Date: **12/1/2017**	SeqNo: **1516015** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.0	70	130			
Toluene	19	1.0	20.00	0	95.7	70	130			
Surr: 1,2-Dichloroethane-d4	8.6		10.00		85.6	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.6	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.5	70	130			
Surr: Toluene-d8	9.7		10.00		96.9	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47456**	RunNo: **47456**
Prep Date:	Analysis Date: **12/1/2017**	SeqNo: **1516017** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.4		10.00		84.2	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.5	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.6	70	130			
Surr: Toluene-d8	9.7		10.00		97.3	70	130			

Sample ID **1711e00-011ams**	SampType: **MS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **BH-6**	Batch ID: **R47456**	RunNo: **47456**
Prep Date:	Analysis Date: **12/1/2017**	SeqNo: **1516279** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0.3100	93.6	70	130			
Toluene	20	1.0	20.00	0.1000	99.0	70	130			
Surr: 1,2-Dichloroethane-d4	8.7		10.00		86.6	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.4	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.6	70	130			
Surr: Toluene-d8	9.7		10.00		97.1	70	130			

Sample ID **1711e00-011amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **BH-6**	Batch ID: **R47456**	RunNo: **47456**
Prep Date:	Analysis Date: **12/1/2017**	SeqNo: **1516280** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0.3100	93.9	70	130	0.304	20	
Toluene	20	1.0	20.00	0.1000	98.8	70	130	0.191	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#: **1711E00**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **1711e00-011amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **BH-6**	Batch ID: **R47456**	RunNo: **47456**
Prep Date:	Analysis Date: **12/1/2017**	SeqNo: **1516280** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	8.6		10.00		86.3	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.7		10.00		96.8	70	130	0	0	
Surr: Dibromofluoromethane	9.9		10.00		99.2	70	130	0	0	
Surr: Toluene-d8	9.8		10.00		97.9	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 FOUR CORN Work Order Number: 1711E00 RcptNo: 1

Received By: **Anne Thorne** 11/30/2017 7:40:00 AM
Completed By: **Sophia Campuzano** 11/30/2017 8:12:24 AM
Reviewed By: DDS 11/30/17

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
Salt Lake City, Ut. 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) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Hargrave RP FR-2
Project #: 034017003
Project Manager: Williams: Aaron Galer
LTE: Danny Burns
Sampler: Eric Carroll
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 #	Preservative Type	HEAL No. 1711E00	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) BTEX	8270 (Semi-VOA)	Air Bubbles (Y or N)
11/27/17	09:30	soil	BH-1 4'-5'	1 4oz	cool	-001	X		X									
	10:00		BH-1 18'-20'			-002	X		X									
	10:30		BH-2 4'-5'			-003	X		X									
	10:50		BH-2 18'-20'			-004	X		X									
	11:00		BH-3 8'-10'			-005	X		X									
	11:30		BH-3 18'-20'			-006	X		X									
	12:00		BH-4 13'-15'			-007	X		X									
↓	12:30	↓	BH-4 23'-25'	↓	↓	-008	X		X									
11/28/17	15:10	soil	BH-8 3'-5'	1 4oz	cool	-009	X		X									
11/28/17	15:35	soil	BH-8 23-25'	1 4oz	cool	-010	X		X									
11/28/17	16:00	GW	BH-6	6 VOAA	HCl	-011			X							X		

Date:	Time:	Relinquished by:	Received by:	Date Time
11/29/17	14:30	Eric Carroll	Christy Walls	11/29/17 1430
11/29/17	2016	Christy Walls		11/30/17 0740

Remarks: Please CC: aager@LTenv.com
dburns@LTenv.com

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

December 06, 2017

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

RE: Hargrave RP F 2 OrderNo.: 1711E30

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 12 sample(s) on 11/30/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Hargrave RP F 2
Lab ID: 1711E30-001 **Matrix:** SOIL

Client Sample ID: SW-1
Collection Date: 11/28/2017 10:30:00 AM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/5/2017 4:32:15 AM	35273
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/5/2017 4:32:15 AM	35273
Surr: DNOP	94.5	70-130		%Rec	1	12/5/2017 4:32:15 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/4/2017 3:16:37 PM	35264
Surr: BFB	111	15-316		%Rec	1	12/4/2017 3:16:37 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	12/4/2017 3:16:37 PM	35264
Benzene	ND	0.024		mg/Kg	1	12/4/2017 3:16:37 PM	35264
Toluene	ND	0.048		mg/Kg	1	12/4/2017 3:16:37 PM	35264
Ethylbenzene	ND	0.048		mg/Kg	1	12/4/2017 3:16:37 PM	35264
Xylenes, Total	ND	0.097		mg/Kg	1	12/4/2017 3:16:37 PM	35264
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	12/4/2017 3:16:37 PM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-002 **Matrix:** SOIL

Client Sample ID: SW-2
Collection Date: 11/28/2017 10:50:00 AM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/5/2017 5:38:55 AM	35273
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/5/2017 5:38:55 AM	35273
Surr: DNOP	88.9	70-130		%Rec	1	12/5/2017 5:38:55 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	14	4.7		mg/Kg	1	12/5/2017 12:49:28 PM	35264
Surr: BFB	101	15-316		%Rec	1	12/5/2017 12:49:28 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	12/4/2017 6:02:50 PM	35264
Benzene	0.024	0.024		mg/Kg	1	12/4/2017 6:02:50 PM	35264
Toluene	0.49	0.047		mg/Kg	1	12/4/2017 6:02:50 PM	35264
Ethylbenzene	0.10	0.047		mg/Kg	1	12/4/2017 6:02:50 PM	35264
Xylenes, Total	1.3	0.095		mg/Kg	1	12/4/2017 6:02:50 PM	35264
Surr: 4-Bromofluorobenzene	111	80-120		%Rec	1	12/4/2017 6:02:50 PM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-003 **Matrix:** SOIL

Client Sample ID: EW-1
Collection Date: 11/28/2017 11:10:00 AM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	33	9.9		mg/Kg	1	12/5/2017 6:00:58 AM	35273
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/5/2017 6:00:58 AM	35273
Surr: DNOP	89.1	70-130		%Rec	1	12/5/2017 6:00:58 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	680	96		mg/Kg	20	12/5/2017 1:12:50 PM	35264
Surr: BFB	178	15-316		%Rec	20	12/5/2017 1:12:50 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	1.9		mg/Kg	20	12/4/2017 11:18:22 AM	35264
Benzene	0.78	0.48		mg/Kg	20	12/4/2017 11:18:22 AM	35264
Toluene	15	0.96		mg/Kg	20	12/4/2017 11:18:22 AM	35264
Ethylbenzene	4.3	0.96		mg/Kg	20	12/4/2017 11:18:22 AM	35264
Xylenes, Total	44	1.9		mg/Kg	20	12/4/2017 11:18:22 AM	35264
Surr: 4-Bromofluorobenzene	117	80-120		%Rec	20	12/4/2017 11:18:22 AM	35264

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: EW-2
Project: Hargrave RP F 2
Collection Date: 11/28/2017 11:30:00 AM
Lab ID: 1711E30-004
Matrix: SOIL
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/5/2017 6:22:46 AM	35273
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/5/2017 6:22:46 AM	35273
Surr: DNOP	89.6	70-130		%Rec	1	12/5/2017 6:22:46 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	6.0	4.9		mg/Kg	1	12/5/2017 1:36:10 PM	35264
Surr: BFB	97.4	15-316		%Rec	1	12/5/2017 1:36:10 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	12/4/2017 6:26:36 PM	35264
Benzene	0.065	0.025		mg/Kg	1	12/4/2017 6:26:36 PM	35264
Toluene	0.65	0.049		mg/Kg	1	12/4/2017 6:26:36 PM	35264
Ethylbenzene	0.092	0.049		mg/Kg	1	12/4/2017 6:26:36 PM	35264
Xylenes, Total	0.88	0.099		mg/Kg	1	12/4/2017 6:26:36 PM	35264
Surr: 4-Bromofluorobenzene	109	80-120		%Rec	1	12/4/2017 6:26:36 PM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-005 **Matrix:** SOIL

Client Sample ID: NW-1
Collection Date: 11/28/2017 12:00:00 PM
Received Date: 11/30/2017 7:40:00 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	12/5/2017 6:44:53 AM	35273
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/5/2017 6:44:53 AM	35273
Surr: DNOP	90.5	70-130		%Rec	1	12/5/2017 6:44:53 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	160	24		mg/Kg	5	12/5/2017 1:59:32 PM	35264
Surr: BFB	142	15-316		%Rec	5	12/5/2017 1:59:32 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.47		mg/Kg	5	12/4/2017 11:42:14 AM	35264
Benzene	1.9	0.12		mg/Kg	5	12/4/2017 11:42:14 AM	35264
Toluene	16	0.24		mg/Kg	5	12/4/2017 11:42:14 AM	35264
Ethylbenzene	2.3	0.24		mg/Kg	5	12/4/2017 11:42:14 AM	35264
Xylenes, Total	20	0.47		mg/Kg	5	12/4/2017 11:42:14 AM	35264
Surr: 4-Bromofluorobenzene	119	80-120		%Rec	5	12/4/2017 11:42:14 AM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-006 **Matrix:** SOIL

Client Sample ID: NW-2
Collection Date: 11/28/2017 12:30:00 PM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/5/2017 7:06:50 AM	35273
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/5/2017 7:06:50 AM	35273
Surr: DNOP	92.2	70-130		%Rec	1	12/5/2017 7:06:50 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	90	24		mg/Kg	5	12/5/2017 2:22:52 PM	35264
Surr: BFB	118	15-316		%Rec	5	12/5/2017 2:22:52 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.48		mg/Kg	5	12/4/2017 12:05:58 PM	35264
Benzene	0.55	0.12		mg/Kg	5	12/4/2017 12:05:58 PM	35264
Toluene	5.8	0.24		mg/Kg	5	12/4/2017 12:05:58 PM	35264
Ethylbenzene	1.1	0.24		mg/Kg	5	12/4/2017 12:05:58 PM	35264
Xylenes, Total	11	0.48		mg/Kg	5	12/4/2017 12:05:58 PM	35264
Surr: 4-Bromofluorobenzene	116	80-120		%Rec	5	12/4/2017 12:05:58 PM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-007 **Matrix:** SOIL

Client Sample ID: BH-5 8'-10'
Collection Date: 11/28/2017 9:30:00 AM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/5/2017 7:28:54 AM	35273
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/5/2017 7:28:54 AM	35273
Surr: DNOP	87.2	70-130		%Rec	1	12/5/2017 7:28:54 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/4/2017 6:50:20 PM	35264
Surr: BFB	112	15-316		%Rec	1	12/4/2017 6:50:20 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	12/4/2017 6:50:20 PM	35264
Benzene	ND	0.025		mg/Kg	1	12/4/2017 6:50:20 PM	35264
Toluene	ND	0.049		mg/Kg	1	12/4/2017 6:50:20 PM	35264
Ethylbenzene	ND	0.049		mg/Kg	1	12/4/2017 6:50:20 PM	35264
Xylenes, Total	ND	0.099		mg/Kg	1	12/4/2017 6:50:20 PM	35264
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	12/4/2017 6:50:20 PM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-008 **Matrix:** SOIL

Client Sample ID: BH-5 23'-25'
Collection Date: 11/28/2017 9:50:00 AM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/5/2017 7:50:57 AM	35273
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/5/2017 7:50:57 AM	35273
Surr: DNOP	87.9	70-130		%Rec	1	12/5/2017 7:50:57 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/4/2017 7:13:54 PM	35264
Surr: BFB	112	15-316		%Rec	1	12/4/2017 7:13:54 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	12/4/2017 7:13:54 PM	35264
Benzene	ND	0.024		mg/Kg	1	12/4/2017 7:13:54 PM	35264
Toluene	ND	0.048		mg/Kg	1	12/4/2017 7:13:54 PM	35264
Ethylbenzene	ND	0.048		mg/Kg	1	12/4/2017 7:13:54 PM	35264
Xylenes, Total	ND	0.097		mg/Kg	1	12/4/2017 7:13:54 PM	35264
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	12/4/2017 7:13:54 PM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-009 **Matrix:** SOIL

Client Sample ID: BH-6 13'-15'
Collection Date: 11/28/2017 1:10:00 PM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/5/2017 8:13:05 AM	35273
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/5/2017 8:13:05 AM	35273
Surr: DNOP	90.6	70-130		%Rec	1	12/5/2017 8:13:05 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/4/2017 7:37:35 PM	35264
Surr: BFB	111	15-316		%Rec	1	12/4/2017 7:37:35 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	12/4/2017 7:37:35 PM	35264
Benzene	ND	0.025		mg/Kg	1	12/4/2017 7:37:35 PM	35264
Toluene	ND	0.049		mg/Kg	1	12/4/2017 7:37:35 PM	35264
Ethylbenzene	ND	0.049		mg/Kg	1	12/4/2017 7:37:35 PM	35264
Xylenes, Total	ND	0.099		mg/Kg	1	12/4/2017 7:37:35 PM	35264
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	12/4/2017 7:37:35 PM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-010 **Matrix:** SOIL

Client Sample ID: BH-6 23'-25'
Collection Date: 11/28/2017 1:25:00 PM
Received Date: 11/30/2017 7:40:00 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	12/5/2017 8:34:50 AM	35273
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/5/2017 8:34:50 AM	35273
Surr: DNOP	89.0	70-130		%Rec	1	12/5/2017 8:34:50 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/4/2017 8:01:13 PM	35264
Surr: BFB	110	15-316		%Rec	1	12/4/2017 8:01:13 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	12/4/2017 8:01:13 PM	35264
Benzene	ND	0.024		mg/Kg	1	12/4/2017 8:01:13 PM	35264
Toluene	ND	0.048		mg/Kg	1	12/4/2017 8:01:13 PM	35264
Ethylbenzene	ND	0.048		mg/Kg	1	12/4/2017 8:01:13 PM	35264
Xylenes, Total	ND	0.096		mg/Kg	1	12/4/2017 8:01:13 PM	35264
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	12/4/2017 8:01:13 PM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-011 **Matrix:** SOIL

Client Sample ID: BH-7 8'-10'
Collection Date: 11/28/2017 2:30:00 PM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/5/2017 8:56:55 AM	35273
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/5/2017 8:56:55 AM	35273
Surr: DNOP	89.5	70-130		%Rec	1	12/5/2017 8:56:55 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/4/2017 8:24:39 PM	35264
Surr: BFB	109	15-316		%Rec	1	12/4/2017 8:24:39 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	12/4/2017 8:24:39 PM	35264
Benzene	ND	0.024		mg/Kg	1	12/4/2017 8:24:39 PM	35264
Toluene	ND	0.047		mg/Kg	1	12/4/2017 8:24:39 PM	35264
Ethylbenzene	ND	0.047		mg/Kg	1	12/4/2017 8:24:39 PM	35264
Xylenes, Total	ND	0.095		mg/Kg	1	12/4/2017 8:24:39 PM	35264
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	12/4/2017 8:24:39 PM	35264

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: Hargrave RP F 2
Lab ID: 1711E30-012 **Matrix:** SOIL

Client Sample ID: BH-7 18'-20'
Collection Date: 11/28/2017 2:50:00 PM
Received Date: 11/30/2017 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	11	9.9		mg/Kg	1	12/5/2017 9:18:53 AM	35273
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/5/2017 9:18:53 AM	35273
Surr: DNOP	89.3	70-130		%Rec	1	12/5/2017 9:18:53 AM	35273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/4/2017 8:48:22 PM	35264
Surr: BFB	110	15-316		%Rec	1	12/4/2017 8:48:22 PM	35264
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	12/4/2017 8:48:22 PM	35264
Benzene	ND	0.024		mg/Kg	1	12/4/2017 8:48:22 PM	35264
Toluene	ND	0.047		mg/Kg	1	12/4/2017 8:48:22 PM	35264
Ethylbenzene	ND	0.047		mg/Kg	1	12/4/2017 8:48:22 PM	35264
Xylenes, Total	ND	0.095		mg/Kg	1	12/4/2017 8:48:22 PM	35264
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	12/4/2017 8:48:22 PM	35264

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#: **1711E30**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **1711E30-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **SW-1** Batch ID: **35273** RunNo: **47491**

Prep Date: **12/1/2017** Analysis Date: **12/5/2017** SeqNo: **1517248** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.81	0	90.1	55.8	125			
Surr: DNOP	4.4		5.081		87.3	70	130			

Sample ID **1711E30-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **SW-1** Batch ID: **35273** RunNo: **47491**

Prep Date: **12/1/2017** Analysis Date: **12/5/2017** SeqNo: **1517249** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	9.3	46.73	0	93.6	55.8	125	4.60	20	
Surr: DNOP	4.1		4.673		88.1	70	130	0	0	

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: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.7	73.2	114			
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: **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-35318** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **35318** RunNo: **47518**

Prep Date: **12/5/2017** Analysis Date: **12/5/2017** SeqNo: **1517359** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		93.1	70	130			

Sample ID **MB-35318** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **35318** RunNo: **47518**

Prep Date: **12/5/2017** Analysis Date: **12/5/2017** SeqNo: **1517361** 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#: **1711E30**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID	**MB-35318**	SampType:	**MBLK**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**
Client ID:	**PBS**	Batch ID:	**35318**	RunNo:	**47518**
Prep Date:	**12/5/2017**	Analysis Date:	**12/5/2017**	SeqNo:	**1517361** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.8		10.00		98.0	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#: **1711E30**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID	**MB-35264**	SampType:	**MBLK**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**PBS**	Batch ID:	**35264**		RunNo:	**47502**				
Prep Date:	**12/1/2017**	Analysis Date:	**12/4/2017**		SeqNo:	**1517155**	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		110	15	316			

Sample ID	**LCS-35264**	SampType:	**LCS**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**LCSS**	Batch ID:	**35264**		RunNo:	**47502**				
Prep Date:	**12/1/2017**	Analysis Date:	**12/4/2017**		SeqNo:	**1517156**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	75.9	131			
Surr: BFB	1200		1000		122	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#: **1711E30**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **MB-35264**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35264**	RunNo: **47502**
Prep Date: **12/1/2017**	Analysis Date: **12/4/2017**	SeqNo: **1517210** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID **LCS-35264**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35264**	RunNo: **47502**
Prep Date: **12/1/2017**	Analysis Date: **12/4/2017**	SeqNo: **1517211** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.91	0.10	1.000	0	90.9	70.1	121			
Benzene	1.0	0.025	1.000	0	99.7	77.3	128			
Toluene	1.0	0.050	1.000	0	99.8	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	96.2	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	96.2	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Sample ID **1711E30-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SW-1**	Batch ID: **35264**	RunNo: **47502**
Prep Date: **12/1/2017**	Analysis Date: **12/4/2017**	SeqNo: **1517217** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.93	0.098	0.9766	0	95.5	72.5	138			
Benzene	0.97	0.024	0.9766	0.01971	97.5	80.9	132			
Toluene	1.0	0.049	0.9766	0.04497	99.7	79.8	136			
Ethylbenzene	0.95	0.049	0.9766	0.01639	95.6	79.4	140			
Xylenes, Total	2.8	0.098	2.930	0.05713	95.1	78.5	142			
Surr: 4-Bromofluorobenzene	1.1		0.9766		109	80	120			

Sample ID **1711E30-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SW-1**	Batch ID: **35264**	RunNo: **47502**
Prep Date: **12/1/2017**	Analysis Date: **12/4/2017**	SeqNo: **1517218** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.91	0.094	0.9381	0	97.4	72.5	138	2.10	20	
Benzene	0.94	0.023	0.9381	0.01971	97.9	80.9	132	3.50	20	
Toluene	0.97	0.047	0.9381	0.04497	98.6	79.8	136	4.90	20	
Ethylbenzene	0.92	0.047	0.9381	0.01639	96.5	79.4	140	2.99	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#: **1711E30**

06-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **1711E30-001AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **SW-1** Batch ID: **35264** RunNo: **47502**

Prep Date: **12/1/2017** Analysis Date: **12/4/2017** SeqNo: **1517218** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	2.8	0.094	2.814	0.05713	95.9	78.5	142	3.15	20	
Surr: 4-Bromofluorobenzene	1.0		0.9381		110	80	120	0	0	

Qualifiers:

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

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: 1711E30 RcptNo: 1

Received By: **Anne Thorne** 11/30/2017 7:40:00 AM

Completed By: **Sophia Campuzano** 11/30/2017 12:45:05 PM

Reviewed By: 11/30/17

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	1.3	Good	Not Present			

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer
Mailing Address: 295 Chipeta Way
Salt Lake City, Ut 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) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Hargrave RP F-2
Project #: 034017003
Project Manager: Williams: Aaron Galer
LTE: Danny Burns
Sampler: Eric Carroll
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 #	Preservative Type	HEAL No. 1711E30	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)
11/28/17	10:30	Soil	SW-1	1 4oz	cool	-001	X		X													
	10:50		SW-2			-002	X		X													
	11:10		EW-1			-003	X		X													
	11:30		EW-2			-004	X		X													
	12:00		NW-1			-005	X		X													
	12:30		NW-2			-006	X		X													
	09:30		BH-5 8'-10'			-007	X		X													
	09:50		BH-5 23'-25'			-008	X		X													
	13:10		BH-6 13'-15'			-009	X		X													
	13:25		BH-6 23'-25'			-010	X		X													
	14:30		BH-7 8'-10'			-011	X		X													
	14:50		BH-7 18'-20'			-012	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/29/17	14:30	Eric Carroll	Chad Walt	11/29/17	1430
11/29/17	2010	Chad Walt		11/30/17	0740

Remarks: Please CC: 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

November 08, 2017

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

RE: Hargrave RP F-2 OrderNo.: 1711227

Dear Kijun Hong:

Hall Environmental Analysis Laboratory received 3 sample(s) on 11/4/2017 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 **1711227**
Date Reported: **11/8/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: Hargrave RP F-2
Lab ID: 1711227-001 **Matrix:** GROUNDWA

Client Sample ID: Hargrave RP F-2 Exc GW
Collection Date: 11/3/2017 9:30:00 AM
Received Date: 11/4/2017 12:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	14	2.5	P	mg/L	50	11/6/2017 12:08:50 PM	G46900
Surr: BFB	101	70-130	P	%Rec	50	11/6/2017 12:08:50 PM	G46900
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2017 12:30:13 PM	34823
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2017 12:30:13 PM	34823
Surr: DNOP	105	77.5-161		%Rec	1	11/6/2017 12:30:13 PM	34823
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	400	50	P	µg/L	50	11/6/2017 12:08:50 PM	SL46900
Toluene	1600	50	P	µg/L	50	11/6/2017 12:08:50 PM	SL46900
Ethylbenzene	81	50	P	µg/L	50	11/6/2017 12:08:50 PM	SL46900
Xylenes, Total	1100	75	P	µg/L	50	11/6/2017 12:08:50 PM	SL46900
Surr: 1,2-Dichloroethane-d4	98.4	70-130	P	%Rec	50	11/6/2017 12:08:50 PM	SL46900
Surr: 4-Bromofluorobenzene	112	70-130	P	%Rec	50	11/6/2017 12:08:50 PM	SL46900
Surr: Dibromofluoromethane	99.1	70-130	P	%Rec	50	11/6/2017 12:08:50 PM	SL46900
Surr: Toluene-d8	101	70-130	P	%Rec	50	11/6/2017 12:08:50 PM	SL46900

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: Hargrave RP F-2
Lab ID: 1711227-002 **Matrix:** SOIL

Client Sample ID: Hargrave RP F-2 Bottom NW Co
Collection Date: 11/3/2017 10:25:00 AM
Received Date: 11/4/2017 12:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **MAB**	
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	11/6/2017 10:00:00 AM	34825
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	11/6/2017 11:12:53 AM	34835
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.020		mg/Kg	1	11/6/2017 10:28:11 AM	34792
Toluene	ND	0.040		mg/Kg	1	11/6/2017 10:28:11 AM	34792
Ethylbenzene	ND	0.040		mg/Kg	1	11/6/2017 10:28:11 AM	34792
Xylenes, Total	ND	0.080		mg/Kg	1	11/6/2017 10:28:11 AM	34792
Surr: 4-Bromofluorobenzene	88.7	80-120		%Rec	1	11/6/2017 10:28:11 AM	34792

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: Hargrave RP F-2
Lab ID: 1711227-003 **Matrix:** SOIL

Client Sample ID: Hargrave RP F-2 Wall Rock and
Collection Date: 11/3/2017 10:40:00 AM
Received Date: 11/4/2017 12:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **MAB**	
Petroleum Hydrocarbons, TR	49	20		mg/Kg	1	11/6/2017 10:00:00 AM	34825
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	11/6/2017 11:25:17 AM	34835
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	3.6	0.026		mg/Kg	1	11/6/2017 10:51:43 AM	34792
Toluene	18	1.1		mg/Kg	20	11/6/2017 12:01:56 PM	34792
Ethylbenzene	2.6	0.053		mg/Kg	1	11/6/2017 10:51:43 AM	34792
Xylenes, Total	25	2.1		mg/Kg	20	11/6/2017 12:01:56 PM	34792
Surr: 4-Bromofluorobenzene	138	80-120	S	%Rec	1	11/6/2017 10:51:43 AM	34792

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#: **1711227**

08-Nov-17

Client: Williams Field Services

Project: Hargrave RP F-2

Sample ID	**MB-34835**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**34835**	RunNo:	**46894**					
Prep Date:	**11/6/2017**	Analysis Date:	**11/6/2017**	SeqNo:	**1497224**	Units:	**mg/Kg**			

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

Sample ID	**LCS-34835**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**34835**	RunNo:	**46894**					
Prep Date:	**11/6/2017**	Analysis Date:	**11/6/2017**	SeqNo:	**1497225**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	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#: **1711227**

08-Nov-17

Client: Williams Field Services

Project: Hargrave RP F-2

Sample ID **MB-34825**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS**	Batch ID: **34825**	RunNo: **46890**
Prep Date: **11/6/2017**	Analysis Date: **11/6/2017**	SeqNo: **1495909** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID **LCS-34825**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS**	Batch ID: **34825**	RunNo: **46890**
Prep Date: **11/6/2017**	Analysis Date: **11/6/2017**	SeqNo: **1495910** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	82	20	100.0	0	82.5	80.5	126			

Sample ID **LCSD-34825**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS02**	Batch ID: **34825**	RunNo: **46890**
Prep Date: **11/6/2017**	Analysis Date: **11/6/2017**	SeqNo: **1495911** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	87	20	100.0	0	87.4	80.5	126	5.83	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#: **1711227**

08-Nov-17

Client: Williams Field Services

Project: Hargrave RP F-2

Sample ID **LCS-34823**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range**					
Client ID: **LCSW**	Batch ID: **34823**			RunNo: **46891**					
Prep Date: **11/6/2017**	Analysis Date: **11/6/2017**			SeqNo: **1496021**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.2	1.0	5.000	0	104	92.3	135			
Surr: DNOP	0.49		0.5000		97.7	77.5	161			

Sample ID **LCSD-34823**	SampType: **LCSD**			TestCode: **EPA Method 8015M/D: Diesel Range**					
Client ID: **LCSS02**	Batch ID: **34823**			RunNo: **46891**					
Prep Date: **11/6/2017**	Analysis Date: **11/6/2017**			SeqNo: **1496022**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	106	92.3	135	1.16	20	
Surr: DNOP	0.51		0.5000		103	77.5	161	0	0	

Sample ID **MB-34823**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range**					
Client ID: **PBW**	Batch ID: **34823**			RunNo: **46891**					
Prep Date: **11/6/2017**	Analysis Date: **11/6/2017**			SeqNo: **1496023**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		101	77.5	161			

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#: **1711227**

08-Nov-17

Client: Williams Field Services

Project: Hargrave RP F-2

Sample ID **MB-34792**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **34792**	RunNo: **46898**
Prep Date: **11/3/2017**	Analysis Date: **11/6/2017**	SeqNo: **1496451** 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	0.93		1.000		92.7	80	120			

Sample ID **LCS-34792**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **34792**	RunNo: **46898**
Prep Date: **11/3/2017**	Analysis Date: **11/6/2017**	SeqNo: **1496452** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	90.8	77.3	128			
Toluene	0.92	0.050	1.000	0	91.5	79.2	125			
Ethylbenzene	0.91	0.050	1.000	0	90.7	80.7	127			
Xylenes, Total	2.7	0.10	3.000	0	91.2	81.6	129			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.1	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#: **1711227**

08-Nov-17

Client: Williams Field Services

Project: Hargrave RP F-2

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL46900**	RunNo: **46900**
Prep Date:	Analysis Date: **11/6/2017**	SeqNo: **1496591** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL46900**	RunNo: **46900**
Prep Date:	Analysis Date: **11/6/2017**	SeqNo: **1496592** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.5	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	9.4		10.00		93.9	70	130			
Surr: Toluene-d8	9.8		10.00		97.9	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#: **1711227**

08-Nov-17

Client: Williams Field Services

Project: Hargrave RP F-2

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **G46900**	RunNo: **46900**
Prep Date:	Analysis Date: **11/6/2017**	SeqNo: **1496595** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		100	70	130			

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **G46900**	RunNo: **46900**
Prep Date:	Analysis Date: **11/6/2017**	SeqNo: **1496596** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	70	130			
Surr: BFB	9.8		10.00		98.2	70	130			

Sample ID **1711227-001a ms**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Hargrave RP F-2 Ex**	Batch ID: **G46900**	RunNo: **46900**
Prep Date:	Analysis Date: **11/6/2017**	SeqNo: **1496598** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	40	2.5	25.00	14.27	101	70	130			P
Surr: BFB	500		500.0		101	70	130			P

Sample ID **1711227-001a msd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Hargrave RP F-2 Ex**	Batch ID: **G46900**	RunNo: **46900**
Prep Date:	Analysis Date: **11/6/2017**	SeqNo: **1496599** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	38	2.5	25.00	14.27	96.1	70	130	3.21	20	P
Surr: BFB	510		500.0		101	70	130	0	0	P

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: 1711227 RcptNo: 1

Received By: Andy Freeman 11/4/2017 12:20:00 PM

Completed By: Anne Thorne 11/6/2017 7:24:12 AM

Reviewed By: 11/6/17

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	5.3	Good	Yes			

Chain-of-Custody Record

Client: WFS

Mailing Address: 1755 ARROYO DR
Bloom Field NM

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: Scac dcy
☐ Standard ☑ Rush 11-6-17

Project Name: Hargrove RP F-2

Project #:

Project Manager: KIJUN HONG

Sampler: Morgan Killion

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.1 °C +0.2 °C 5.3°C

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 11/6/17)	Preservative Type	HEAL No. 1711227	BTEX + ~~MTBE~~ + ~~TMB~~'s (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	~~TPH~~ (Method 418.1) 11/06/17	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)	Chloride				Air Bubbles (Y or N)
3/17	9:30	W	Hargrove RP F-2 EXC-GW	3-40mL HCl	HCl	-001	X			X												
3-17	1025	soil	Hargrove RP F-2 Bottom NW corner	4oz Hkt		-002	X			X								X				
/17	10:40	soil	Hargrove RP F-2 Wall Rocked Shell	4oz Hkt		-003	X			X								X				
							X/1															

Date:	Time:	Relinquished by:	Received by:	Date	Time
3-17	0516	Morgan Killion	Christian Waeble	11/3/17	1716
Date:	Time:	Relinquished by:	Received by:	Date	Time
3/7	1816	Christian Waeble		11/4/17	1220

Remarks: Analyze water for BTEX/GRO/DRO. No TPH on water per Kijun 11/6

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

December 14, 2017

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

RE: Hargrave RP F 2 OrderNo.: 1712524

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/8/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Hargrave RP F 2
Lab ID: 1712524-001
Matrix: GROUNDWA
Client Sample ID: GW-1
Collection Date: 12/6/2017 11:00:00 AM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	1.8	1.0		mg/L	1	12/12/2017 12:20:13 PM	35444
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2017 12:20:13 PM	35444
Surr: DNOP	104	77.5-161		%Rec	1	12/12/2017 12:20:13 PM	35444
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	3.4	0.050		mg/L	1	12/11/2017 11:58:33 AM	GW4767
Surr: BFB	131	69.3-150		%Rec	1	12/11/2017 11:58:33 AM	GW4767
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	310	10		µg/L	10	12/12/2017 7:19:00 AM	B47690
Toluene	600	10		µg/L	10	12/12/2017 7:19:00 AM	B47690
Ethylbenzene	21	10		µg/L	10	12/12/2017 7:19:00 AM	B47690
Xylenes, Total	250	15		µg/L	10	12/12/2017 7:19:00 AM	B47690
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	10	12/12/2017 7:19:00 AM	B47690
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	10	12/12/2017 7:19:00 AM	B47690
Surr: Dibromofluoromethane	102	70-130		%Rec	10	12/12/2017 7:19:00 AM	B47690
Surr: Toluene-d8	98.5	70-130		%Rec	10	12/12/2017 7:19:00 AM	B47690

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

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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: Hargrave RP F 2
Lab ID: 1712524-002 **Matrix:** SOIL

Client Sample ID: WW-1
Collection Date: 12/6/2017 12:00:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/12/2017 7:49:30 PM	35433
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/12/2017 7:49:30 PM	35433
Surr: DNOP	95.3	70-130		%Rec	1	12/12/2017 7:49:30 PM	35433
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	100	24		mg/Kg	5	12/12/2017 11:16:13 AM	35436
Surr: BFB	148	15-316		%Rec	5	12/12/2017 11:16:13 AM	35436
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.48		mg/Kg	5	12/12/2017 11:16:13 AM	35436
Benzene	ND	0.12		mg/Kg	5	12/12/2017 11:16:13 AM	35436
Toluene	1.1	0.24		mg/Kg	5	12/12/2017 11:16:13 AM	35436
Ethylbenzene	0.68	0.24		mg/Kg	5	12/12/2017 11:16:13 AM	35436
Xylenes, Total	6.9	0.48		mg/Kg	5	12/12/2017 11:16:13 AM	35436
Surr: 4-Bromofluorobenzene	114	80-120		%Rec	5	12/12/2017 11:16:13 AM	35436

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: Hargrave RP F 2
Lab ID: 1712524-003 **Matrix:** SOIL

Client Sample ID: WW-2
Collection Date: 12/6/2017 12:20:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/12/2017 8:11:44 PM	35433
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/12/2017 8:11:44 PM	35433
Surr: DNOP	99.7	70-130		%Rec	1	12/12/2017 8:11:44 PM	35433
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	13	5.0		mg/Kg	1	12/12/2017 9:58:50 PM	35436
Surr: BFB	141	15-316		%Rec	1	12/12/2017 9:58:50 PM	35436
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.099		mg/Kg	1	12/12/2017 9:58:50 PM	35436
Benzene	ND	0.025		mg/Kg	1	12/12/2017 9:58:50 PM	35436
Toluene	0.63	0.050		mg/Kg	1	12/12/2017 9:58:50 PM	35436
Ethylbenzene	0.19	0.050		mg/Kg	1	12/12/2017 9:58:50 PM	35436
Xylenes, Total	2.0	0.099		mg/Kg	1	12/12/2017 9:58:50 PM	35436
Surr: 4-Bromofluorobenzene	115	80-120		%Rec	1	12/12/2017 9:58:50 PM	35436

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#: **1712524**

14-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **LCS-35433**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35433**	RunNo: **47696**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1524952** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.7	73.2	114			
Surr: DNOP	4.4		5.000		88.8	70	130			

Sample ID **MB-35433**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35433**	RunNo: **47696**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1524953** 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	9.2		10.00		91.9	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#: **1712524**

14-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **LCS-35444**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **35444**	RunNo: **47698**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1524686** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	92.3	135			
Surr: DNOP	0.51		0.5000		102	77.5	161			

Sample ID **MB-35444**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **35444**	RunNo: **47698**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1524687** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.95		1.000		95.4	77.5	161			

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#: **1712524**

14-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **MB-35436**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35436**	RunNo: **47705**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525397** 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	1200		1000		115	15	316			

Sample ID **LCS-35436**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35436**	RunNo: **47705**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525398** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	113	75.9	131			
Surr: BFB	1200		1000		124	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#: **1712524**

14-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **GW47673**	RunNo: **47673**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1523826** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		98.1	69.3	150			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **GW47673**	RunNo: **47673**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1523827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	93.2	75.8	123			
Surr: BFB	21		20.00		104	69.3	150			

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#: **1712524**

14-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **MB-35436**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35436**	RunNo: **47705**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525426** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Sample ID **LCS-35436**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35436**	RunNo: **47705**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525427** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.95	0.10	1.000	0	95.5	70.1	121			
Benzene	1.0	0.025	1.000	0	100	77.3	128			
Toluene	1.0	0.050	1.000	0	102	79.2	125			
Ethylbenzene	0.99	0.050	1.000	0	99.3	80.7	127			
Xylenes, Total	3.0	0.10	3.000	0	98.7	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712524**

14-Dec-17

Client: Williams Four Corners

Project: Hargrave RP F 2

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **B47690**	RunNo: **47690**
Prep Date:	Analysis Date: **12/12/2017**	SeqNo: **1524100** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	111	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		111	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.9		10.00		98.5	70	130			

Sample ID **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **B47690**	RunNo: **47690**
Prep Date:	Analysis Date: **12/12/2017**	SeqNo: **1524108** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		112	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	9.8		10.00		98.1	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
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HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: WILLIAMS FOUR CORN Work Order Number: 1712524 RcptNo: 1

Received By: **Anne Thorne** 12/8/2017 7:55:00 AM

Completed By: **Sophia Campuzano** 12/8/2017 2:08:55 PM

Reviewed By: IMO 10/08/17

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Client: Williams Four Corners	Turn-Around Time: ☒ Standard ☐ Rush
Aaron Gaier	Project Name: Hargrave RP F-2
Mailing Address: 17755 Arroyo Dr. Bloomfield, NM 87413	Project #:
Phone #:	
email or Fax#: aaron.gaier@williams.com	Project Manager: Danny Burns - LTE
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)	
Accreditation ☐ NELAP ☐ Other	Sampler: E. Carroll
☒ EDD (Type) PDF	On Ice: ☒ Yes ☐ No
	Sample Temperature: 1.0

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1712524	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) BTEX	8270 (Semi-VOA)						Air Bubbles (Y or N)
12/6/17	11:00	GW	GW-1	6 VOAs	HCl	-001			X							X							
	12:00	Soil	WW-1	1 4oz	Cool	-002	X		X														
	12:20	Soil	WW-2	1 4oz	Cool	-003	X		X														

Date	Time	Relinquished by:	Received by:	Date	Time
12/7/17	16:30			12/7/17	1630
12/7/17	2003			12/08/17	0755

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.

Analytical Report
Lab Order **1801819**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: Hargrave RP F2
Lab ID: 1801819-001 **Matrix:** SOIL

Client Sample ID: East Area 6 Point
Collection Date: 1/16/2018 10:00:00 AM
Received Date: 1/17/2018 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	1/17/2018 11:39:00 AM	36067
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/17/2018 11:06:27 AM	36064
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/17/2018 11:06:27 AM	36064
Surr: DNOP	94.0	70-130		%Rec	1	1/17/2018 11:06:27 AM	36064
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.9		mg/Kg	1	1/17/2018 10:29:54 AM	R48506
Surr: BFB	86.3	15-316		%Rec	1	1/17/2018 10:29:54 AM	R48506
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.019		mg/Kg	1	1/17/2018 10:29:54 AM	R48506
Toluene	ND	0.039		mg/Kg	1	1/17/2018 10:29:54 AM	R48506
Ethylbenzene	ND	0.039		mg/Kg	1	1/17/2018 10:29:54 AM	R48506
Xylenes, Total	ND	0.077		mg/Kg	1	1/17/2018 10:29:54 AM	R48506
Surr: 4-Bromofluorobenzene	96.0	80-120		%Rec	1	1/17/2018 10:29:54 AM	R48506

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

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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 **1801819**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: Hargrave RP F2
Lab ID: 1801819-002 **Matrix:** SOIL

Client Sample ID: North West 6 Point
Collection Date: 1/16/2018 10:10:00 AM
Received Date: 1/17/2018 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	1/17/2018 11:51:00 AM	36067
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/17/2018 11:30:55 AM	36064
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/17/2018 11:30:55 AM	36064
Surr: DNOP	95.4	70-130		%Rec	1	1/17/2018 11:30:55 AM	36064
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	62	4.0		mg/Kg	1	1/17/2018 10:53:34 AM	R48506
Surr: BFB	106	15-316		%Rec	1	1/17/2018 10:53:34 AM	R48506
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.41	0.020		mg/Kg	1	1/17/2018 10:53:34 AM	R48506
Toluene	1.7	0.040		mg/Kg	1	1/17/2018 10:53:34 AM	R48506
Ethylbenzene	0.15	0.040		mg/Kg	1	1/17/2018 10:53:34 AM	R48506
Xylenes, Total	1.3	0.080		mg/Kg	1	1/17/2018 10:53:34 AM	R48506
Surr: 4-Bromofluorobenzene	99.2	80-120		%Rec	1	1/17/2018 10:53:34 AM	R48506

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

Qualifiers:

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