

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company WPX Energy Production, LLC	Contact Deborah Watson	
Address PO Box 640	Telephone No. 505-333-1880	
Facility Name Chaco NW Lybrook Unit 133H	Facility Type Well Site	
Surface Owner State	Mineral Owner Indian Allotted	API No. 30-045-35623

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	36	24N	08W	736	South	2531	East	San Juan

Latitude N36.26515 Longitude W107.63199

NATURE OF RELEASE


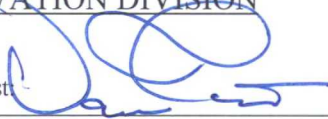
Type of Release crude oil and produced water	Volume of Release 10 bbl	Volume Recovered 6-8 bbl
Source of Release corrosion hole in dump line	Date and Hour of Occurrence unknown	Date and Hour of Discovery 6/3/17
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? Cory Smith (NMOCD) Vanessa Fields (NMOCD) Brandon Foley (NMSLO)	
By Whom? N/A	Date and Hour 6/5/17 email at 12:10 PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.* N/A		

Describe Cause of Problem and Remedial Action Taken.*
A hole was located in an underground line. Hydrovac/spec truck was called to the location to recover fluids. The location was shut-in.

Describe Area Affected and Cleanup Action Taken.*

- Hydrovac truck/spec truck were called to the location to recover fluids.
- The fluids remained on location.
- Cleanup activities included recovery of standing fluids, mechanical soil removal, soil shredding of impacted soils (onsite remediation with hydrogen peroxide application). Due to the location of the release, equipment from the facility was removed and reset following completion of remediation of soil.
- Final Report attached which includes analytical laboratory reports.
- Based on confirmation sample results, no further action recommended.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Deborah Watson	Approved by Environmental Specialist 	
Title: Environmental Specialist	Approval Date: 3/29/18	Expiration Date:
E-mail Address: deborah.watson@wpxenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 03/28/2018	Phone: 505-333-1880	

* Attach Additional Sheets If Necessary

NCS1715649419

165



NW Lybrook Unit #133H Facility Release Report
Section 36, Township 24N, Range 8W
San Juan County, NM

March 28, 2018

1.0 Introduction

On June 3, 2017, fluid (produced water and crude oil) was discovered beneath the facility liner. The source of the release was from a hole located in the facility dump line at the NW Lybrook Unit #133H Facility, located in Section 36, Township 24N, Range 8W, San Juan County, New Mexico. The same day of discovery, the release source was stopped and cleanup initiated.

A topographic map of the location is included as Figure 1 and an aerial site map is included as Figure 2.

2.0 Release Summary

Location: NW Lybrook Unit #133H

API #: 30-045-35623

Site Location Description: Unit Letter O, Section 36, Township 24N, Range 8W

Release Latitude/Longitude: N36.26515, W107.63199

Land Jurisdiction: State of New Mexico

Agency Notification: New Mexico Oil Conservation Division (NMOCD) and State of New Mexico (NMSLO)

Agency Notification Date(s): June 5, 2017

Release Contents: Crude oil and produced water

Volume Released: Estimated 10 barrels mixed fluids

Volume Recovered: Estimated 6-8 barrels mixed fluids

NMOCD Ranking: 20

3.0 Site Ranking and RRAL

In accordance with *NMOCD Guidelines for Remediation of Leaks, Spills, and Releases* (August 1993), this site was assigned a ranking score of 20. Based on a ranking score of 20, recommended remedial action levels (RRAL) for remediated soils at the site are as follows: 10 mg/kg benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX), and 100 mg/kg total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) and diesel range organics (DRO).

Depth to groundwater at the site is estimated to be 65 feet below ground surface (bgs) based on the March 2015 ground bed drilling log for this facility which recorded depth to water at 65 feet bgs.

A review was completed of the New Mexico Office of the State Engineer Online New Mexico Water Rights Reporting System and no water wells were identified within a 1,000 feet radius of the location.

Blanco Wash is located approximately 345 feet northeast of the location.

4.0 Field Activities

On June 3, 2017, crews began cleanup at the site. Early efforts including recovery of standing fluids. Cleanup at the site included facility dismantling, mechanical excavation, and onsite remediation of impacted soils (soil shredding) from within the impacted area. The excavation extent measured approximately 190 ft. (length) x 95 ft. (width) x 4-15 ft. (depth).

Once the facility was dismantled, and free-standing fluids recovered, Unlimited Construction started onsite remediation of impacted soil.

Onsite remediation included the following process:

- Impacted soil was stockpiled within the impacted area to prevent further contamination at the location.
- Impacted soil was processed through a shading bucket attached to an excavator which shredded the soil into uniform particle size and was then emptied into a grizzly shaker screen which further segregated soil.
- A hydrogen peroxide solution was applied to the soil on the conveyor belt with multiple spray nozzles.
- The treated soil was then stockpiled onsite and left to rest for a minimum of 24 hours to allow the hydrogen peroxide to continue oxidizing the hydrocarbons.
- Treated stock piles were sampled to show the hydrocarbons had been remediated from the soil.
- As the crew worked from SW to NE, the clean soil was returned to the excavation and compacted.

5.0 Soil Sampling

Soil sampling followed the procedure below:

- Confirmation soil samples were collected from the sidewalls and base of the excavation. The samples were approximately spaced at 30 ft centers along the sidewalls, excavation base samples were collected approximately one sample per 625 square feet. Note: WPX received a variance for sample SC-9 which was located along a sidewall below the capstone following installation of a test hole on N side of the capstone building to show migration of hydrocarbons did not go beyond the capstone building. (Excavation samples SC-1 through SC-24)
- Composite samples were collected from the first ten 100 cubic yard stockpiles. Following acceptable cleanup levels, composite samples were then collected from stockpiles which ranged in size between 300-500 cubic yards. (Treated stockpiles samples TSP-1 and TSP-26)
- Following remediation and facility rebuild, four samples were collected at the surface from the pad where the work was completed. (VZ-1 through VZ-4)
- Composite soil samples were collected in laboratory provided sample containers and submitted to Hall Environmental Analysis Laboratory for BTEX per U.S. Environmental Protection Agency (USEPA) Method 8021 and TPH (as motor oil/lube oil range organics) MRO/DRO/GRO per USEPA Method 8015.
- NMOCD and NMSLO were notified prior to each sampling event.

6.0 Analytical Results

Final laboratory analytical results for all soil confirmation samples reported benzene and BTEX concentrations below the NMOCD RRAL of 10 mg/kg and 50 mg/kg, respectively. Final soil confirmation samples reported TPH concentrations below the NMOCD RRAL of 100 mg/kg or a variance was approved by NMOCD.

Laboratory analytical results are summarized in Table 1 and 2. Analytical laboratory reports are attached.

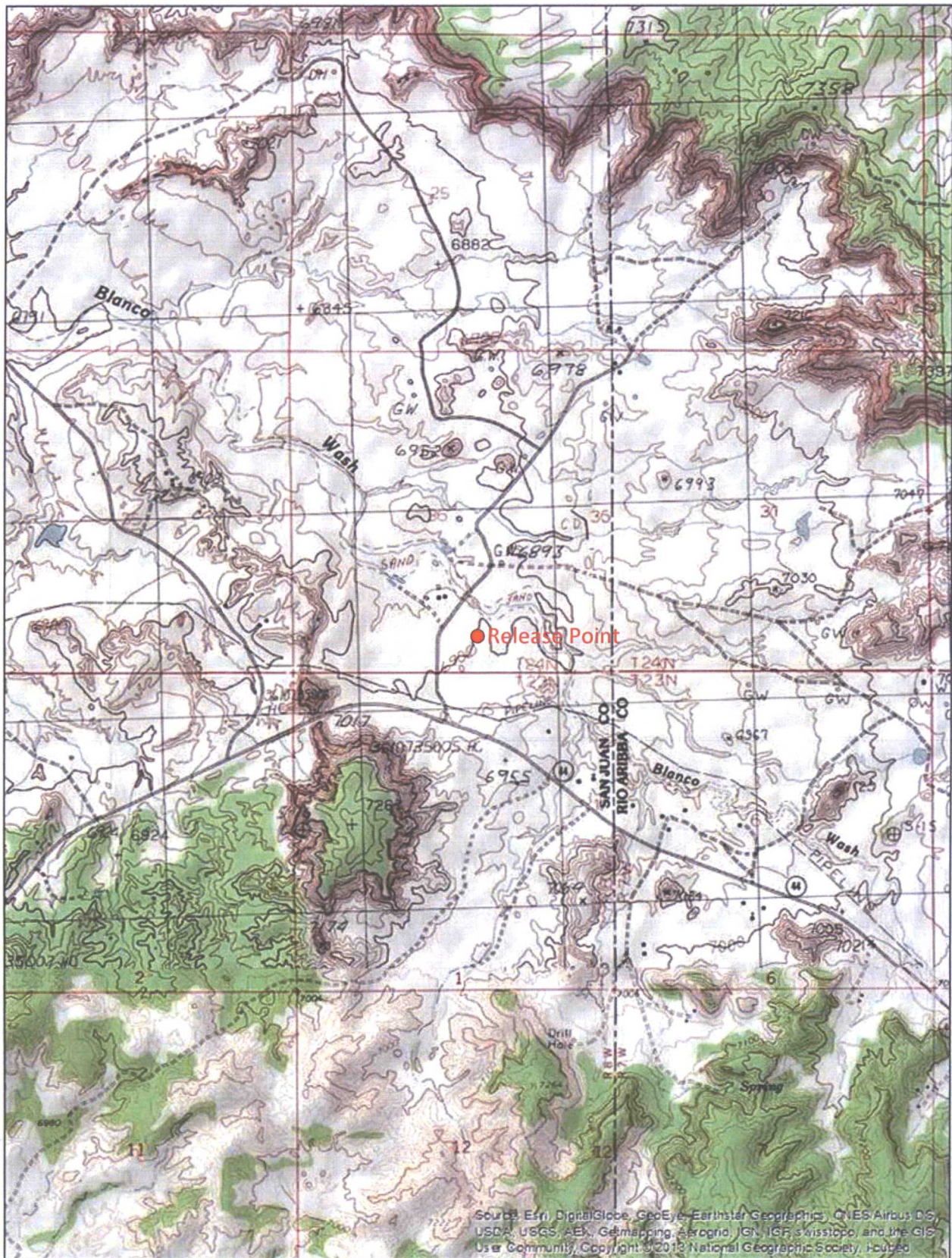




Figure 2. Aerial Map
NW Lybrook Unit #1133H Facility
Section 36, Township 24N, Range 08W
N36.26515, W107.63199
San Juan County, NM

Table 1. Treated Stock Piles Final Confirmation Samples
NW Lybrook Unit #133H Facility

Sample ID	Date	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total TPH (GRO+DRO) (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)
NMOCD RRAL based on site ranking of 20					100 mg/kg	10 mg/kg				50 mg/kg
TSP-1R	6/29/17	<17	16	<45	16	<0.084	<0.17	<0.17	<0.34	<0.764
TSP-2R	6/29/17	<20	45	<50	45	<0.10	<0.20	<0.20	<0.40	<0.090
TSP-3R	6/29/17	<16	51	<48	51	<0.081	<0.16	<0.16	<0.32	<0.721
TSP-4R	6/29/17	<16	39	<47	39	<0.082	<0.16	<0.16	<0.33	<0.732
TSP-5	6/26/17	29	55	<49	64	<0.020	<0.039	<0.039	<0.079	<0.177
TSP-6	6/22/17	11	37	<46	48	<0.020	<0.040	<0.040	<0.080	<0.180
TSP-7	6/22/17	10	54	<49	64	<0.019	<0.037	<0.037	<0.075	<0.168
TSP-8	6/22/17	12	45	<49	57	<0.020	<0.041	<0.041	<0.082	<0.184
TSP-9	6/22/17	12	60	<50	72	<0.020	<0.040	<0.040	<0.080	<0.180
TSP-10	6/22/17	10	79	<51	89	<0.020	<0.039	<0.039	<0.079	<0.177
TSP-11R (A)	6/29/17	<20	64	<48	64	<0.099	<0.20	<0.20	<0.39	<0.889
TSP-11R (B)	6/29/17	<16	110	<49	110	<0.082	<0.16	<0.16	<0.33	<0.732
TSP-11R (C)	6/29/17	<20	82	<48	82	<0.098	<0.20	<0.20	<0.39	<0.888
TSP-11R (D)	6/29/17	<21	120	60	120	<0.10	<0.21	<0.21	<0.41	<0.930
TSP-11R (E)	6/29/17	<20	85	<50	85	<0.099	<0.20	<0.20	<0.40	<0.899
TSP-12	6/26/17	8.3	36	<46	44.3	<0.019	<0.039	<0.039	<0.077	<0.174
TSP-13	6/26/17	15	94	<49	109	<0.018	<0.035	<0.035	<0.070	<0.158
TSP-14	6/26/17	24	76	<48	100	<0.017	<0.034	<0.034	<0.067	<0.152
TSP-15	7/3/2017	<2.9	48	<50	48	<0.015	<0.029	<0.029	<0.058	<0.131
TSP-16	7/3/2017	<2.7	49	<48	49	<0.014	<0.027	<0.027	<0.055	<0.123
TSP-17	7/3/2017	<3.0	24	<48	24	<0.015	<0.030	<0.030	<0.059	<0.134
TSP-18	7/3/2017	<2.9	27	<49	27	<0.014	<0.029	<0.029	<0.058	<0.130
TSP-19	7/7/2017	<3.1	40	<47	40	<0.015	<0.031	<0.031	<0.061	<0.138
TSP-20	7/7/2017	<3.2	43	<48	43	<0.016	<0.032	<0.032	<0.065	<0.145
TSP-21	7/11/2017	<20	50	<50	50	<0.099	<0.20	<0.20	<0.40	<0.899
TSP-22	7/11/2017	<21	78	53	78	<0.10	<0.21	<0.21	<0.42	<0.940
TSP-23	7/11/2017	<22	53	<50	53	<0.11	<0.22	<0.22	<0.44	<0.990
TSP-24	7/14/2017	<6.8	47	<47	47	<0.034	<0.068	<0.068	<0.14	<0.310
TSP-25	7/14/2017	<9.0	90	<48	90	<0.045	<0.090	<0.090	<0.18	<0.405
TSP-26	7/14/2017	<7.9	91	48	91	<0.040	<0.079	<0.079	<0.16	<0.358

R=Retreated

Table 2. Excavation and Vadose Zone Final Confirmation Samples
NW Lybrook Unit #133H Facility

Sample ID	Date	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total TPH (GRO+DRO) (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)
<i>NMOCD RRAL based on site ranking of 20</i>					100 mg/kg	10 mg/kg				50 mg/kg
SC-1	6/21/2017	<4.3	32	<49	32	<0.022	<0.043	<0.043	<0.087	<0.195
SC-2	6/21/2017	<21	21	<50	21	<0.10	<0.21	<0.21	<0.41	<0.930
SC-3	6/21/2017	<3.8	<9.6	<48	<61.4	<0.019	<0.038	<0.038	<0.075	<0.170
SC-4	6/21/2017	<20	19	<50	19	<0.010	<0.20	<0.20	<0.41	<0.820
SC-5	6/21/2017	<20	<9.7	<48	<77.7	<0.010	<0.20	<0.20	<0.41	<0.820
SC-6	6/21/2017	<3.9	<9.9	<49	<62.8	<0.020	<0.039	<0.039	<0.078	<0.176
SC-7	6/21/2017	<3.9	<9.5	<47	<60.4	<0.019	<0.039	<0.039	<0.077	<0.174
SC-8	6/21/2017	<3.7	<9.8	<49	<62.5	<0.019	<0.037	<0.037	<0.074	<0.167
SC-9	6/21/2017	<21	270	<460	270	<0.11	<0.21	<0.21	<0.42	<0.95
SC-10R	6/26/2017	<4.0	28	<49	28	<0.020	<0.040	<0.040	<0.079	<0.179
SC-11R	6/29/2017	<22	11	<50	11	<0.11	0.31	<0.22	<0.44	0.31
SC-12	6/22/2017	<4.2	<9.6	<48	<61.8	<0.021	<0.042	<0.042	<0.083	<0.188
SC-13R	6/29/2017	<20	<10	<50	<80	<0.098	<0.20	<0.20	<0.39	<0.888
SC-14	6/26/2017	<3.9	<9.5	<47	<60.4	<0.020	<0.039	<0.039	<0.079	<0.177
SC-15	6/29/2017	<20	<9.2	<46	<75.2	<0.098	<0.20	<0.20	<0.39	<0.888
SC-16	6/29/2017	<22	11	<46	11	<0.11	<0.22	<0.22	<0.44	<0.990
SC-17	6/29/2017	<21	<10	<50	<91	<0.10	<0.21	<0.21	<0.41	<0.930
SC-18	7/7/2017	<3.3	<9.3	<46	<58.6	<0.016	<0.033	<0.033	<0.066	<0.148
SC-19	7/7/2017	<3.2	<9.2	<46	<58.4	<0.016	<0.032	<0.032	<0.063	<0.143
SC-20	7/7/2017	<3.1	<9.7	<48	<60.8	<0.016	<0.031	<0.031	<0.063	<0.141
SC-21	7/7/2017	<3.2	<9.4	<47	<59.6	<0.016	<0.032	<0.032	<0.063	<0.143
SC-22	7/7/2017	<3.0	<9.2	<46	<58.2	<0.015	<0.030	<0.030	<0.061	<0.136
SC-23	7/7/2017	<3.1	<9.1	<46	<58.2	<0.015	<0.031	<0.031	<0.061	<0.138
SC-24	7/7/2017	<3.1	<9.2	<46	<58.3	<0.015	<0.031	<0.031	<0.061	<0.138
VZ-1	9/20/2017	<4.8	45	<48	45	<0.024	<0.048	<0.048	<0.096	<0.216
VZ-2	9/20/2017	<4.8	53	<48	53	<0.024	<0.048	<0.048	<0.096	<0.216
VZ-3	9/20/2017	<4.7	44	65	44	<0.023	<0.047	<0.047	<0.094	<0.211
VZ-4	9/20/2017	4.6	59	160	63.6	<0.023	<0.046	<0.046	<0.093	<0.208

R=Resample

From: [Smith, Cory, EMNRD](#)
To: [Watson, Debbie](#); [Fields, Vanessa, EMNRD](#); [Foley, Brandon M.](#)
Subject: [EXTERNAL] RE: Excavation preliminary results 133H
Date: Monday, June 26, 2017 9:22:51 AM

CAUTION: This email was sent from an EXTERNAL source. Use caution when clicking links or opening attachments.

Debbie,

WPX may use the successfully Treated Stock piles that have passed sampling as backfill for areas of the excavation that have also passed sampling.

Please remember that the treated stock pile that are adjacent to a pile that has not been sample needs to leave 2' of buffer between the piles to ensure no un-sampled soils are returned to the excavation.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Watson, Debbie [mailto:Deborah.Watson@wpxenergy.com]
Sent: Monday, June 26, 2017 6:40 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Foley, Brandon M. <bfoley@slo.state.nm.us>
Subject: Excavation preliminary results 133H

The samples from the NW Lybrook #133H are as follows:

SC-10 : East Extended Base – North Half
SC -11 : East Extended Base – South Half
SC-12 : East Extended Wall – North Wall
SC-13 : East Extended Wall – South Wall

From: Watson, Debbie
Sent: Friday, June 23, 2017 3:55 PM
To: 'Fields, Vanessa, EMNRD' <Vanessa.Fields@state.nm.us>; 'Smith, Cory, EMNRD' <Cory.Smith@state.nm.us>; 'Foley, Brandon M.' <bfoley@slo.state.nm.us>
Subject: Excavation preliminary results 133H

Attached are the preliminary laboratory results from the excavation collected on June 22, 2017. Thank you.

Have a great weekend,

Debbie

Deborah Watson
Environmental Specialist
PO Box 640 | Aztec, NM 87410
office 505.333.1880 | cell 505.386.9693 | fax 505.333.1805
deborah.watson@wpxenergy.com



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From: [Smith, Cory, EMNRD](#)
To: [Watson, Debbie](#)
Cc: [Fields, Vanessa, EMNRD](#)
Subject: [EXTERNAL] RE: NW Lybrook Unit #133H Well Pad
Date: Wednesday, June 28, 2017 1:54:17 PM

CAUTION: This email was sent from an EXTERNAL source. Use caution when clicking links or opening attachments.

Debbie,

OCD Approves WPX variance request to backfill area SC-9 and to use TSP-13 as backfill.

Please include this approval with your final C-141

OCD approval does not relieve WPX of any requirements imposed by other regulatory agencies.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Watson, Debbie [mailto:Deborah.Watson@wpxenergy.com]
Sent: Wednesday, June 28, 2017 11:17 AM
To: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: NW Lybrook Unit #133H Well Pad

Vanessa and Cory,

WPX requests the following variances at the NW Lybrook Unit 133H Well Pad:

- WPX requests no further excavation along the west wall (south half/SC-9) beneath the secondary containment wall. A thin zone of contaminated soil (1-4 inches in thickness) extends beneath the remaining half wall and electrical panel. On June 26, 2017, a test hole was installed just to the west of the capstone building. The test hole was dug to a depth of 13 feet, exceeding the depth of the impacted layer. Cory Smith was onsite during test hole installation. No contaminated soil was

encountered, confirming that the impacted layer thins out and disappears beneath the electrical panel/capstone building.

- WPX requests approval to backfill the cleared portion of the excavation with soils from TSP-13. The laboratory results reported the TPH concentration at 109 mg/kg.

Treated stockpiles TSP-1 through TSP-4 will be retreated today (6/28) and resampled later this week.

Thank you and have a great day!

Debbie

Deborah Watson
Environmental Specialist
PO Box 640 | Aztec, NM 87410
office 505.333.1880 | cell 505.386.9693 | fax 505.333.1805
deborah.watson@wpxenergy.com



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From: [Fields, Vanessa, EMNRD](#)
To: [Watson, Debbie](#); [Smith, Cory, EMNRD](#); [Foley, Brandon M.](#)
Subject: [EXTERNAL] RE: NW Lybrook Unit #133H TSP-21, TSP-22, and TSP-23
Date: Thursday, July 13, 2017 8:33:03 AM

CAUTION: This email was sent from an EXTERNAL source. Use caution when clicking links or opening attachments.

Good morning Debbie,

Per our phone conversation your variance for TSP 22 has been granted, please provide this email in your final C-141.

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: Watson, Debbie [mailto:Deborah.Watson@wpenergy.com]
Sent: Wednesday, July 12, 2017 1:13 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Foley, Brandon M. <bfoley@slo.state.nm.us>
Subject: NW Lybrook Unit #133H TSP-21, TSP-22, and TSP-23

Good Afternoon,

Please see attached laboratory results for stockpiles TSP-21, TSP-22, and TSP-23.

Results for the three stockpiles reported DRO + GRO concentrations below 100 mg/kg TPH. Stockpiles TSP-21 and TSP-23 reported MRO concentrations as non-detect. TSP-22 reported MRO at 53 mg/kg resulting in MRO+DRO+GRO at 131 mg/kg.

WPX requests approval to utilize TSP-22 as backfill without further treatment.

Thank you,

Debbie

From: [Fields, Vanessa, EMNRD](#)
To: [Watson, Debbie](#); [Smith, Cory, EMNRD](#); [Foley, Brandon M.](#)
Subject: [EXTERNAL] RE: 133H Vadose Zone Sampling Results Updated Request
Date: Wednesday, October 11, 2017 3:20:22 PM

CAUTION: This email was sent from an EXTERNAL source. Use caution when clicking links or opening attachments.

Good afternoon Debbie,

The OCD grants your variance request, please include this e-mail in your final C-141.

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: Watson, Debbie [mailto:Deborah.Watson@wpenergy.com]
Sent: Wednesday, October 11, 2017 11:16 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Foley, Brandon M. <bfoley@slo.state.nm.us>
Subject: 133H Vadose Zone Sampling Results Updated Request

Please see attached laboratory results for the NW Lybrook Unit #133 vadose sampling. Total TPH (DRO + GRO) concentrations were reported below the NMOCD RRAL of 100 mg/kg TPH (GRO+DRO) in all four samples. Samples VZ-3 and VZ-4 had reported MRO concentrations at 65 mg/kg and 160 mg/kg, respectively. When MRO is included in Total TPH (MRO+DRO+GRO), TPH concentrations in VZ-3 and VZ-4 exceed the TPH RRAL of 100 mg/kg. MRO is not a mobile contaminant and the low concentrations of MRO reported in samples VZ-3 and VZ-4 are not likely to have an impact to the environment or migrate off the location. WPX proposes to leave the areas of VZ-3 and VZ-4 alone, no further action recommended.

Please contact me with any questions.

Debbie

Deborah Watson
Environmental Specialist
PO Box 640 | Aztec, NM 87410

office 505.333.1880 | cell 505.386.9693 | fax 505.333.1805
deborah.watson@wpxenergy.com



If you have received this message in error, please reply to advise the sender of the error and then immediately delete this message. Thank you.



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

September 27, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit #133H Facility (PDP)

OrderNo.: 1709B65

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 9/21/2017 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.**Analytical Report**

Lab Order 1709B65

Date Reported: 9/27/2017

CLIENT: WPX Energy**Client Sample ID:** VZ-1**Project:** NW Lybrook Unit #133H Facility (PDP)**Collection Date:** 9/20/2017 10:22:00 AM**Lab ID:** 1709B65-001**Matrix:** SOIL**Received Date:** 9/21/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	45	9.7		mg/Kg	1	9/22/2017 8:50:21 PM	34002
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/22/2017 8:50:21 PM	34002
Surr: DNOP	75.2	70-130		%Rec	1	9/22/2017 8:50:21 PM	34002
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/22/2017 5:27:56 PM	33985
Surr: BFB	106	54-150		%Rec	1	9/22/2017 5:27:56 PM	33985
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	9/22/2017 5:27:56 PM	33985
Toluene	ND	0.048		mg/Kg	1	9/22/2017 5:27:56 PM	33985
Ethylbenzene	ND	0.048		mg/Kg	1	9/22/2017 5:27:56 PM	33985
Xylenes, Total	ND	0.096		mg/Kg	1	9/22/2017 5:27:56 PM	33985
Surr: 4-Bromofluorobenzene	121	66.6-132		%Rec	1	9/22/2017 5:27:56 PM	33985

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1709B65

Date Reported: 9/27/2017

CLIENT: WPX Energy**Client Sample ID:** VZ-2**Project:** NW Lybrook Unit #133H Facility (PDP)**Collection Date:** 9/20/2017 10:14:00 AM**Lab ID:** 1709B65-002**Matrix:** SOIL**Received Date:** 9/21/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	53	9.6		mg/Kg	1	9/22/2017 9:19:01 PM	34002
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/22/2017 9:19:01 PM	34002
Surr: DNOP	83.5	70-130		%Rec	1	9/22/2017 9:19:01 PM	34002
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/22/2017 5:51:23 PM	33985
Surr: BFB	105	54-150		%Rec	1	9/22/2017 5:51:23 PM	33985
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	9/22/2017 5:51:23 PM	33985
Toluene	ND	0.048		mg/Kg	1	9/22/2017 5:51:23 PM	33985
Ethylbenzene	ND	0.048		mg/Kg	1	9/22/2017 5:51:23 PM	33985
Xylenes, Total	ND	0.096		mg/Kg	1	9/22/2017 5:51:23 PM	33985
Surr: 4-Bromofluorobenzene	123	66.6-132		%Rec	1	9/22/2017 5:51:23 PM	33985

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1709B65

Date Reported: 9/27/2017

CLIENT: WPX Energy**Client Sample ID:** VZ-3**Project:** NW Lybrook Unit #133H Facility (PDP)**Collection Date:** 9/20/2017 10:28:00 AM**Lab ID:** 1709B65-003**Matrix:** SOIL**Received Date:** 9/21/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	44	10		mg/Kg	1	9/22/2017 9:47:57 PM	34002
Motor Oil Range Organics (MRO)	65	51		mg/Kg	1	9/22/2017 9:47:57 PM	34002
Surr: DNOP	75.8	70-130		%Rec	1	9/22/2017 9:47:57 PM	34002
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/22/2017 6:14:43 PM	33985
Surr: BFB	105	54-150		%Rec	1	9/22/2017 6:14:43 PM	33985
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	9/22/2017 6:14:43 PM	33985
Toluene	ND	0.047		mg/Kg	1	9/22/2017 6:14:43 PM	33985
Ethylbenzene	ND	0.047		mg/Kg	1	9/22/2017 6:14:43 PM	33985
Xylenes, Total	ND	0.094		mg/Kg	1	9/22/2017 6:14:43 PM	33985
Surr: 4-Bromofluorobenzene	120	66.6-132		%Rec	1	9/22/2017 6:14:43 PM	33985

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1709B65

Date Reported: 9/27/2017

CLIENT: WPX Energy**Client Sample ID:** VZ-4**Project:** NW Lybrook Unit #133H Facility (PDP)**Collection Date:** 9/20/2017 10:35:00 AM**Lab ID:** 1709B65-004**Matrix:** SOIL**Received Date:** 9/21/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	59	9.7		mg/Kg	1	9/22/2017 10:16:35 PM	34002
Motor Oil Range Organics (MRO)	160	48		mg/Kg	1	9/22/2017 10:16:35 PM	34002
Surr: DNOP	83.7	70-130		%Rec	1	9/22/2017 10:16:35 PM	34002
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/22/2017 6:38:08 PM	33985
Surr: BFB	106	54-150		%Rec	1	9/22/2017 6:38:08 PM	33985
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	9/22/2017 6:38:08 PM	33985
Toluene	ND	0.046		mg/Kg	1	9/22/2017 6:38:08 PM	33985
Ethylbenzene	ND	0.046		mg/Kg	1	9/22/2017 6:38:08 PM	33985
Xylenes, Total	ND	0.093		mg/Kg	1	9/22/2017 6:38:08 PM	33985
Surr: 4-Bromofluorobenzene	120	66.6-132		%Rec	1	9/22/2017 6:38:08 PM	33985

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1709B65

27-Sep-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Facility (PDP)

Sample ID	MB-34002	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	34002	RunNo:	45806					
Prep Date:	9/21/2017	Analysis Date:	9/22/2017	SeqNo:	1455637	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	9.0		10.00		90.4	70	130			

Sample ID	LCS-34002	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	34002	RunNo:	45806					
Prep Date:	9/21/2017	Analysis Date:	9/22/2017	SeqNo:	1455751	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.6	73.2	114			
Surr: DNOP	4.6		5.000		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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1709B65

27-Sep-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Facility (PDP)

Sample ID	MB-33985	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	33985	RunNo:	45817					
Prep Date:	9/21/2017	Analysis Date:	9/22/2017	SeqNo:	1457079	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	54	150			

Sample ID	LCS-33985	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	33985	RunNo:	45817					
Prep Date:	9/21/2017	Analysis Date:	9/22/2017	SeqNo:	1457080	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	111	76.4	125			
Surr: BFB	1200		1000		120	54	150			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1709B65

27-Sep-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Facility (PDP)

Sample ID		MB-33985		SampType:		MBLK		TestCode:				EPA Method 8021B: Volatiles									
Client ID:		PBS		Batch ID:		33985		RunNo:		45817											
Prep Date:		9/21/2017		Analysis Date:		9/22/2017		SeqNo:		1457105		Units:		mg/Kg							
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		%RPD		RPDLimit		Qual	
Benzene		ND		0.025																	
Toluene		ND		0.050																	
Ethylbenzene		ND		0.050																	
Xylenes, Total		ND		0.10																	
Surr: 4-Bromofluorobenzene		1.2				1.000				125		66.6		132							

Sample ID	LCS-33985	SampType: LCS			TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID: 33985			RunNo: 45817					
Prep Date:	9/21/2017	Analysis Date: 9/22/2017			SeqNo: 1457106		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	112	80	120			
Toluene	1.1	0.050	1.000	0	109	80	120			
Ethylbenzene	1.1	0.050	1.000	0	113	80	120			
Xylenes, Total	3.4	0.10	3.000	0	114	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		132	66.6	132			S

Qualifiers:

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



Hall Environmental Analysis Laboratory
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: WPX ENERGY

Work Order Number: 1709B65

RcptNo: 1

Received By: Anne Thorne

9/21/2017 7:10:00 AM

Anne Thorne

Completed By: Anne Thorne

9/21/2017 8:02:39 AM

Anne Thorne

Reviewed By: ENM

9/21/17

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 $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐
of preserved bottles checked for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

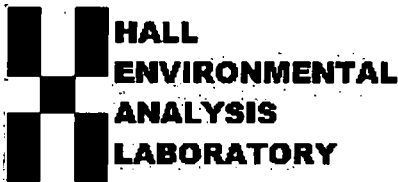
16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			



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

July 18, 2017

Debbie Watson

WPX Energy

721 S Main Ave

Aztec, NM 87410

TEL: (505) 333-1880

FAX

RE: NW Lybrook Unit #133 H Facility

OrderNo.: 1707759

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/15/2017 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.**Analytical Report**

Lab Order 1707759

Date Reported: 7/18/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-24**Project:** NW Lybrook Unit #133 H Facility**Collection Date:** 7/14/2017 9:30:00 AM**Lab ID:** 1707759-001**Matrix:** SOIL**Received Date:** 7/15/2017 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: MAB
Diesel Range Organics (DRO)	47	9.4		mg/Kg	1	7/17/2017 10:34:32 AM	32821
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/17/2017 10:34:32 AM	32821
Surr: DNOP	96.4	70-130		%Rec	1	7/17/2017 10:34:32 AM	32821
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	6.8		mg/Kg	2	7/17/2017 10:06:02 AM	G44257
Surr: BFB	105	54-150		%Rec	2	7/17/2017 10:06:02 AM	G44257
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.034		mg/Kg	2	7/17/2017 10:06:02 AM	B44257
Toluene	ND	0.068		mg/Kg	2	7/17/2017 10:06:02 AM	B44257
Ethylbenzene	ND	0.068		mg/Kg	2	7/17/2017 10:06:02 AM	B44257
Xylenes, Total	ND	0.14		mg/Kg	2	7/17/2017 10:06:02 AM	B44257
Surr: 4-Bromofluorobenzene	138	66.6-132	S	%Rec	2	7/17/2017 10:06:02 AM	B44257

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1707759

Date Reported: 7/18/2017

CLIENT: WPX Energy

Client Sample ID: TSP-25

Project: NW Lybrook Unit #133 H Facility

Collection Date: 7/14/2017 9:36:00 AM

Lab ID: 1707759-002

Matrix: SOIL

Received Date: 7/15/2017 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: MAB
Diesel Range Organics (DRO)	90	9.6		mg/Kg	1	7/17/2017 11:02:36 AM	32821
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/17/2017 11:02:36 AM	32821
Surr: DNOP	98.9	70-130		%Rec	1	7/17/2017 11:02:36 AM	32821
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	9.0		mg/Kg	2	7/17/2017 10:30:12 AM	G44257
Surr: BFB	114	54-150		%Rec	2	7/17/2017 10:30:12 AM	G44257
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.045		mg/Kg	2	7/17/2017 10:30:12 AM	B44257
Toluene	ND	0.090		mg/Kg	2	7/17/2017 10:30:12 AM	B44257
Ethylbenzene	ND	0.090		mg/Kg	2	7/17/2017 10:30:12 AM	B44257
Xylenes, Total	ND	0.18		mg/Kg	2	7/17/2017 10:30:12 AM	B44257
Surr: 4-Bromofluorobenzene	142	66.6-132	S	%Rec	2	7/17/2017 10:30:12 AM	B44257

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707759

Date Reported: 7/18/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-26**Project:** NW Lybrook Unit #133 H Facility**Collection Date:** 7/14/2017 9:43:00 AM**Lab ID:** 1707759-003**Matrix:** SOIL**Received Date:** 7/15/2017 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: MAB
Diesel Range Organics (DRO)	91	9.3		mg/Kg	1	7/17/2017 11:30:53 AM	32821
Motor Oil Range Organics (MRO)	48	47		mg/Kg	1	7/17/2017 11:30:53 AM	32821
Surr: DNOP	102	70-130		%Rec	1	7/17/2017 11:30:53 AM	32821
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	7.9		mg/Kg	2	7/17/2017 10:54:14 AM	G44257
Surr: BFB	106	54-150		%Rec	2	7/17/2017 10:54:14 AM	G44257
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.040		mg/Kg	2	7/17/2017 10:54:14 AM	B44257
Toluene	ND	0.079		mg/Kg	2	7/17/2017 10:54:14 AM	B44257
Ethylbenzene	ND	0.079		mg/Kg	2	7/17/2017 10:54:14 AM	B44257
Xylenes, Total	ND	0.16		mg/Kg	2	7/17/2017 10:54:14 AM	B44257
Surr: 4-Bromofluorobenzene	140	66.6-132	S	%Rec	2	7/17/2017 10:54:14 AM	B44257

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707759

18-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133 H Facility

Sample ID	LCS-32821	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32821	RunNo:	44251					
Prep Date:	7/17/2017	Analysis Date:	7/17/2017	SeqNo:	1397568	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.00	0	111	73.2	114			
Surr: DNOP	4.9		5.000		98.1	70	130			

Sample ID	MB-32821	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32821	RunNo:	44251					
Prep Date:	7/17/2017	Analysis Date:	7/17/2017	SeqNo:	1397569	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		94.4	70	130			

Sample ID	1707759-001AMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-24	Batch ID:	32821	RunNo:	44251					
Prep Date:	7/17/2017	Analysis Date:	7/17/2017	SeqNo:	1397794	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	110	9.8	49.02	46.95	123	55.8	122			S
Surr: DNOP	5.0		4.902		103	70	130			

Sample ID	1707759-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-24	Batch ID:	32821	RunNo:	44251					
Prep Date:	7/17/2017	Analysis Date:	7/17/2017	SeqNo:	1397795	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	100	9.2	45.96	46.95	122	55.8	122	4.06	20	S
Surr: DNOP	4.7		4.596		102	70	130	0	0	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707759

18-Jul-17

Client: WPX Energy
Project: NW Lybrook Unit #133 H Facility

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	G44257	RunNo:	44257					
Prep Date:		Analysis Date:	7/17/2017	SeqNo:	1398059	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		101	54	150			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	G44257	RunNo:	44257					
Prep Date:		Analysis Date:	7/17/2017	SeqNo:	1398060	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	102	76.4	125			
Surr: BFB	1100		1000		113	54	150			

Sample ID	1707759-001AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	TSP-24	Batch ID:	G44257	RunNo:	44257					
Prep Date:		Analysis Date:	7/17/2017	SeqNo:	1398061	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	6.8	34.25	0	89.4	77.8	128			
Surr: BFB	1600		1370		119	54	150			

Sample ID	1707759-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	TSP-24	Batch ID:	G44257	RunNo:	44257					
Prep Date:		Analysis Date:	7/17/2017	SeqNo:	1398062	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	36	6.8	34.25	0	106	77.8	128	16.5	20	
Surr: BFB	1600		1370		119	54	150	0	0	

Sample ID	MB-32807	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	32807	RunNo:	44257					
Prep Date:	7/14/2017	Analysis Date:	7/17/2017	SeqNo:	1398063	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		104	54	150			

Sample ID	LCS-32807	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	32807	RunNo:	44257					
Prep Date:	7/14/2017	Analysis Date:	7/17/2017	SeqNo:	1398064	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		112	54	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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707759

18-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133 H Facility

Sample ID RB	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: B44257	RunNo: 44257								
Prep Date:	Analysis Date: 7/17/2017	SeqNo: 1398094		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.4		1.000		138	66.6	132			S

Sample ID 100NG BTEX LCSB	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: B44257	RunNo: 44257								
Prep Date:	Analysis Date: 7/17/2017	SeqNo: 1398100		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	80	120			
Toluene	1.1	0.050	1.000	0	107	80	120			
Ethylbenzene	1.1	0.050	1.000	0	108	80	120			
Xylenes, Total	3.3	0.10	3.000	0	109	80	120			
Surr: 4-Bromofluorobenzene	1.4		1.000		141	66.6	132			S

Sample ID 1707759-002AMS	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: TSP-25	Batch ID: B44257	RunNo: 44257								
Prep Date:	Analysis Date: 7/17/2017	SeqNo: 1398101		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.9	0.045	1.797	0	106	80.9	132			
Toluene	1.9	0.090	1.797	0	108	79.8	136			
Ethylbenzene	2.0	0.090	1.797	0	109	79.4	140			
Xylenes, Total	5.9	0.18	5.391	0.04564	109	78.5	142			
Surr: 4-Bromofluorobenzene	2.6		1.797		146	66.6	132			S

Sample ID 1707759-002AMSD	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: TSP-25	Batch ID: B44257	RunNo: 44257								
Prep Date:	Analysis Date: 7/17/2017	SeqNo: 1398102		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.9	0.045	1.797	0	104	80.9	132	1.57	20	
Toluene	1.9	0.090	1.797	0	106	79.8	136	1.50	20	
Ethylbenzene	1.9	0.090	1.797	0	107	79.4	140	1.33	20	
Xylenes, Total	5.9	0.18	5.391	0.04564	108	78.5	142	1.59	20	
Surr: 4-Bromofluorobenzene	2.6		1.797		143	66.6	132	0	0	S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707759

18-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133 H Facility

Sample ID	MB-32807	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	32807	RunNo:	44257					
Prep Date:	7/14/2017	Analysis Date:	7/17/2017	SeqNo:	1398110	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.4		1.000		140	66.6	132			S

Sample ID	LCS-32807	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	32807	RunNo:	44257					
Prep Date:	7/14/2017	Analysis Date:	7/17/2017	SeqNo:	1398111	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.4		1.000		137	66.6	132			S

Qualifiers:

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

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



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: WPX ENERGY

Work Order Number: 1707759

ReptNo: 1

Received By: Andy Freeman

7/15/2017 11:20:00 AM

Completed By: Anne Thorne

7/17/2017 7:31:15 AM

Reviewed By:

Ar/a3

7/17/17

[Signature]

[Signature]

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 $>0^{\circ}\text{C}$ to 8.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

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

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Yes			

Client: WPX Energy Production

Mailing Address: 721 S Main
Aztec NM 87410

Phone #: 505 333 1880

email or Fax#: ddorah.watson@wpxenergy.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

☐ Standard ☒ Rush same day
Project Name: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/4/17	1700	Debra Waters	Christina	7/4/17	1700
Date:	Time:	Relinquished by:	Received by:	Date	Time
7/4/17	1810	Christina	Christina	7/5/17	1120

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.



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

July 13, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit #133H

OrderNo.: 1707485

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/12/2017 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.

Analytical Report

Lab Order 1707485

Date Reported: 7/13/2017

CLIENT: WPX Energy

Client Sample ID: TSP-21

Project: NW Lybrook Unit #133H

Collection Date: 7/11/2017 1:45:00 PM

Lab ID: 1707485-001

Matrix: SOIL

Received Date: 7/12/2017 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	50	10		mg/Kg	1	7/12/2017 11:06:54 AM	32759
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/12/2017 11:06:54 AM	32759
Surr: DNOP	101	70-130		%Rec	1	7/12/2017 11:06:54 AM	32759
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	20		mg/Kg	5	7/12/2017 9:55:16 AM	32740
Surr: BFB	96.6	54-150		%Rec	5	7/12/2017 9:55:16 AM	32740
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.099		mg/Kg	5	7/12/2017 9:55:16 AM	32740
Toluene	ND	0.20		mg/Kg	5	7/12/2017 9:55:16 AM	32740
Ethylbenzene	ND	0.20		mg/Kg	5	7/12/2017 9:55:16 AM	32740
Xylenes, Total	ND	0.40		mg/Kg	5	7/12/2017 9:55:16 AM	32740
Surr: 4-Bromofluorobenzene	127	66.6-132		%Rec	5	7/12/2017 9:55:16 AM	32740

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707485

Date Reported: 7/13/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-22**Project:** NW Lybrook Unit #133H**Collection Date:** 7/11/2017 1:54:00 PM**Lab ID:** 1707485-002**Matrix:** SOIL**Received Date:** 7/12/2017 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	78	10		mg/Kg	1	7/12/2017 11:28:57 AM	32759
Motor Oil Range Organics (MRO)	53	50		mg/Kg	1	7/12/2017 11:28:57 AM	32759
Surr: DNOP	101	70-130		%Rec	1	7/12/2017 11:28:57 AM	32759
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	21		mg/Kg	5	7/12/2017 10:19:15 AM	32740
Surr: BFB	98.7	54-150		%Rec	5	7/12/2017 10:19:15 AM	32740
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.10		mg/Kg	5	7/12/2017 10:19:15 AM	32740
Toluene	ND	0.21		mg/Kg	5	7/12/2017 10:19:15 AM	32740
Ethylbenzene	ND	0.21		mg/Kg	5	7/12/2017 10:19:15 AM	32740
Xylenes, Total	ND	0.42		mg/Kg	5	7/12/2017 10:19:15 AM	32740
Surr: 4-Bromofluorobenzene	129	66.6-132		%Rec	5	7/12/2017 10:19:15 AM	32740

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707485

Date Reported: 7/13/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-23**Project:** NW Lybrook Unit #133H**Collection Date:** 7/11/2017 2:02:00 PM**Lab ID:** 1707485-003**Matrix:** SOIL**Received Date:** 7/12/2017 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	53	10		mg/Kg	1	7/12/2017 11:51:12 AM	32759
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/12/2017 11:51:12 AM	32759
Surr: DNOP	103	70-130		%Rec	1	7/12/2017 11:51:12 AM	32759
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	22		mg/Kg	5	7/12/2017 10:43:23 AM	32740
Surr: BFB	104	54-150		%Rec	5	7/12/2017 10:43:23 AM	32740
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.11		mg/Kg	5	7/12/2017 10:43:23 AM	32740
Toluene	ND	0.22		mg/Kg	5	7/12/2017 10:43:23 AM	32740
Ethylbenzene	ND	0.22		mg/Kg	5	7/12/2017 10:43:23 AM	32740
Xylenes, Total	ND	0.44		mg/Kg	5	7/12/2017 10:43:23 AM	32740
Surr: 4-Bromofluorobenzene	137	66.6-132	S	%Rec	5	7/12/2017 10:43:23 AM	32740

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	Page 3 of 6
	D Sample Diluted Due to Matrix	E Value above quantitation range	
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range	
	PQL Practical Quantitative Limit	RL Reporting Detection Limit	
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707485

13-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H

Sample ID MB-32740		SampType: MBLK		TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS		Batch ID: 32740		RunNo: 44163						
Prep Date: 7/11/2017		Analysis Date: 7/12/2017		SeqNo: 1394433		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.3		1.000		130	66.6	132			

Sample ID	LCS-32740		SampType: LCS		TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS		Batch ID: 32740		RunNo: 44163					
Prep Date:	7/11/2017		Analysis Date: 7/12/2017		SeqNo: 1394434		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	114	80	120			
Toluene	1.2	0.050	1.000	0	115	80	120			
Ethylbenzene	1.2	0.050	1.000	0	117	80	120			
Xylenes, Total	3.6	0.10	3.000	0	119	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		127	66.6	132			

Qualifiers:

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

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



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

Sample Log-In Check List

Client Name: WPX ENERGY

Work Order Number: 1707485

RcptNo: 1

Received By: Anne Thorne 7/12/2017 7:30:00 AM

Completed By: Anne Thorne 7/12/2017 8:01:34 AM

Reviewed By: *SPC 07/12/17*

Anne Thorne

Anne Thorne

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

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

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



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

July 11, 2017

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205
Farmington, NM 87401
TEL: (505) 860-2712
FAX

RE: WPX NW Lybrook 133H

OrderNo.: 1707324

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 7 sample(s) on 7/8/2017 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.

Analytical Report

Lab Order 1707324

Date Reported: 7/11/2017

CLIENT: Rule Engineering LLC

Client Sample ID: SC-18

Project: WPX NW Lybrook 133H

Collection Date: 7/7/2017 1:16:00 PM

Lab ID: 1707324-001

Matrix: MEOH (SOIL)

Received Date: 7/8/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	3.3		mg/Kg	1	7/10/2017 10:37:05 AM	R44092
Surr: BFB	87.3	70-130		%Rec	1	7/10/2017 10:37:05 AM	R44092
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/10/2017 10:41:01 AM	32699
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/10/2017 10:41:01 AM	32699
Surr: DNOP	99.4	70-130		%Rec	1	7/10/2017 10:41:01 AM	32699
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.016		mg/Kg	1	7/10/2017 10:37:05 AM	A44092
Toluene	ND	0.033		mg/Kg	1	7/10/2017 10:37:05 AM	A44092
Ethylbenzene	ND	0.033		mg/Kg	1	7/10/2017 10:37:05 AM	A44092
Xylenes, Total	ND	0.066		mg/Kg	1	7/10/2017 10:37:05 AM	A44092
Surr: 1,2-Dichloroethane-d4	95.1	70-130		%Rec	1	7/10/2017 10:37:05 AM	A44092
Surr: 4-Bromofluorobenzene	90.6	70-130		%Rec	1	7/10/2017 10:37:05 AM	A44092
Surr: Dibromofluoromethane	93.9	70-130		%Rec	1	7/10/2017 10:37:05 AM	A44092
Surr: Toluene-d8	102	70-130		%Rec	1	7/10/2017 10:37:05 AM	A44092

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1707324

Date Reported: 7/11/2017

CLIENT: Rule Engineering LLC

Client Sample ID: SC-19

Project: WPX NW Lybrook 133H

Collection Date: 7/7/2017 1:15:00 PM

Lab ID: 1707324-002

Matrix: MEOH (SOIL)

Received Date: 7/8/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	3.2		mg/Kg	1	7/10/2017 11:06:16 AM	R44092
Surr: BFB	87.8	70-130		%Rec	1	7/10/2017 11:06:16 AM	R44092
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/10/2017 11:03:06 AM	32699
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/10/2017 11:03:06 AM	32699
Surr: DNOP	96.8	70-130		%Rec	1	7/10/2017 11:03:06 AM	32699
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.016		mg/Kg	1	7/10/2017 11:06:16 AM	A44092
Toluene	ND	0.032		mg/Kg	1	7/10/2017 11:06:16 AM	A44092
Ethylbenzene	ND	0.032		mg/Kg	1	7/10/2017 11:06:16 AM	A44092
Xylenes, Total	ND	0.063		mg/Kg	1	7/10/2017 11:06:16 AM	A44092
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%Rec	1	7/10/2017 11:06:16 AM	A44092
Surr: 4-Bromofluorobenzene	88.2	70-130		%Rec	1	7/10/2017 11:06:16 AM	A44092
Surr: Dibromofluoromethane	92.7	70-130		%Rec	1	7/10/2017 11:06:16 AM	A44092
Surr: Toluene-d8	102	70-130		%Rec	1	7/10/2017 11:06:16 AM	A44092

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1707324

Date Reported: 7/11/2017

CLIENT: Rule Engineering LLC

Client Sample ID: SC-20

Project: WPX NW Lybrook 133H

Collection Date: 7/7/2017 1:20:00 PM

Lab ID: 1707324-003

Matrix: MEOH (SOIL)

Received Date: 7/8/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	3.1		mg/Kg	1	7/10/2017 11:35:29 AM	R44092
Surr: BFB	91.3	70-130		%Rec	1	7/10/2017 11:35:29 AM	R44092
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/10/2017 11:25:18 AM	32699
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/10/2017 11:25:18 AM	32699
Surr: DNOP	94.7	70-130		%Rec	1	7/10/2017 11:25:18 AM	32699
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.016		mg/Kg	1	7/10/2017 11:35:29 AM	A44092
Toluene	ND	0.031		mg/Kg	1	7/10/2017 11:35:29 AM	A44092
Ethylbenzene	ND	0.031		mg/Kg	1	7/10/2017 11:35:29 AM	A44092
Xylenes, Total	ND	0.063		mg/Kg	1	7/10/2017 11:35:29 AM	A44092
Surr: 1,2-Dichloroethane-d4	98.4	70-130		%Rec	1	7/10/2017 11:35:29 AM	A44092
Surr: 4-Bromofluorobenzene	91.4	70-130		%Rec	1	7/10/2017 11:35:29 AM	A44092
Surr: Dibromofluoromethane	95.7	70-130		%Rec	1	7/10/2017 11:35:29 AM	A44092
Surr: Toluene-d8	102	70-130		%Rec	1	7/10/2017 11:35:29 AM	A44092

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707324

Date Reported: 7/11/2017

CLIENT: Rule Engineering LLC**Client Sample ID:** SC-21**Project:** WPX NW Lybrook 133H**Collection Date:** 7/7/2017 1:25:00 PM**Lab ID:** 1707324-004**Matrix:** MEOH (SOIL)**Received Date:** 7/8/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	3.2		mg/Kg	1	7/10/2017 12:05:09 PM	R44092
Surr: BFB	89.6	70-130		%Rec	1	7/10/2017 12:05:09 PM	R44092
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/10/2017 11:47:30 AM	32699
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/10/2017 11:47:30 AM	32699
Surr: DNOP	93.6	70-130		%Rec	1	7/10/2017 11:47:30 AM	32699
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.016		mg/Kg	1	7/10/2017 12:05:09 PM	A44092
Toluene	ND	0.032		mg/Kg	1	7/10/2017 12:05:09 PM	A44092
Ethylbenzene	ND	0.032		mg/Kg	1	7/10/2017 12:05:09 PM	A44092
Xylenes, Total	ND	0.063		mg/Kg	1	7/10/2017 12:05:09 PM	A44092
Surr: 1,2-Dichloroethane-d4	96.3	70-130		%Rec	1	7/10/2017 12:05:09 PM	A44092
Surr: 4-Bromofluorobenzene	88.6	70-130		%Rec	1	7/10/2017 12:05:09 PM	A44092
Surr: Dibromofluoromethane	95.6	70-130		%Rec	1	7/10/2017 12:05:09 PM	A44092
Surr: Toluene-d8	107	70-130		%Rec	1	7/10/2017 12:05:09 PM	A44092

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

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

Analytical Report

Lab Order 1707324

Date Reported: 7/11/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-22

Project: WPX NW Lybrook 133H

Collection Date: 7/7/2017 1:30:00 PM

Lab ID: 1707324-005

Matrix: MEOH (SOIL)

Received Date: 7/8/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	3.0		mg/Kg	1	7/10/2017 12:34:39 PM	R44092
Surr: BFB	89.6	70-130		%Rec	1	7/10/2017 12:34:39 PM	R44092
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/10/2017 12:09:43 PM	32699
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/10/2017 12:09:43 PM	32699
Surr: DNOP	97.8	70-130		%Rec	1	7/10/2017 12:09:43 PM	32699
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.015		mg/Kg	1	7/10/2017 12:34:39 PM	A44092
Toluene	ND	0.030		mg/Kg	1	7/10/2017 12:34:39 PM	A44092
Ethylbenzene	ND	0.030		mg/Kg	1	7/10/2017 12:34:39 PM	A44092
Xylenes, Total	ND	0.061		mg/Kg	1	7/10/2017 12:34:39 PM	A44092
Surr: 1,2-Dichloroethane-d4	95.9	70-130		%Rec	1	7/10/2017 12:34:39 PM	A44092
Surr: 4-Bromofluorobenzene	91.4	70-130		%Rec	1	7/10/2017 12:34:39 PM	A44092
Surr: Dibromofluoromethane	95.1	70-130		%Rec	1	7/10/2017 12:34:39 PM	A44092
Surr: Toluene-d8	106	70-130		%Rec	1	7/10/2017 12:34:39 PM	A44092

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707324

Date Reported: 7/11/2017

CLIENT: Rule Engineering LLC**Client Sample ID:** SC-23**Project:** WPX NW Lybrook 133H**Collection Date:** 7/7/2017 1:32:00 PM**Lab ID:** 1707324-006**Matrix:** MEOH (SOIL)**Received Date:** 7/8/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	3.1		mg/Kg	1	7/10/2017 1:04:08 PM	R44092
Surr: BFB	91.3	70-130		%Rec	1	7/10/2017 1:04:08 PM	R44092
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	7/10/2017 12:31:52 PM	32699
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/10/2017 12:31:52 PM	32699
Surr: DNOP	97.0	70-130		%Rec	1	7/10/2017 12:31:52 PM	32699
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.015		mg/Kg	1	7/10/2017 1:04:08 PM	A44092
Toluene	ND	0.031		mg/Kg	1	7/10/2017 1:04:08 PM	A44092
Ethylbenzene	ND	0.031		mg/Kg	1	7/10/2017 1:04:08 PM	A44092
Xylenes, Total	ND	0.061		mg/Kg	1	7/10/2017 1:04:08 PM	A44092
Surr: 1,2-Dichloroethane-d4	99.4	70-130		%Rec	1	7/10/2017 1:04:08 PM	A44092
Surr: 4-Bromofluorobenzene	91.3	70-130		%Rec	1	7/10/2017 1:04:08 PM	A44092
Surr: Dibromofluoromethane	96.5	70-130		%Rec	1	7/10/2017 1:04:08 PM	A44092
Surr: Toluene-d8	108	70-130		%Rec	1	7/10/2017 1:04:08 PM	A44092

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707324

Date Reported: 7/11/2017

CLIENT: Rule Engineering LLC**Client Sample ID:** SC-24**Project:** WPX NW Lybrook 133H**Collection Date:** 7/7/2017 1:35:00 PM**Lab ID:** 1707324-007**Matrix:** MEOH (SOIL)**Received Date:** 7/8/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	3.1		mg/Kg	1	7/10/2017 1:33:46 PM	R44092
Surr: BFB	91.1	70-130		%Rec	1	7/10/2017 1:33:46 PM	R44092
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/10/2017 12:54:05 PM	32699
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/10/2017 12:54:05 PM	32699
Surr: DNOP	97.1	70-130		%Rec	1	7/10/2017 12:54:05 PM	32699
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.015		mg/Kg	1	7/10/2017 1:33:46 PM	A44092
Toluene	ND	0.031		mg/Kg	1	7/10/2017 1:33:46 PM	A44092
Ethylbenzene	ND	0.031		mg/Kg	1	7/10/2017 1:33:46 PM	A44092
Xylenes, Total	ND	0.061		mg/Kg	1	7/10/2017 1:33:46 PM	A44092
Surr: 1,2-Dichloroethane-d4	96.5	70-130		%Rec	1	7/10/2017 1:33:46 PM	A44092
Surr: 4-Bromofluorobenzene	94.2	70-130		%Rec	1	7/10/2017 1:33:46 PM	A44092
Surr: Dibromofluoromethane	96.8	70-130		%Rec	1	7/10/2017 1:33:46 PM	A44092
Surr: Toluene-d8	108	70-130		%Rec	1	7/10/2017 1:33:46 PM	A44092

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

Qualifiers:	<ul style="list-style-type: none">* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to MatrixH Holding times for preparation or analysis exceededND Not Detected at the Reporting LimitPQL Practical Quantitative LimitS % Recovery outside of range due to dilution or matrix	<ul style="list-style-type: none">B Analyte detected in the associated Method BlankE Value above quantitation rangeJ Analyte detected below quantitation limitsP Sample pH Not In RangeRL Reporting Detection LimitW Sample container temperature is out of limit as specified
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707324

11-Jul-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	LCS-32699		SampType:	LCS		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	LCSS		Batch ID:	32699		RunNo:	44080				
Prep Date:	7/10/2017		Analysis Date:	7/10/2017		SeqNo:	1391037		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	96.3	73.2	114				
Surr: DNOP	4.3		5.000		85.8	70	130				

Sample ID	MB-32699	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32699	RunNo:	44080					
Prep Date:	7/10/2017	Analysis Date:	7/10/2017	SeqNo:	1391038	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		87.2	70	130			

Sample ID	LCS-32681		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 32681		RunNo: 44081					
Prep Date:	7/7/2017		Analysis Date: 7/10/2017		SeqNo: 1391339		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		99.3	70	130			

Sample ID	MB-32681		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 32681		RunNo: 44081					
Prep Date:	7/7/2017		Analysis Date: 7/10/2017		SeqNo: 1391340		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.2		10.00		91.6	70	130			

Sample ID	1707324-001AMS		SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	SC-18		Batch ID: 32699		RunNo: 44080					
Prep Date:	7/10/2017		Analysis Date: 7/10/2017		SeqNo: 1391377		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.4	46.82	2.245	94.5	55.8	122			
Surr: DNOP	4.0		4.682		84.7	70	130			

Sample ID	1707324-001AMSD		SampType: MSD		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	SC-18		Batch ID: 32699		RunNo: 44080					
Prep Date:	7/10/2017		Analysis Date: 7/10/2017		SeqNo: 1391378		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.6	47.85	2.245	92.9	55.8	122	0.452	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707324

11-Jul-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	1707324-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	SC-18	Batch ID:	32699	RunNo:	44080					
Prep Date:	7/10/2017	Analysis Date:	7/10/2017	SeqNo:	1391378	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		4.785		82.6	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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707324

11-Jul-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	PBS	Batch ID:	A44092	RunNo:	44092					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391308	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		97.5	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.3	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.8	70	130			
Surr: Toluene-d8	0.46		0.5000		92.7	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	LCSS	Batch ID:	A44092	RunNo:	44092					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391309	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.4	70	130			
Toluene	0.91	0.050	1.000	0	91.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		95.0	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.0	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		91.2	70	130			
Surr: Toluene-d8	0.44		0.5000		87.3	70	130			

Sample ID	1707324-002ams	SampType:	MS	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	SC-19	Batch ID:	A44092	RunNo:	44092					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391833	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.64	0.016	0.6317	0.007277	99.9	61.9	146			
Toluene	0.67	0.032	0.6317	0.006917	105	70	130			
Surr: 1,2-Dichloroethane-d4	0.31		0.3158		97.0	70	130			
Surr: 4-Bromofluorobenzene	0.30		0.3158		95.6	70	130			
Surr: Dibromofluoromethane	0.31		0.3158		98.3	70	130			
Surr: Toluene-d8	0.34		0.3158		107	70	130			

Sample ID	1707324-002amsd	SampType:	MSD	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	SC-19	Batch ID:	A44092	RunNo:	44092					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391834	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.62	0.016	0.6317	0.007277	97.5	61.9	146	2.41	20	
Toluene	0.65	0.032	0.6317	0.006917	101	70	130	3.51	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707324

11-Jul-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	1707324-002amsd	SampType:	MSD	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	SC-19	Batch ID:	A44092	RunNo:	44092					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391834	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.31		0.3158		97.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.30		0.3158		95.4	70	130	0	0	
Surr: Dibromofluoromethane	0.32		0.3158		100	70	130	0	0	
Surr: Toluene-d8	0.33		0.3158		105	70	130	0	0	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707324

11-Jul-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID:	PBS	Batch ID: R44092			RunNo: 44092					
Prep Date:		Analysis Date: 7/10/2017			SeqNo: 1391318		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

480

500.0

95.4

70

130

Sample ID	1707324-001ams	SampType:	MS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	SC-18	Batch ID:	R44092	RunNo:	44092					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391830	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

19

3.3

16.49

0.7322

111

63.2

128

Surr: BFB

300

329.8

91.1

70

130

Sample ID	1707324-001amsd	SampType:	MSD	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	SC-18	Batch ID:	R44092	RunNo:	44092					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391831	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

19

3.3

16.49

0.7322

108

63.2

128

Surr: BFB

290

329.8

86.5

70

130

2.60

20

0

0

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	LCSS	Batch ID:	R44092	RunNo:	44092					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391832	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

24

5.0

25.00

0

96.4

70

130

Surr: BFB

460

500.0

91.7

70

130

Qualifiers:

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

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



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: RULE ENGINEERING LL

Work Order Number: 1707324

RcptNo: 1

Received By: Andy Freeman

7/8/2017 9:30:00 AM

Completed By: Ashley Gallegos

7/9/2017 1:01:59 PM

Reviewed By:

[Signature]

7/10/17

[Signature]

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

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

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering

Mailing Address: 501 Airport Dr, Ste 205
Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

QA/QC Package: Deborah. Watson@wpxenrgy.com

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standard ☒ Rush Same Day

Project Name:

WPX NW Lybrook #133H

Project #:

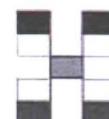
Project Manager:

Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.1°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 #	Preservative Type	HEAL No.	BTEX + MTBE + TPH (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)
7/7/17	1316	Soil	SC-18	MUD Kit (1) 402 Gals	Met# / non	-001	X	X										
7/7/17	1315	Soil	SC-19	I	I	-002	X	X										
7/7/17	1320	Soil	SC-20	I	I	-003	X	X										
7/7/17	1325	Soil	SC-21	I	I	-004	X	X										
7/7/17	1330	Soil	SC-22	I	I	-005	X	X										
7/7/17	1332	Soil	SC-23	I	I	-006	X	X										
7/7/17	1335	Soil	SC-24	I	I	-007	X	X										
NFS HW																		

Date: _____ Time: _____ Relinquished by: _____

Received by: _____ Date: 7/8/17 Time: 0930

Remarks: Direct Bill to WPX

Date: _____ Time: _____ Relinquished by: _____

Received by: _____ Date: _____ Time: _____

Attn: Debbie Watson



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

July 11, 2017

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205
Farmington, NM 87401
TEL: (505) 860-2712
FAX

RE: WPX NW Lybrook 133H

OrderNo.: 1707325

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/8/2017 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.

Analytical Report

Lab Order 1707325

Date Reported: 7/11/2017

CLIENT: Rule Engineering LLC

Client Sample ID: TSP-19

Project: WPX NW Lybrook 133H

Collection Date: 7/7/2017 2:15:00 PM

Lab ID: 1707325-001

Matrix: MEOH (SOIL)

Received Date: 7/8/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	40	9.5		mg/Kg	1	7/10/2017 9:56:48 AM	32699
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/10/2017 9:56:48 AM	32699
Surr: DNOP	102	70-130		%Rec	1	7/10/2017 9:56:48 AM	32699
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.1		mg/Kg	1	7/10/2017 10:31:50 AM	32679
Surr: BFB	117	54-150		%Rec	1	7/10/2017 10:31:50 AM	32679
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.015		mg/Kg	1	7/10/2017 10:31:50 AM	32679
Toluene	ND	0.031		mg/Kg	1	7/10/2017 10:31:50 AM	32679
Ethylbenzene	ND	0.031		mg/Kg	1	7/10/2017 10:31:50 AM	32679
Xylenes, Total	ND	0.061		mg/Kg	1	7/10/2017 10:31:50 AM	32679
Surr: 4-Bromofluorobenzene	133	66.6-132	S	%Rec	1	7/10/2017 10:31:50 AM	32679

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707325

Date Reported: 7/11/2017

CLIENT: Rule Engineering LLC**Client Sample ID:** TSP-20**Project:** WPX NW Lybrook 133H**Collection Date:** 7/7/2017 2:24:00 PM**Lab ID:** 1707325-002**Matrix:** MEOH (SOIL)**Received Date:** 7/8/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	43	9.6		mg/Kg	1	7/10/2017 10:18:52 AM	32699
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/10/2017 10:18:52 AM	32699
Surr: DNOP	108	70-130		%Rec	1	7/10/2017 10:18:52 AM	32699
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.2		mg/Kg	1	7/10/2017 10:55:52 AM	32679
Surr: BFB	111	54-150		%Rec	1	7/10/2017 10:55:52 AM	32679
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.016		mg/Kg	1	7/10/2017 10:55:52 AM	32679
Toluene	ND	0.032		mg/Kg	1	7/10/2017 10:55:52 AM	32679
Ethylbenzene	ND	0.032		mg/Kg	1	7/10/2017 10:55:52 AM	32679
Xylenes, Total	ND	0.065		mg/Kg	1	7/10/2017 10:55:52 AM	32679
Surr: 4-Bromofluorobenzene	130	66.6-132		%Rec	1	7/10/2017 10:55:52 AM	32679

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707325

11-Jul-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	LCS-32699		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 32699		RunNo: 44080					
Prep Date:	7/10/2017		Analysis Date: 7/10/2017		SeqNo: 1391037		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	96.3	73.2	114			
Surr: DNOP	4.3		5.000		85.8	70	130			

Sample ID	MB-32699	SampType:		MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics				
Client ID:	PBS	Batch ID:		32699		RunNo: 44080				
Prep Date:	7/10/2017	Analysis Date:		7/10/2017		SeqNo: 1391038		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		87.2	70	130			

Sample ID	LCS-32681		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 32681		RunNo: 44081					
Prep Date:	7/7/2017		Analysis Date: 7/10/2017		SeqNo: 1391339		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		99.3	70	130			

Sample ID	MB-32681		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 32681		RunNo: 44081					
Prep Date:	7/7/2017		Analysis Date: 7/10/2017		SeqNo: 1391340		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.2		10.00		91.6	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 Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707325

11-Jul-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	MB-32679	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	32679	RunNo:	44090					
Prep Date:	7/7/2017	Analysis Date:	7/10/2017	SeqNo:	1391590	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	990		1000		98.9	54	150			

Sample ID	LCS-32679	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	32679	RunNo:	44090					
Prep Date:	7/7/2017	Analysis Date:	7/10/2017	SeqNo:	1391591	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.1	76.4	125			
Surr: BFB	1100		1000		114	54	150			

Sample ID	1707325-001AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	TSP-19	Batch ID:	32679	RunNo:	44090					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391592	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)	15	3.1	15.30	0	100	77.8	128			
Surr: BFB	810		612.0		133	54	150			

Sample ID	1707325-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	TSP-19	Batch ID:	32679	RunNo:	44090					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391593	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)	15	3.1	15.30	0	99.8	77.8	128	0.320	20	
Surr: BFB	780		612.0		128	54	150	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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707325

11-Jul-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	MB-32679	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	32679	RunNo:	44090					
Prep Date:	7/7/2017	Analysis Date:	7/10/2017	SeqNo:	1391609	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.3		1.000		131	66.6	132			

Sample ID	LCS-32679	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	32679	RunNo:	44090					
Prep Date:	7/7/2017	Analysis Date:	7/10/2017	SeqNo:	1391610	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	115	80	120			
Toluene	1.2	0.050	1.000	0	116	80	120			
Ethylbenzene	1.2	0.050	1.000	0	116	80	120			
Xylenes, Total	3.6	0.10	3.000	0	119	80	120			
Surr: 4-Bromofluorobenzene	1.4		1.000		136	66.6	132			S

Sample ID	1707325-002AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	TSP-20	Batch ID:	32679	RunNo:	44090					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391611	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.68	0.016	0.6456	0	105	80.9	132			
Toluene	0.69	0.032	0.6456	0	107	79.8	136			
Ethylbenzene	0.70	0.032	0.6456	0.006585	107	79.4	140			
Xylenes, Total	2.1	0.065	1.937	0	108	78.5	142			
Surr: 4-Bromofluorobenzene	0.90		0.6456		139	66.6	132			S

Sample ID	1707325-002AMSD	SampType:	MSD	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	TSP-20	Batch ID:	32679	RunNo:	44090					
Prep Date:		Analysis Date:	7/10/2017	SeqNo:	1391612	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.66	0.016	0.6456	0	103	80.9	132	2.37	20	
Toluene	0.68	0.032	0.6456	0	106	79.8	136	0.902	20	
Ethylbenzene	0.68	0.032	0.6456	0.006585	105	79.4	140	1.71	20	
Xylenes, Total	2.1	0.065	1.937	0	107	78.5	142	1.05	20	
Surr: 4-Bromofluorobenzene	0.86		0.6456		134	66.6	132	0	0	S

Qualifiers:

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



Hall Environmental Analysis Laboratory
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: RULE ENGINEERING LL

Work Order Number: 1707325

RcptNo: 1

Received By: Andy Freeman

7/8/2017 9:30:00 AM

Completed By: Ashley Gallegos

7/9/2017 1:06:37 PM

Reviewed By: *[Signature]*

7/10/17

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

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

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Yes			

Client: Rule Engineering

Mailing Address: 501 Airport Dr. Ste 205
Farmington NM 87401

Phone #: (505) 716-2787

email or Fax#: hunnels@ruleengineering.com
Deborah.Watson@wpengineering.com

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

Accreditation
☒ NELAP ☐ Other

☒ EDD (Type)

<input checked="" type="checkbox"/> Standard	<input checked="" type="checkbox"/> Rush	Same Day
Project Name: NEU		
WPX Lybrook #133H		
Project #:		
Project Manager:		
Heather Woods		
Sampler: Heather Woods		
On Ice:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Sample Temperature: 3.7°C		



www.hallenvironmental.com

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

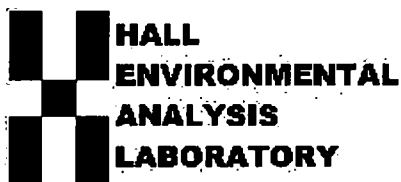
	X	BTEX + MTBE + TPH s (8021)
		BTEX + MTBE + TPH (Gas only)
	X	TPH 8015B (GRO / DRO / MRO)
		TPH (Method 418.1)
		EDB (Method 504.1)
		PAH's (8310 or 8270 SIMS)
		RCRA 8 Metals
		Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)
		8081 Pesticides / 8082 PCB's
		8260B (VOA)
		8270 (Semi-VOA)
		Air Bubbles (Y or N)

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
4/4/17	1415	Soil	TSP-19	MeOH 80% (15402 Class)	MeOH/ non	1707325 -001
4/7/17	1424	Soil	TSP-20	1	1	-002
10/15/17						

Date: 7/19/17	Time:	Relinquished by: Heath M. Woods	Received by: [Signature]	Date: 7/18/17	Time: 0930
Date:	Time:	Relinquished by:	Received by:	Date:	Time:

Remarks:
Direct Bill to WEX
Attn: Debbie Watson

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 noted on the analytical report.



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

July 03, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit #133H Well Pad

OrderNo.: 1706F84

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/30/2017 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.

Analytical Report

Lab Order 1706F84

Date Reported: 7/3/2017

CLIENT: WPX Energy

Client Sample ID: TSP-11R (A)

Project: NW Lybrook Unit #133H Well Pad

Collection Date: 6/29/2017 1:33:00 PM

Lab ID: 1706F84-001

Matrix: SOIL

Received Date: 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	20		mg/Kg	5	6/30/2017 11:02:47 AM	A43928
Surr: BFB	100	70-130		%Rec	5	6/30/2017 11:02:47 AM	A43928
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	64	9.7		mg/Kg	1	6/30/2017 10:30:58 AM	32581
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/30/2017 10:30:58 AM	32581
Surr: DNOP	91.9	70-130		%Rec	1	6/30/2017 10:30:58 AM	32581
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.099		mg/Kg	5	6/30/2017 11:02:47 AM	R43928
Toluene	ND	0.20		mg/Kg	5	6/30/2017 11:02:47 AM	R43928
Ethylbenzene	ND	0.20		mg/Kg	5	6/30/2017 11:02:47 AM	R43928
Xylenes, Total	ND	0.39		mg/Kg	5	6/30/2017 11:02:47 AM	R43928
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	5	6/30/2017 11:02:47 AM	R43928
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	5	6/30/2017 11:02:47 AM	R43928
Surr: Dibromofluoromethane	106	70-130		%Rec	5	6/30/2017 11:02:47 AM	R43928
Surr: Toluene-d8	101	70-130		%Rec	5	6/30/2017 11:02:47 AM	R43928

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706F84

Date Reported: 7/3/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-11R (B)**Project:** NW Lybrook Unit #133H Well Pad**Collection Date:** 6/29/2017 1:38:00 PM**Lab ID:** 1706F84-002**Matrix:** SOIL**Received Date:** 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	16		mg/Kg	5	6/30/2017 11:31:59 AM	A43928
Surr: BFB	99.2	70-130		%Rec	5	6/30/2017 11:31:59 AM	A43928
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	110	9.5		mg/Kg	1	6/30/2017 10:59:14 AM	32581
Motor Oil Range Organics (MRO)	49	48		mg/Kg	1	6/30/2017 10:59:14 AM	32581
Surr: DNOP	94.1	70-130		%Rec	1	6/30/2017 10:59:14 AM	32581
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.082		mg/Kg	5	6/30/2017 11:31:59 AM	R43928
Toluene	ND	0.16		mg/Kg	5	6/30/2017 11:31:59 AM	R43928
Ethylbenzene	ND	0.16		mg/Kg	5	6/30/2017 11:31:59 AM	R43928
Xylenes, Total	ND	0.33		mg/Kg	5	6/30/2017 11:31:59 AM	R43928
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	5	6/30/2017 11:31:59 AM	R43928
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	5	6/30/2017 11:31:59 AM	R43928
Surr: Dibromofluoromethane	103	70-130		%Rec	5	6/30/2017 11:31:59 AM	R43928
Surr: Toluene-d8	100	70-130		%Rec	5	6/30/2017 11:31:59 AM	R43928

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706F84

Date Reported: 7/3/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-11R (C)**Project:** NW Lybrook Unit #133H Well Pad**Collection Date:** 6/29/2017 1:41:00 PM**Lab ID:** 1706F84-003**Matrix:** SOIL**Received Date:** 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	20		mg/Kg	5	6/30/2017 12:01:15 PM	A43928
Surr: BFB	95.9	70-130		%Rec	5	6/30/2017 12:01:15 PM	A43928
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	82	9.5		mg/Kg	1	6/30/2017 11:27:16 AM	32581
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/30/2017 11:27:16 AM	32581
Surr: DNOP	95.1	70-130		%Rec	1	6/30/2017 11:27:16 AM	32581
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.098		mg/Kg	5	6/30/2017 12:01:15 PM	R43928
Toluene	ND	0.20		mg/Kg	5	6/30/2017 12:01:15 PM	R43928
Ethylbenzene	ND	0.20		mg/Kg	5	6/30/2017 12:01:15 PM	R43928
Xylenes, Total	ND	0.39		mg/Kg	5	6/30/2017 12:01:15 PM	R43928
Surr: 1,2-Dichloroethane-d4	99.0	70-130		%Rec	5	6/30/2017 12:01:15 PM	R43928
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	5	6/30/2017 12:01:15 PM	R43928
Surr: Dibromofluoromethane	102	70-130		%Rec	5	6/30/2017 12:01:15 PM	R43928
Surr: Toluene-d8	97.9	70-130		%Rec	5	6/30/2017 12:01:15 PM	R43928

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706F84

Date Reported: 7/3/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-11R (D)**Project:** NW Lybrook Unit #133H Well Pad**Collection Date:** 6/29/2017 1:44:00 PM**Lab ID:** 1706F84-004**Matrix:** SOIL**Received Date:** 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	21		mg/Kg	5	6/30/2017 12:30:32 PM	A43928
Surr: BFB	94.1	70-130		%Rec	5	6/30/2017 12:30:32 PM	A43928
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	120	9.9		mg/Kg	1	6/30/2017 11:55:17 AM	32581
Motor Oil Range Organics (MRO)	60	50		mg/Kg	1	6/30/2017 11:55:17 AM	32581
Surr: DNOP	94.9	70-130		%Rec	1	6/30/2017 11:55:17 AM	32581
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.10		mg/Kg	5	6/30/2017 12:30:32 PM	R43928
Toluene	ND	0.21		mg/Kg	5	6/30/2017 12:30:32 PM	R43928
Ethylbenzene	ND	0.21		mg/Kg	5	6/30/2017 12:30:32 PM	R43928
Xylenes, Total	ND	0.41		mg/Kg	5	6/30/2017 12:30:32 PM	R43928
Surr: 1,2-Dichloroethane-d4	110	70-130		%Rec	5	6/30/2017 12:30:32 PM	R43928
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	5	6/30/2017 12:30:32 PM	R43928
Surr: Dibromofluoromethane	107	70-130		%Rec	5	6/30/2017 12:30:32 PM	R43928
Surr: Toluene-d8	99.7	70-130		%Rec	5	6/30/2017 12:30:32 PM	R43928

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1706F84

Date Reported: 7/3/2017

CLIENT: WPX Energy

Client Sample ID: TSP-11R (E)

Project: NW Lybrook Unit #133H Well Pad

Collection Date: 6/29/2017 1:48:00 PM

Lab ID: 1706F84-005

Matrix: SOIL

Received Date: 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	20		mg/Kg	5	6/30/2017 1:00:00 PM	A43928
Surr: BFB	98.0	70-130		%Rec	5	6/30/2017 1:00:00 PM	A43928
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	85	10		mg/Kg	1	6/30/2017 12:23:23 PM	32581
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/30/2017 12:23:23 PM	32581
Surr: DNOP	96.4	70-130		%Rec	1	6/30/2017 12:23:23 PM	32581
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.099		mg/Kg	5	6/30/2017 1:00:00 PM	R43928
Toluene	ND	0.20		mg/Kg	5	6/30/2017 1:00:00 PM	R43928
Ethylbenzene	ND	0.20		mg/Kg	5	6/30/2017 1:00:00 PM	R43928
Xylenes, Total	ND	0.40		mg/Kg	5	6/30/2017 1:00:00 PM	R43928
Surr: 1,2-Dichloroethane-d4	111	70-130		%Rec	5	6/30/2017 1:00:00 PM	R43928
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	5	6/30/2017 1:00:00 PM	R43928
Surr: Dibromofluoromethane	107	70-130		%Rec	5	6/30/2017 1:00:00 PM	R43928
Surr: Toluene-d8	100	70-130		%Rec	5	6/30/2017 1:00:00 PM	R43928

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F84

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	MB-32573	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32573	RunNo:	43910					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384022	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.8		10.00		97.8	70	130			

Sample ID	LCS-32573	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32573	RunNo:	43910					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384023	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		91.7	70	130			

Sample ID	MB-32581	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32581	RunNo:	43908					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384676	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	11		10.00		110	70	130			

Sample ID	LCS-32581	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32581	RunNo:	43908					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384677	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	91.6	73.2	114			
Surr: DNOP	5.1		5.000		101	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F84

03-Jul-17

Client: WPX Energy
Project: NW Lybrook Unit #133H Well Pad

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	PBS	Batch ID:	R43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1384975	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.54		0.5000		108	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		107	70	130			
Surr: Dibromofluoromethane	0.50		0.5000		99.1	70	130			
Surr: Toluene-d8	0.50		0.5000		99.6	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	LCSS	Batch ID:	R43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1384976	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	1.1	0.025	1.000	0	105	70	130			
Toluene	1.0	0.050	1.000	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		104	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.4	70	130			
Surr: Toluene-d8	0.47		0.5000		94.9	70	130			

Sample ID	1706f84-001ams	SampType:	MS	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	TSP-11R (A)	Batch ID:	R43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385532	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	3.9	0.099	3.943	0	98.5	61.9	146			
Toluene	3.7	0.20	3.943	0	93.0	70	130			
Surr: 1,2-Dichloroethane-d4	2.0		1.972		102	70	130			
Surr: 4-Bromofluorobenzene	2.2		1.972		112	70	130			
Surr: Dibromofluoromethane	2.1		1.972		108	70	130			
Surr: Toluene-d8	2.0		1.972		99.4	70	130			

Sample ID	1706f84-001amsd	SampType:	MSD	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	TSP-11R (A)	Batch ID:	R43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385533	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	3.8	0.099	3.943	0	97.0	61.9	146	1.47	20	
Toluene	3.4	0.20	3.943	0	86.3	70	130	7.43	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F84

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	1706f84-001amsd	SampType:	MSD	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	TSP-11R (A)	Batch ID:	R43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385533	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	2.0		1.972		99.6	70	130	0	0	
Surr: 4-Bromofluorobenzene	2.0		1.972		102	70	130	0	0	
Surr: Dibromofluoromethane	2.1		1.972		105	70	130	0	0	
Surr: Toluene-d8	1.9		1.972		97.6	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 Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F84

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	PBS	Batch ID:	A43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1384987	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

520

500.0

104

70

130

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	LCSS	Batch ID:	A43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385531	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

23

5.0

25.00

0

90.7

70

130

Surr: BFB

520

500.0

103

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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |



Hall Environmental Analysis Laboratory
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: WPX ENERGY

Work Order Number: 1708F84

RcptNo: 1

Received By: Anne Thorne

6/30/2017 7:00:00 AM

Anne Thorne

Completed By: Anne Thorne

6/30/2017 7:40:00 AM

Anne Thorne

Reviewed By:

AT

6/30/17

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

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

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Client: WPX Energy

Mailing Address: 8721 S Main
Aztec NM 87410

Phone #: 505 333 1880

email or Fax#: ddonah.watson@wpxenergy.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

<input type="checkbox"/> Standard <input checked="" type="checkbox"/> Rush <u>Same day</u>	
Project Name:	NW Lybrook Unit #133H well Pad
Project #:	

Project Manager:

Sampler: D Watson

Office: ☒ Yes, ☐ No

Sample Temperature	
--------------------	--

Container Type and #	Preservative Type
-------------------------	----------------------

HEAL No.

BTX + ~~XXXX~~ + ~~XXXX~~ (8021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B GROUNDWATER MONITORING SYSTEM - WHITE WITH (Gas Only)

TPH (Method 418.1)

ENB (Method 504.1)

BAH's (8310 or 8270 SIMS)

PCPA & Metals

Anions (F, Cl, NO₃, PO₄, SO₄)

8081 Bastiendes / 8082 PCB's

3360B (VCA)

3200B (VGA)

0270 (38111-VOA)

1000

[illegible]

Air Bubbles (Y or N)

[REDACTED]

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

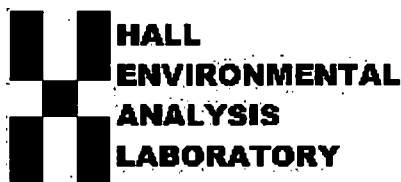
Analysis Request

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/29/17	1720	Alondra Watson	[Signature]	6/29/17	1720
Date:	Time:	Relinquished by:	Received by:	Date	Time
6/29/17	1841	N.W. Watson	[Signature]	06/30/17	1700

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.



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

July 03, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit #133H Well Pad

OrderNo.: 1706F83

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/30/2017 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.

Analytical Report

Lab Order 1706F83

Date Reported: 7/3/2017

CLIENT: WPX Energy

Client Sample ID: SC-11R

Project: NW Lybrook Unit #133H Well Pad

Collection Date: 6/29/2017 2:05:00 PM

Lab ID: 1706F83-001

Matrix: SOIL

Received Date: 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	11	10		mg/Kg	1	6/30/2017 11:44:54 AM	32581
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/30/2017 11:44:54 AM	32581
Surr: DNOP	105	70-130		%Rec	1	6/30/2017 11:44:54 AM	32581
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	22		mg/Kg	5	6/30/2017 11:24:18 AM	G43930
Surr: BFB	102	54-150		%Rec	5	6/30/2017 11:24:18 AM	G43930
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.11		mg/Kg	5	6/30/2017 11:24:18 AM	B43930
Toluene	0.31	0.22		mg/Kg	5	6/30/2017 11:24:18 AM	B43930
Ethylbenzene	ND	0.22		mg/Kg	5	6/30/2017 11:24:18 AM	B43930
Xylenes, Total	ND	0.44		mg/Kg	5	6/30/2017 11:24:18 AM	B43930
Surr: 4-Bromofluorobenzene	96.2	66.6-132		%Rec	5	6/30/2017 11:24:18 AM	B43930

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706F83

Date Reported: 7/3/2017

CLIENT: WPX Energy**Client Sample ID:** SC-13R**Project:** NW Lybrook Unit #133H Well Pad**Collection Date:** 6/29/2017 2:31:00 PM**Lab ID:** 1706F83-002**Matrix:** SOIL**Received Date:** 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/30/2017 12:07:19 PM	32581
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/30/2017 12:07:19 PM	32581
Surr: DNOP	107	70-130		%Rec	1	6/30/2017 12:07:19 PM	32581
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	20		mg/Kg	5	6/30/2017 11:47:56 AM	G43930
Surr: BFB	101	54-150		%Rec	5	6/30/2017 11:47:56 AM	G43930
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.098		mg/Kg	5	6/30/2017 11:47:56 AM	B43930
Toluene	ND	0.20		mg/Kg	5	6/30/2017 11:47:56 AM	B43930
Ethylbenzene	ND	0.20		mg/Kg	5	6/30/2017 11:47:56 AM	B43930
Xylenes, Total	ND	0.39		mg/Kg	5	6/30/2017 11:47:56 AM	B43930
Surr: 4-Bromofluorobenzene	94.7	66.6-132		%Rec	5	6/30/2017 11:47:56 AM	B43930

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1706F83

Date Reported: 7/3/2017

CLIENT: WPX Energy

Client Sample ID: SC-15

Project: NW Lybrook Unit #133H Well Pad

Collection Date: 6/29/2017 2:43:00 PM

Lab ID: 1706F83-003

Matrix: SOIL

Received Date: 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/30/2017 12:29:28 PM	32581
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/30/2017 12:29:28 PM	32581
Surr: DNOP	106	70-130		%Rec	1	6/30/2017 12:29:28 PM	32581
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	20		mg/Kg	5	6/30/2017 12:11:40 PM	G43930
Surr: BFB	103	54-150		%Rec	5	6/30/2017 12:11:40 PM	G43930
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.098		mg/Kg	5	6/30/2017 12:11:40 PM	B43930
Toluene	ND	0.20		mg/Kg	5	6/30/2017 12:11:40 PM	B43930
Ethylbenzene	ND	0.20		mg/Kg	5	6/30/2017 12:11:40 PM	B43930
Xylenes, Total	ND	0.39		mg/Kg	5	6/30/2017 12:11:40 PM	B43930
Surr: 4-Bromofluorobenzene	96.6	66.6-132		%Rec	5	6/30/2017 12:11:40 PM	B43930

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706F83

Date Reported: 7/3/2017

CLIENT: WPX Energy**Client Sample ID:** SC-16**Project:** NW Lybrook Unit #133H Well Pad**Collection Date:** 6/29/2017 2:10:00 PM**Lab ID:** 1706F83-004**Matrix:** SOIL**Received Date:** 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	11	9.2		mg/Kg	1	6/30/2017 1:03:16 PM	32581
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/30/2017 1:03:16 PM	32581
Surr: DNOP	107	70-130		%Rec	1	6/30/2017 1:03:16 PM	32581
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	22		mg/Kg	5	6/30/2017 12:35:20 PM	G43930
Surr: BFB	100	54-150		%Rec	5	6/30/2017 12:35:20 PM	G43930
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.11		mg/Kg	5	6/30/2017 12:35:20 PM	B43930
Toluene	ND	0.22		mg/Kg	5	6/30/2017 12:35:20 PM	B43930
Ethylbenzene	ND	0.22		mg/Kg	5	6/30/2017 12:35:20 PM	B43930
Xylenes, Total	ND	0.44		mg/Kg	5	6/30/2017 12:35:20 PM	B43930
Surr: 4-Bromofluorobenzene	94.9	66.6-132		%Rec	5	6/30/2017 12:35:20 PM	B43930

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706F83

Date Reported: 7/3/2017

CLIENT: WPX Energy**Client Sample ID:** SC-17**Project:** NW Lybrook Unit #133H Well Pad**Collection Date:** 6/29/2017 2:19:00 PM**Lab ID:** 1706F83-005**Matrix:** SOIL**Received Date:** 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	21		mg/Kg	5	6/30/2017 10:33:25 AM	A43928
Surr: BFB	100	70-130		%Rec	5	6/30/2017 10:33:25 AM	A43928
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/30/2017 12:51:32 PM	32581
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/30/2017 12:51:32 PM	32581
Surr: DNOP	88.9	70-130		%Rec	1	6/30/2017 12:51:32 PM	32581
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.10		mg/Kg	5	6/30/2017 10:33:25 AM	R43928
Toluene	ND	0.21		mg/Kg	5	6/30/2017 10:33:25 AM	R43928
Ethylbenzene	ND	0.21		mg/Kg	5	6/30/2017 10:33:25 AM	R43928
Xylenes, Total	ND	0.41		mg/Kg	5	6/30/2017 10:33:25 AM	R43928
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	5	6/30/2017 10:33:25 AM	R43928
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	5	6/30/2017 10:33:25 AM	R43928
Surr: Dibromofluoromethane	96.8	70-130		%Rec	5	6/30/2017 10:33:25 AM	R43928
Surr: Toluene-d8	100	70-130		%Rec	5	6/30/2017 10:33:25 AM	R43928

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F83

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	MB-32573	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32573	RunNo:	43910					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384022	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.8		10.00		97.8	70	130			

Sample ID	LCS-32573	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32573	RunNo:	43910					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384023	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		91.7	70	130			

Sample ID	MB-32581	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32581	RunNo:	43908					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384676	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	11		10.00		110	70	130			

Sample ID	LCS-32581	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32581	RunNo:	43908					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384677	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	91.6	73.2	114			
Surr: DNOP	5.1		5.000		101	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F83

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	G43930	RunNo:	43930					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385181	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		101	54	150			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	G43930	RunNo:	43930					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385182	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.3	76.4	125			
Surr: BFB	1100		1000		111	54	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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F83

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	B43930	RunNo:	43930					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385187	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	0.95		1.000		95.0	66.6	132			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	B43930	RunNo:	43930					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385188	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.9	80	120			
Toluene	0.93	0.050	1.000	0	93.4	80	120			
Ethylbenzene	0.92	0.050	1.000	0	91.8	80	120			
Xylenes, Total	2.7	0.10	3.000	0	91.3	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.2	66.6	132			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F83

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID rb	SampType: MBLK		TestCode: EPA Method 8260B: Volatiles Short List							
Client ID: PBS	Batch ID: R43928		RunNo: 43928							
Prep Date:	Analysis Date: 6/30/2017		SeqNo: 1384975		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.54		0.5000		108	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		107	70	130			
Surr: Dibromofluoromethane	0.50		0.5000		99.1	70	130			
Surr: Toluene-d8	0.50		0.5000		99.6	70	130			

Sample ID 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: Volatiles Short List							
Client ID: LCSS	Batch ID: R43928		RunNo: 43928							
Prep Date:	Analysis Date: 6/30/2017		SeqNo: 1384976		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	105	70	130			
Toluene	1.0	0.050	1.000	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		104	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.4	70	130			
Surr: Toluene-d8	0.47		0.5000		94.9	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 Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F83

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	PBS	Batch ID:	A43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1384987	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	520		500.0		104	70	130			

Sample ID	1706f83-005ams	SampType:	MS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	SC-17	Batch ID:	A43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385529	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	110	21	103.7	9.019	99.3	63.2	128			
Surr: BFB	2000		2075		98.5	70	130			

Sample ID	1706f83-005amsd	SampType:	MSD	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	SC-17	Batch ID:	A43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385530	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	110	21	103.7	9.019	93.4	63.2	128	5.60	20	
Surr: BFB	2000		2075		96.6	70	130	0	0	

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	LCSS	Batch ID:	A43928	RunNo:	43928					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385531	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.7	70	130			
Surr: BFB	520		500.0		103	70	130			

Qualifiers:

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

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



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

Sample Log-In Check List

Client Name: WPX ENERGY

Work Order Number: 1706F83

RcptNo: 1

Received By: Anne Thorne

6/30/2017 7:00:00 AM

Anne Thorne

Completed By: Anne Thorne

6/30/2017 7:33:02 AM

Anne Thorne

Reviewed By: *AT*

6/30/17

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

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

Special Handling (If applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



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

July 03, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit #133H Well Pad

OrderNo.: 1706F82

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 6/30/2017 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.**Analytical Report**

Lab Order 1706F82

Date Reported: 7/3/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-1R**Project:** NW Lybrook Unit #133H Well Pad**Collection Date:** 6/29/2017 1:20:00 PM**Lab ID:** 1706F82-001**Matrix:** SOIL**Received Date:** 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	16	9.1		mg/Kg	1	6/30/2017 11:21:49 AM	32581
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	6/30/2017 11:21:49 AM	32581
Surr: DNOP	108	70-130		%Rec	1	6/30/2017 11:21:49 AM	32581
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	17		mg/Kg	5	6/30/2017 9:49:33 AM	G43930
Surr: BFB	107	54-150		%Rec	5	6/30/2017 9:49:33 AM	G43930
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.084		mg/Kg	5	6/30/2017 9:49:33 AM	B43930
Toluene	ND	0.17		mg/Kg	5	6/30/2017 9:49:33 AM	B43930
Ethylbenzene	ND	0.17		mg/Kg	5	6/30/2017 9:49:33 AM	B43930
Xylenes, Total	ND	0.34		mg/Kg	5	6/30/2017 9:49:33 AM	B43930
Surr: 4-Bromofluorobenzene	98.6	66.6-132		%Rec	5	6/30/2017 9:49:33 AM	B43930

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706F82

Date Reported: 7/3/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-2R**Project:** NW Lybrook Unit #133H Well Pad**Collection Date:** 6/29/2017 1:25:00 PM**Lab ID:** 1706F82-002**Matrix:** SOIL**Received Date:** 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	45	10		mg/Kg	1	6/30/2017 11:46:27 AM	32581
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/30/2017 11:46:27 AM	32581
Surr: DNOP	105	70-130		%Rec	1	6/30/2017 11:46:27 AM	32581
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	20		mg/Kg	5	6/30/2017 10:13:21 AM	G43930
Surr: BFB	113	54-150		%Rec	5	6/30/2017 10:13:21 AM	G43930
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.10		mg/Kg	5	6/30/2017 10:13:21 AM	B43930
Toluene	ND	0.20		mg/Kg	5	6/30/2017 10:13:21 AM	B43930
Ethylbenzene	ND	0.20		mg/Kg	5	6/30/2017 10:13:21 AM	B43930
Xylenes, Total	ND	0.40		mg/Kg	5	6/30/2017 10:13:21 AM	B43930
Surr: 4-Bromofluorobenzene	99.3	66.6-132		%Rec	5	6/30/2017 10:13:21 AM	B43930

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1706F82

Date Reported: 7/3/2017

CLIENT: WPX Energy

Client Sample ID: TSP-3R

Project: NW Lybrook Unit #133H Well Pad

Collection Date: 6/29/2017 1:28:00 PM

Lab ID: 1706F82-003

Matrix: SOIL

Received Date: 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	51	9.7		mg/Kg	1	6/30/2017 12:11:19 PM	32581
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/30/2017 12:11:19 PM	32581
Surr: DNOP	102	70-130		%Rec	1	6/30/2017 12:11:19 PM	32581
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	16		mg/Kg	5	6/30/2017 10:36:54 AM	G43930
Surr: BFB	113	54-150		%Rec	5	6/30/2017 10:36:54 AM	G43930
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.081		mg/Kg	5	6/30/2017 10:36:54 AM	B43930
Toluene	ND	0.16		mg/Kg	5	6/30/2017 10:36:54 AM	B43930
Ethylbenzene	ND	0.16		mg/Kg	5	6/30/2017 10:36:54 AM	B43930
Xylenes, Total	ND	0.32		mg/Kg	5	6/30/2017 10:36:54 AM	B43930
Surr: 4-Bromofluorobenzene	96.8	66.6-132		%Rec	5	6/30/2017 10:36:54 AM	B43930

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706F82

Date Reported: 7/3/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-4R**Project:** NW Lybrook Unit #133H Well Pad**Collection Date:** 6/29/2017 1:30:00 PM**Lab ID:** 1706F82-004**Matrix:** SOIL**Received Date:** 6/30/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	39	9.4		mg/Kg	1	6/30/2017 12:36:05 PM	32581
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/30/2017 12:36:05 PM	32581
Surr: DNOP	104	70-130		%Rec	1	6/30/2017 12:36:05 PM	32581
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	16		mg/Kg	5	6/30/2017 11:00:35 AM	G43930
Surr: BFB	108	54-150		%Rec	5	6/30/2017 11:00:35 AM	G43930
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.082		mg/Kg	5	6/30/2017 11:00:35 AM	B43930
Toluene	ND	0.16		mg/Kg	5	6/30/2017 11:00:35 AM	B43930
Ethylbenzene	ND	0.16		mg/Kg	5	6/30/2017 11:00:35 AM	B43930
Xylenes, Total	ND	0.33		mg/Kg	5	6/30/2017 11:00:35 AM	B43930
Surr: 4-Bromofluorobenzene	98.8	66.6-132		%Rec	5	6/30/2017 11:00:35 AM	B43930

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F82

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	MB-32573	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32573	RunNo:	43910					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384022	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.8		10.00		97.8	70	130			

Sample ID	LCS-32573	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32573	RunNo:	43910					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384023	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		91.7	70	130			

Sample ID	MB-32581	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32581	RunNo:	43908					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384676	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	11		10.00		110	70	130			

Sample ID	LCS-32581	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32581	RunNo:	43908					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384677	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	91.6	73.2	114			
Surr: DNOP	5.1		5.000		101	70	130			

Sample ID	1706F82-001AMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-1R	Batch ID:	32581	RunNo:	43910					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384900	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	85	9.8	48.92	16.17	141	55.8	122			S
Surr: DNOP	5.0		4.892		102	70	130			

Sample ID	1706F82-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-1R	Batch ID:	32581	RunNo:	43910					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384926	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	76	9.9	49.26	16.17	122	55.8	122	11.1	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F82

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	1706F82-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-1R	Batch ID:	32581	RunNo:	43910					
Prep Date:	6/30/2017	Analysis Date:	6/30/2017	SeqNo:	1384926	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.1		4.926		104	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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F82

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	RB	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID:	PBS	Batch ID: G43930			RunNo: 43930						
Prep Date:		Analysis Date: 6/30/2017			SeqNo: 1385181		Units: mg/Kg				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

ND

5.0

Surr: BFB

1000

1000

101

54

150

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range						
Client ID:	LCSS		Batch ID: G43930		RunNo: 43930						
Prep Date:			Analysis Date: 6/30/2017		SeqNo: 1385182		Units: mg/Kg				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

23

5.0

25.00

0

91.3

76.4

125

Surr: BFB

1100

1000

111

54

150

Sample ID	1706F82-001AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	TSP-1R	Batch ID:	G43930	RunNo:	43930						
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385183	Units:	mg/Kg				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

86

17

84.46

0

101

77.8

128

Surr: BFB

4500

3379

133

54

150

Sample ID	1706F82-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	TSP-1R	Batch ID:	G43930	RunNo:	43930						
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385184	Units:	mg/Kg				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

85

17

84.46

0

101

77.8

128

Surr: BFB

4200

3379

124

54

150

0.198

20

0

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706F82

03-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Well Pad

Sample ID	RB	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID: B43930			RunNo: 43930					
Prep Date:		Analysis Date: 6/30/2017			SeqNo: 1385187		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	0.95		1.000		95.0	66.6	132			

Sample ID	100NG BTEX LCS	SampType: LCS			TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID: B43930			RunNo: 43930					
Prep Date:		Analysis Date: 6/30/2017			SeqNo: 1385188		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.9	80	120			
Toluene	0.93	0.050	1.000	0	93.4	80	120			
Ethylbenzene	0.92	0.050	1.000	0	91.8	80	120			
Xylenes, Total	2.7	0.10	3.000	0	91.3	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.2	66.6	132			

Sample ID	1706F82-002AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	TSP-2R	Batch ID:	B43930	RunNo:	43930					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385189	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.7	0.10	4.010	0	92.5	80.9	132			
Toluene	3.7	0.20	4.010	0.05092	91.6	79.8	136			
Ethylbenzene	3.7	0.20	4.010	0.05160	91.0	79.4	140			
Xylenes, Total	11	0.40	12.03	0.1213	90.7	78.5	142			
Surr: 4-Bromofluorobenzene	4.2		4.010		104	66.6	132			

Sample ID	1706F82-002AMSD	SampType:	MSD	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	TSP-2R	Batch ID:	B43930	RunNo:	43930					
Prep Date:		Analysis Date:	6/30/2017	SeqNo:	1385190	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.6	0.10	4.010	0	90.7	80.9	132	2.03	20	
Toluene	3.7	0.20	4.010	0.05092	90.2	79.8	136	1.53	20	
Ethylbenzene	3.7	0.20	4.010	0.05160	90.2	79.4	140	0.792	20	
Xylenes, Total	11	0.40	12.03	0.1213	88.8	78.5	142	2.15	20	
Surr: 4-Bromofluorobenzene	4.2		4.010		104	66.6	132	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 Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
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: WPX ENERGY

Work Order Number: 1706F82

RcptNo: 1

Received By: Anne Thorne

6/30/2017 7:00:00 AM

Anne Thorne

Completed By: Anne Thorne

6/30/2017 7:23:54 AM

Anne Thorne

Reviewed By:

aj

6/30/17

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

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified:	_____	Date	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1		Good	Yes			

Client: WPX Energy

Mailing Address: 721 S Main
Aztec NM 87410

Phone #: 505 333 1880

email or Fax#: deborah.watson@wpxenergy.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

☐ Standard ☒ Rush *same day*

Project Name: NW Lybrook Unit #133H well Pad

Project #:

Project Manager:

Sampler: D Watson

On Ice: ☒ Yes ☐ No

Sample Temperature

06/30/77 Container Type and # <i>Drifts</i>	Preservative Type	HEAL No. 1706F82
--	----------------------	---------------------

1-4oz glass	cold
1-4oz glass	cola
1-4oz glass	cold
1-4oz glass	Cold

Preservative Type	Concentration (%)	Shelf Life (Months)
Sodium Benzoate	0.1 - 0.2	6 - 12
Potassium Sorbate	0.05 - 0.1	9 - 18
Natural Preservatives	-	3 - 6

HEAL No

1706 F82

BTEX + ~~MABE~~ + ~~PAHs~~ (8021.)

BTEX + MTBE + TPH (Gas only)

TPH 8015B GROUND (MRO))

TPH (Method 418.1)

E **EDB (Method 504.1)**

PAH's (8310 or 8270 SIMS)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

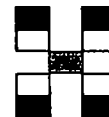
8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

100

Air Bubbles (Y or N)



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:	Relinquished by:
2/29/17	1720	Debra Watson

Date:	Time:	Relinquished by:
2/29/17	1841	Andrews

Received by:	Date	Time
Christine White	6/29/17	1720

Received by: Amara Date 06/30/17 Time 0700

Remarks:

If necessary, samples submitted to Hail 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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com*

July 06, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit 133 H Well Pad

OrderNo.: 1707089

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 7/4/2017 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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1707089

Date Reported: 7/6/2017

CLIENT: WPX Energy

Client Sample ID: TSP-15

Project: NW Lybrook Unit 133 H Well Pad

Collection Date: 7/3/2017 11:23:00 AM

Lab ID: 1707089-001

Matrix: SOIL

Received Date: 7/4/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	48	10		mg/Kg	1	7/5/2017 10:20:39 AM	32628
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2017 10:20:39 AM	32628
Surr: DNOP	104	70-130		%Rec	1	7/5/2017 10:20:39 AM	32628
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	2.9		mg/Kg	1	7/5/2017 9:40:15 AM	32616
Surr: BFB	122	54-150		%Rec	1	7/5/2017 9:40:15 AM	32616
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.015		mg/Kg	1	7/5/2017 9:40:15 AM	32616
Toluene	ND	0.029		mg/Kg	1	7/5/2017 9:40:15 AM	32616
Ethylbenzene	ND	0.029		mg/Kg	1	7/5/2017 9:40:15 AM	32616
Xylenes, Total	ND	0.058		mg/Kg	1	7/5/2017 9:40:15 AM	32616
Surr: 4-Bromofluorobenzene	133	66.6-132	S	%Rec	1	7/5/2017 9:40:15 AM	32616

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707089

Date Reported: 7/6/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-16**Project:** NW Lybrook Unit 133 H Well Pad**Collection Date:** 7/3/2017 11:33:00 AM**Lab ID:** 1707089-002**Matrix:** SOIL**Received Date:** 7/4/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	49	9.5		mg/Kg	1	7/5/2017 10:45:28 AM	32628
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/5/2017 10:45:28 AM	32628
Surr: DNOP	103	70-130		%Rec	1	7/5/2017 10:45:28 AM	32628
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	2.7		mg/Kg	1	7/5/2017 10:04:06 AM	32616
Surr: BFB	115	54-150		%Rec	1	7/5/2017 10:04:06 AM	32616
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.014		mg/Kg	1	7/5/2017 10:04:06 AM	32616
Toluene	ND	0.027		mg/Kg	1	7/5/2017 10:04:06 AM	32616
Ethylbenzene	ND	0.027		mg/Kg	1	7/5/2017 10:04:06 AM	32616
Xylenes, Total	ND	0.055		mg/Kg	1	7/5/2017 10:04:06 AM	32616
Surr: 4-Bromofluorobenzene	128	66.6-132		%Rec	1	7/5/2017 10:04:06 AM	32616

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707089

Date Reported: 7/6/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-17**Project:** NW Lybrook Unit 133 H Well Pad**Collection Date:** 7/3/2017 11:52:00 AM**Lab ID:** 1707089-003**Matrix:** SOIL**Received Date:** 7/4/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	24	9.6		mg/Kg	1	7/5/2017 11:10:15 AM	32628
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/5/2017 11:10:15 AM	32628
Surr: DNOP	106	70-130		%Rec	1	7/5/2017 11:10:15 AM	32628
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.0		mg/Kg	1	7/5/2017 10:28:03 AM	32616
Surr: BFB	107	54-150		%Rec	1	7/5/2017 10:28:03 AM	32616
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.015		mg/Kg	1	7/5/2017 10:28:03 AM	32616
Toluene	ND	0.030		mg/Kg	1	7/5/2017 10:28:03 AM	32616
Ethylbenzene	ND	0.030		mg/Kg	1	7/5/2017 10:28:03 AM	32616
Xylenes, Total	ND	0.059		mg/Kg	1	7/5/2017 10:28:03 AM	32616
Surr: 4-Bromofluorobenzene	131	66.6-132		%Rec	1	7/5/2017 10:28:03 AM	32616

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1707089

Date Reported: 7/6/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-18**Project:** NW Lybrook Unit 133 H Well Pad**Collection Date:** 7/3/2017 11:41:00 AM**Lab ID:** 1707089-004**Matrix:** SOIL**Received Date:** 7/4/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	27	9.8		mg/Kg	1	7/5/2017 11:35:08 AM	32628
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/5/2017 11:35:08 AM	32628
Surr: DNOP	108	70-130		%Rec	1	7/5/2017 11:35:08 AM	32628
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	2.9		mg/Kg	1	7/5/2017 10:52:01 AM	32616
Surr: BFB	107	54-150		%Rec	1	7/5/2017 10:52:01 AM	32616
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.014		mg/Kg	1	7/5/2017 10:52:01 AM	32616
Toluene	ND	0.029		mg/Kg	1	7/5/2017 10:52:01 AM	32616
Ethylbenzene	ND	0.029		mg/Kg	1	7/5/2017 10:52:01 AM	32616
Xylenes, Total	ND	0.058		mg/Kg	1	7/5/2017 10:52:01 AM	32616
Surr: 4-Bromofluorobenzene	122	66.6-132		%Rec	1	7/5/2017 10:52:01 AM	32616

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707089

06-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit 133 H Well Pad

Sample ID	MB-32628	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32628	RunNo:	43983					
Prep Date:	7/5/2017	Analysis Date:	7/5/2017	SeqNo:	1386465	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	9.8		10.00		97.6	70	130			

Sample ID	LCS-32628	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32628	RunNo:	43983					
Prep Date:	7/5/2017	Analysis Date:	7/5/2017	SeqNo:	1386492	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	91.6	73.2	114			
Surr: DNOP	4.5		5.000		89.8	70	130			

Sample ID	1707089-001AMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-15	Batch ID:	32628	RunNo:	43983					
Prep Date:	7/5/2017	Analysis Date:	7/5/2017	SeqNo:	1386915	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	87	9.7	48.36	48.28	79.7	55.8	122			
Surr: DNOP	4.8		4.836		99.9	70	130			

Sample ID	1707089-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-15	Batch ID:	32628	RunNo:	43983					
Prep Date:	7/5/2017	Analysis Date:	7/5/2017	SeqNo:	1386919	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	120	9.6	48.12	48.28	142	55.8	122	29.3	20	RS
Surr: DNOP	5.2		4.812		108	70	130	0	0	

Sample ID	MB-32588	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32588	RunNo:	43983					
Prep Date:	6/30/2017	Analysis Date:	7/5/2017	SeqNo:	1387024	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.9		10.00		99.3	70	130			

Sample ID	LCS-32588	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32588	RunNo:	43983					
Prep Date:	6/30/2017	Analysis Date:	7/5/2017	SeqNo:	1387357	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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707089

06-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit 133 H Well Pad

Sample ID	LCS-32588	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32588	RunNo:	43983					
Prep Date:	6/30/2017	Analysis Date:	7/5/2017	SeqNo:	1387357	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		93.8	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707089

06-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit 133 H Well Pad

Sample ID	MB-32616	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	32616	RunNo:	43994					
Prep Date:	7/3/2017	Analysis Date:	7/5/2017	SeqNo:	1387418	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

970

1000

96.8

54

150

Sample ID	LCS-32616	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	32616	RunNo:	43994					
Prep Date:	7/3/2017	Analysis Date:	7/5/2017	SeqNo:	1387419	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

23

5.0

25.00

0

91.0

76.4

125

Surr: BFB

1100

1000

108

54

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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707089

06-Jul-17

Client: WPX Energy

Project: NW Lybrook Unit 133 H Well Pad

Sample ID	MB-32616		SampType: MBLK	TestCode: EPA Method 8021B: Volatiles						
Client ID:	PBS		Batch ID: 32616	RunNo: 43994						
Prep Date:	7/3/2017		Analysis Date: 7/5/2017	SeqNo: 1387443		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.3		1.000		128	66.6	132			

Sample ID	LCS-32616		SampType: LCS	TestCode: EPA Method 8021B: Volatiles						
Client ID:	LCSS		Batch ID: 32616	RunNo: 43994						
Prep Date:	7/3/2017		Analysis Date: 7/5/2017	SeqNo: 1387444		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	113	80	120			
Toluene	1.1	0.050	1.000	0	113	80	120			
Ethylbenzene	1.1	0.050	1.000	0	115	80	120			
Xylenes, Total	3.5	0.10	3.000	0	116	80	120			
Surr: 4-Bromofluorobenzene	1.4		1.000		139	66.6	132			S

Sample ID	1707089-001AMS		SampType: MS	TestCode: EPA Method 8021B: Volatiles						
Client ID:	TSP-15		Batch ID: 32616	RunNo: 43994						
Prep Date:			Analysis Date: 7/5/2017	SeqNo: 1387445		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.62	0.015	0.5838	0	107	80.9	132			
Toluene	0.64	0.029	0.5838	0.008348	108	79.8	136			
Ethylbenzene	0.64	0.029	0.5838	0.006422	108	79.4	140			
Xylenes, Total	1.9	0.058	1.751	0.009282	110	78.5	142			
Surr: 4-Bromofluorobenzene	0.74		0.5838		127	66.6	132			

Sample ID	1707089-001AMSD		SampType: MSD	TestCode: EPA Method 8021B: Volatiles						
Client ID:	TSP-15		Batch ID: 32616	RunNo: 43994						
Prep Date:			Analysis Date: 7/5/2017	SeqNo: 1387446		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.62	0.015	0.5838	0	106	80.9	132	1.17	20	
Toluene	0.63	0.029	0.5838	0.008348	107	79.8	136	0.690	20	
Ethylbenzene	0.63	0.029	0.5838	0.006422	107	79.4	140	1.45	20	
Xylenes, Total	1.9	0.058	1.751	0.009282	108	78.5	142	2.19	20	
Surr: 4-Bromofluorobenzene	0.73		0.5838		125	66.6	132	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 Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
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: WPX ENERGY

Work Order Number: 1707089

RcptNo: 1

Received By: Andy Freeman 7/4/2017 9:30:00 AM

Completed By: Erin Melendrez 7/5/2017 7:58:47 AM

Reviewed By: ENM/SEE 7/5/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐
of preserved bottles checked for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good	Not Present			

Chain-of-Custody Record

Client:

WPX Energy

Turn-Around Time:

☐ Standard ☒ Rush same day

Project Name:

NW Lybrook Unit #133 # well

Mailing Address:

721 S. Main
Atc, NM 87410

Phone #:

505 333 1880

email or Fax#:

Project Manager:

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

D. Watson

Accreditation

☐ NELAP ☐ Other

Sampler: D. Watson
On loc: ☒ Yes ☐ No

☐ EDD (Type)

Sample Temperature: 1.5°C

Date

Time

Matrix

Sample Request ID

Container Type and #

Preservative Type

HEAL No.

Air Bubbles (Y or N)

7.3.17

123

Soil

TSP-15

1-40
1-1000

acid/well

1707089

11.33

1152

TSP-16

TSP-17

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089

11.41

1152

TSP-18

TSP-18

1-40
1-1000

acid/well

1707089



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

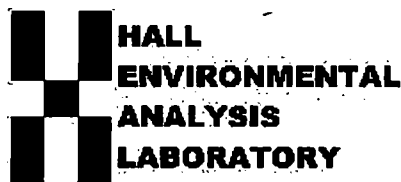
4901 Hawkins NE - Albuquerque, NM 87109

Tel: 505-345-3975 Fax 505-345-4107

Analysis Request

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 marked on the analytical report.



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

June 28, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit #133H Facility

OrderNo.: 1706E06

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/27/2017 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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1706E06

Date Reported: 6/28/2017

CLIENT: WPX Energy

Client Sample ID: SC-10R

Project: NW Lybrook Unit #133H Facility

Collection Date: 6/26/2017 1:10:00 PM

Lab ID: 1706E06-001

Matrix: SOIL

Received Date: 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.0		mg/Kg	1	6/27/2017 3:26:50 PM	G43825
Surr: BFB	98.1	70-130		%Rec	1	6/27/2017 3:26:50 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	28	9.7		mg/Kg	1	6/27/2017 12:35:36 PM	32505
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2017 12:35:36 PM	32505
Surr: DNOP	110	70-130		%Rec	1	6/27/2017 12:35:36 PM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.020		mg/Kg	1	6/27/2017 3:26:50 PM	R43825
Toluene	ND	0.040		mg/Kg	1	6/27/2017 3:26:50 PM	R43825
Ethylbenzene	ND	0.040		mg/Kg	1	6/27/2017 3:26:50 PM	R43825
Xylenes, Total	ND	0.079		mg/Kg	1	6/27/2017 3:26:50 PM	R43825
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	6/27/2017 3:26:50 PM	R43825
Surr: 4-Bromofluorobenzene	97.5	70-130		%Rec	1	6/27/2017 3:26:50 PM	R43825
Surr: Dibromofluoromethane	104	70-130		%Rec	1	6/27/2017 3:26:50 PM	R43825
Surr: Toluene-d8	110	70-130		%Rec	1	6/27/2017 3:26:50 PM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E06

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** SC-14**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:04:00 PM**Lab ID:** 1706E06-002**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	3.9		mg/Kg	1	6/27/2017 3:56:20 PM	G43825
Surr: BFB	99.1	70-130		%Rec	1	6/27/2017 3:56:20 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/27/2017 12:57:46 PM	32505
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/27/2017 12:57:46 PM	32505
Surr: DNOP	110	70-130		%Rec	1	6/27/2017 12:57:46 PM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.020		mg/Kg	1	6/27/2017 3:56:20 PM	R43825
Toluene	ND	0.039		mg/Kg	1	6/27/2017 3:56:20 PM	R43825
Ethylbenzene	ND	0.039		mg/Kg	1	6/27/2017 3:56:20 PM	R43825
Xylenes, Total	ND	0.079		mg/Kg	1	6/27/2017 3:56:20 PM	R43825
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	6/27/2017 3:56:20 PM	R43825
Surr: 4-Bromofluorobenzene	96.7	70-130		%Rec	1	6/27/2017 3:56:20 PM	R43825
Surr: Dibromofluoromethane	105	70-130		%Rec	1	6/27/2017 3:56:20 PM	R43825
Surr: Toluene-d8	109	70-130		%Rec	1	6/27/2017 3:56:20 PM	R43825

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E06

28-Jun-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Facility

Sample ID	MB-32505	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1380557	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	11		10.00		112	70	130			

Sample ID	LCS-32505	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1380558	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	89.9	73.2	114			
Surr: DNOP	5.0		5.000		100	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E06

28-Jun-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Facility

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	LCSS	Batch ID:	R43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380928	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	70	130			
Toluene	0.92	0.050	1.000	0	91.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		105	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		104	70	130			
Surr: Toluene-d8	0.47		0.5000		94.6	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	PBS	Batch ID:	R43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380935	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.7	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.4	70	130			
Surr: Toluene-d8	0.49		0.5000		98.9	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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E06

28-Jun-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Facility

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	LCSS	Batch ID:	G43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380925	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	70	130			
Surr: BFB	500		500.0		100	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	PBS	Batch ID:	G43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380926	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	500		500.0		100	70	130			

Qualifiers:

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

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



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: WPX ENERGY

Work Order Number: 1708E08

RcptNo: 1

Received By: Anne Thorne

8/27/2017 8:45:00 AM

Anne Thorne

Completed By: Anne Thorne

8/27/2017 9:18:44 AM

Anne Thorne

Reviewed By:

aj

6/27/17

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 $>0^{\circ}\text{C}$ to 8.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

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

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			



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

June 28, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit #133H Facility

OrderNo.: 1706E04

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 6/27/2017 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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E04

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-11**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:46:00 PM**Lab ID:** 1706E04-001**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	20	3.9		mg/Kg	1	6/27/2017 1:28:56 PM	G43825
Surr: BFB	103	70-130		%Rec	1	6/27/2017 1:28:56 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	110	9.2		mg/Kg	1	6/27/2017 10:41:42 AM	32505
Motor Oil Range Organics (MRO)	48	46		mg/Kg	1	6/27/2017 10:41:42 AM	32505
Surr: DNOP	91.6	70-130		%Rec	1	6/27/2017 10:41:42 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.019		mg/Kg	1	6/27/2017 1:28:56 PM	R43825
Toluene	ND	0.039		mg/Kg	1	6/27/2017 1:28:56 PM	R43825
Ethylbenzene	ND	0.039		mg/Kg	1	6/27/2017 1:28:56 PM	R43825
Xylenes, Total	ND	0.078		mg/Kg	1	6/27/2017 1:28:56 PM	R43825
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	6/27/2017 1:28:56 PM	R43825
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	6/27/2017 1:28:56 PM	R43825
Surr: Dibromofluoromethane	106	70-130		%Rec	1	6/27/2017 1:28:56 PM	R43825
Surr: Toluene-d8	108	70-130		%Rec	1	6/27/2017 1:28:56 PM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E04

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-12**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:52:00 PM**Lab ID:** 1706E04-002**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	8.3	3.9		mg/Kg	1	6/27/2017 1:58:15 PM	G43825
Surr: BFB	97.6	70-130		%Rec	1	6/27/2017 1:58:15 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	36	9.1		mg/Kg	1	6/27/2017 11:09:57 AM	32505
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2017 11:09:57 AM	32505
Surr: DNOP	92.8	70-130		%Rec	1	6/27/2017 11:09:57 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.019		mg/Kg	1	6/27/2017 1:58:15 PM	R43825
Toluene	ND	0.039		mg/Kg	1	6/27/2017 1:58:15 PM	R43825
Ethylbenzene	ND	0.039		mg/Kg	1	6/27/2017 1:58:15 PM	R43825
Xylenes, Total	ND	0.077		mg/Kg	1	6/27/2017 1:58:15 PM	R43825
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	6/27/2017 1:58:15 PM	R43825
Surr: 4-Bromofluorobenzene	90.8	70-130		%Rec	1	6/27/2017 1:58:15 PM	R43825
Surr: Dibromofluoromethane	103	70-130		%Rec	1	6/27/2017 1:58:15 PM	R43825
Surr: Toluene-d8	109	70-130		%Rec	1	6/27/2017 1:58:15 PM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E04

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-13**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:59:00 PM**Lab ID:** 1706E04-003**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	15	3.5		mg/Kg	1	6/27/2017 2:27:46 PM	G43825
Surr: BFB	104	70-130		%Rec	1	6/27/2017 2:27:46 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	94	9.9		mg/Kg	1	6/27/2017 11:37:58 AM	32505
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2017 11:37:58 AM	32505
Surr: DNOP	91.0	70-130		%Rec	1	6/27/2017 11:37:58 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.018		mg/Kg	1	6/27/2017 2:27:46 PM	R43825
Toluene	ND	0.035		mg/Kg	1	6/27/2017 2:27:46 PM	R43825
Ethylbenzene	ND	0.035		mg/Kg	1	6/27/2017 2:27:46 PM	R43825
Xylenes, Total	ND	0.070		mg/Kg	1	6/27/2017 2:27:46 PM	R43825
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	6/27/2017 2:27:46 PM	R43825
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	6/27/2017 2:27:46 PM	R43825
Surr: Dibromofluoromethane	103	70-130		%Rec	1	6/27/2017 2:27:46 PM	R43825
Surr: Toluene-d8	113	70-130		%Rec	1	6/27/2017 2:27:46 PM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E04

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-14**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 2:05:00 PM**Lab ID:** 1706E04-004**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	24	3.4		mg/Kg	1	6/27/2017 2:57:21 PM	G43825
Surr: BFB	115	70-130		%Rec	1	6/27/2017 2:57:21 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	76	9.6		mg/Kg	1	6/27/2017 12:06:05 PM	32505
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2017 12:06:05 PM	32505
Surr: DNOP	91.1	70-130		%Rec	1	6/27/2017 12:06:05 PM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.017		mg/Kg	1	6/27/2017 2:57:21 PM	R43825
Toluene	ND	0.034		mg/Kg	1	6/27/2017 2:57:21 PM	R43825
Ethylbenzene	ND	0.034		mg/Kg	1	6/27/2017 2:57:21 PM	R43825
Xylenes, Total	ND	0.067		mg/Kg	1	6/27/2017 2:57:21 PM	R43825
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	6/27/2017 2:57:21 PM	R43825
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	6/27/2017 2:57:21 PM	R43825
Surr: Dibromofluoromethane	103	70-130		%Rec	1	6/27/2017 2:57:21 PM	R43825
Surr: Toluene-d8	110	70-130		%Rec	1	6/27/2017 2:57:21 PM	R43825

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E04

28-Jun-17

Client: WPX Energy
Project: NW Lybrook Unit #133H Facility

Sample ID	MB-32505	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1380557	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	11		10.00		112	70	130			

Sample ID	LCS-32505	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1380558	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	89.9	73.2	114			
Surr: DNOP	5.0		5.000		100	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E04

28-Jun-17

Client: WPX Energy
Project: NW Lybrook Unit #133H Facility

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	LCSS	Batch ID:	R43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380928	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	70	130			
Toluene	0.92	0.050	1.000	0	91.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		105	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		104	70	130			
Surr: Toluene-d8	0.47		0.5000		94.6	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	PBS	Batch ID:	R43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380935	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.7	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.4	70	130			
Surr: Toluene-d8	0.49		0.5000		98.9	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 Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E04

28-Jun-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Facility

Sample ID	2.5ug gro lcs	SampType	LCS	TestCode	EPA Method 8015D Mod: Gasoline Range					
Client ID	LCSS	Batch ID	G43825	RunNo	43825					
Prep Date		Analysis Date	6/27/2017	SeqNo	1380925	Units	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	70	130			
Surr: BFB	500		500.0		100	70	130			

Sample ID	rb	SampType	MBLK	TestCode	EPA Method 8015D Mod: Gasoline Range					
Client ID	PBS	Batch ID	G43825	RunNo	43825					
Prep Date		Analysis Date	6/27/2017	SeqNo	1380926	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	500		500.0		100	70	130			

Qualifiers:

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

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



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

Sample Log-In Check List

Client Name: WPX ENERGY

Work Order Number: 1708E04

RcptNo: 1

Received By: Anne Thorne

6/27/2017 8:45:00 AM

Anne Thorne

Completed By: Anne Thorne

6/27/2017 9:08:40 AM

Anne Thorne

Reviewed By:

AT

6/27/17

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

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

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			



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

June 28, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit #133H Facility

OrderNo.: 1706E02

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/27/2017 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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E02

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-1**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:17:00 PM**Lab ID:** 1706E02-001**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	27	3.8		mg/Kg	1	6/27/2017 11:03:04 AM	G43825
Surr: BFB	105	70-130		%Rec	1	6/27/2017 11:03:04 AM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	170	9.8		mg/Kg	1	6/27/2017 10:40:02 AM	32505
Motor Oil Range Organics (MRO)	85	49		mg/Kg	1	6/27/2017 10:40:02 AM	32505
Surr: DNOP	113	70-130		%Rec	1	6/27/2017 10:40:02 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.019		mg/Kg	1	6/27/2017 11:03:04 AM	R43825
Toluene	ND	0.038		mg/Kg	1	6/27/2017 11:03:04 AM	R43825
Ethylbenzene	ND	0.038		mg/Kg	1	6/27/2017 11:03:04 AM	R43825
Xylenes, Total	ND	0.076		mg/Kg	1	6/27/2017 11:03:04 AM	R43825
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	6/27/2017 11:03:04 AM	R43825
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	6/27/2017 11:03:04 AM	R43825
Surr: Dibromofluoromethane	99.3	70-130		%Rec	1	6/27/2017 11:03:04 AM	R43825
Surr: Toluene-d8	108	70-130		%Rec	1	6/27/2017 11:03:04 AM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E02

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-2**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:21:00 PM**Lab ID:** 1706E02-002**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	21	3.4		mg/Kg	1	6/27/2017 11:32:09 AM	G43825
Surr: BFB	113	70-130		%Rec	1	6/27/2017 11:32:09 AM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	140	9.8		mg/Kg	1	6/27/2017 11:05:49 AM	32505
Motor Oil Range Organics (MRO)	81	49		mg/Kg	1	6/27/2017 11:05:49 AM	32505
Surr: DNOP	115	70-130		%Rec	1	6/27/2017 11:05:49 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.017		mg/Kg	1	6/27/2017 11:32:09 AM	R43825
Toluene	ND	0.034		mg/Kg	1	6/27/2017 11:32:09 AM	R43825
Ethylbenzene	ND	0.034		mg/Kg	1	6/27/2017 11:32:09 AM	R43825
Xylenes, Total	ND	0.069		mg/Kg	1	6/27/2017 11:32:09 AM	R43825
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	6/27/2017 11:32:09 AM	R43825
Surr: 4-Bromofluorobenzene	92.4	70-130		%Rec	1	6/27/2017 11:32:09 AM	R43825
Surr: Dibromofluoromethane	109	70-130		%Rec	1	6/27/2017 11:32:09 AM	R43825
Surr: Toluene-d8	106	70-130		%Rec	1	6/27/2017 11:32:09 AM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E02

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-3**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:25:00 PM**Lab ID:** 1706E02-003**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	26	3.9		mg/Kg	1	6/27/2017 12:01:12 PM	G43825
Surr: BFB	114	70-130		%Rec	1	6/27/2017 12:01:12 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	130	9.9		mg/Kg	1	6/27/2017 10:42:18 AM	32505
Motor Oil Range Organics (MRO)	56	49		mg/Kg	1	6/27/2017 10:42:18 AM	32505
Surr: DNOP	110	70-130		%Rec	1	6/27/2017 10:42:18 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.020		mg/Kg	1	6/27/2017 12:01:12 PM	R43825
Toluene	ND	0.039		mg/Kg	1	6/27/2017 12:01:12 PM	R43825
Ethylbenzene	ND	0.039		mg/Kg	1	6/27/2017 12:01:12 PM	R43825
Xylenes, Total	ND	0.078		mg/Kg	1	6/27/2017 12:01:12 PM	R43825
Surr: 1,2-Dichloroethane-d4	99.9	70-130		%Rec	1	6/27/2017 12:01:12 PM	R43825
Surr: 4-Bromofluorobenzene	92.4	70-130		%Rec	1	6/27/2017 12:01:12 PM	R43825
Surr: Dibromofluoromethane	98.8	70-130		%Rec	1	6/27/2017 12:01:12 PM	R43825
Surr: Toluene-d8	106	70-130		%Rec	1	6/27/2017 12:01:12 PM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E02

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-4**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:29:00 PM**Lab ID:** 1706E02-004**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	35	4.0		mg/Kg	1	6/27/2017 12:30:22 PM	G43825
Surr: BFB	89.8	70-130		%Rec	1	6/27/2017 12:30:22 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	90	9.5		mg/Kg	1	6/27/2017 11:06:51 AM	32505
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/27/2017 11:06:51 AM	32505
Surr: DNOP	107	70-130		%Rec	1	6/27/2017 11:06:51 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.020		mg/Kg	1	6/27/2017 12:30:22 PM	R43825
Toluene	ND	0.040		mg/Kg	1	6/27/2017 12:30:22 PM	R43825
Ethylbenzene	ND	0.040		mg/Kg	1	6/27/2017 12:30:22 PM	R43825
Xylenes, Total	ND	0.080		mg/Kg	1	6/27/2017 12:30:22 PM	R43825
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	6/27/2017 12:30:22 PM	R43825
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	6/27/2017 12:30:22 PM	R43825
Surr: Dibromofluoromethane	101	70-130		%Rec	1	6/27/2017 12:30:22 PM	R43825
Surr: Toluene-d8	110	70-130		%Rec	1	6/27/2017 12:30:22 PM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E02

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-5**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:35:00 PM**Lab ID:** 1706E02-005**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	29	3.9		mg/Kg	1	6/27/2017 12:59:39 PM	G43825
Surr: BFB	88.7	70-130		%Rec	1	6/27/2017 12:59:39 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	55	9.7		mg/Kg	1	6/27/2017 11:31:35 AM	32505
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2017 11:31:35 AM	32505
Surr: DNOP	107	70-130		%Rec	1	6/27/2017 11:31:35 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.020		mg/Kg	1	6/27/2017 12:59:39 PM	R43825
Toluene	ND	0.039		mg/Kg	1	6/27/2017 12:59:39 PM	R43825
Ethylbenzene	ND	0.039		mg/Kg	1	6/27/2017 12:59:39 PM	R43825
Xylenes, Total	ND	0.079		mg/Kg	1	6/27/2017 12:59:39 PM	R43825
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	6/27/2017 12:59:39 PM	R43825
Surr: 4-Bromofluorobenzene	87.3	70-130		%Rec	1	6/27/2017 12:59:39 PM	R43825
Surr: Dibromofluoromethane	104	70-130		%Rec	1	6/27/2017 12:59:39 PM	R43825
Surr: Toluene-d8	112	70-130		%Rec	1	6/27/2017 12:59:39 PM	R43825

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E02

28-Jun-17

Client: WPX Energy
Project: NW Lybrook Unit #133H Facility

Sample ID	MB-32505	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1380557	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	11		10.00		112	70	130			

Sample ID	LCS-32505	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1380558	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	89.9	73.2	114			
Surr: DNOP	5.0		5.000		100	70	130			

Sample ID	1706E02-001AMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-1	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1381504	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	220	10	49.90	166.9	100	55.8	122			
Surr: DNOP	5.7		4.990		113	70	130			

Sample ID	1706E02-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-1	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1381506	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	210	9.5	47.71	166.9	84.4	55.8	122	4.65	20	
Surr: DNOP	5.5		4.771		116	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E02

28-Jun-17

Client: WPX Energy
Project: NW Lybrook Unit #133H Facility

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	LCSS	Batch ID:	R43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380928	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	70	130			
Toluene	0.92	0.050	1.000	0	91.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		105	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		104	70	130			
Surr: Toluene-d8	0.47		0.5000		94.6	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	PBS	Batch ID:	R43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380935	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.7	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.4	70	130			
Surr: Toluene-d8	0.49		0.5000		98.9	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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E02
28-Jun-17

Client: WPX Energy
Project: NW Lybrook Unit #133H Facility

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	LCSS	Batch ID:	G43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380925	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	70	130			
Surr: BFB	500		500.0		100	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	PBS	Batch ID:	G43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380926	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	500		500.0		100	70	130			

Sample ID	1706e02-001ams	SampType:	MS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	TSP-1	Batch ID:	G43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1381597	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	46	3.8	19.01	27.05	100	63.2	128			
Surr: BFB	440		380.2		115	70	130			

Sample ID	1706e02-001amsd	SampType:	MSD	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	TSP-1	Batch ID:	G43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1381598	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	44	3.8	19.01	27.05	89.6	63.2	128	4.57	20	
Surr: BFB	420		380.2		109	70	130	0	0	

Qualifiers:

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



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: WPX ENERGY

Work Order Number: 1708E02

RcptNo: 1

Received By: Anne Thorne

8/27/2017 8:45:00 AM

Anne Thorne

Completed By: Anne Thorne

8/27/2017 8:57:42 AM

Anne Thorne

Reviewed By:

aj

6/27/17

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

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

Special Handling (if applicable)

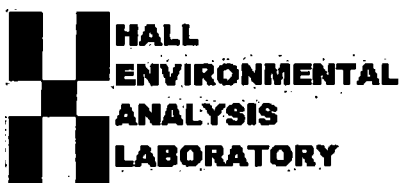
16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			



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Website: www.hallenvironmental.com

June 28, 2017

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: NW Lybrook Unit #133H Facility

OrderNo.: 1706E04

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 6/27/2017 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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E04

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-11**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:46:00 PM**Lab ID:** 1706E04-001**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	20	3.9		mg/Kg	1	6/27/2017 1:28:56 PM	G43825
Surr: BFB	103	70-130		%Rec	1	6/27/2017 1:28:56 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	110	9.2		mg/Kg	1	6/27/2017 10:41:42 AM	32505
Motor Oil Range Organics (MRO)	48	46		mg/Kg	1	6/27/2017 10:41:42 AM	32505
Surr: DNOP	91.6	70-130		%Rec	1	6/27/2017 10:41:42 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.019		mg/Kg	1	6/27/2017 1:28:56 PM	R43825
Toluene	ND	0.039		mg/Kg	1	6/27/2017 1:28:56 PM	R43825
Ethylbenzene	ND	0.039		mg/Kg	1	6/27/2017 1:28:56 PM	R43825
Xylenes, Total	ND	0.078		mg/Kg	1	6/27/2017 1:28:56 PM	R43825
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	6/27/2017 1:28:56 PM	R43825
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	6/27/2017 1:28:56 PM	R43825
Surr: Dibromofluoromethane	106	70-130		%Rec	1	6/27/2017 1:28:56 PM	R43825
Surr: Toluene-d8	108	70-130		%Rec	1	6/27/2017 1:28:56 PM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E04

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-12**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:52:00 PM**Lab ID:** 1706E04-002**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	8.3	3.9		mg/Kg	1	6/27/2017 1:58:15 PM	G43825
Surr: BFB	97.6	70-130		%Rec	1	6/27/2017 1:58:15 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	36	9.1		mg/Kg	1	6/27/2017 11:09:57 AM	32505
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2017 11:09:57 AM	32505
Surr: DNOP	92.8	70-130		%Rec	1	6/27/2017 11:09:57 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.019		mg/Kg	1	6/27/2017 1:58:15 PM	R43825
Toluene	ND	0.039		mg/Kg	1	6/27/2017 1:58:15 PM	R43825
Ethylbenzene	ND	0.039		mg/Kg	1	6/27/2017 1:58:15 PM	R43825
Xylenes, Total	ND	0.077		mg/Kg	1	6/27/2017 1:58:15 PM	R43825
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	6/27/2017 1:58:15 PM	R43825
Surr: 4-Bromofluorobenzene	90.8	70-130		%Rec	1	6/27/2017 1:58:15 PM	R43825
Surr: Dibromofluoromethane	103	70-130		%Rec	1	6/27/2017 1:58:15 PM	R43825
Surr: Toluene-d8	109	70-130		%Rec	1	6/27/2017 1:58:15 PM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E04

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-13**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 1:59:00 PM**Lab ID:** 1706E04-003**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	15	3.5		mg/Kg	1	6/27/2017 2:27:46 PM	G43825
Surr: BFB	104	70-130		%Rec	1	6/27/2017 2:27:46 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	94	9.9		mg/Kg	1	6/27/2017 11:37:58 AM	32505
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2017 11:37:58 AM	32505
Surr: DNOP	91.0	70-130		%Rec	1	6/27/2017 11:37:58 AM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.018		mg/Kg	1	6/27/2017 2:27:46 PM	R43825
Toluene	ND	0.035		mg/Kg	1	6/27/2017 2:27:46 PM	R43825
Ethylbenzene	ND	0.035		mg/Kg	1	6/27/2017 2:27:46 PM	R43825
Xylenes, Total	ND	0.070		mg/Kg	1	6/27/2017 2:27:46 PM	R43825
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	6/27/2017 2:27:46 PM	R43825
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	6/27/2017 2:27:46 PM	R43825
Surr: Dibromofluoromethane	103	70-130		%Rec	1	6/27/2017 2:27:46 PM	R43825
Surr: Toluene-d8	113	70-130		%Rec	1	6/27/2017 2:27:46 PM	R43825

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706E04

Date Reported: 6/28/2017

CLIENT: WPX Energy**Client Sample ID:** TSP-14**Project:** NW Lybrook Unit #133H Facility**Collection Date:** 6/26/2017 2:05:00 PM**Lab ID:** 1706E04-004**Matrix:** SOIL**Received Date:** 6/27/2017 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	24	3.4		mg/Kg	1	6/27/2017 2:57:21 PM	G43825
Surr: BFB	115	70-130		%Rec	1	6/27/2017 2:57:21 PM	G43825
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	76	9.6		mg/Kg	1	6/27/2017 12:06:05 PM	32505
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2017 12:06:05 PM	32505
Surr: DNOP	91.1	70-130		%Rec	1	6/27/2017 12:06:05 PM	32505
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: RAA
Benzene	ND	0.017		mg/Kg	1	6/27/2017 2:57:21 PM	R43825
Toluene	ND	0.034		mg/Kg	1	6/27/2017 2:57:21 PM	R43825
Ethylbenzene	ND	0.034		mg/Kg	1	6/27/2017 2:57:21 PM	R43825
Xylenes, Total	ND	0.067		mg/Kg	1	6/27/2017 2:57:21 PM	R43825
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	6/27/2017 2:57:21 PM	R43825
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	6/27/2017 2:57:21 PM	R43825
Surr: Dibromofluoromethane	103	70-130		%Rec	1	6/27/2017 2:57:21 PM	R43825
Surr: Toluene-d8	110	70-130		%Rec	1	6/27/2017 2:57:21 PM	R43825

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E04

28-Jun-17

Client: WPX Energy

Project: NW Lybrook Unit #133H Facility

Sample ID	MB-32505	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1380557	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	11		10.00		112	70	130			

Sample ID	LCS-32505	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32505	RunNo:	43810					
Prep Date:	6/27/2017	Analysis Date:	6/27/2017	SeqNo:	1380558	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	89.9	73.2	114			
Surr: DNOP	5.0		5.000		100	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E04

28-Jun-17

Client: WPX Energy
Project: NW Lybrook Unit #133H Facility

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	LCSS	Batch ID:	R43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380928	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	70	130			
Toluene	0.92	0.050	1.000	0	91.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		105	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		104	70	130			
Surr: Toluene-d8	0.47		0.5000		94.6	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	PBS	Batch ID:	R43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380935	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.7	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.4	70	130			
Surr: Toluene-d8	0.49		0.5000		98.9	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 Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706E04

28-Jun-17

Client: WPX Energy
Project: NW Lybrook Unit #133H Facility

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	LCSS	Batch ID:	G43825	RunNo:	43825					
Prep Date:		Analysis Date:	6/27/2017	SeqNo:	1380925	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	70	130			
Surr: BFB	500		500.0		100	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID:	PBS	Batch ID: G43825			RunNo: 43825					
Prep Date:		Analysis Date: 6/27/2017			SeqNo: 1380926		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	500		500.0		100	70	130			

Qualifiers:

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



Hall Environmental Analysis Laboratory
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: WPX ENERGY

Work Order Number: 1706E04

RcptNo: 1

Received By: Anne Thorne

8/27/2017 8:45:00 AM

Anne Thorne

Completed By: Anne Thorne

8/27/2017 9:06:40 AM

Anne Thorne

Reviewed By:

AT

8/27/17

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

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

Special Handling (If applicable)

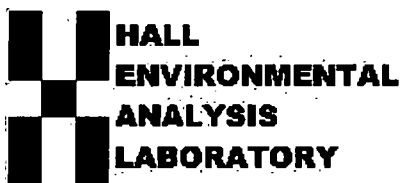
16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			



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

June 26, 2017

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205
Farmington, NM 87401
TEL: (505) 860-2712
FAX

RE: WPX NW Lybrook 133H

OrderNo.: 1706C78

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/23/2017 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.**Analytical Report**

Lab Order 1706C78

Date Reported: 6/26/2017

CLIENT: Rule Engineering LLC**Client Sample ID:** TSP-6 (6/22/17)**Project:** WPX NW Lybrook 133H**Collection Date:** 6/22/2017 1:00:00 PM**Lab ID:** 1706C78-001**Matrix:** SOIL**Received Date:** 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	37	9.2		mg/Kg	1	6/23/2017 10:30:16 AM	32452
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/23/2017 10:30:16 AM	32452
Surr: DNOP	88.2	70-130		%Rec	1	6/23/2017 10:30:16 AM	32452
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	11	4.0		mg/Kg	1	6/23/2017 9:42:22 AM	32437
Surr: BFB	243	54-150	S	%Rec	1	6/23/2017 9:42:22 AM	32437
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.020		mg/Kg	1	6/23/2017 9:42:22 AM	32437
Toluene	ND	0.040		mg/Kg	1	6/23/2017 9:42:22 AM	32437
Ethylbenzene	ND	0.040		mg/Kg	1	6/23/2017 9:42:22 AM	32437
Xylenes, Total	ND	0.080		mg/Kg	1	6/23/2017 9:42:22 AM	32437
Surr: 4-Bromofluorobenzene	120	66.6-132		%Rec	1	6/23/2017 9:42:22 AM	32437

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**Lab Order **1706C78**Date Reported: **6/26/2017****CLIENT:** Rule Engineering LLC**Client Sample ID:** TSP-7 (6/22/17)**Project:** WPX NW Lybrook 133H**Collection Date:** 6/22/2017 12:50:00 PM**Lab ID:** 1706C78-002**Matrix:** SOIL**Received Date:** 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	54	9.7		mg/Kg	1	6/23/2017 10:55:06 AM	32452
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/23/2017 10:55:06 AM	32452
Surr: DNOP	95.8	70-130		%Rec	1	6/23/2017 10:55:06 AM	32452
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	10	3.7		mg/Kg	1	6/23/2017 10:06:13 AM	32437
Surr: BFB	244	54-150	S	%Rec	1	6/23/2017 10:06:13 AM	32437
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.019		mg/Kg	1	6/23/2017 10:06:13 AM	32437
Toluene	ND	0.037		mg/Kg	1	6/23/2017 10:06:13 AM	32437
Ethylbenzene	ND	0.037		mg/Kg	1	6/23/2017 10:06:13 AM	32437
Xylenes, Total	ND	0.075		mg/Kg	1	6/23/2017 10:06:13 AM	32437
Surr: 4-Bromofluorobenzene	124	66.6-132		%Rec	1	6/23/2017 10:06:13 AM	32437

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706C78

Date Reported: 6/26/2017

CLIENT: Rule Engineering LLC**Client Sample ID:** TSP-8 (6/22/17)**Project:** WPX NW Lybrook 133H**Collection Date:** 6/22/2017 12:45:00 PM**Lab ID:** 1706C78-003**Matrix:** SOIL**Received Date:** 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	45	9.7		mg/Kg	1	6/23/2017 11:19:48 AM	32452
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/23/2017 11:19:48 AM	32452
Surr: DNOP	81.9	70-130		%Rec	1	6/23/2017 11:19:48 AM	32452
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	12	4.1		mg/Kg	1	6/23/2017 10:29:50 AM	32437
Surr: BFB	257	54-150	S	%Rec	1	6/23/2017 10:29:50 AM	32437
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.020		mg/Kg	1	6/23/2017 10:29:50 AM	32437
Toluene	ND	0.041		mg/Kg	1	6/23/2017 10:29:50 AM	32437
Ethylbenzene	ND	0.041		mg/Kg	1	6/23/2017 10:29:50 AM	32437
Xylenes, Total	ND	0.082		mg/Kg	1	6/23/2017 10:29:50 AM	32437
Surr: 4-Bromofluorobenzene	124	66.6-132		%Rec	1	6/23/2017 10:29:50 AM	32437

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706C78

Date Reported: 6/26/2017

CLIENT: Rule Engineering LLC**Client Sample ID:** TSP-9 (6/22/17)**Project:** WPX NW Lybrook 133H**Collection Date:** 6/22/2017 12:40:00 PM**Lab ID:** 1706C78-004**Matrix:** SOIL**Received Date:** 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	60	10		mg/Kg	1	6/23/2017 11:44:34 AM	32452
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/23/2017 11:44:34 AM	32452
Surr: DNOP	86.6	70-130		%Rec	1	6/23/2017 11:44:34 AM	32452
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	12	4.0		mg/Kg	1	6/23/2017 10:53:38 AM	32437
Surr: BFB	257	54-150	S	%Rec	1	6/23/2017 10:53:38 AM	32437
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.020		mg/Kg	1	6/23/2017 10:53:38 AM	32437
Toluene	ND	0.040		mg/Kg	1	6/23/2017 10:53:38 AM	32437
Ethylbenzene	ND	0.040		mg/Kg	1	6/23/2017 10:53:38 AM	32437
Xylenes, Total	ND	0.080		mg/Kg	1	6/23/2017 10:53:38 AM	32437
Surr: 4-Bromofluorobenzene	124	66.6-132		%Rec	1	6/23/2017 10:53:38 AM	32437

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1706C78

Date Reported: 6/26/2017

CLIENT: Rule Engineering LLC**Client Sample ID:** TSP-10 (6/22/17)**Project:** WPX NW Lybrook 133H**Collection Date:** 6/22/2017 12:35:00 PM**Lab ID:** 1706C78-005**Matrix:** SOIL**Received Date:** 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	79	10		mg/Kg	1	6/23/2017 12:09:08 PM	32452
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	6/23/2017 12:09:08 PM	32452
Surr: DNOP	87.9	70-130		%Rec	1	6/23/2017 12:09:08 PM	32452
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	10	3.9		mg/Kg	1	6/23/2017 11:17:26 AM	32437
Surr: BFB	247	54-150	S	%Rec	1	6/23/2017 11:17:26 AM	32437
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.020		mg/Kg	1	6/23/2017 11:17:26 AM	32437
Toluene	ND	0.039		mg/Kg	1	6/23/2017 11:17:26 AM	32437
Ethylbenzene	ND	0.039		mg/Kg	1	6/23/2017 11:17:26 AM	32437
Xylenes, Total	ND	0.079		mg/Kg	1	6/23/2017 11:17:26 AM	32437
Surr: 4-Bromofluorobenzene	124	66.6-132		%Rec	1	6/23/2017 11:17:26 AM	32437

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706C78

26-Jun-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	LCS-32452		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 32452		RunNo: 43736					
Prep Date:	6/23/2017		Analysis Date: 6/23/2017		SeqNo: 1377774		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	102	73.2	114			
Surr: DNOP	4.6		5.000		91.3	70	130			

Sample ID	MB-32452	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID: 32452			RunNo: 43736					
Prep Date:	6/23/2017	Analysis Date: 6/23/2017			SeqNo: 1377775		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		87.3	70	130			

Sample ID	MB-32440	SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	PBS	Batch ID:	32440		RunNo:	43735				
Prep Date:	6/22/2017	Analysis Date:	6/23/2017		SeqNo:	1377776	Units:	%Rec		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.0		10.00		79.5	70	130			

Sample ID	LCS-32440		SampType:	LCS		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	LCSS		Batch ID:	32440		RunNo:	43735				
Prep Date:	6/22/2017		Analysis Date:	6/23/2017		SeqNo:	1377777		Units: %Rec		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: DNOP	3.8		5.000		75.3	70	130				

Sample ID	1706C78-001AMS		SampType:	MS		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	TSP-6 (6/22/17)		Batch ID:	32452		RunNo:	43735				
Prep Date:	6/23/2017		Analysis Date:	6/23/2017		SeqNo:	1378445		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	86	9.5	47.30	36.55	105	55.8	122				
Surr: DNOP	3.8		4.730		79.8	70	130				

Sample ID	1706C78-001AMSD		SampType: MSD		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-6 (6/22/17)		Batch ID: 32452		RunNo: 43735					
Prep Date:	6/23/2017		Analysis Date: 6/23/2017		SeqNo: 1378446		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	97	9.2	46.13	36.55	131	55.8	122	11.8	20	S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706C78

26-Jun-17

Client: Rule Engineering LLC

Project: WPX NW Lybrook 133H

Sample ID	1706C78-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	TSP-6 (6/22/17)	Batch ID:	32452	RunNo:	43735					
Prep Date:	6/23/2017	Analysis Date:	6/23/2017	SeqNo:	1378446	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.8		4.613		83.2	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706C78

26-Jun-17

Client: Rule Engineering LLC

Project: WPX NW Lybrook 133H

Sample ID	MB-32437	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	32437	RunNo:	43758					
Prep Date:	6/22/2017	Analysis Date:	6/23/2017	SeqNo:	1378794	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		117	54	150			

Sample ID	LCS-32437	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	32437	RunNo:	43758					
Prep Date:	6/22/2017	Analysis Date:	6/23/2017	SeqNo:	1378795	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)	24	5.0	25.00	0	96.0	76.4	125			
Surr: BFB	1300		1000		131	54	150			

Sample ID	1706C78-001AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	TSP-6 (6/22/17)	Batch ID:	32437	RunNo:	43758					
Prep Date:		Analysis Date:	6/23/2017	SeqNo:	1378796	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)	30	4.0	20.00	10.86	97.7	77.8	128			
Surr: BFB	2100		800.0		263	54	150			S

Sample ID	1706C78-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	TSP-6 (6/22/17)	Batch ID:	32437	RunNo:	43758					
Prep Date:		Analysis Date:	6/23/2017	SeqNo:	1378797	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)	30	4.0	20.00	10.86	97.4	77.8	128	0.211	20	
Surr: BFB	2100		800.0		265	54	150	0	0	S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1706C78

26-Jun-17

Client: Rule Engineering LLC
Project: WPX NW Lybrook 133H

Sample ID	MB-32437		SampType: MBLK	TestCode: EPA Method 8021B: Volatiles						
Client ID:	PBS		Batch ID: 32437	RunNo: 43758						
Prep Date:	6/22/2017		Analysis Date: 6/23/2017	SeqNo: 1378811		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		113	66.6	132			

Sample ID	LCS-32437		SampType: LCS	TestCode: EPA Method 8021B: Volatiles						
Client ID:	LCSS		Batch ID: 32437	RunNo: 43758						
Prep Date:	6/22/2017		Analysis Date: 6/23/2017	SeqNo: 1378812		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	97.5	80	120			
Toluene	0.97	0.050	1.000	0	96.9	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.0	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.9	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		120	66.6	132			

Sample ID	1706C78-002AMS		SampType: MS	TestCode: EPA Method 8021B: Volatiles						
Client ID:	TSP-7 (6/22/17)		Batch ID: 32437	RunNo: 43758						
Prep Date:			Analysis Date: 6/23/2017	SeqNo: 1378813		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.76	0.019	0.7479	0	102	61.5	138			
Toluene	0.77	0.037	0.7479	0.01369	101	71.4	127			
Ethylbenzene	0.76	0.037	0.7479	0.03088	97.6	70.9	132			
Xylenes, Total	2.3	0.075	2.244	0.04166	99.3	76.2	123			
Surr: 4-Bromofluorobenzene	0.98		0.7479		131	66.6	132			

Sample ID	1706C78-002AMSD		SampType: MSD	TestCode: EPA Method 8021B: Volatiles						
Client ID:	TSP-7 (6/22/17)		Batch ID: 32437	RunNo: 43758						
Prep Date:			Analysis Date: 6/23/2017	SeqNo: 1378814		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.75	0.019	0.7479	0	99.9	61.5	138	1.78	20	
Toluene	0.74	0.037	0.7479	0.01369	97.8	71.4	127	3.07	20	
Ethylbenzene	0.74	0.037	0.7479	0.03088	94.4	70.9	132	3.19	20	
Xylenes, Total	2.2	0.075	2.244	0.04166	97.2	76.2	123	2.13	20	
Surr: 4-Bromofluorobenzene	0.97		0.7479		130	66.6	132	0	0	

Qualifiers:

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



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: RULE ENGINEERING LL

Work Order Number: 1706C78

RcptNo: 1

Received By: Anne Thorne

6/23/2017 7:25:00 AM

Anne Thorne

Completed By: Anne Thorne

6/23/2017 8:26:57 AM

Anne Thorne

Reviewed By: *[Signature]*

6/23/17

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 $>0^{\circ}\text{C}$ 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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

