

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

Form C-141  
Revised August 8, 2011

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

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 Hurricane Federal #001	Facility Type well site

Surface Owner Federal	Mineral Owner Federal	API No. 30-045-27408
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	24	23N	09W	400	North	900	West	San Juan

Latitude N36.21854 Longitude W107.74618

**NATURE OF RELEASE**

Type of Release produced water and crude oil	Volume of Release 2 bbl	Volume Recovered 1 bbl
Source of Release fluids associated with plug installation activities	Date and Hour of Occurrence 5/16/17 13:00	Date and Hour of Discovery 5/16/17 16:15
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Cory Smith (NMOCD) Whitney Thomas (BLM-FFO)	
Within 24 hrs of discovery		
By Whom? Deborah Watson	Date and Hour 5/16/17 17:06 and 17:10 followed by email.	
Was a Watercourse Reached? Drainage off pad into a small, dry wash-not a blue line <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

**OIL CONS. DIV DIST. 3**  
**OCT 11 2017**

If a Watercourse was Impacted, Describe Fully.\* Release impacted approximately 53 ft of the small, dry wash (not a blue line).

Describe Cause of Problem and Remedial Action Taken.\*  
While setting a plug in the well, fluids migrated off location.

Describe Area Affected and Cleanup Action Taken.\*

- A spec truck was called to the location to collect fluids.
- WPX contacted agencies to receive approval to take immediate actions to begin cleanup activities on and off site.
- Cleanup activities included washing of impacted vegetation and removal of impacted soils from the site and off site locations (hand digging).
- Confirmation sampling occurred on May 30, 2017 and August 2, 2017 following additional cleanup. Vanessa Fields with NMOCD was present during the sampling event on May 30, 2017. Both NMOCD and BLM-FFO were notified of the sampling events.
- Three five-point composite sample were collected from within impacted area. The samples were laboratory analyzed for BTEX, TPH (GRO/DRO/MRO), and chlorides.
- Final confirmation sampling results were reported below NMOCD Recommended Remediation Action Levels, no further action is required. (Report which includes the laboratory analytical report is enclosed.)

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: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Deborah Watson	Approved by Environmental Specialist: 	
Title: Environmental Specialist	Approval Date: 10/27/17	Expiration Date:
E-mail Address: deborah.watson@wpenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 10/10/2017	Phone: 505-333-1880	

\* Attach Additional Sheets If Necessary

NVF 1715137805

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**Hurricane Federal #001 Release Report**  
Unit Letter D, Section 24, Township 23N, Range 9W  
San Juan County, NM

October 10, 2017

★ **Hurricane Federal #001 Release Report**  
**May 2017**

### **1.0 Introduction**

On May 16, 2017, while setting a plug in the Hurricane Federal #001, two barrels of fluid (produced water and crude oil) came out of the wellhead on to the pad. Approximately one barrel of the fluid migrated off pad into a drainage which connected with a dry wash. A narrow stream of fluid migrated approximately 165 feet from the pad boundary. The Hurricane Federal #001 is located in Section 24, Township 23N, Range 9W, San Juan County, New Mexico. Cleanup at the location consisted of recovery of released fluids, washing of impacted vegetation, and removal and disposal of impacted soil.

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

### **2.0 Release Summary**

*Well Location:* Hurricane Federal #001

*API #:* 30-045-27408

*Location Description:* Unit Letter D, Section 24, Township 23N, Range 9W

*Wellhead Latitude/Longitude:* N36.21854, W107.74618

*Release Latitude/Longitude:* N36.21854, W107.74618

*Release Discovery:* May 16, 2017

*Land Jurisdiction:* Federal

*Agency Notification:* Bureau of Land Management, Farmington Field Office (BLM-FFO) and New Mexico Oil Conservation Division (NMOCD)

*Agency Notification Date(s):* May 16, 2017

*Source of Release:* Wellhead (plug installation activities)

*Release Contents:* Produced water and crude oil

*Volume Released:* approximately 2 barrels

*Volume Recovered:* approximately 1 barrel

*NMOCD Ranking:* 20

### **3.0 NMOCD Ranking**

In accordance with *NMOCD Guidelines for Remediation of Leaks, Spills, and Releases* (August 1993), this location was assigned a ranking score of 20. Recommended Remediation Action Levels (RRAL) for impacted soils at the location 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).

- *Groundwater:* Depth to groundwater at the location is estimated at 200 feet below ground surface (bgs) based on the July 2017 ground bed drilling log for the W Lybrook Unit #716H Well Pad which reported depth to groundwater at 160 feet bgs. The W Lybrook Unit #716H Well Pad is located 2,600 feet northeast and 40 feet lower in elevation from the Hurricane Federal #001.
- *Water Wells:* 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.
- *Surface Water:* An unnamed wash is located approximately 113 feet east-northeast of the release source.

**Hurricane Federal #001 Release Report  
May 2017**

#### **4.0 Field Activities**

A spec truck was called to the location upon discovery and an estimated 1 barrel of fluid was recovered. On May 16, 2017, a crew was called to the location to hand excavate impacted soil off site and wash impacted vegetation. Cleanup continued May 17, 2017. Additional soil was removed from the pad and drainage on July 19, 2017. Approximately 55 cubic yards of soil was removed from the pad and approximately 5 cubic yards of soil was removed off pad. Impacted soils were transported to Envirotech Landfarm for disposal.

#### **5.0 Soil Sampling**

On May 30, 2017, three soil confirmation samples were collected (SC-1 through SC-3) from within the remediated area (Pad, Drainage, and Wash). Vanessa Fields, NMOCD, was present during the sampling event on May 30, 2017. Two additional samples were collected from the pad and drainage on August 2, 2017. Vanessa Fields, NMOCD was in route to the location when she was called back to the office. BLM was notified of both events, but was not in attendance. Soil samples composited for laboratory analysis were placed into laboratory supplied glassware, labeled, and shipped on ice to Hall Environmental Analysis Laboratory. Each sample was analyzed for the following:

- BTEX per U.S. Environmental Protection Agency (USEPA) Method 8021B,
- TPH (GRO/DRO/MRO) per USEPA Method 8015M/D, and
- Chlorides per USEPA Method 300.0.

#### **6.0 Analytical Results**

Final laboratory analytical results for soil confirmation samples (SC-1R, SC-2R, and SC-3) reported benzene and BTEX concentrations below NMOCD RRAL of 10 mg/kg and 50 mg/kg, respectively. All soil confirmation samples reported TPH concentrations below the NMOCD RRAL of 100 mg/kg. Final chloride concentrations were reported at less than 30 mg/kg (Pad), 88 mg/kg (Drainage), and 380 mg/kg (Wash).

Sample locations and summary of analytical results are included as Figure 3. The analytical laboratory report is attached.

#### **7.0 Conclusions**

On May 16, 2017, fluids migrated off pad during well plug installation activities at the Hurricane Federal #001, located in Section 24, Township 23N, Range 9W, San Juan County, New Mexico. Cleanup consisted of recovery of 1 bbl of released fluids and removal of impacted soils and washing of vegetation impacted by the release. Confirmation samples were collected from the location on May 30 and August 2, 2017. Laboratory analytical results for final confirmation samples SC-1R, SC-2R, and SC-3 reported benzene, total BTEX, and TPH (GRO/DRO) concentrations below the applicable NMOCD RRAL.

On August 3, 2017, following confirmation sample collection and receipt of pad results, WPX leveled and repaired the well pad. No further work is recommended.

For additional information or questions regarding location conditions, please contact me at 505-333-1880.

**Hurricane Federal #001 Release Report  
May 2017**

Sincerely,



Deborah Watson  
Environmental Specialist

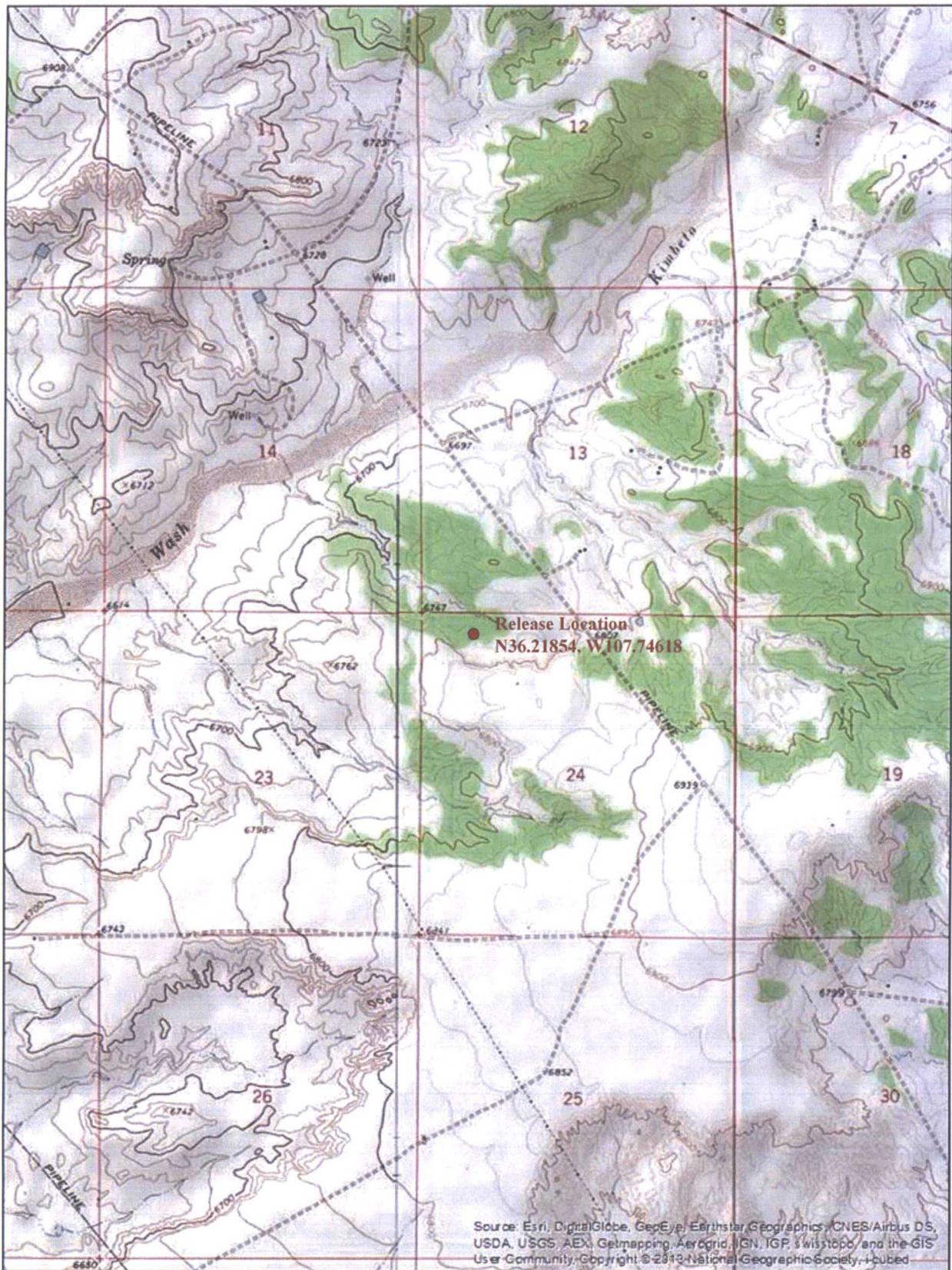
**Attachments**

Figure 1. Topographic Map

Figure 2. Aerial Map

Figure 3. Soil Sample Location Map

Hall Analytical Laboratory Reports (Order #1706016, #1708193, #1708349)



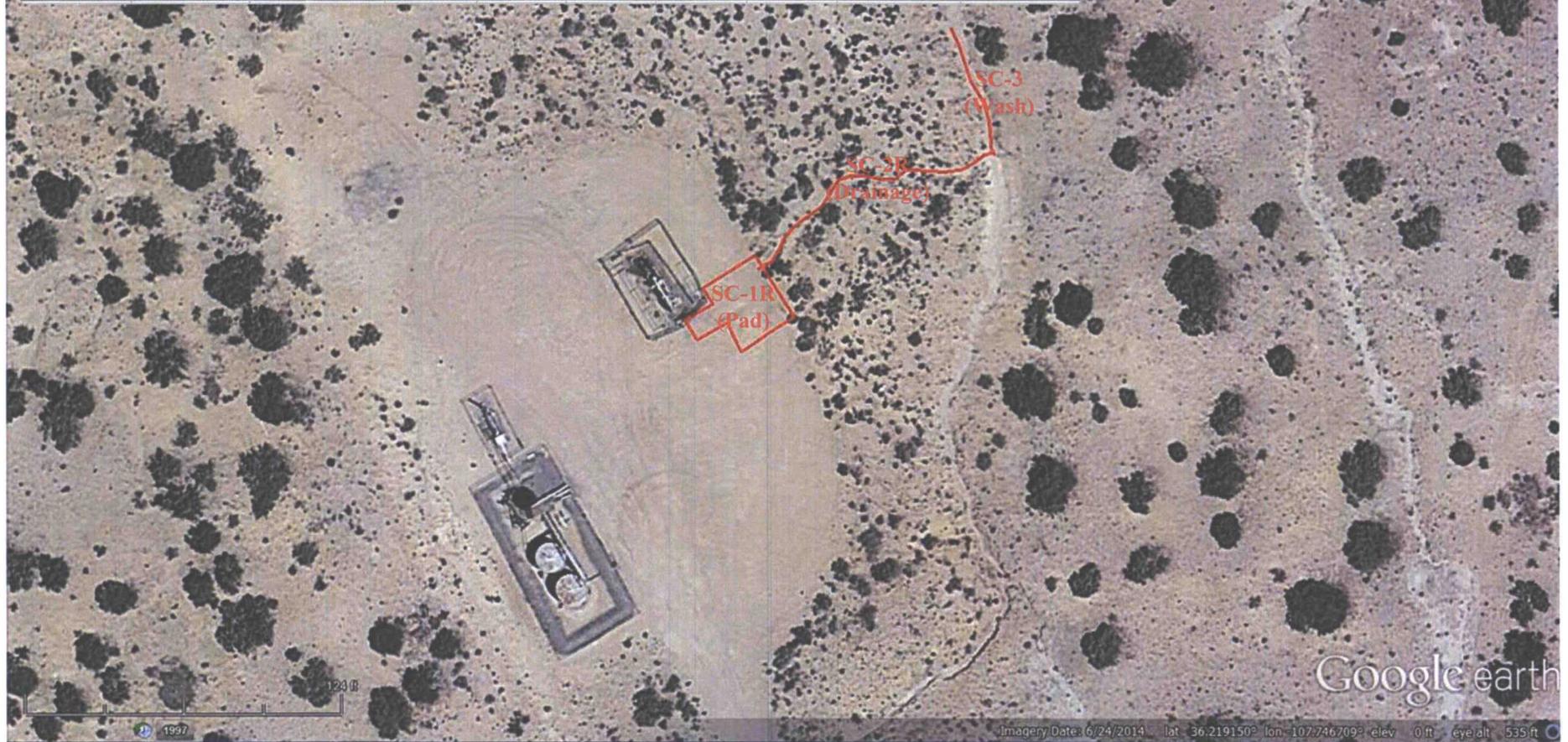
**Hurricane Federal #001**  
**Figure 1. Topographic Map**  
Section 24, Township 23N, Range 9W  
N36.21854, W107.74618  
San Juan County, NM  
Scale 1:24,000



**Hurricane Federal #001**  
**Figure 2. Aerial Map**  
Section 24, Township 23N, Range 9W  
N36.21854, W107.74618  
San Juan County, NM

**Final Soil Sampling Results Summary**

Sample Name	Date	Location	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH as DRO (mg/kg)	TPH as GRO (mg/kg)	TPH as MRO (mg/kg)	Total TPH (GRO+DRO) (mg/kg)	Chloride (mg/kg)
SC-1R	2-Aug-17	Pad	<0.017	<0.156	<9.6	<3.5	<48	<13.1	<30
SC-2R	2-Aug-17	Drainage	<0.025	<0.224	<9.4	<5.0	<47	<14.4	88
SC-3	30-May-17	Wash	<0.025	<0.221	40	<4.9	48	40	380



**Hurricane Federal #001**

**Figure 3. Aerial Site Map**

Section 24, Township 23N, Range 9W

N36.21854, W107.74618

San Juan County, NM



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

June 08, 2017

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

RE: Hurricane Federal #001

OrderNo.: 1706016

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/1/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

Analytical Report

Lab Order 1706016

Date Reported: 6/8/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: WPX Energy

Client Sample ID: SC-1 (on pad)

Project: Hurricane Federal #001

Collection Date: 5/30/2017 1:50:00 PM

Lab ID: 1706016-001

Matrix: SOIL

Received Date: 6/1/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	160	30		mg/Kg	20	6/2/2017 1:10:16 PM	32082
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	1600	99		mg/Kg	10	6/2/2017 2:20:29 PM	32064
Motor Oil Range Organics (MRO)	1300	500		mg/Kg	10	6/2/2017 2:20:29 PM	32064
Surr: DNOP	0	70-130	S	%Rec	10	6/2/2017 2:20:29 PM	32064
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/2/2017 1:57:53 PM	32063
Surr: BFB	96.1	54-150		%Rec	1	6/2/2017 1:57:53 PM	32063
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	6/2/2017 1:57:53 PM	32063
Toluene	ND	0.049		mg/Kg	1	6/2/2017 1:57:53 PM	32063
Ethylbenzene	ND	0.049		mg/Kg	1	6/2/2017 1:57:53 PM	32063
Xylenes, Total	ND	0.098		mg/Kg	1	6/2/2017 1:57:53 PM	32063
Surr: 4-Bromofluorobenzene	116	66.6-132		%Rec	1	6/2/2017 1:57:53 PM	32063

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
R	RPD outside accepted recovery limits	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 1706016

Date Reported: 6/8/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: WPX Energy

Client Sample ID: SC-2 (drainage)

Project: Hurricane Federal #001

Collection Date: 5/30/2017 1:55:00 PM

Lab ID: 1706016-002

Matrix: SOIL

Received Date: 6/1/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	2500	150		mg/Kg	100	6/5/2017 5:05:45 PM	32082
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	56	9.9		mg/Kg	1	6/2/2017 2:42:42 PM	32064
Motor Oil Range Organics (MRO)	120	50		mg/Kg	1	6/2/2017 2:42:42 PM	32064
Surr: DNOP	102	70-130		%Rec	1	6/2/2017 2:42:42 PM	32064
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/2/2017 4:44:59 PM	32063
Surr: BFB	96.7	54-150		%Rec	1	6/2/2017 4:44:59 PM	32063
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	6/2/2017 4:44:59 PM	32063
Toluene	ND	0.050		mg/Kg	1	6/2/2017 4:44:59 PM	32063
Ethylbenzene	ND	0.050		mg/Kg	1	6/2/2017 4:44:59 PM	32063
Xylenes, Total	ND	0.10		mg/Kg	1	6/2/2017 4:44:59 PM	32063
Surr: 4-Bromofluorobenzene	116	66.6-132		%Rec	1	6/2/2017 4:44:59 PM	32063

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

<b>Qualifiers:</b>	* 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
	R RPD outside accepted recovery limits	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 1706016

Date Reported: 6/8/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: WPX Energy

Client Sample ID: SC-3 (wash)

Project: Hurricane Federal #001

Collection Date: 5/30/2017 2:00:00 PM

Lab ID: 1706016-003

Matrix: SOIL

Received Date: 6/1/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	380	30		mg/Kg	20	6/2/2017 1:35:05 PM	32082
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	40	9.3		mg/Kg	1	6/2/2017 3:04:51 PM	32064
Motor Oil Range Organics (MRO)	48	46		mg/Kg	1	6/2/2017 3:04:51 PM	32064
Surr: DNOP	84.0	70-130		%Rec	1	6/2/2017 3:04:51 PM	32064
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/2/2017 5:08:51 PM	32063
Surr: BFB	102	54-150		%Rec	1	6/2/2017 5:08:51 PM	32063
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	6/2/2017 5:08:51 PM	32063
Toluene	ND	0.049		mg/Kg	1	6/2/2017 5:08:51 PM	32063
Ethylbenzene	ND	0.049		mg/Kg	1	6/2/2017 5:08:51 PM	32063
Xylenes, Total	ND	0.098		mg/Kg	1	6/2/2017 5:08:51 PM	32063
Surr: 4-Bromofluorobenzene	124	66.6-132		%Rec	1	6/2/2017 5:08:51 PM	32063

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
R	RPD outside accepted recovery limits	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#: 1706016

08-Jun-17

Client: WPX Energy  
Project: Hurricane Federal #001

Sample ID	MB-32082	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	32082	RunNo:	43225					
Prep Date:	6/2/2017	Analysis Date:	6/2/2017	SeqNo:	1361223	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-32082	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	32082	RunNo:	43225					
Prep Date:	6/2/2017	Analysis Date:	6/2/2017	SeqNo:	1361224	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.8	90	110			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- 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#: 1706016

08-Jun-17

Client: WPX Energy  
Project: Hurricane Federal #001

Sample ID	LCS-32064	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	32064	RunNo:	43209					
Prep Date:	6/1/2017	Analysis Date:	6/2/2017	SeqNo:	1360326	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	87.3	73.2	114			
Surr: DNOP	4.7		5.000		94.5	70	130			

Sample ID	MB-32064	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	32064	RunNo:	43209					
Prep Date:	6/1/2017	Analysis Date:	6/2/2017	SeqNo:	1360330	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	9.5		10.00		95.1	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                                    |
| R RPD outside accepted recovery limits                  | 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#: 1706016

08-Jun-17

**Client:** WPX Energy  
**Project:** Hurricane Federal #001

Sample ID <b>MB-32063</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>32063</b>	RunNo: <b>43219</b>								
Prep Date: <b>6/1/2017</b>	Analysis Date: <b>6/2/2017</b>	SeqNo: <b>1360983</b>	Units: <b>mg/Kg</b>							
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		100	54	150			

Sample ID <b>LCS-32063</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>32063</b>	RunNo: <b>43219</b>								
Prep Date: <b>6/1/2017</b>	Analysis Date: <b>6/2/2017</b>	SeqNo: <b>1360984</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	76.4	125			
Surr: BFB	1000		1000		103	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                                    |
| R RPD outside accepted recovery limits                  | 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#: 1706016

08-Jun-17

Client: WPX Energy  
Project: Hurricane Federal #001

Sample ID	MB-32063	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	32063	RunNo:	43219					
Prep Date:	6/1/2017	Analysis Date:	6/2/2017	SeqNo:	1361003	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		124	66.6	132			

Sample ID	LCS-32063	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	32063	RunNo:	43219					
Prep Date:	6/1/2017	Analysis Date:	6/2/2017	SeqNo:	1361004	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	102	80	120			
Toluene	1.0	0.050	1.000	0	102	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		119	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
- R RPD outside accepted recovery limits
- 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: 1708016

RcptNo: 1

Received By: Anne Thorne

6/1/2017 7:20:00 AM

*Anne Thorne*

Completed By: Anne Thorne

6/1/2017 9:44:10 AM

*Anne Thorne*

Reviewed By: ENM

06/01/17

### 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	1.7	Good	Yes			





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4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

August 04, 2017

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

RE: Hurricane Federal #001

OrderNo.: 1708193

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/3/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1708193

04-Aug-17

Client: WPX Energy  
Project: Hurricane Federal #001

Sample ID	MB-33153	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	33153	RunNo:	44718					
Prep Date:	8/3/2017	Analysis Date:	8/3/2017	SeqNo:	1414230	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-33153	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	33153	RunNo:	44718					
Prep Date:	8/3/2017	Analysis Date:	8/3/2017	SeqNo:	1414231	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.7	90	110			

## Qualifiers:

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | 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#: 1708193  
 04-Aug-17

**Client:** WPX Energy  
**Project:** Hurricane Federal #001

Sample ID	<b>LCS-33151</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>33151</b>	RunNo:	<b>44701</b>					
Prep Date:	<b>8/3/2017</b>	Analysis Date:	<b>8/3/2017</b>	SeqNo:	<b>1413701</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.3	73.2	114			
Surr: DNOP	4.6		5.000		92.0	70	130			

Sample ID	<b>MB-33151</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>33151</b>	RunNo:	<b>44701</b>					
Prep Date:	<b>8/3/2017</b>	Analysis Date:	<b>8/3/2017</b>	SeqNo:	<b>1413702</b>	Units:	<b>mg/Kg</b>			
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		94.3	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#: 1708193

04-Aug-17

**Client:** WPX Energy  
**Project:** Hurricane Federal #001

Sample ID <b>RB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>G44704</b>		RunNo: <b>44704</b>							
Prep Date:	Analysis Date: <b>8/3/2017</b>		SeqNo: <b>1414005</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		88.3	54	150			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>G44704</b>		RunNo: <b>44704</b>							
Prep Date:	Analysis Date: <b>8/3/2017</b>		SeqNo: <b>1414006</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	76.4	125			
Surr: BFB	990		1000		99.2	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#: 1708193

04-Aug-17

Client: WPX Energy  
Project: Hurricane Federal #001

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	B44704	RunNo:	44704					
Prep Date:		Analysis Date:	8/3/2017	SeqNo:	1414011	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		108	66.6	132			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	B44704	RunNo:	44704					
Prep Date:		Analysis Date:	8/3/2017	SeqNo:	1414012	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	98.8	80	120			
Toluene	0.99	0.050	1.000	0	99.1	80	120			
Ethylbenzene	0.99	0.050	1.000	0	98.9	80	120			
Xylenes, Total	3.0	0.10	3.000	0	101	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		116	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 |



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: 1708193

RcptNo: 1

Received By: Anne Thorne 8/3/2017 7:10:00 AM

*Anne Thorne*

Completed By: Anne Thorne 8/3/2017 7:49:00 AM

*Anne Thorne*

Reviewed By: *JC 8-3-17 0800*

### 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? Yes  No   
(Note discrepancies on chain of custody)
- 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? Yes  No   
(If no, notify customer for authorization.)

# 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	1.1	Good	Yes			





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

August 14, 2017

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

RE: Hurricane Federal 001

OrderNo.: 1708349

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/3/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Analytical Report**

Lab Order 1708349

Date Reported: 8/14/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** WPX Energy

**Client Sample ID:** Drainage (SC-2R)

**Project:** Hurricane Federal 001

**Collection Date:** 8/2/2017 1:45:00 PM

**Lab ID:** 1708349-001

**Matrix:** SOIL

**Received Date:** 8/3/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	88	30		mg/Kg	20	8/8/2017 11:29:27 AM	33236
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	8/9/2017 12:19:12 PM	33246
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/9/2017 12:19:12 PM	33246
Surr: DNOP	110	70-130		%Rec	1	8/9/2017 12:19:12 PM	33246
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/8/2017 1:31:11 PM	33223
Surr: BFB	92.4	54-150		%Rec	1	8/8/2017 1:31:11 PM	33223
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>RAA</b>
Benzene	ND	0.025		mg/Kg	1	8/8/2017 1:31:11 PM	33223
Toluene	ND	0.050		mg/Kg	1	8/8/2017 1:31:11 PM	33223
Ethylbenzene	ND	0.050		mg/Kg	1	8/8/2017 1:31:11 PM	33223
Xylenes, Total	ND	0.099		mg/Kg	1	8/8/2017 1:31:11 PM	33223
Surr: 4-Bromofluorobenzene	116	66.6-132		%Rec	1	8/8/2017 1:31:11 PM	33223

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#: 1708349

14-Aug-17

Client: WPX Energy  
Project: Hurricane Federal 001

Sample ID	MB-33236	SampType:	MBLK	TestCode:	EPA Method 300.0: Anlons					
Client ID:	PBS	Batch ID:	33236	RunNo:	44783					
Prep Date:	8/8/2017	Analysis Date:	8/8/2017	SeqNo:	1418297	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-33236	SampType:	LCS	TestCode:	EPA Method 300.0: Anlons					
Client ID:	LCSS	Batch ID:	33236	RunNo:	44783					
Prep Date:	8/8/2017	Analysis Date:	8/8/2017	SeqNo:	1418298	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.8	90	110			

## Qualifiers:

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| PQL Practical 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#: 1708349

14-Aug-17

Client: WPX Energy  
Project: Hurricane Federal 001

Sample ID	1708349-001AMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	Drainage	Batch ID:	33246	RunNo:	44835					
Prep Date:	8/8/2017	Analysis Date:	8/9/2017	SeqNo:	1417564	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.8	49.07	0	91.6	55.8	122			
Surr: DNOP	4.4		4.907		89.7	70	130			

Sample ID	1708349-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	Drainage	Batch ID:	33246	RunNo:	44835					
Prep Date:	8/8/2017	Analysis Date:	8/9/2017	SeqNo:	1417565	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	49.90	0	95.9	55.8	122	6.31	20	
Surr: DNOP	4.5		4.990		90.4	70	130	0	0	

Sample ID	LCS-33246	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	33246	RunNo:	44835					
Prep Date:	8/8/2017	Analysis Date:	8/9/2017	SeqNo:	1417568	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	91.4	73.2	114			
Surr: DNOP	4.3		5.000		85.5	70	130			

Sample ID	MB-33246	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	33246	RunNo:	44835					
Prep Date:	8/8/2017	Analysis Date:	8/9/2017	SeqNo:	1417569	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	8.8		10.00		87.6	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#: 1708349

14-Aug-17

**Client:** WPX Energy  
**Project:** Hurricane Federal 001

Sample ID: <b>1708349-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>Drainage</b>	Batch ID: <b>33223</b>	RunNo: <b>44785</b>								
Prep Date: <b>8/7/2017</b>	Analysis Date: <b>8/8/2017</b>	SeqNo: <b>1416870</b>			Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.7	23.45	0	114	77.8	128			
Surr: BFB	990		938.1		105	54	150			

Sample ID: <b>1708349-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>Drainage</b>	Batch ID: <b>33223</b>	RunNo: <b>44785</b>								
Prep Date: <b>8/7/2017</b>	Analysis Date: <b>8/8/2017</b>	SeqNo: <b>1416871</b>			Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.7	23.34	0	116	77.8	128	1.03	20	
Surr: BFB	990		933.7		106	54	150	0	0	

Sample ID: <b>LCS-33223</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>33223</b>	RunNo: <b>44785</b>								
Prep Date: <b>8/7/2017</b>	Analysis Date: <b>8/8/2017</b>	SeqNo: <b>1416902</b>			Units: <b>mg/Kg</b>					
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	1000		1000		101	54	150			

Sample ID: <b>MB-33223</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>33223</b>	RunNo: <b>44785</b>								
Prep Date: <b>8/7/2017</b>	Analysis Date: <b>8/8/2017</b>	SeqNo: <b>1416904</b>			Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	940		1000		93.7	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#: 1708349

14-Aug-17

**Client:** WPX Energy  
**Project:** Hurricane Federal 001

Sample ID	LCS-33223		SampType:	LCS		TestCode:	EPA Method 8021B: Volatiles				
Client ID:	LCSS		Batch ID:	33223		RunNo:	44785				
Prep Date:	8/7/2017		Analysis Date:	8/8/2017		SeqNo:	1416942		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	0.98	0.025	1.000	0	98.2	80	120				
Toluene	0.98	0.050	1.000	0	97.6	80	120				
Ethylbenzene	0.96	0.050	1.000	0	96.4	80	120				
Xylenes, Total	3.0	0.10	3.000	0	98.6	80	120				
Surr: 4-Bromofluorobenzene	1.2		1.000		118	66.6	132				

Sample ID	MB-33223		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles				
Client ID:	PBS		Batch ID:	33223		RunNo:	44785				
Prep Date:	8/7/2017		Analysis Date:	8/8/2017		SeqNo:	1416944		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		116	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
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Hall Environmental Analysts 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: 1708349

RcptNo: 1

Received By: Anne Thorne 8/3/2017 7:10:00 AM  
 Completed By: Ashley Gallegos 8/4/2017 5:46:14 PM  
 Reviewed By: ENM/lag 08/04/17

*Anne Thorne*  
*AG*

**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? 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? Yes  No

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

**Special Handling (if applicable)**

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

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

17. Additional remarks:

**18. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			

