

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

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

OIL CONS. DIV DIST. 3  
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

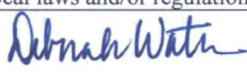

Name of Company WPX Energy Production, LLC	Contact Deborah Watson
Address PO Box 640	Telephone No. 505-333-1880
Facility Name Chaco 2308 09A #145H	Facility Type Well Site
Surface Owner Federal	Mineral Owner Federal (Lease # NMNM-018463) API No. 30-045-35496

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	9	23N	08W	1,180	North	1,750	East	San Juan

Latitude N36.245745 Longitude W107.683798

#### NATURE OF RELEASE

Type of Release Crude oil and produced water	Volume of Release 12 bbl	Volume Recovered 6 bbl
Source of Release Hole in flowline	Date and Hour of Occurrence 5/27/17 11:25	Date and Hour of Discovery 5/27/17 11:25
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required Notice given within 24 hours of release.	If YES, To Whom? Cory Smith (NMOCD) Vanessa Fields (NMOCD) Whitney Thomas (BLM-FFO)	
By Whom?	Date and Hour 6/1/17 email at 9:50 AM	
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 flowline. A spec truck was called to the location and fluids were recovered. The location was shut-in and cleanup activities started.		
Describe Area Affected and Cleanup Action Taken.* <ul style="list-style-type: none"><li>Spec trucks recovered approximately 6 bbl of released fluids.</li><li>The fluids remained on location.</li><li>Cleanup started day of discovery. Due to the location of the release, equipment was temporarily removed from the facility. Impacted soil was removed from the location and transported to landfarm for disposal.</li><li>WPX notified BLM and NMOCD prior to confirmation sampling on June. Seven confirmation samples were collected and laboratory analyzed for BTEX, TPH (GRO/DRO/MRO), and chlorides. Mr. Cory Smith, NMOCD, was present during sample collection.</li><li>Confirmation samples SC-1 through SC-7 had concentrations of benzene, BTEX, and TPH below applicable RRALs. (See attached report)</li><li>WPX received approval to backfill the excavation on June 26 from BLM and NMOCD. (see attached report)</li><li>No further action is recommended.</li></ul>		
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: 2/27/18	Expiration Date:
E-mail Address: deborah.watson@wpxenergy.com	Conditions of Approval: —	Attached <input checked="" type="checkbox"/>
Date: 02/04/18	Phone: 505-333-1880	

\* Attach Additional Sheets If Necessary

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**Chaco 2308 09A #145H Facility Release Report**  
Section 9, Township 23N, Range 8W  
San Juan County, NM

February 4, 2018

## **1.0 Introduction**

On May 27, 2017, fluid (produced water and crude oil) was discovered leaking from an underground flowline at the Chaco 2308 09A #145H facility, located in Section 9, Township 23N, 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:* Chaco 2308 09A #145H Facility

*API #:* 30-045-35496

*Lease #:* NMNM-018463

*Site Location Description:* Unit Letter B, Section 09, Township 23N, Range 8W

*Release Latitude/Longitude:* N36.245745, W107.683798

*Land Jurisdiction:* Bureau of Land Management-Farmington Field Office

*Agency Notification:* New Mexico Oil Conservation Division (NMOCD) and BLM Farmington Field Office (BLM-FFO)

*Agency Notification Date(s):* May 27, 2017

*Source of Release:* Underground flowline

*Release Contents:* Crude oil and produced water

*Volume Released:* Estimated 12 barrels mixed fluids

*Volume Recovered:* Estimated 6 barrels mixed fluids

*NMOCD Ranking:* 10

## **3.0 Land Jurisdiction and Site Ranking**

The referenced well is located on federal land in San Juan County, New Mexico.

In accordance with *NMOCD Guidelines for Remediation of Leaks, Spills, and Releases* (August 1993), this site was assigned a ranking score of 10. Based on a ranking score of 10, 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 1,000 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 greater than 100 feet below ground surface (bgs) based on the August 2014 ground bed drilling log for this facility which recorded depth to water at 155 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.

A small unnamed drainage is located approximately 250 east of the location.

## **4.0 Field Activities**

On May 27, 2017, crews began cleanup at the site. Early efforts including recovery of standing fluids. Cleanup at the site included removal of equipment and mechanical excavation from within the impacted area. The excavation extent measured approximately 100 ft. (length) x 45 ft. (width) x 1-15 ft. (depth).



## 5.0 Soil Sampling

On June 22, 2017, Rule Engineering, LLC personnel collected confirmation soil samples (SC-1 through SC-7) from the open excavation. Mr. Cory Smith, NMOCD, was present during confirmation sample collection on June 22, 2017. 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-Motor Oil Range) per USEPA Method 8015M/D, and
- Chloride per USEPA Method 300.0.

## 6.0 Analytical Results

Final laboratory analytical results for soil confirmation samples (SC-1 through SC-7) reported benzene and BTEX concentrations below the NMOCD RRAL of 10 mg/kg and 50 mg/kg, respectively. All final soil confirmation samples reported TPH concentrations below the NMOCD RRAL of 1,000 mg/kg,

Laboratory analytical results are summarized in Table 1 and the analytical laboratory report is attached.

## 7.0 Conclusions

A crude oil release of approximately 12 barrels of mixed fluids was discovered on May 27, 2017. The source of the release was a hole in an underground line located at the Chaco 2308 09A #145H facility, located in Section 9, Township 23N, Range 8W, San Juan County, New Mexico. Cleanup consisted of removal and disposal of approximately 2,350 cubic yards of impacted soil from the location. Seven confirmation samples were collected from within the impacted area. Laboratory analytical results for final soil confirmation samples reported benzene, total BTEX, and total TPH (GRO/DRO) concentrations below the applicable NMOCD RRAL. WPX received approval to backfill the excavation on June 26, 2017, from NMOCD and BLM-FFO. Based on laboratory analytical results of the confirmation soil samples, no further work is recommended. The excavation was backfilled during the month of July 2017.

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

Sincerely,



Deborah Watson  
Environmental Specialist

## Attachments

Figure 1. Topographic Map

Figure 2. Sample Locations

Table 1. Final Soil Sampling Results

Email correspondence

Hall Analytical Laboratory Reports (Report #1706C80)



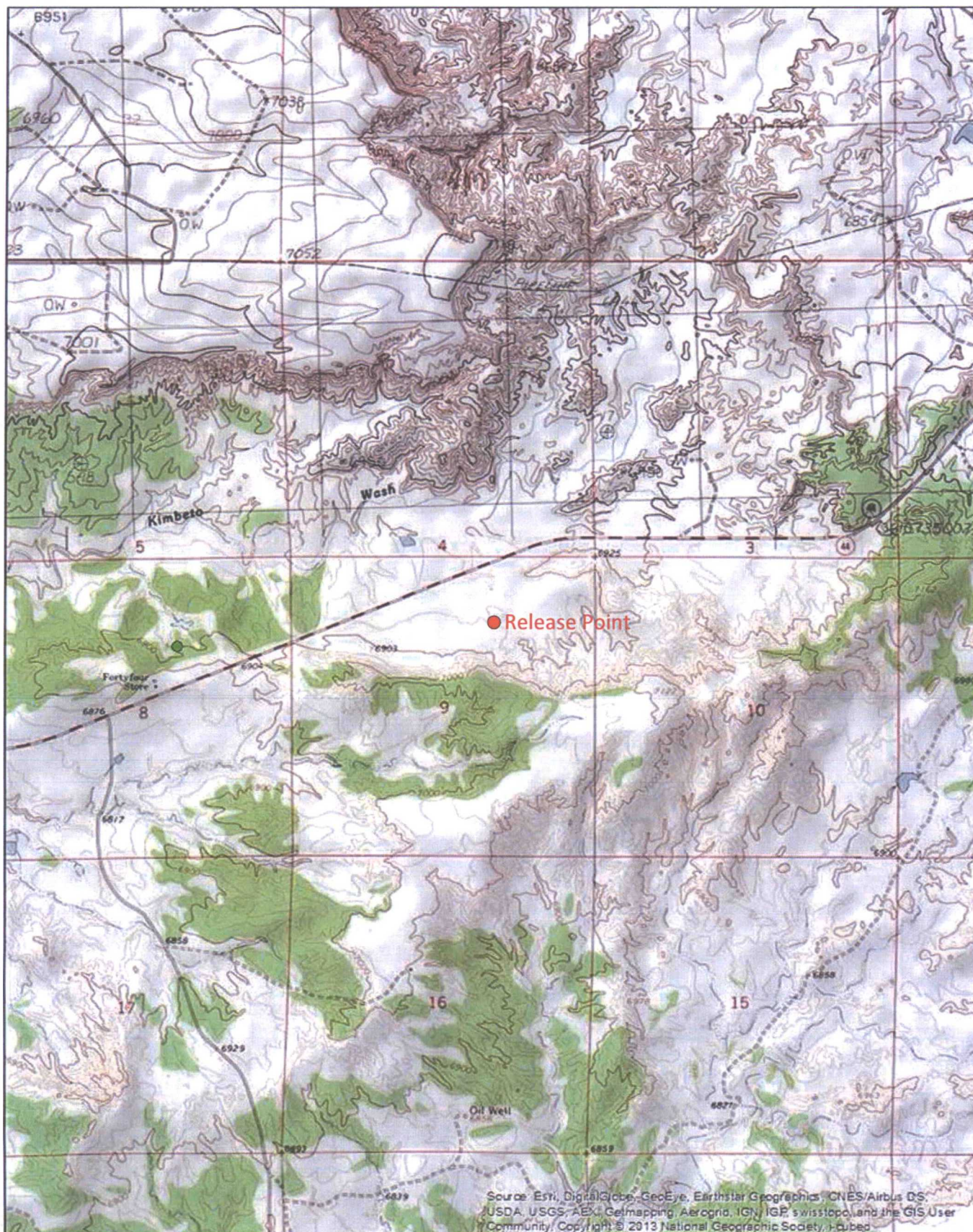


Figure 1. Topographic Map  
 Chaco 2308 09A #145H  
 Section 09, Township 23N, Range 08W  
 N36.245745, W107.683798  
 San Juan County, NM  
 Scale 1:24,000



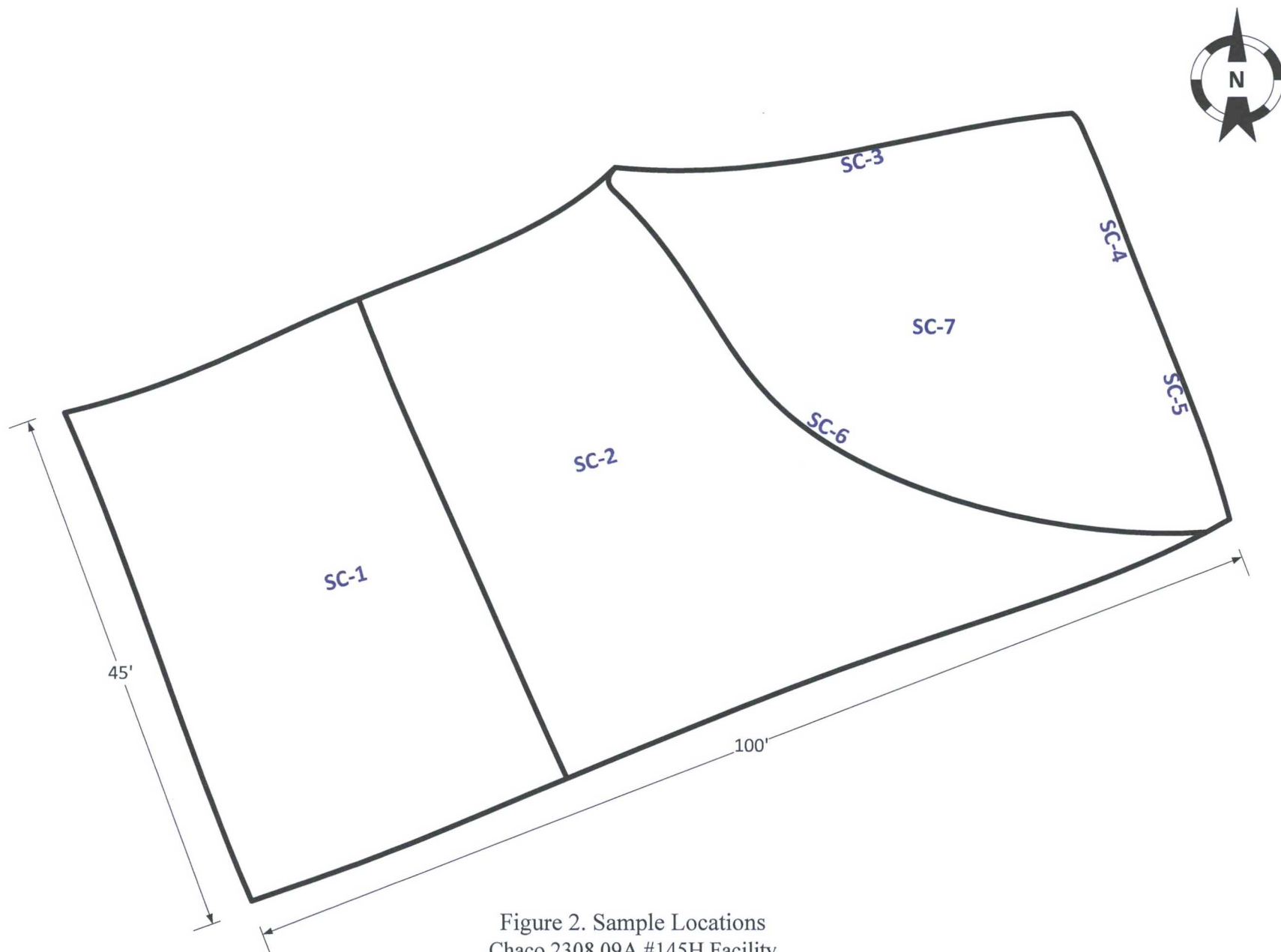


Figure 2. Sample Locations  
Chaco 2308 09A #145H Facility  
Section 09, Township 23N, Range 08W  
N36.245745, W107.683798  
San Juan County, NM

Table 1: Final Soil Sampling Results  
Chaco 2308 09A #145H Facility

Sample ID	Date Sampled	TPH (mg/kg) 1,000 mg/kg* (GRO+DRO)	TPH (mg/kg) NE (MRO)	Benzene (mg/kg) 10 mg/kg*	BTEX (mg/kg) 50 mg/kg*	Chloride (mg/kg) NE
SC-1	6/22/2017	<13.2	<48	<0.018	<0.162	36
SC-2	6/22/2017	<13.1	<47	<0.018	<0.166	<30
SC-3	6/22/2017	<13.2	<48	<0.018	<0.162	<30
SC-4	6/22/2017	<13.2	<47	<0.019	<0.172	55
SC-5	6/22/2017	<12.6	<46	<0.017	<0.153	100
SC-6	6/22/2017	190	110	<0.079	<0.719	<30
SC-7	6/22/2017	13	<48	<0.018	<0.165	<30

\*NMOCD Action Levels based on site ranking of 10

NE-Not Established

**From:** [Smith, Cory, EMNRD](#)  
**To:** [Watson, Debbie](#); [Fields, Vanessa, EMNRD](#); [Thomas, Leigh](#)  
**Subject:** [EXTERNAL] RE: Approval to backfill request Chaco 2308 09A #145H Facility  
**Date:** Monday, June 26, 2017 8:49:23 AM

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

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Debbie,

Results look to be under the RAL. OCD has no issues with Backfill operations.

Thank you,

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](mailto:cory.smith@state.nm.us)

---

**From:** Watson, Debbie [mailto:Deborah.Watson@wpxenergy.com]  
**Sent:** Friday, June 23, 2017 3:42 PM  
**To:** Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Thomas, Leigh <l1thomas@blm.gov>  
**Subject:** Approval to backfill request Chaco 2308 09A #145H Facility

Good Afternoon,

Please see attached preliminary laboratory results for the Chaco 2308 09A #145H facility. WPX requests approval to backfill the open excavation at the location based on the analytical laboratory results attached.

Please contact me with any questions. 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](mailto:deborah.watson@wpxenergy.com)



**From:** [Thomas, Leigh](#)  
**To:** [Smith, Cory, EMNRD](#)  
**Cc:** [Watson, Debbie](#); [Fields, Vanessa, EMNRD](#)  
**Subject:** [EXTERNAL] Re: Approval to backfill request Chaco 2308 09A #145H Facility  
**Date:** Monday, June 26, 2017 10:50:28 AM

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

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Debbie,

The BLM approves the backfill activities at this site.

Thank you

Whitney Thomas  
Natural Resource Specialist  
Farmington Field Office  
6251 North College Boulevard  
Suite A  
Farmington, NM 87402  
Office: 505-564-7680  
Cell: 505-635-9796  
email: [l1thomas@blm.gov](mailto:l1thomas@blm.gov)

On Mon, Jun 26, 2017 at 8:49 AM, Smith, Cory, EMNRD <[Cory.Smith@state.nm.us](mailto:Cory.Smith@state.nm.us)> wrote:

Debbie,

Results look to be under the RAL. OCD has no issues with Backfill operations.

Thank you,

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](mailto:cory.smith@state.nm.us)

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**From:** Watson, Debbie [mailto:[Deborah.Watson@wpxenergy.com](mailto:Deborah.Watson@wpxenergy.com)]

**Sent:** Friday, June 23, 2017 3:42 PM

**To:** Smith, Cory, EMNRD <[Cory.Smith@state.nm.us](mailto:Cory.Smith@state.nm.us)>; Fields, Vanessa, EMNRD <[Vanessa.Fields@state.nm.us](mailto:Vanessa.Fields@state.nm.us)>; Thomas, Leigh <[lthomas@blm.gov](mailto:lthomas@blm.gov)>

**Subject:** Approval to backfill request Chaco 2308 09A #145H Facility

Good Afternoon,

Please see attached preliminary laboratory results for the Chaco 2308 09A #145H facility. WPX requests approval to backfill the open excavation at the location based on the analytical laboratory results attached.

Please contact me with any questions. 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](mailto:deborah.watson@wpxenergy.com)







*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 26, 2017

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

RE: WPX Chaco 2308 09A 145H

OrderNo.: 1706C80

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 7 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](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,

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Analytical Report**

Lab Order 1706C80

Date Reported: 6/26/2017

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Rule Engineering LLC**Client Sample ID:** SC-1 (6/22/17)**Project:** WPX Chaco 2308 09A 145H**Collection Date:** 6/22/2017 2:55:00 PM**Lab ID:** 1706C80-001**Matrix:** SOIL**Received Date:** 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	36	30		mg/Kg	20	6/23/2017 10:49:26 AM	32456
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/23/2017 12:22:58 PM	32452
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/23/2017 12:22:58 PM	32452
Surr: DNOP	90.4	70-130		%Rec	1	6/23/2017 12:22:58 PM	32452
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	6/23/2017 11:41:10 AM	32437
Surr: BFB	124	54-150		%Rec	1	6/23/2017 11:41:10 AM	32437
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.018		mg/Kg	1	6/23/2017 11:41:10 AM	32437
Toluene	ND	0.036		mg/Kg	1	6/23/2017 11:41:10 AM	32437
Ethylbenzene	ND	0.036		mg/Kg	1	6/23/2017 11:41:10 AM	32437
Xylenes, Total	ND	0.072		mg/Kg	1	6/23/2017 11:41:10 AM	32437
Surr: 4-Bromofluorobenzene	119	66.6-132		%Rec	1	6/23/2017 11:41:10 AM	32437

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
	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 1706C80

Date Reported: 6/26/2017

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-2 (6/22/17)

Project: WPX Chaco 2308 09A 145H

Collection Date: 6/22/2017 2:50:00 PM

Lab ID: 1706C80-002

Matrix: SOIL

Received Date: 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	6/23/2017 11:01:51 AM	32456
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/23/2017 12:51:20 PM	32452
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/23/2017 12:51:20 PM	32452
Surr: DNOP	90.9	70-130		%Rec	1	6/23/2017 12:51:20 PM	32452
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	6/23/2017 12:04:55 PM	32437
Surr: BFB	122	54-150		%Rec	1	6/23/2017 12:04:55 PM	32437
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.018		mg/Kg	1	6/23/2017 12:04:55 PM	32437
Toluene	ND	0.037		mg/Kg	1	6/23/2017 12:04:55 PM	32437
Ethylbenzene	ND	0.037		mg/Kg	1	6/23/2017 12:04:55 PM	32437
Xylenes, Total	ND	0.074		mg/Kg	1	6/23/2017 12:04:55 PM	32437
Surr: 4-Bromofluorobenzene	117	66.6-132		%Rec	1	6/23/2017 12:04:55 PM	32437

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
	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 1706C80

Date Reported: 6/26/2017

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Rule Engineering LLC**Client Sample ID:** SC-3 (6/22/17)**Project:** WPX Chaco 2308 09A 145H**Collection Date:** 6/22/2017 3:00:00 PM**Lab ID:** 1706C80-003**Matrix:** SOIL**Received Date:** 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	6/23/2017 11:14:15 AM	32456
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/23/2017 1:19:50 PM	32452
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/23/2017 1:19:50 PM	32452
Surr: DNOP	89.4	70-130		%Rec	1	6/23/2017 1:19:50 PM	32452
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	6/23/2017 12:28:38 PM	32437
Surr: BFB	121	54-150		%Rec	1	6/23/2017 12:28:38 PM	32437
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.018		mg/Kg	1	6/23/2017 12:28:38 PM	32437
Toluene	ND	0.036		mg/Kg	1	6/23/2017 12:28:38 PM	32437
Ethylbenzene	ND	0.036		mg/Kg	1	6/23/2017 12:28:38 PM	32437
Xylenes, Total	ND	0.072		mg/Kg	1	6/23/2017 12:28:38 PM	32437
Surr: 4-Bromofluorobenzene	117	66.6-132		%Rec	1	6/23/2017 12:28:38 PM	32437

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
	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 1706C80

Date Reported: 6/26/2017

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-4 (6/22/17)

Project: WPX Chaco 2308 09A 145H

Collection Date: 6/22/2017 3:10:00 PM

Lab ID: 1706C80-004

Matrix: SOIL

Received Date: 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	55	30		mg/Kg	20	6/23/2017 11:26:39 AM	32456
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/23/2017 1:48:27 PM	32452
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/23/2017 1:48:27 PM	32452
Surr: DNOP	87.6	70-130		%Rec	1	6/23/2017 1:48:27 PM	32452
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	6/23/2017 12:52:22 PM	32437
Surr: BFB	121	54-150		%Rec	1	6/23/2017 12:52:22 PM	32437
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.019		mg/Kg	1	6/23/2017 12:52:22 PM	32437
Toluene	ND	0.038		mg/Kg	1	6/23/2017 12:52:22 PM	32437
Ethylbenzene	ND	0.038		mg/Kg	1	6/23/2017 12:52:22 PM	32437
Xylenes, Total	ND	0.077		mg/Kg	1	6/23/2017 12:52:22 PM	32437
Surr: 4-Bromofluorobenzene	116	66.6-132		%Rec	1	6/23/2017 12:52:22 PM	32437

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
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	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 1706C80

Date Reported: 6/26/2017

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-5 (6/22/17)

Project: WPX Chaco 2308 09A 145H

Collection Date: 6/22/2017 3:15:00 PM

Lab ID: 1706C80-005

Matrix: SOIL

Received Date: 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	100	30		mg/Kg	20	6/23/2017 11:39:03 AM	32456
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/23/2017 12:34:03 PM	32452
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/23/2017 12:34:03 PM	32452
Surr: DNOP	80.6	70-130		%Rec	1	6/23/2017 12:34:03 PM	32452
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.4		mg/Kg	1	6/23/2017 1:16:08 PM	32437
Surr: BFB	122	54-150		%Rec	1	6/23/2017 1:16:08 PM	32437
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.017		mg/Kg	1	6/23/2017 1:16:08 PM	32437
Toluene	ND	0.034		mg/Kg	1	6/23/2017 1:16:08 PM	32437
Ethylbenzene	ND	0.034		mg/Kg	1	6/23/2017 1:16:08 PM	32437
Xylenes, Total	ND	0.068		mg/Kg	1	6/23/2017 1:16:08 PM	32437
Surr: 4-Bromofluorobenzene	117	66.6-132		%Rec	1	6/23/2017 1:16:08 PM	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

**Analytical Report**

Lab Order 1706C80

Date Reported: 6/26/2017

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Rule Engineering LLC**Client Sample ID:** SC-6 (6/22/17)**Project:** WPX Chaco 2308 09A 145H**Collection Date:** 6/22/2017 3:20:00 PM**Lab ID:** 1706C80-006**Matrix:** SOIL**Received Date:** 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	6/23/2017 11:51:28 AM	32456
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	190	9.8		mg/Kg	1	6/23/2017 12:58:51 PM	32452
Motor Oil Range Organics (MRO)	110	49		mg/Kg	1	6/23/2017 12:58:51 PM	32452
Surr: DNOP	86.6	70-130		%Rec	1	6/23/2017 12:58:51 PM	32452
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	16		mg/Kg	5	6/23/2017 9:43:38 AM	32438
Surr: BFB	102	54-150		%Rec	5	6/23/2017 9:43:38 AM	32438
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.079		mg/Kg	5	6/23/2017 9:43:38 AM	32438
Toluene	ND	0.16		mg/Kg	5	6/23/2017 9:43:38 AM	32438
Ethylbenzene	ND	0.16		mg/Kg	5	6/23/2017 9:43:38 AM	32438
Xylenes, Total	ND	0.32		mg/Kg	5	6/23/2017 9:43:38 AM	32438
Surr: 4-Bromofluorobenzene	123	66.6-132		%Rec	5	6/23/2017 9:43:38 AM	32438

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
	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 1706C80

Date Reported: 6/26/2017

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Rule Engineering LLC**Client Sample ID:** SC-7 (6/22/17)**Project:** WPX Chaco 2308 09A 145H**Collection Date:** 6/22/2017 3:25:00 PM**Lab ID:** 1706C80-007**Matrix:** SOIL**Received Date:** 6/23/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	6/23/2017 12:03:53 PM	32456
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	13	9.6		mg/Kg	1	6/23/2017 1:23:42 PM	32452
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/23/2017 1:23:42 PM	32452
Surr: DNOP	79.6	70-130		%Rec	1	6/23/2017 1:23:42 PM	32452
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	6/23/2017 10:07:38 AM	32438
Surr: BFB	94.3	54-150		%Rec	1	6/23/2017 10:07:38 AM	32438
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.018		mg/Kg	1	6/23/2017 10:07:38 AM	32438
Toluene	ND	0.037		mg/Kg	1	6/23/2017 10:07:38 AM	32438
Ethylbenzene	ND	0.037		mg/Kg	1	6/23/2017 10:07:38 AM	32438
Xylenes, Total	ND	0.073		mg/Kg	1	6/23/2017 10:07:38 AM	32438
Surr: 4-Bromofluorobenzene	119	66.6-132		%Rec	1	6/23/2017 10:07:38 AM	32438

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
	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#: 1706C80

26-Jun-17

Client: Rule Engineering LLC  
Project: WPX Chaco 2308 09A 145H

Sample ID	MB-32456	SampType:	mblk	TestCode:	EPA Method 300.0: Anlons					
Client ID:	PBS	Batch ID:	32456	RunNo:	43753					
Prep Date:	6/23/2017	Analysis Date:	6/23/2017	SeqNo:	1379239	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-32456	SampType:	lcs	TestCode:	EPA Method 300.0: Anlons					
Client ID:	LCSS	Batch ID:	32456	RunNo:	43753					
Prep Date:	6/23/2017	Analysis Date:	6/23/2017	SeqNo:	1379240	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	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#: 1706C80

26-Jun-17

Client: Rule Engineering LLC  
Project: WPX Chaco 2308 09A 145H

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				

## 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#: 1706C80

26-Jun-17

Client: Rule Engineering LLC  
Project: WPX Chaco 2308 09A 145H

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	MB-32438	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	32438	RunNo:	43757					
Prep Date:	6/22/2017	Analysis Date:	6/23/2017	SeqNo:	1378828	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	930		1000		93.3	54	150			

Sample ID	LCS-32438	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	32438	RunNo:	43757					
Prep Date:	6/22/2017	Analysis Date:	6/23/2017	SeqNo:	1378829	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	76.4	125			
Surr: BFB	1000		1000		104	54	150			

Sample ID	1706C80-006AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	SC-6 (6/22/17)	Batch ID:	32438	RunNo:	43757					
Prep Date:		Analysis Date:	6/23/2017	SeqNo:	1378830	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	80	16	78.91	0	102	77.8	128			
Surr: BFB	3700		3156		116	54	150			

Sample ID	1706C80-006AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	SC-6 (6/22/17)	Batch ID:	32438	RunNo:	43757					
Prep Date:		Analysis Date:	6/23/2017	SeqNo:	1378831	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical 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#: 1706C80

26-Jun-17

Client: Rule Engineering LLC  
Project: WPX Chaco 2308 09A 145H

Sample ID	1706C80-006AMSD	SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	SC-6 (6/22/17)	Batch ID: 32438			RunNo: 43757					
Prep Date:		Analysis Date: 6/23/2017			SeqNo: 1378831		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	79	16	78.91	0	101	77.8	128	1.07	20	
Surr: BFB	3600		3156		114	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#: 1706C80

26-Jun-17

Client: Rule Engineering LLC  
Project: WPX Chaco 2308 09A 145H

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	MB-32438	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	32438	RunNo:	43757					
Prep Date:	6/22/2017	Analysis Date:	6/23/2017	SeqNo:	1378839	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		119	66.6	132			

Sample ID	LCS-32438	SampType: LCS			TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID: 32438			RunNo: 43757					
Prep Date:	6/22/2017	Analysis Date: 6/23/2017			SeqNo: 1378840		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	114	80	120			
Xylenes, Total	3.5	0.10	3.000	0	116	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		122	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#: 1706C80

26-Jun-17

Client: Rule Engineering LLC

Project: WPX Chaco 2308 09A 145H

Sample ID	1706C80-007AMS	SampType: MS			TestCode: EPA Method 8021B: Volatiles					
Client ID:	SC-7 (6/22/17)	Batch ID: 32438			RunNo: 43757					
Prep Date:		Analysis Date: 6/23/2017			SeqNo: 1378841		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.79	0.018	0.7310	0	108	61.5	138			
Toluene	0.81	0.037	0.7310	0.006725	109	71.4	127			
Ethylbenzene	0.81	0.037	0.7310	0	111	70.9	132			
Xylenes, Total	2.5	0.073	2.193	0	112	76.2	123			
Surr: 4-Bromofluorobenzene	0.89		0.7310		122	66.6	132			

Sample ID	1706C80-007AMSD		SampType:	MSD		TestCode:	EPA Method 8021B: Volatiles				
Client ID:	SC-7 (6/22/17)		Batch ID:	32438		RunNo:	43757				
Prep Date:			Analysis Date:	6/23/2017		SeqNo:	1378842		Units:	mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	0.77	0.018	0.7310	0	105	61.5	138	2.24	20		
Toluene	0.79	0.037	0.7310	0.006725	107	71.4	127	2.62	20		
Ethylbenzene	0.80	0.037	0.7310	0	109	70.9	132	2.07	20		
Xylenes, Total	2.4	0.073	2.193	0	110	76.2	123	2.35	20		
Surr: 4-Bromofluorobenzene	0.89		0.7310		121	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: 1708C80

RcptNo: 1

Received By: Anne Thorne

6/23/2017 7:25:00 AM

*Anne Thorne*

Completed By: Anne Thorne

6/23/2017 8:33:30 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  $6.0^{\circ}\text{C}$ ? 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			

# -cord

Client:

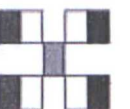
Rush Engineering, LLC

Turn-Around Time:

☐ Standard ☒ Rush Same Day

Mailing Address:

501 Airport Dr. Ste 205



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Phone #: (505) 716-2787

email or Fax#: hannah@rushengineering.com

QA/QC Package: Deborah Watson@superclean.org.com

☒ Standard ☐ Level 4 (Full Validation)

Project Manager:

Heather Woods

Accreditation

☐ NELAP

☐ Other

Sampler: Heather Woods

On Ice:

☒ Yes

☐ No

Sample Temperature:

1.0

HEAL No.

1706680

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<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>)

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.

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<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

Air Bubbles (Y or N)

4/22/17 1455

Soil

SC-1 (4/22/17)

Mud # Kit (1) 4oz Glass

Mud/non

-261

X

X

X

X

X

X

X

X

X

X

X

4/22/17 1450

Soil

SC-2 (4/22/17)

-102

X

X

X

X

X

X

X

X

X

X

X

4/22/17 1500

Soil

SC-3 (4/22/17)

-203

X

X

X

X

X

X

X

X

X

X

X

4/22/17 1510

Soil

SC-4 (4/22/17)

-204

X

X

X

X

X

X

X

X

X

X

X

4/22/17 1515

Soil

SC-5 (4/22/17)

-205

X

X

X

X

X

X

X

X

X

X

X

4/22/17 1520

Soil

SC-6 (4/22/17)

-206

X

X

X

X

X

X

X

X

X

X

X

4/22/17 1525

Soil

SC-7 (4/22/17)

-207

X

X

X

X

X

X

X

X

X

X

X

Date:

Time:

Relinquished by:

Received by:

Date Time

4/22/17 1837

Remarks:

Direct Bill to WPX

Attn: Debbie Watson

Date:

Time:

Relinquished by:

Received by:

Date Time

4/22/17 1911

Remarks:

Attn: Debbie Watson

Date:

Time:

Relinquished by:

Received by:

Date Time

4/22/17 1911

Remarks:

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 notated on the analytical report.