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

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

Form C-141 Revised August 8, 2011

1220 South St. Francis Dr.

1220 5. 50. 1141	vis Dr., build	410,11110700	,	Sa	ınta Fe	e, NM 875	005					
			Rele	ase Notifica	ation	and Co	rrective Ac	ction				
					(OPERAT	OR		Initial	Report	⊠ I	Final Report
Name of Cor	npany: SJ	B Gathering	LLC/WP	X Energy LLC		Contact: D	eborah Watson			*		•
Address: PO						Telephone 1	No.: 505-386-96	93				
Facility Nam	e: NE Cha	ico Com 166	H CDP I	Pipeline/Trunk 2	-5	Facility Typ	e: Pipeline					
Surface Own	er: BLM/S	State of NM		Mineral C	wner:	BLM/State	of NM		API No			
				LOCA	TION	OF REL	EASE			39-	31202	
Unit Letter	Section	Township	Range	Feet from the		South Line	Feet from the	East/V	Vest Line	County		
A	17	23N	07W	226	South		497	East		Rio Arriba	a	
				Latitude 36.2		Longitude						
				NAT	TIRE	OF RELE	ASE					
Type of Releas	se: Crude (Dil		NAI	UKE		Release: 22.7 bb	ls	Volume F	Recovered:	0 bbls	
			ne connec	ted to Produced V	Vater		Hour of Occurrence			Hour of Dis		
line.						11/04/15, 1			11/04/15,	approximat	ely 13:	15
Was Immediat	te Notice G					If YES, To				JIL	EONS	DIV DIST
		\bowtie	Yes 🔲	No Not Req	luired		Diemer, BLM-FF h, NMOCD	O				
By Whom? D	eborah Wat	son					Hour 11/04/15 app	roxima	tely 13:30		DEC	0 6 2016
Was a Waterco							olume Impacting t					0 2010
			Yes 🛛	No								
If a Watercour			e Fully.*									
An unnamed d Describe Caus			ial Action	Token *								
					NE Chao	co Com 166H	I CDP facility, cru	ide oil f	lowed from	the NE Ch	aco Co	m 166H
							n 163H water can.					
Immediate Act												
				ooms in strategic l					1 2015			-
		of impacted s			impact	ed soil taken	to landfarm on No	ovembe	r 4, 2015.			
				ponding crude oi	l liquids							
Describe Area					riiquius							
				en east, approxima	ately 1.0	70 feet.						
				sported to landfari								
• Cont	firmation so	oil samples we	re collecte				ted area. Represe	ntatives	from BLM	1-FFO and/o	or NMC	OCD were in
		ampling event										
			re reporte	d below applicabl	e NMO	CD RRAL. L	aboratory results	are incl	uded within	n the attache	d repor	t.
	l report is a		en above i	is true and comple	te to the	heet of my l	cnowledge and un	deretan	that pure	ant to NMC	CD rul	les and
							d perform correcti					
							rked as "Final Rep					
							n that pose a threa					
				ance of a C-141 re	eport do	es not relieve	the operator of re	sponsib	ility for co	mpliance wi	ith any	other
federal, state, o			ations.				OH COM	TDI	ATIONI	DIVICIO	N I	
Signature:	Johnsh W	uh					OIL CONS	EKV	AHON	DIVISIO		
5.8									/	/	4.	4
Printed Name:	Deborah W	Vatson				Approved by	Environmental Sp	pecialist	: /2	may J	2	//
							1 10	1		0		
Title: Environ	mental Spec	cialist				Approval Dat	te: 1/23/	17	Expiration	Date:		
E-mail Addres	s: deborah.	watson@wpxe	energy.cor	m ·		Conditions of	f Approval:	_		Attached		
Date: 12/5/20	16		Pho	ne: 505-386-9693	.							

* Attach Additional Sheets If Necessary

#NG 15341 30251

Trunk 2-5/NE Chaco Com 166H Pipeline Release Report Section 17, Township 23N, Range 7W Rio Arriba County, NM

December 5, 2016

1.0 Introduction

On November 4, 2015, a release of approximately 23 barrels of crude oil occurred along the 2-5 pipeline just north of the NE Chaco Com 163H/275H well pad. As a result of a mistake which occurred during construction of the NE Chaco Com 166H CDP facility, crude oil flowed from the NE Chaco Com 166H CDP within the produced water pipeline until it exited the pipeline at the NE Chaco Com 163H water can. From the water can, the crude oil flowed north then east, approximately 1,070 feet. The release point is located in Section 17, Township 23N, Range 7W, Rio Arriba County, New Mexico. Cleanup at the site included power-washing of sandstone outcrops and removal and disposal of impacted soil.

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: NE Chaco Com 163H Water Can along Trunk 2-5 pipeline Release Location Description: Section 17, Township 23N, Range 7W

Release Latitude/Longitude: N36.231448, W107.590197

Cause: Human Error, pipe connection error during facility construction

Land Jurisdiction: Bureau of Land Management (BLM) and State of New Mexico

Agency Notification: New Mexico Oil Conservation Division (NMOCD), BLM Farmington Field Office

(BLM-FFO), and New Mexico State Land Office (NMSLO)

Source of Release: pipeline Release Contents: crude oil Volume Released: 23 barrels

Volume of Impacted Material Removed: approximately 621 cubic yards and 395 barrels

NMOCD Cleanup Site Ranking: 30

3.0 NMOD Site Ranking

In accordance with New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases (August 1993), this site was assigned a ranking score of 30. Based on a ranking score of 30, Recommended Remediation Action Levels (RRAL) for impacted soils at the site are as follows: 10 mg/kg benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX), and 100 mg/kg total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) and diesel range organics (DRO).

4.0 Field Activities

Cleanup at the site consisted of a combination of hand digging and mechanical excavation of material from within the impacted area. In addition to digging, sandstone within the drainage was power-washed with and cleaned using Simple Green.

Cleanup activities occurred during November and December 2015. Following the release, the site was stabilized to prevent migration of any remaining contamination outside the already impacted area. Cleanup activities were halted in January 2016 due to unfavorable site conditions (frozen soil and snow). Cleanup activities resumed in March 2016, with a final power washing event at the site during May 2016. Approximately 621 cubic yards and 395 barrels of impacted soil were removed from the release area. Impacted material was transported to Envirotech Landfarm for disposal. The executed C-138s (copy) are attached.

5.0 Soil Sampling

Rule Engineering, LLC representatives collected confirmation samples on December 23 and 30, 2015, March 18 and April 11, 2016. A WPX representative collected the remaining confirmation sample on September 23, 2016. Representatives from BLM-FFO and/or NMOCD were present during each of the sampling events. Each confirmation sample was laboratory analyzed for the following:

- BTEX per U.S. Environmental Protection Agency (USEPA) Method 8021, and
- TPH (as DRO/GRO) per USEPA Method 8015.

All soil samples composited for laboratory analysis were placed into laboratory supplied glassware, labeled, and shipped on ice to Hall Environmental Analysis Laboratory. Sample locations are presented on Figure 3.

6.0 Analytical Results

Laboratory analytical results for final confirmation soil samples reported benzene and total BTEX below laboratory detection limits. Concentrations of total TPH (GRO/DRO) were reported below 100 mg/kg in all final confirmation samples.

Laboratory analytical results (final) are summarized in Table 1. Analytical laboratory reports are attached.

7.0 Conclusions

On November 4, 2015, a release occurred along the Trunk 2-5 pipeline. Approximately 621 cubic yards and 395 barrels of impacted soils were removed from within the release area. Laboratory analytical results for confirmation samples reported benzene, total BTEX, and total TPH (GRO/DRO) concentrations below applicable NMOCD RRAL. Reclamation activities were completed on November 2 and 3, 2016.

Based on laboratory analytical results of the confirmation soil samples, no further work is recommended. For additional information or questions regarding site conditions, please contact me at 505-333-1880.

Sincerely,

Deborah Watson

Environmental Specialist

abnah Watu

Attachments

Figure 1. Topographic Map

Figure 2. Aerial Site Map

Figure 3. Soil Sample Locations (E-1 through E-5)

Figure 4. Soil Sample Locations (SC-2 through SC-7)

Table 1. Final Soil Sampling Results

Executed C-138s

Hall Analytical Laboratory Reports (Report #1512B05, 1512C24, 1601029, 1601161, 1603A14, 1604491, and1609D96)

Table 1. Final Soil Sampling Results Summary
TPH and BTEX
NE Chaco Com 166H Pipeline Release

Sample Name	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes mg/kg	Total BTEX (mg/kg)	TPH as GRO (mg/kg)	TPH as DRO (mg/kg)	TPH as GRO+DRO (mg/kg)
NMOCD RRAL-Based on Site Ranking of 30		10	NE	NE	NE	50	100		100
E-1	30-Dec-15	ND	ND	ND	ND	ND	ND	ND	ND
E-2	30-Dec-15	ND	ND	ND	ND	ND	ND	ND	ND
E-3 (R)	4-Jan-16	ND	ND	ND	ND	ND	5.1	ND	5.1
E-4	30-Dec-15	ND	ND	ND	ND	ND	ND	11	11
E-5 (R)	6-Jan-16	ND	ND	ND	ND	ND	ND	ND	ND
SC-2	11-Apr-16	ND	ND	ND	ND	ND	ND	58	58
SC-3	11-Apr-16	ND	ND	ND	ND	ND	ND	34	34
SC-4	23-Sep-16	ND	ND	ND	ND	ND	ND	ND	ND
SC-5	11-Apr-16	ND	ND	ND	ND	ND	ND	51	51
SC-6	18-Mar-16	ND	ND	ND	ND	ND	ND	31	31
SC-7	18-Mar-16	ND	ND	ND	ND	ND	ND	ND	ND

NE-not established

ND-not detected above laboratory reporting limits

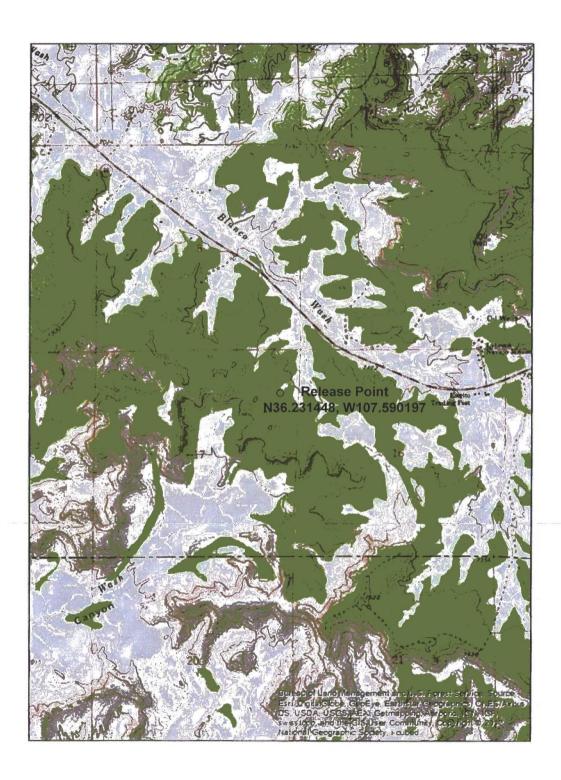


Figure 1. Topographic Map
NE Chaco Com 166H CDP Pipeline Release
Section 17, Township 23N, Range 07W
N36.231448, W107.590197
Rio Arriba County, NM
Scale 1:24,000

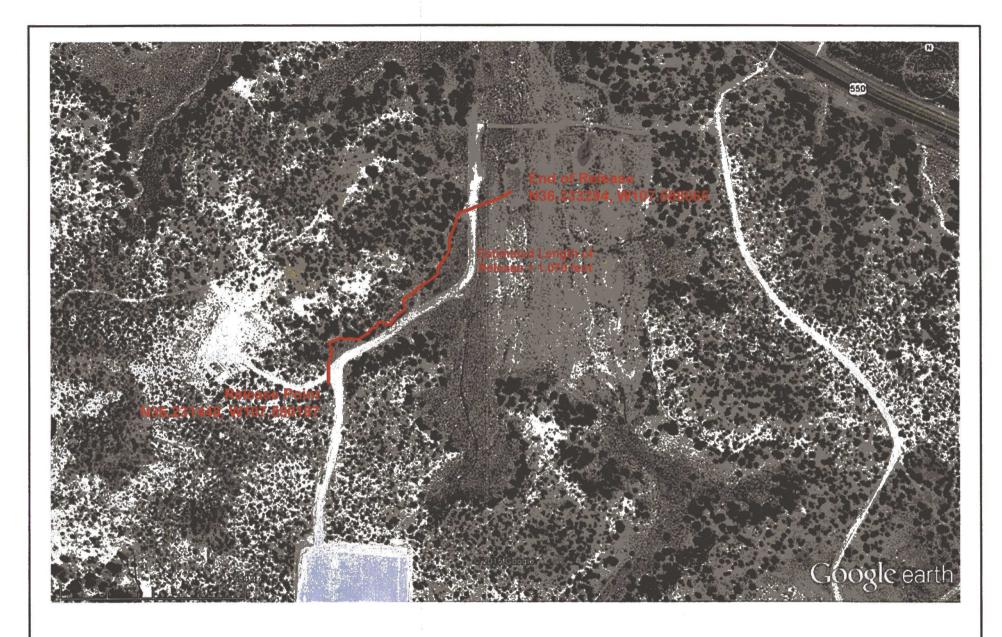


Figure 2. Aerial Site Map NE Chaco Com 166H CDP Pipeline Release Section 17, Township 23N, Range 07W N36.231448, W107.590197 Rio Arriba County, NM

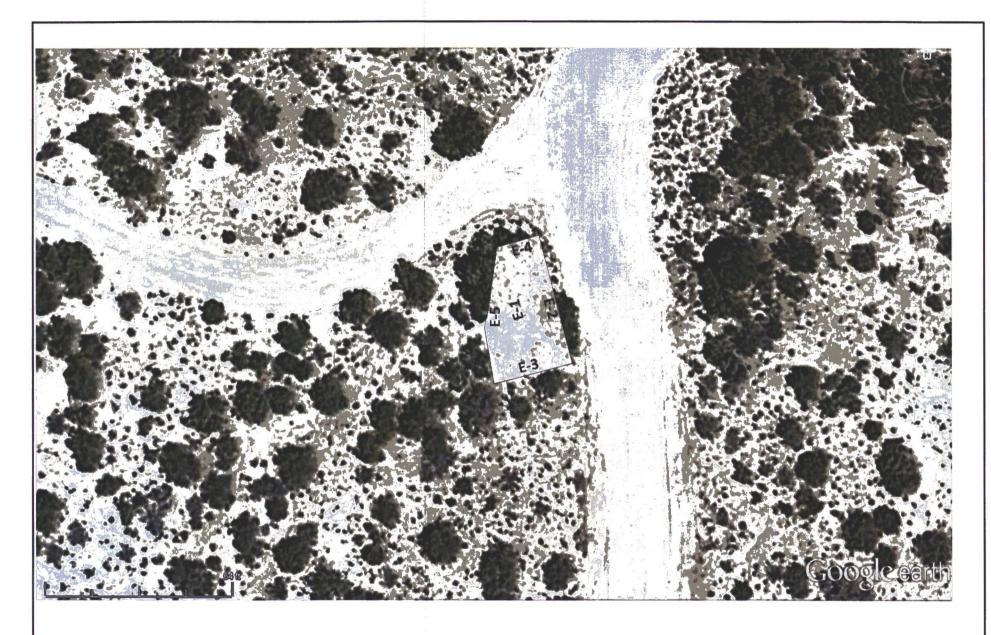


Figure 3. Soil Sample Locations (E-1 through E-5)
NE Chaco Com 166H CDP Pipeline Release
Section 17, Township 23N, Range 07W
N36.231448, W107.590197
Rio Arriba County, NM

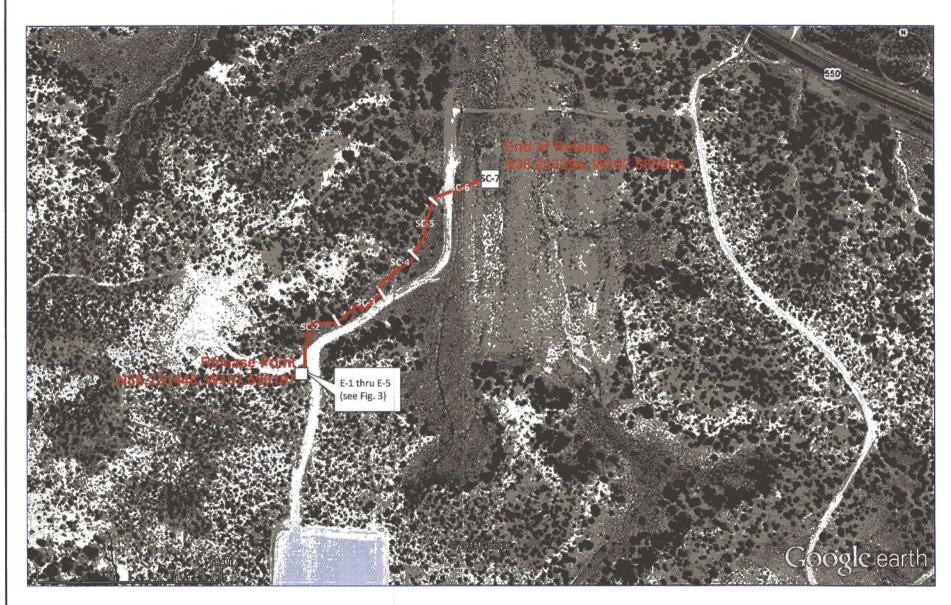


Figure 4. Soil Sample Locations (SC-2 through SC-7)
NE Chaco Com 166H CDP Pipeline Release
Section 17, Township 23N, Range 07W
N36.231448, W107.590197
Rio Arriba County, NM

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 *Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

REQUEST FOR AFFROVAL TO ACCEPT SOLID WASTE
1. Generator Name and Address:
WPX Energy, PO Box 640, Aztec NM
Requested by: Deborah Watson 2. Originating Site:
NE Chaco Com 166H Pipeline Release
Rio Arriba County, NM
3. Location of Material (Street Address, City, State or ULSTR): Section 17, T23N, R7W
4. Source and Description of Waste:
Crude oil pipeline release impacted soil.
Estimated Volumeyd³ / bbls Known Volume (to be entered by the operator at the end of the haul) 134/180 yd³ / bbls
5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS
I, Deborah Watson while the Bornes of authorized agent for WPX Energy do hereby
certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988
regulatory determination, the above described waste is: (Check the appropriate classification)
RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-
exempt waste. Operator Use Only: Waste Acceptance Frequency \(\sum Monthly \sum Weekly \sum Per Load\)
RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by
characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261,
subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check
the appropriate items)
☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)
GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS
I, Deborah Watson that , representative for WPX Energy do hereby certify that
representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples
have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results
of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of
19.15.36 NMAC.
5. Transporter:
Halo, Adobe, CNJ, Kellyailfied Services, Badger, Turnco, 3 Etnergy, 5 wegzy
OCD Permitted Surface Waste Management Facility
•
Name and Facility Permit #: Envirotech, Inc. Soil Remediation Facility Permit# NM 01-0011 Address of Facility: #43 Road 7175, south of Bloomfield, Hilltop, NM
Method of Treatment and/or Disposal:
☐ Evaporation ☐ Injection ☐ Treating Plant 🗓 Landfarm ☐ Landfill ☐ Other
Waste Acceptance Status:
APPROVED DENIED (Must Be Maintained As Permanent Record)
PRINT NAME: Eric Liese TITLE: Land Girn Administrator DATE: 11-415
SIGNATURE: TELEPHONE NO.: _505-632-0615
Surface Waste Management Facility Authorized Agent

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 <u>District IV</u> 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

Revised August 1, 2011 *Surface Waste Management Facility Operator and Generator shall maintain and make this

documentation available for Division inspection.

Form C-138

1. Generator Name and Address: WPX Energy, PO Box 640, Aztec NM Requested by: Deborah Watson 2. Originating Site: NE Chaco Com 166H Pipeline Release Rio Arriba County, NM 3. Location of Material (Street Address, City, State or ULSTR):
2. Originating Site: NE Chaco Com 166H Pipeline Release Rio Arriba County, NM Dec Zols
NE Chaco Com 166H Pipeline Release Rio Arriba County, NM
Rio Arriba County, NM
3. Location of Material (Street Address, City, State or ULSTR):
Section 17, T23N, R7W
4. Source and Description of Waste:
Crude oil pipeline release impacted soil.
Estimated Volumeyd³ / bbls Known Volume (to be entered by the operator at the end of the haul) 312 200 yd³ / bbls
5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS I, Deborah Watson While kell representative or authorized agent for WPX Energy do hereby
certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)
RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. Operator Use Only: Waste Acceptance Frequency
RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)
☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☑ Process Knowledge ☐ Other (Provide description in Box 4)
GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS
I, Deborah Watson the part of the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.
5. Transporter: Kelley oil field, CND, Adabe, YUCCa, 3 E Energy, Sweezea
OCD Permitted Surface Waste Management Facility
Name and Facility Permit #:Envirotech, Inc. Soil Remediation Facility Permit# NM 01-0011 Address of Facility:#43 Road 7175, south of Bloomfield, Hilltop, NM
Method of Treatment and/or Disposal:
☐ Evaporation ☐ Injection ☐ Treating Plant 【X Landfarm ☐ Landfill ☐ Other
Waste Acceptance Status:
APPROVED DENIED (Must Be Maintained As Permanent Record)
PRINT NAME: Cicy Ciese TITLE: Landorn Administrator DATE: 12-7-15
SIGNATURE TELEPHONE NO.: 505-632-0615

<u>District I</u> 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 0-1108-0528 Revised August 1, 2011

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

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID W	WASTE
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	enerator Name and Address: PX Energy, PO Box 640, Aztec NM
	equested by: Deborah Watson
	Originating Site:
	NE Chaco Com 166H Pipeline Release Ne Chaco Com 166H Pipeline Release Ne Arriba County NM
	tio Arriba County, NM
	ocation of Material (Street Address, City, State or ULSTR): ection 17, T23N, R7W
4. 5	ource and Description of Waste:
	e oil pipeline release impacted soil.
1	ated Volumeyd³ / bbls Known Volume (to be entered by the operator at the end of the haul)175d³ / bbls
E	CENEDATOD CEDTIFICATION CTATEMENT OF WASTE STATUS
, D	eborah Watson Washed , representative or authorized agent for WPX Energy do hereby that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Avency's July 1988
certif	y that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988
	atory determination, the above described waste is: (Check the appropriate classification)
F	DCDA Example Oil field wester governed from all and are suplemation and production approximate and are not mixed with non
	RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non- exempt waste. Operator Use Only: Waste Acceptance Frequency Monthly Weekly Per Load
	RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by
	haracteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261,
	ubpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check
t	ne appropriate items)
	SDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)
	GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS
n 1	
	Deborah Watson where we representative for WPX Energy do hereby certify that
I,	sentative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples
	been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results
	representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of
	36 NMAC.
5 7	ransporter:
Halo.	Adobe, CHI, 3 & Gorgy, Kelly 0:1 field
OCD I	in the delly of the la
OCDI	Permitted Surface Waste Management Facility
	ne and Facility Permit #: Envirotech, Inc. Soil Remediation Facility Permit# NM 01-0011
Add	ress of Facility:#43 Road 7175, south of Bloomfield, Hilltop, NM
Met	hod of Treatment and/or Disposal:
	☐ Evaporation ☐ Injection ☐ Treating Plant ☒ Landfarm ☐ Landfill ☐ Other
Waste	Acceptance Status:
	APPROVED DENIED (Must Be Maintained As Permanent Record)
PRINT	NAME: Grantice TITLE: Environmental Manager DATE: 3/14/16
SIGNA	TURE:
	Surface Waste Management Facility Authorized Agent

<u>District I</u> 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 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico

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

Energy Minerals and Natural Resources 04108-052 Revised August 1, 2011

Form C-138

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

DECLIEST FOR APPROVAL TO ACCEPT SOLID WASTE

REQUEST FOR ATTROVAL TO ACCELT SOLID WASTE	
1. Generator Name and Address:	
WPX Energy, PO Box 640, Aztec NM	
Requested by: Deborah Watson	_
2. Originating Site: NE Chaco Com 166H Pipeline Release	
Rio Arriba County, NM NE Chaco Com 166H Pipeline Release Rio Arriba County, NM May 2016	
3. Location of Material (Street Address, City, State or ULSTR):	
Section 17, T23N, R7W	
4. Source and Description of Waste:	
Crude oil pipeline release impacted soil and washout.	
Estimated Volumeyd³ / bbls Known Volume (to be entered by the operator at the end of the haul)yd5 yd5 bbls	D
5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS	
I, Deborah Watson what hate , representative or authorized agent for WPX Energy do hereby	
certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 198	8
regulatory determination, the above described waste is: (Check the appropriate classification)	
X RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-	
exempt waste. Operator Use Only: Waste Acceptance Frequency \(\sum Monthly \) \(\sum Weekly \) \(\sum Per Load \)	
RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by	y
characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261,	al.
subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Chec the appropriate items)	K
☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)	
GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS	
1 10 th Committee (10 10 10 10 10 10 10 10 10 10 10 10 10 1	
I, Deborah Watson what had , representative for WPX Energy do hereby certify that	
I,	
have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results	
of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of	
19.15.36 NMAC.	
5. Transporter:	
CNJ	
OCD Permitted Surface Waste Management Facility	
Name and Facility Permit #:Envirotech, Inc. Soil Remediation Facility Permit# NM 01-0011	
Address of Facility:#43 Road 7175, south of Bloomfield, Hilltop, NM	
Method of Treatment and/or Disposal:	
☐ Evaporation ☐ Injection ☐ Treating Plant 🗓 Landfarm ☐ Landfill ☐ Other	
Waste Acceptance Status:	
■ APPROVED □ DENIED (Must Be Maintained As Permanent Record)	
PRINT NAME: Greg Crabtree TITLE: Environmental Manger DATE: 5/10/16	1
\wedge	
SIGNATURE: TELEPHONE NO.: 505-632-0615 Surface Waste Management Facility Authorized Agent	
Sent the transferrence and the transferrence of the	



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

December 31, 2015

Heather Woods Rule Engineering LLC 501 Airport Dr., Ste 205 Farmington, NM 87401

TEL: (505) 325-1055

FAX

RE: WPX NE Chaco Com #166

OrderNo.: 1512B05

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/23/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers 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

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1512B05

Date Reported: 12/31/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

WPX NE Chaco Com #166

Lab ID: 1512B05-001

Project:

Matrix: SOIL

Collection Date: 12/21/2015 2:48:00 PM

Client Sample ID: SC-5

Received Date: 12/23/2015 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RA	NGE ORGANIC	S				Analy	st: KJH
Diesel Range Organics (DRO)	360	9.3		mg/Kg	1	12/30/2015 1:16:35 F	M 22991
Surr: DNOP	83.8	70-130		%REC	1	12/30/2015 1:16:35 F	M 22991
EPA METHOD 8015D: GASOLINE R.	ANGE					Analy	st: NSB
Gasoline Range Organics (GRO)	21	4.8		mg/Kg	1	12/29/2015 3:19:06 P	M 22974
Surr: BFB	201	66.2-112	S	%REC	1	12/29/2015 3:19:06 P	M 22974

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

- 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 Page 1 of 3
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

9.6

4.4

WO#: 1512B05

31-Dec-15

Client:

Surr: DNOP

Rule Engineering LLC

Project: WPX NE Chaco Com #166

Sample ID	MB-22991	SampType: I	MBLK	TestCode:	EPA Method 8	8015M/D: Diesel Range Organics
Client ID:	PBS	Batch ID: 2	22991	RunNo:	31140	
Prep Date:	12/29/2015	Analysis Date:	12/30/2015	SeqNo:	953585	Units: mg/Kg

RPDLimit Analyte Result SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Qual Diesel Range Organics (DRO) ND 10 Surr: DNOP

10.00

5.000

Sample ID LCS-22991 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 22991 RunNo: 31140 Prep Date: 12/29/2015 Analysis Date: 12/30/2015 SeqNo: 953624 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 48 10 50.00 0 95.5 65.8 136

95.7

89.0

130

130

70

70

Sample ID 1512B05-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: RunNo: 31140 SC-5 Batch ID: 22991 Prep Date: Analysis Date: 12/30/2015 SeqNo: 953922 12/29/2015 Units: mg/Kg Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Diesel Range Organics (DRO) 710 10 49.75 355.9 703 31.2 162 S Surr: DNOP 4.8 4.975 96.6 70 130 Sample ID 1512B05-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: SC-5 Batch ID: 22991 RunNo: 31140

Prep Date: 12/29/2015 Analysis Date: 12/30/2015 SeqNo: 953923 Units: mg/Kg Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 820 10 49.90 355.9 921 31.2 162 14.5 31.7 S Surr: DNOP 4.8 4.990 95.8 70 130 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
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits
- P Sample pH Not In Range
- Reporting Detection Limit

Page 2 of 3

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512B05

31-Dec-15

Client:

Rule Engineering LLC

Project:

WPX NE Chaco Com #166

Result

Sample ID MB-22974

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

Client ID:

PBS

Batch ID: 22974

5.0

RunNo: 31128

112

Prep Date: 12/28/2015

Analysis Date: 12/29/2015

SeqNo: 952387

Units: mg/Kg

Gasoline Range Organics (GRO)

PQL SPK value SPK Ref Val

%REC LowLimit HighLimit

Qual

Surr: BFB

ND 880

1000

87.6

66.2

%RPD

%RPD

Sample ID LCS-22974

Client ID: LCSS

Prep Date:

SampType: LCS Batch ID: 22974 TestCode: EPA Method 8015D: Gasoline Range

RunNo: 31128 SeqNo: 952388

LowLimit

Units: mg/Kg

RPDLimit

Gasoline Range Organics (GRO)

12/28/2015

Analysis Date: 12/29/2015 Result PQL

SPK value

SPK Ref Val 0

108

79.6

122

HighLimit

RPDLimit Qual

Surr: BFB

27 970

5.0

25.00 1000

96.5

%REC

66.2

112

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

% Recovery outside of range due to dilution or matrix S

Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range P

Reporting Detection Limit

Page 3 of 3



Hall Environmental Analysis Laboratory 4991 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Sample Log-In Check List

Website: www.hallenvironmental.com RULE ENGINEERING LL Work Order Number: 1512B05 RcptNo: 1 Client Name: Received by/date Logged By: 12/23/2015 8:05:00 AM 12/23/2015 1:10:48 PM Completed By: **Ashley Gallegos** Reviewed By: Chain of Custody No 🗌 Not Present ✓ Yes 🗌 1. Custody seals intact on sample bottles? No 🗌 Not Present __ Yes V 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log in No 🗆 NA 🗌 Yes V 4. Was an attempt made to cool the samples? No [] NA 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗹 Yes Y No ___ 6. Sample(s) in proper container(s)? Yes V No 🗌 7. Sufficient sample volume for indicated test(s)? No 🗌 Yes V 8. Are samples (except VOA and ONG) properly preserved? No V NA 🗌 Yes 9. Was preservative added to bottles? No 🗌 No VOA Vials Yes 10. VOA vials have zero headspace? Yes -No V 11 Were any sample containers received broken? # of preserved bottles checked Yes 🗸 for pH: No 🗌 12. Does paperwork match bottle labels? (<2 or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? Yes V No | 13. Are matrices correctly identified on Chain of Custody? No 🗌 Yes V 14 is it clear what analyses were requested? Checked by: Yes V No T 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) 16. Was client notified of all discrepancies with this order? Yes NA V No 🗌 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

Not Present

			 									-									
If necessary, semples submitted to Half Environmental may be subso	X	Date: Time: Ralinquished by: 1/2/5 1/32 Heath M. Woods				E	No.	/	<i>/</i>	12/2V/3 1948 Soil SC-5	Matrix Sample Request ID	□ EDD (Type)	□ Other	J	★ Standard □ Level 4 (Full Validation)	OAJOC Package:	Phone #: (565) 714 - 2767	Farmington, NM 87401	Mailing Address: 501 Airport Dr. Suite 205 WRX NE Chaco Com # 166	(Client: Rude Engineering CLC
ontracted to other accredited laboratories. This serves as notice of this	See Court 12/23/15 0805	Date Time		/						(1)4 or 6/ass Cold -00)	Container Preservative HEAL No. Type and # Type 5/3/5/5	Sample Temperature: /.2-	On los: 1 Yes I No	Sampler Headland Introde / Line Hallden	Heather Woods	Project Manager:		Project #:	WPX NE Chaco Com #166	rioject Name:	X Standard □ Rush
If necessary, semples 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.		Remarks: Direct Bill to wex Attn Debbie Watson									BTEX + MT BTEX + MT TPH 8015B TPH (Metho EDB (Metho PAH's (8310 RCRA 8 Me Anions (F,C 8081 Pestic 8260B (VO) 8270 (Semi-	BE (G od 4 od 5 0 or etals (I,N)	+ TI RO / 118.1 1604.1 1 827 3 3 O ₃ ,N) (DR () () (O ₂ ,	Gas RO /	s only	Analy	Tel. 505-345-3975 Fax 505-345-4107	4901 Hawkins NE - Albuquerque, NM 87109	www.hallenvironmental.com	ANALYSIS LABORATO

Air Bubbles (Y or N)



Chain-of-Custody Record

Turn-Around Time:

HALL ENVIRONMENTAL ANALYSIS LABORATORY



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

January 04, 2016

Heather Woods

Rule Engineering LLC 501 Airport Dr., Ste 205

Farmington, NM 87401 TEL: (505) 860-2712

FAX

RE: WPX NE Chaco com #166H

OrderNo.: 1512C24

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/31/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers 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

andy

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1512C24

Date Reported: 1/4/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: E-1

Project: WPX NE Chaco com #166H

Collection Date: 12/30/2015 1:41:00 PM

Lab ID: 1512C24-001

Matrix: MEOH (SOIL)

Received Date: 12/31/2015 7:45:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAM	IGE ORGANICS	6				Analy	st: TOM
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/31/2015 11:15:23	AM 23017
Surr: DNOP	78.4	70-130		%REC	1	12/31/2015 11:15:23	AM 23017
EPA METHOD 8015D: GASOLINE RA	NGE					Analy	st: NSB
Gasoline Range Organics (GRO)	ND	3.3		mg/Kg	1	12/31/2015 9:43:07 A	M A31176
Surr: BFB	87.8	66.2-112		%REC	1	12/31/2015 9:43:07 A	M A31176
EPA METHOD 8021B: VOLATILES						Analy	st: NSB
Benzene	ND	0.033		mg/Kg	1	12/31/2015 9:43:07 A	M C31176
Toluene	ND	0.033		mg/Kg	1	12/31/2015 9:43:07 A	M C31176
Ethylbenzene	ND	0.033		mg/Kg	1	12/31/2015 9:43:07 A	M C31176
Xylenes, Total	ND	0.066		mg/Kg	1	12/31/2015 9:43:07 A	M C31176
Surr: 4-Bromofluorobenzene	121	80-120	S	%REC	1	12/31/2015 9:43:07 A	M C31176

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

- * 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 Page 1 of 7
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1512C24

Date Reported: 1/4/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: E-2

Project: WPX NE Chaco com #166H

Collection Date: 12/30/2015 1:50:00 PM

Lab ID: 1512C24-002

Matrix: MEOH (SOIL) Received Date: 12/31/2015 7:45:00 AM

Analyses	Result	RL Qu	ıal Units	DF Date A	Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	GE ORGANIC	S			Analys	st: TOM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1 12/31/2	2015 11:58:50 A	M 23017
Surr: DNOP	79.9	70-130	%REC	1 12/31/2	2015 11:58:50 A	M 23017
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	5.1	mg/Kg	1 12/31/2	2015 10:07:33 A	M A31176
Surr: BFB	85.9	66.2-112	%REC	1 12/31/2	2015 10:07:33 A	M A31176
EPA METHOD 8021B: VOLATILES					Analys	t: NSB
Benzene	ND	0.051	mg/Kg	1 12/31/2	2015 10:07:33 A	M C31176
Toluene	ND	0.051	mg/Kg	1 12/31/2	2015 10:07:33 A	M C31176
Ethylbenzene	ND	0.051	mg/Kg	1 12/31/2	2015 10:07:33 A	M C31176
Xylenes, Total	ND	0.10	mg/Kg	1 12/31/2	2015 10:07:33 A	M C31176
Surr: 4-Bromofluorobenzene	118	80-120	%REC	1 12/31/2	2015 10:07:33 A	M C31176

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

- 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 Page 2 of 7
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1512C24

Date Reported: 1/4/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: E-3

Project:

WPX NE Chaco com #166H

Collection Date: 12/30/2015 1:58:00 PM

Lab ID:

1512C24-003

Matrix: MEOH (SOIL)

Received Date: 12/31/2015 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANIC	S				Analy	st: TOM
Diesel Range Organics (DRO)	1400	98		mg/Kg	10	12/31/2015 11:37:12	AM 23017
Surr: DNOP	0	70-130	S	%REC	10	12/31/2015 11:37:12	AM 23017
EPA METHOD 8015D: GASOLINE RAN	GE					Analy	st: NSB
Gasoline Range Organics (GRO)	230	22		mg/Kg	5	12/31/2015 10:32:10	AM A31176
Surr: BFB	260	66.2-112	S	%REC	5	12/31/2015 10:32:10	AM A31176
EPA METHOD 8021B: VOLATILES						Analy	st: NSB
Benzene	0.25	0.22		mg/Kg	5	12/31/2015 10:32:10	AM C31176
Toluene	3.0	0.22		mg/Kg	5	12/31/2015 10:32:10	AM C31176
Ethylbenzene	1.4	0.22		mg/Kg	5	12/31/2015 10:32:10	AM C31176
Xylenes, Total	8.8	0.45		mg/Kg	5	12/31/2015 10:32:10	AM C31176
Surr: 4-Bromofluorobenzene	163	80-120	S	%REC	5	12/31/2015 10:32:10	AM C31176

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

- 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 Page 3 of 7
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1512C24

Date Reported: 1/4/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: E-4

Project: WPX NE Chaco com #166H

Collection Date: 12/30/2015 2:16:00 PM

Lab ID: 1512C24-004

Matrix: MEOH (SOIL) Received Date: 12/31/2015 7:45:00 AM

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANIC	S			Analy	st: TOM
Diesel Range Organics (DRO)	11	9.8	mg/Kg	1	12/31/2015 12:20:34	PM 23017
Surr: DNOP	78.4	70-130	%REC	1	12/31/2015 12:20:34	PM 23017
EPA METHOD 8015D: GASOLINE RA	NGE				Analy	st: NSB
Gasoline Range Organics (GRO)	ND	5.2	mg/Kg	1	12/31/2015 10:56:47	AM A31176
Surr: BFB	91.7	66.2-112	%REC	1	12/31/2015 10:56:47	AM A31176
EPA METHOD 8021B: VOLATILES					Analy	st: NSB
Benzene	ND	0.052	mg/Kg	1	12/31/2015 10:56:47	AM C31176
Toluene	ND	0.052	mg/Kg	1	12/31/2015 10:56:47	AM C31176
Ethylbenzene	ND	0.052	mg/Kg	1	12/31/2015 10:56:47	AM C31176
Xylenes, Total	ND	0.10	mg/Kg	1	12/31/2015 10:56:47	AM C31176
Surr: 4-Bromofluorobenzene	120	80-120	%REC	1	12/31/2015 10:56:47	AM C31176

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

- * 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
- D. Samula Dilutad Dura to Matrice
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 4 of 7
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512C24

04-Jan-16

Client:

Rule Engineering LLC

Project: WPX NE	Chaco com #1	166H							
Sample ID MB-23017	SampType:	MBLK	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: PBS	Batch ID:	23017	F	RunNo: 3	1167				
Prep Date: 12/31/2015	Analysis Date:	12/31/2015	8	SeqNo: 9	54044	Units: mg/k	(g		
Analyte	Result PC	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10							
Surr: DNOP	11	10.00		108	70	130			
Sample ID LCS-23017	SampType:	LCS	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: LCSS	Batch ID:	23017	F	RunNo: 3	1167				
Prep Date: 12/31/2015	Analysis Date:	12/31/2015	8	SeqNo: 9	54045	Units: mg/k	(g		
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	60	10 50.00	0	120	65.8	136			
Surr: DNOP	5.1	5.000		101	70	130			
Sample ID 1512C24-001AMS	SampType:	MS	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: E-1	Batch ID:	23017	R	RunNo: 3	1167				
Prep Date: 12/31/2015	Analysis Date:	12/31/2015	S	SeqNo: 9	54525	Units: mg/K	(g		
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49 9	.7 48.54	7.550	84.7	31.2	162			
Surr: DNOP	3.9	4.854		80.2	70	130			
Sample ID 1512C24-001AMS	D SampType:	MSD	Test	tCode: El	PA Method	8015M/D: Die	esel Range	Organics	
Client ID: E-1	Batch ID:	23017	R	RunNo: 3	1167				
Prep Date: 12/31/2015	Analysis Date:	12/31/2015	S	SeqNo: 9	54526	Units: mg/K	(g		
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		10 50.20	7.550	89.2	31.2	162	7.26	31.7	
Surr: DNOP	4.0	5.020		79.7	70	130	0	0	

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded H
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits
- P Sample pH Not In Range

Reporting Detection Limit

Page 5 of 7

Hall Environmental Analysis Laboratory, Inc.

WO#:

1512C24

04-Jan-16

Client:

Rule Engineering LLC

Project:	WPX NE	Chaco con	n #166	Н							
Sample ID	5ML RB	SampTy	/pe: M I	BLK	Tes	tCode: E	PA Method	8015D: Gaso	oline Rang	je	
Client ID:	PBS	Batch	ID: A3	31176	F	RunNo: 3	1176				
Prep Date:		Analysis Da	ate: 1	2/31/2015	\$	SeqNo: 9	54725	Units: mg/h	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	ND	5.0								
Surr: BFB		840		1000		84.0	66.2	112			
Sample ID	2.5UG GRO LCS	SampTy	/pe: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	je	
Client ID:	LCSS	Batch	ID: A3	1176	F	RunNo: 3	1176				
Prep Date:		Analysis Da	ate: 1	2/31/2015	8	SeqNo: 9	54726	Units: mg/h	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	24	5.0	25.00	0	94.2	79.6	122			
Surr: BFB		950		1000		95.3	66.2	112			
Sample ID	1512C24-001AMS	SampTy	/pe: M \$	3	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	je	
Client ID:	E-1	Batch	ID: A3	1176	F	RunNo: 3	1176				
Prep Date:		Analysis Da	ate: 12	2/31/2015	S	SeqNo: 9	54727	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range	e Organics (GRO)	17	3.3	16.57	0	101	62.5	151			
Surr: BFB		670		662.7		101	66.2	112			
Sample ID	1512C24-001AMSI	D SampTy	pe: MS	SD	Tes	Code: El	PA Method	8015D: Gaso	line Rang	e	
Client ID:	E-1	Batch	ID: A3	1176	R	tunNo: 3	1176				
Prep Date:		Analysis Da	ite: 12	2/31/2015	, , s	eqNo: 9	54728	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	16	3.3	16.57	0	99.6	62.5	151	1.04	22.1	
Surr: BFB		690		662.7		104	66.2	112	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
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix S
- Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits
- P Sample pH Not In Range
- Reporting Detection Limit

Page 6 of 7

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512C24

04-Jan-16

Client:

Rule Engineering LLC

Project:

WPX NE Chaco com #166H

Sample ID 5ML RB	SampT	ype: ME	BLK	8021B: Volat	iles					
Client ID: PBS	Batch	Batch ID: C31176 RunNo: 31176								
Prep Date:	Analysis D	ate: 12	2/31/2015	8	SeqNo: 9	54739	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		113	80	120			

Sample ID 100NG BTEX LC	SB SampT	ype: LC	S	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: LCSS	Batch	ID: C3	1176	F	RunNo: 3	1176				
Prep Date:	Analysis D	ate: 12	2/31/2015	S	SeqNo: 9	54740	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.050	1.000	0	93.7	80	120			
Toluene	0.98	0.050	1.000	0	97.9	80	120			
Ethylbenzene	0.98	0.050	1.000	0	98.4	80	120			
Xylenes, Total	3.0	0.10	3.000	0	101	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		126	80	120			S

Sample ID 1512C24-002AM	S Samp	Type: MS	3	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: E-2	Bato	h ID: C3	1176	F	RunNo: 3	1176				
Prep Date:	Analysis [Date: 12	2/31/2015	8	SeqNo: 9	54741	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.82	0.051	1.022	0	80.0	69.6	136			
Toluene	0.87	0.051	1.022	0.007150	84.2	76.2	134			
Ethylbenzene	0.89	0.051	1.022	0	86.7	75.8	137			
Xylenes, Total	2.7	0.10	3.064	0.01706	88.2	78.9	133			
Surr: 4-Bromofluorobenzene	1.2		1.022		121	80	120			S

Sample ID 1512C24-002AN	Sample ID 1512C24-002AMSD SampType: MSD TestCode: EPA Method 8021B: Volatiles											
Client ID: E-2	Batch	n ID: C3	1176	F	RunNo: 3	1176						
Prep Date:	Analysis D	Date: 12	2/31/2015	5	SeqNo: 9	54742	Units: mg/K	g				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Benzene	0.80	0.051	1.022	0	78.2	69.6	136	2.31	20			
Toluene	0.86	0.051	1.022	0.007150	83.6	76.2	134	0.685	20			
Ethylbenzene	0.89	0.051	1.022	0	87.0	75.8	137	0.253	20			
Xylenes, Total	2.8	0.10	3.064	0.01706	89.3	78.9	133	1.32	20			
Surr: 4-Bromofluorobenzene	1.3		1.022		128	80	120	0	0	S		

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- 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

Page 7 of 7



Hail Environmental Analysis Laboratory 4901 Havekins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: voww.hallerwironmental.com

Sample Log-In Check List

Client Name: RULE ENGINEERING LL Work Order Nu	mber: 1512C24		RcptNo: 1	
Received by/date: 27 /2/31/19			g garage (and an	
Logged By: Joe Archuleta 12/31/2015 7:45:		Jean		
Completed By: Joe Archuleta 12/31/2015 8:17:	32 AM	Jear Jear		
Reviewed By:	/31/15	1000		
Chain of Custody	121112		193000 ES E Compression and Administration and	I
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 viats have zero headspace?	Yes	No 🗆	No VOA Vials	
11. Were any sample containers received broken?	Yes	No 🗹	# of preserved bottles checked	
12. Does paperwork match bottle labels?	Yes 🗹	No 🗆	for pH. (<2 or >12 unle	es noted)
(Note discrepancies on chain of custody) 13. Are matrices correctly identified on Chain of Custody?	Yes 🗸	No 🗆	Adjusted?	as noted)
14. Is it clear what analyses were requested?	Yes 🗹	No 🗆		
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes 🗸	No 🗔	Checked by:	
Special Handling (if applicable)	v - [7]	N [7]	[-7	
16. Was client notified of all discrepancies with this order?	Yes []	No [T]	NA 🔽	
Person Notified: Da		-	Copper Accounts	
By Whom: Via	eMail P	hone Fax	In Person	
Regarding: Client Instructions:				
17. Additional remarks:	Control (Wings & Control		en succession come und	
18. Cooler Information				
Cooler No Temp °C Condition Seal Intact Seal No	Seal Date	Signed By		
1 1.0 Good Yes		-,		

С	hain-	of-Cu	stody Record	Turn-Around	I ime:		HALL ENVIRONMENTAL														
Client:	21. 1	= nome	ring LLC	□ Standard	X Rush	Same Day	-		_									RAT			
_		3		Project Name	:	0										al.co					
Mailing	Address	5-10	rport Dr. Suite 205	LIEV NE	llace Con	n # 1664		490	11 H:								M 871	109			
				Project #:	Maco Wi	1004				5-34				-	-		4107				
			87401					10	1. 50	5-54	0-03	-	-	-	-	uest	-		1 -	11:1	
			- 2787	Project Manag	ner:			3	<u>a</u>												
	Package:	Magrage	ruleengineering.com	i roject mana	GGas onl PO ₄ , SO PO ₄ , SO											-					
∑ Stan			□ Level 4 (Full Validation)	Heather	Librals)8)∢	Gas	DRO /			SIMS)		PO	PCB's						
Accredi					- Andrews	2/Heather Woods	(O / DRO / (CO) 19.1) 18.1) 18.1) 18.1) 18.1) 18.1) 18.1) 18.1) 18.1) 18.1) 18.1) 18.1) 18.1)														
□ NEL	AP	□ Othe	r	On Ice:	Yes	□ No	+	+	8	18.	90		,,	03,1	s/8		8				or N)
□ EDD	(Type)_			Sample Temp	perature: /.0	0	BTEX + (4) (BE) (B021) BTEX + MTBE + TPH (Gas only) TPH 8015B (GRO / DRO / 4) (BD) TPH (Method 418.1) EDB (Method 504.1) PAH'S (8310 or 8270 SIMS) RCRA 8 Metals Anions (F,CI,NO ₃ ,NO ₂ ,PO ₄ ,SO ₄) 8081 Pesticides / 8082 PCB's 8260B (VOA) 8270 (Semi-VOA)							ح							
				Cantainan	Preservative		血	Σ	15E	leth	eth	831	₩ ₩	(F,C	estic	8	em				Air Bubbles (Y
Date	Time	Matrix	Sample Request ID	Container Type and #	Type	HEAL No.	X	X	8	5	8	T's	R.	suc	1 P	0B	8) 0		-		ag
				,,		1512024	BT	BTI	TP	TF	ED	PAI	RC	Ani	808	826	8270				Air
12/30/15	1341	Soil	E-1	(1) 4 or Glass	cold	-001	Χ		×												
12/30/15	1350	501	E-2	(1) 4 02 Glass	ळाव	-002	X		X												
12/30/15	1358	Soil	E-3	(1) 4 oz Glass	cold	-003	×		×												
12/30/15	1416	5611	E-4	(1) 4 oz Glass	cold	-004	X		У									\perp	\perp		
			14E2 Hr	2																	\Box
																			\top		\dashv
																		\top	+		\dashv
														_			H		_		\dashv
Date:	Time:	Relinquish	ed by:	Received by:		Date Time	Rer	nark	S: 3		_	. 10	1								\dashv
12/201:x	IIA	House	the M. Woods	MILT	1 get	12/2/1-1150			_	Strect Hn:	10	المما	40	WP.	X						
Date!	Time:	Relinquish		Received by:	7	Date Time	1		N	Tim.	لله	200	ı	Wo	149	NO					
12/30/18	1710	YAN	st halte	Dat a	next .	12/11/15 0745															
1 / 1	necessary,	samples sub	mitted to Hall Environmental may be subo	contracted to other ac	ccredited laboratori	es. This serves as notice of this	s possi	bility.	Any su	ıb-cont	racte	d data	will be	e clear	ly not	ated or	the ar	alytical	report.		



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

OrderNo.: 1601029

January 08, 2016

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

FAX

RE: WPX NE Chaco Com #166H

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/5/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers 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

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1601029

Date Reported: 1/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: E-3 (R)

Project:

WPX NE Chaco Com #166H

Collection Date: 1/4/2016 1:20:00 PM

Lab ID:

1601029-001

Matrix: MEOH (SOIL)

Received Date: 1/5/2016 8:15:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	SE ORGANICS	6				Analyst	: KJH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/5/2016 10:29:44 AM	23066
Surr: DNOP	80.8	70-130		%REC	1	1/5/2016 10:29:44 AM	23066
EPA METHOD 8015D: GASOLINE RAN	GE					Analyst	: NSB
Gasoline Range Organics (GRO)	5.1	3.9		mg/Kg	1	1/5/2016 10:49:40 AM	A31232
Surr: BFB	102	66.2-112		%REC	1	1/5/2016 10:49:40 AM	A31232
EPA METHOD 8021B: VOLATILES						Analyst	: NSB
Benzene	ND	0.039		mg/Kg	1	1/5/2016 10:49:40 AM	C31232
Toluene	ND	0.039		mg/Kg	1	1/5/2016 10:49:40 AM	C31232
Ethylbenzene	ND	0.039		mg/Kg	1	1/5/2016 10:49:40 AM	C31232
Xylenes, Total	ND	0.079		mg/Kg	1	1/5/2016 10:49:40 AM	C31232
Surr: 4-Bromofluorobenzene	133	80-120	S	%REC	1	1/5/2016 10:49:40 AM	C31232

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

- 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 Page 1 of 5
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report Lab Order 1601029

Date Reported: 1/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: E-5

Project: WPX NE Chaco Com #166H

Collection Date: 1/4/2016 1:30:00 PM

Lab ID: 1601029-002

Matrix: MEOH (SOIL) Received Date: 1/5/2016 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS	6				Analys	t: KJH
Diesel Range Organics (DRO)	790	96		mg/Kg	10	1/5/2016 10:51:26 AM	23066
Surr: DNOP	0	70-130	S	%REC	10	1/5/2016 10:51:26 AM	23066
EPA METHOD 8015D: GASOLINE RAN	GE					Analys	: NSB
Gasoline Range Organics (GRO)	230	18		mg/Kg	5	1/5/2016 10:25:04 AM	A31232
Surr: BFB	406	66.2-112	S	%REC	5	1/5/2016 10:25:04 AM	A31232
EPA METHOD 8021B: VOLATILES						Analys	: NSB
Benzene	ND	0.089		mg/Kg	5	1/5/2016 10:25:04 AM	C31232
Toluene	1.8	0.18		mg/Kg	5	1/5/2016 10:25:04 AM	C31232
Ethylbenzene	1.7	0.18		mg/Kg	5	1/5/2016 10:25:04 AM	C31232
Xylenes, Total	13	0.36		mg/Kg	5	1/5/2016 10:25:04 AM	C31232
Surr: 4-Bromofluorobenzene	174	80-120	S	%REC	5	1/5/2016 10:25:04 AM	C31232

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

- * 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 Page 2 of 5
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601029

08-Jan-16

Client:

Rule Engineering LLC

Project: WPX N	E Chaco Com #1	66H								
Sample ID MB-23066	SampType:	MBLK	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics		
Client ID: PBS	Batch ID:	23066 RunNo: 31230								
Prep Date: 1/5/2016	Analysis Date:	1/5/2016	5	SeqNo: 9	56227	Units: mg/Kg				
Analyte	Result PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	ND 1	0								
Surr: DNOP	7.9	10.00		79.4	70	130				
Sample ID LCS-23066	SampType:	LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID:	23066	RunNo: 31230							
Prep Date: 1/5/2016	Analysis Date:	1/5/2016	SeqNo: 956228 Units: mg/Kg							
Analyte	Result PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	48 1	0 50.00	0	95.4	65.8	136				
Surr: DNOP	3.8	5.000		76.5	70	130				
Sample ID 1601029-001AMS	SampType: I	VIS	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics		
Client ID: E-3 (R)	Batch ID: 2	23066	F	RunNo: 3	1230					
Prep Date: 1/5/2016	Analysis Date:	1/5/2016	S	SeqNo: 9	56500	Units: mg/k	(g			
Analyte	Result PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	53 9.	8 48.97	5.181	97.8	31.2	162				
Surr: DNOP	3.9	4.897		79.5	70	130				
Sample ID 1601029-001AMS	SD SampType: I	MSD	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics		
Client ID: E-3 (R)	Batch ID:	23066	R	RunNo: 3	1230					
Prep Date: 1/5/2016	Analysis Date:	1/5/2016	S	SeqNo: 9	56501	Units: mg/k	(g			
Analyte	Result PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	49 9.		5.181	90.8	31.2	162	7.13	31.7		
Surr: DNOP	3.9	4.873		80.4	70	130	0	0		

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits
- P Sample pH Not In Range
- Reporting Detection Limit

Page 3 of 5

Hall Environmental Analysis Laboratory, Inc.

WO#: 160

1601029 08-Jan-16

Client:

Rule Engineering LLC

Project:	WPX NE	Chaco Co	m #166	6H									
Sample ID	5ML RB	SampT	mpType: MBLK TestCode: EPA Method 8015D: Gasoline Range										
Client ID:	PBS	Batch	ID: A3	1232	RunNo: 31232								
Prep Date:		Analysis D	ate: 1/	5/2016	5	SeqNo: 9	56882	Units: mg/h	Units: mg/Kg				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
	e Organics (GRO)	ND	5.0										
Surr: BFB		830		1000		83.5	66.2	112					
Sample ID	2.5UG GRO LCS	SampT	ype: LC	s	TestCode: EPA Method 8015D: Gasoline Range								
Client ID:	LCSS	Batch	ID: A3	1232	F	RunNo: 3	1232						
Prep Date:		Analysis D	ate: 1/	5/2016	SeqNo: 956883 Units: mg/Kg								
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Gasoline Rang	e Organics (GRO)	23	5.0	25.00	0	93.3	79.6	122					
Surr: BFB		1000		1000		101	66.2	112					
Sample ID	1601029-001AMS	SampT	SampType: MS TestCode: EPA Method 8015D: Gasoline Range										
Client ID:	E-3 (R)	Batch	ID: A3	1232	F	RunNo: 3	1232						
Prep Date:		Analysis D	ate: 1/	5/2016	SeqNo: 956884			Units: mg/Kg					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Gasoline Rang	e Organics (GRO)	18	3.9	19.69	5.071	67.5	62.5	151					
Surr: BFB		780		787.4		98.6	66.2	112					
Sample ID	1601029-001AMSE	SampT	pe: MS	SD	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	е			
Client ID:	E-3 (R)	Batch	ID: A3	1232	F	RunNo: 3	1232						
Prep Date:		Analysis D	ate: 1/	5/2016		SeqNo: 9	56885	Units: mg/k	(g				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
	e Organics (GRO)	24	3.9	19.69	5.071	96.7	62.5	151	27.1	22.1	R		
Surr: BFB		820		787.4		104	66.2	112	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
- 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

Page 4 of 5

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601029

S

08-Jan-16

Client:

Rule Engineering LLC

Project:

Ethylbenzene

Xylenes, Total

Surr: 4-Bromofluorobenzene

WPX NE Chaco Com #166H

0.96

3.0

1.3

0.050

0.10

1.000

3.000

1.000

Sample ID 5ML RB	SampType: MBLK TestCode: EPA Method 8021B: Volatiles									
Client ID: PBS	Batc	h ID: C3	31232	F	RunNo: 3	1232				
Prep Date:	Analysis [Date: 1/	/5/2016		SeqNo: 9	56895	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		112	80	120			
Sample ID 100NG BTEX LC	S Samp	SampType: LCS TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batc	h ID: C3	1232	F	RunNo: 3	1232				
Prep Date:	Analysis D	Date: 1/	5/2016	5	SeqNo: 9	56896	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.050	1.000	0	89.5	80	120			
Toluene	0.95	0.050	1.000	0	94.6	80	120			

Sample ID 1601029-002AMS	SampType: MS TestCode: EPA Method						8021B: Volat	tiles			
Client ID: E-5	Batch	Batch ID: C31232 RunNo: 31232									
Prep Date:	Analysis Da	ate: 1/	5/2016	8	SeqNo: 9	56897	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	3.3	0.18	3.562	0.06126	90.9	71.5	122				
Toluene	5.5	0.18	3.562	1.780	105	71.2	123				
Ethylbenzene	5.7	0.18	3.562	1.734	112	75.2	130				
Xylenes, Total	25	0.36	10.68	12.97	110	72.4	131				
Surr: 4-Bromofluorobenzene	6.1		3.562		171	80	120			S	

0

0

96.4

99.6

126

80

80

80

120

120

120

Sample ID 1601029-002AMS	ISD Samp ype: MSD TestCode: EPA Method 8021B: Volatiles									
Client ID: E-5	Batch	ID: C3	1232	F	RunNo: 3					
Prep Date:	tte: Analysis Date: 1/5/2016				SeqNo: 9					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.2	0.18	3.562	0.06126	89.0	71.5	122	2.04	20	
Toluene	5.4	0.18	3.562	1.780	102	71.2	123	1.36	20	
Ethylbenzene	5.7	0.18	3.562	1.734	110	75.2	130	1.28	20	
Xylenes, Total	24	0.36	10.68	12.97	107	72.4	131	1.40	20	
Surr: 4-Bromofluorobenzene	6.2		3.562		174	80	120	0	0	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- 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

Page 5 of 5



!lall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87169

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: RULE ENGINEERING LL Work Order Numb	per: 1601029		RcptNo: 1
Received by/date: 01 05 16			
Logged By: Lindsay Mangin 1/5/2016 8:15:00 Al	М	July Hogo	
Completed By: Lindsay Mangin 1/5/2016 8:25:25 Al	М	And Allen	
	•	0 3.00	
Reviewed By: 01/65/16 Chain of Custody	And the second s	rakar kanementa atamar ya barrenta iliku ya	
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		
<u>Log In</u>			
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 🗹	# of preserved
			bottles checked
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🗹	No 🗌	for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes 🗹	No 🗌	Adjusted?
14, Is it clear what analyses were requested?	Yes V	No 🗆	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes 🗹	No 🗆	Checked by.
Special Handling (if applicable)			
16. Was client notified of all discrepancies with this order?	Yes	No 🗆	NA 🔽

Person Notified: Date	,	Phone Fax	In Person
By Whom: Via: Regarding:	eMail	rnone rax	in Person
Client Instructions:			
17. Additional remarks:			
18. Cooler Information Cooler No Temp °C Condition Seal Intact Seal No	Seal Date	Signed By	
1 1.6 Good Yes	Jour Date	Jigired by	

Chain-of-Custody Record	Turn-Around Time:	LL HAL . ENVIRONMENTAL					
Chain-of-Custody Record	Standard & Rush Same Day	ANALYSIS LABORATORY					
Table Stranger	Project Name:	www.hallenvironmental.com					
ailing Address: 501 Airport Dr. Suik 205	WAX NE Chara Com # Haby	4901 Hawkins NE - Albuquerque, NM 87109					
•	Project #:	Tel. 505-345-3975 Fax 505-345-4107					
armington, NM 87401 one #: (505) 714-2787	1	Analysis Request					
nail or Fax#: hwoods@vullenginering.com	Project Manager:	2 2					
VQC Package:		8 on					
Standard Level 4 (Full Validation)	Heather Woods	I (Gas onl RO / A					
creditation	Sampler: H. Woods / J. Valdez	P. TPH (Gas or to / DRO / LET) 18.1) 18.1) 24.1) 24.1) 24.1) A) A)					
NELAP Other	On lice: Ø Yes □ No. =	1 + TP 1 + TP					
EDD (Type)	Sample Temperature: 1,6	S (S					
Date Time Matrix Sample Request ID	Container Type and # Preservative Type HEAL No. CA	BTEX + 465 EE+ 1942 (8021) BTEX + MTBE + TPH (Gas only) TPH 8015B (GRO / DRO / ACT) TPH (Method 418.1) EDB (Method 504.1) PAH'S (8310 or 8270 SIMS) RCRA 8 Metals Anions (F,CI,NO ₃ ,NO ₂ ,PO ₄ ,SO ₄) 8081 Pesticides / 8082 PCB's 8260B (VOA) 8270 (Semi-VOA)					
/16 1320 Soil E-3 (R)	WITH KIT WEOH!	XXX					
/16 1330 Soil E-5	MUCH KIT MUCH!	X X					
7161230 3611 E-2	(1) Yoz Glass Cold -OC						
	1						
NES							
te; Time: Relinquished by:	Received by: Date Time	Remarks: New Publish 1997					
14 1714 Heather M. Woon	Muster Wall 19/14 17/4	Attn: Debbie Watson					
te: Time: Relinquished by:	Received by: Date Time						
11 1754 Christe Walte	01/05/16 0818						
If necessary, samples submitted to Hall Environmental may be sub	contracted to other adcredited laboratories. This serves as notice of thi	is possibility. Any sub-contracted data will be clearly notated on the analytical report.					



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

January 08, 2016

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

FAX

RE: WPX Chaco Com #166H

OrderNo.: 1601161

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/7/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers 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

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report Lab Order 1601161

Date Reported: 1/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: E-5 (R)

Project: WPX Chaco Com #166H Collection Date: 1/6/2016 2:40:00 PM

Lab ID: 1601161-001 Matrix: MEOH (SOIL) Received Date: 1/7/2016 8:15:00 AM

Analyses	Result	RL (Qual U	nits	DF Date Analyzed Bat	tch
EPA METHOD 8015M/D: DIESEL RANG	GE ORGANICS	S			Analyst: KJI	Н
Diesel Range Organics (DRO)	ND	9.6	n	ng/Kg	1 1/7/2016 1:20:33 PM 231	102
Surr: DNOP	77.4	70-130	9/	%REC	1 1/7/2016 1:20:33 PM 231	102
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst: NS	В
Gasoline Range Organics (GRO)	ND	3.2	n	ng/Kg	1 1/7/2016 10:43:20 AM A31	1307
Surr: BFB	96.7	66.2-112	9/	%REC	1 1/7/2016 10:43:20 AM A31	1307
EPA METHOD 8021B: VOLATILES					Analyst: NSI	В
Benzene	ND	0.032	n	ng/Kg	1 1/7/2016 10:43:20 AM R31	1307
Toluene	ND	0.032	n	ng/Kg	1 1/7/2016 10:43:20 AM R31	1307
Ethylbenzene	ND	0.032	n	ng/Kg	1 1/7/2016 10:43:20 AM R31	1307
Xylenes, Total	ND	0.063	n	ng/Kg	1 1/7/2016 10:43:20 AM R31	1307
Surr: 4-Bromofluorobenzene	129	80-120	S %	%REC	1 1/7/2016 10:43:20 AM R31	1307

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits Page 1 of 4 J
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1601161

08-Jan-16

Client:

Rule Engineering LLC

Project:

WPX Chaco Com #166H

Sample ID MB-23102	SampTy	ype: ME	BLK	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: PBS	Batch	ID: 23	102	F	RunNo: 3	1293				
Prep Date: 1/7/2016	Analysis Da	ate: 1/	7/2016	S	SeqNo: 9	58006	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	8.0		10.00		79.7	70	130			
Sample ID MB-23116	SampTy	уре: МЕ	BLK	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: DBS	Ratch	ID: 22	116		PunNo: 2	1202				

Sample ID LCS-23102 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics											
Surr: DNOP		14		10.00		137	70	130			S
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Prep Date:											
Client ID:	PBS	Batch ID: 23116 RunNo: 31303									

Sample ID LCS-23102	SampTy	SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch	ID: 23	102	F	RunNo: 3	1293				
Prep Date: 1/7/2016	Analysis Da	ate: 1/	7/2016	S	SeqNo: 9	58703	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.0	65.8	136			
Surr: DNOP	4.2		5.000		83.8	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
- 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

Page 2 of 4

Hall Environmental Analysis Laboratory, Inc.

WO#:

1601161

08-Jan-16

Client:

Rule Engineering LLC

Project:

WPX Chaco Com #166H

Sample ID 5ML RB

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

Client ID:

PBS

Batch ID: A31307

RunNo: 31307

Prep Date:

Analysis Date: 1/7/2016

SeqNo: 958472

Units: mg/Kg

Analyte

Result **PQL** SPK value SPK Ref Val %REC

LowLimit

66.2

%RPD

%RPD

Gasoline Range Organics (GRO)

ND

5.0

HighLimit

Qual

RPDLimit

Surr: BFB

890

1000

88.5

112

Sample ID 2.5UG GRO LCS

SampType: LCS

TestCode: EPA Method 8015D: Gasoline Range

Client ID: **LCSS** Batch ID: A31307

RunNo: 31307

Prep Date:

Analysis Date: 1/7/2016

Units: mg/Kg

Analyte

PQL Result

SeqNo: 958473 %REC SPK value SPK Ref Val

HighLimit

RPDLimit Qual

Gasoline Range Organics (GRO) Surr: BFB

22 5.0 25.00 990 1000 88.88 99.0 79.6 66.2

LowLimit

122 112

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- 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

Reporting Detection Limit

- J Analyte detected below quantitation limits
- P Sample pH Not In Range

Page 3 of 4

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601161**

08-Jan-16

Client: Rule Engineering LLC
Project: WPX Chaco Com #166H

Sample ID 5ML RB	SampT	ype: ME	BLK	Tes	tCode: E	iles				
Client ID: PBS	Batch	ID: R3	1307	F	RunNo: 3					
Prep Date:	Analysis D	ate: 1/	7/2016	S	SeqNo: 9	g				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.2		1.000		119	80	120			

Sample ID 100NG BTEX LCS	S SampT	ype: LC	S	Tes	8021B: Vola	tiles				
Client ID: LCSS	Batch	ID: R3	1307	F	RunNo: 3	1307				
Prep Date:	Analysis D	ate: 1/	7/2016	S	SeqNo: 9	58480	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.050	1.000	0	91.9	80	120			
Toluene	0.94	0.050	1.000	0	94.2	80	120			
Ethylbenzene	0.97	0.050	1.000	0	96.8	80	120			
Xylenes, Total	3.0	0.10	3.000	0	100	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		129	80	120			S

Sample ID 1601161-001AMS	Samp	Type: MS	6	Tes	tCode: E	PA Method	8021B: Volat	tiles		
Client ID: E-5 (R)	Bato	h ID: R3	1307	F	RunNo: 3	1307				
Prep Date:	Analysis I	Date: 1/	7/2016	8	SeqNo: 9	58481	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.44	0.032	0.6345	0.004568	67.9	71.5	122			S
Toluene	0.48	0.032	0.6345	0.01929	72.6	71.2	123			
Ethylbenzene	0.49	0.032	0.6345	0.009771	76.4	75.2	130			
Xylenes, Total	1.6	0.063	1.904	0.05730	79.9	72.4	131			
Surr: 4-Bromofluorobenzene	0.84		0.6345		133	80	120			S

Sample ID 1601161-001AMSD SampType: MSD TestCode: EPA Method 8021B: Volatiles											
Client ID: E-5 (R)	Batch	ID: R3	1307	F	RunNo: 3	1307					
Prep Date: Analysis Date: 1/7/2016 SeqNo: 958482 Units: mg/Kg											
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	0.65	0.032	0.6345	0.004568	101	71.5	122	38.9	20	R	
Toluene	0.71	0.032	0.6345	0.01929	109	71.2	123	38.4	20	R	
Ethylbenzene	0.72	0.032	0.6345	0.009771	112	75.2	130	37.4	20	R	
Xylenes, Total	2.3	0.063	1.904	0.05730	119	72.4	131	37.9	20	R	
Surr: 4-Bromofluorobenzene	0.6345		130	80	120	0	0	S			

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- 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

Page 4 of 4



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NAI 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

RcptNo: 1 Client Name: **RULE ENGINEERING LL** Work Order Number: 1601161 Received by/date: Logged By: 1/7/2016 8:15:00 AM Lindsay Mangin Completed By: **Lindsay Mangin** 1/7/2016 8:33:13 AM 01/07/15 Reviewed By: 70 Chain of Custody Not Present V Yes No 🗌 1 Custody seals intact on sample bottles? No. Not Present Vac V 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log In Yes V No 🔲 NA 4. Was an attempt made to cool the samples? NA 🗍 No 🗌 Were all samples received at a temperature of >0° C to 6.0°C Yes V Yes V No 🗌 6. Sample(s) in proper container(s)? No 🗌 7. Sufficient sample volume for indicated test(s)? No 🗌 8. Are samples (except VOA and ONG) properly preserved? Yes V NA 🗌 No Y Yes 9. Was preservative added to bottles? No 🗌 No VOA Vials Yes 10. VOA vials have zero headspace? Yes -No V 11. Were any sample containers received broken? # of preserved bottles checked Yes V No 🗌 for pH 12. Does paperwork match bottle labels? (<2 or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? No 🗌 Yes V 13. Are matrices correctly identified on Chain of Custody? Yes V No 14. Is it clear what analyses were requested? No 🗌 Checked by: Yes V 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) NA V Yes No 🗌 16. Was client notified of all discrepancies with this order? Person Notified: Date By Whom: Via: eMall 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 1.8

C	hain-	of-Cu	stody Record	Turn-Around Time: Standard Rush Same Day Project Name: Www.hallenvironmental.com Analysis Request HALL ENVIRON ANALYSIS LAB Www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM Analysis Request						NIA	4FP	AT.	AI.								
lient:	2.1. 5	200	ring LC	☐ Standard	K Rush	Same Day	-											RA			,
	MAY C	Jine		Project Name	9:	J						v.hal									
lailing	Address			1 1000 01		4 111.11	16?	14	24.11									100			
		50i A	Sixport Dr. Suite 205	Project #:	are com	H I BU IT	PIN							-			M 87				
Far	mingh	W. N	M 87401	1,000			As	16	el. 50	5-34	5-38					345- uest	4107		10.1		
hone #	#: <u>(</u> 202)	7) +16	-2767	Davis et Mana					a				ilary		Neq	uesi					
		Imoud 2	Oristerny necestry com	Project Mana	iger:		21)	only	4					SO	S,S						
A/QC F	Package:		☐ Level 4 (Full Validation)	Heather	1.10065		TMB's (8021)	TPH (Gas only)	(GRO / DRO / MENS			SIMS)		Anions (F,CI,NO3,NO2,PO4,SO4)	PCB's						
ccredi			Ecver + (I dil validation)	Sampler illa	ika i dadi	Distr Valdez	/B's	Ä	DR			0 8		02,	382						
] NEL		□ Othe	er	On Ice:	Yes	DNO	+	+	02	18.1	504.1)	8270		3,N	/ 8(8				N L
] EDD	(Type)_			Sample Tem		8			(GF	4 p	90	5	tals	Ŋ,	ides	2	9				ک
							Σ	Σ	TPH 8015B	TPH (Method 418.1)	(Method	PAH's (8310	RCRA 8 Metals	(F,C	8081 Pesticides / 8082	8260B (VOA)	8270 (Semi-VOA)				oles
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.		+ ×	1 80	₹	<u>Σ</u>	1's (3A 8	Suc	1 Pe	0B (0 (S				3ub
				Type and "	1,500	1601161	BTEX + MTBE	втех	교	효	EDB	PAF	RCF	Anic	808	826	827				Air Bubbles (Y or N)
10/110	1440	Soil	E-5(R)	Mich KIL	Meon	-001	V		X												
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	1047	MAN	1. tr. libala	17	X .	I Landing MOIE	-	120		1	11	12	7		,						
efile "	necessary,	camples sub	mitted to Hall Environmental may be sub-	contracted to other a	dcredited laboratorio	1 67 16 08 5	_		_						_			nalytical	report		
,,		(/	to rion with the first that the same	2000	/		- P000		, 50	3011				0.00	,		. 0.0 01	. J. J. Jacobi	. 5 0 0 0		



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

March 24, 2016

Heather Woods Rule Engineering LLC 501 Airport Dr., Ste 205 Farmington, NM 87401

TEL: (505) 860-2712

FAX

RE: WPX NE Chaco Com #166H

OrderNo.: 1603A14

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 6 sample(s) on 3/19/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the OC 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

Only

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1603A14

Date Reported: 3/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-2

Project: WPX NE Chaco Com #166H

Collection Date: 3/18/2016 9:57:00 AM

Lab ID: 1603A14-001

Matrix: SOIL

Received Date: 3/19/2016 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	GE ORGANIC	S				Analyst	: KJH
Diesel Range Organics (DRO)	1300	97		mg/Kg	10	3/22/2016 6:29:26 PM	24348
Surr: DNOP	0	70-130	S	%Rec	10	3/22/2016 6:29:26 PM	24348
EPA METHOD 8015D: GASOLINE RAI	NGE					Analyst	: NSB
Gasoline Range Organics (GRO)	260	23		mg/Kg	5	3/23/2016 9:05:53 AM	24355
Surr: BFB	490	66.2-112	S	%Rec	5	3/23/2016 9:05:53 AM	24355
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	ND	0.12		mg/Kg	5	3/23/2016 9:05:53 AM	24355
Toluene	ND	0.23		mg/Kg	5	3/23/2016 9:05:53 AM	24355
Ethylbenzene	0.82	0.23		mg/Kg	5	3/23/2016 9:05:53 AM	24355
Xylenes, Total	4.9	0.47		mg/Kg	5	3/23/2016 9:05:53 AM	24355
Surr: 4-Bromofluorobenzene	135	80-120	S	%Rec	5	3/23/2016 9:05:53 AM	24355

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

- * 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 Page 1 of 9
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1603A14

Date Reported: 3/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-3

Project:

WPX NE Chaco Com #166H

Collection Date: 3/18/2016 10:01:00 AM

Lab ID:

1603A14-002

Matrix: SOIL

Received Date: 3/19/2016 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS	S				Analysi	: KJH
Diesel Range Organics (DRO)	1300	99		mg/Kg	10	3/22/2016 6:51:20 PM	24348
Surr: DNOP	0	70-130	S	%Rec	10	3/22/2016 6:51:20 PM	24348
EPA METHOD 8015D: GASOLINE RAN	GE					Analyst	: NSB
Gasoline Range Organics (GRO)	8.0	4.7		mg/Kg	1	3/22/2016 8:53:24 PM	24355
Surr: BFB	150	66.2-112	S	%Rec	1	3/22/2016 8:53:24 PM	24355
EPA METHOD 8021B: VOLATILES						Analyst	: NSB
Benzene	ND	0.023		mg/Kg	1	3/22/2016 8:53:24 PM	24355
Toluene	ND	0.047		mg/Kg	1	3/22/2016 8:53:24 PM	24355
Ethylbenzene	ND	0.047		mg/Kg	1	3/22/2016 8:53:24 PM	24355
Xylenes, Total	ND	0.094		mg/Kg	1	3/22/2016 8:53:24 PM	24355
Surr: 4-Bromofluorobenzene	112	80-120		%Rec	1	3/22/2016 8:53:24 PM	24355

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

% Recovery outside of range due to dilution or matrix

- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 2 of 9
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1603A14

Date Reported: 3/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project: WPX NE Chaco Com #166H

Lab ID: 1603A14-003

Client Sample ID: SC-4

Collection Date: 3/18/2016 10:09:00 AM

Received Date: 3/19/2016 11:00:00 AM

Analyses	Result PQL Qual Units				DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAM	IGE ORGANICS	S				Analyst	: KJH
Diesel Range Organics (DRO)	700	100		mg/Kg	10	3/22/2016 7:13:15 PM	24348
Surr: DNOP	0	70-130	S	%Rec	10	3/22/2016 7:13:15 PM	24348
EPA METHOD 8015D: GASOLINE RA	NGE					Analyst	: NSB
Gasoline Range Organics (GRO)	24	4.9		mg/Kg	1	3/22/2016 9:17:03 PM	24355
Surr: BFB	218	66.2-112	S	%Rec	1	3/22/2016 9:17:03 PM	24355
EPA METHOD 8021B: VOLATILES						Analyst	: NSB
Benzene	ND	0.025		mg/Kg	1	3/22/2016 9:17:03 PM	24355
Toluene	ND	0.049		mg/Kg	1	3/22/2016 9:17:03 PM	24355
Ethylbenzene	ND	0.049		mg/Kg	1	3/22/2016 9:17:03 PM	24355
Xylenes, Total	0.23	0.099		mg/Kg	1	3/22/2016 9:17:03 PM	24355
Surr: 4-Bromofluorobenzene	118	80-120		%Rec	1	3/22/2016 9:17:03 PM	24355

Matrix: SOIL

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

- * 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 Page 3 of 9
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1603A14

Date Reported: 3/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project: WPX NE Chaco Com #166H

Lab ID: 1603A14-004

Client Sample ID: SC-5

Collection Date: 3/18/2016 10:16:00 AM

Received Date: 3/19/2016 11:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAI	NGE ORGANIC	S			Analyst	: KJH
Diesel Range Organics (DRO)	110	10	mg/Kg	1	3/22/2016 7:35:05 PM	24348
Surr: DNOP	85.5	70-130	%Rec	1	3/22/2016 7:35:05 PM	24348
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	3/22/2016 9:40:41 PM	24355
Surr: BFB	106	66.2-112	%Rec	1	3/22/2016 9:40:41 PM	24355
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.025	mg/Kg	1	3/22/2016 9:40:41 PM	24355
Toluene	ND	0.049	mg/Kg	1	3/22/2016 9:40:41 PM	24355
Ethylbenzene	ND	0.049	mg/Kg	1	3/22/2016 9:40:41 PM	24355
Xylenes, Total	ND	0.098	mg/Kg	1	3/22/2016 9:40:41 PM	24355
Surr: 4-Bromofluorobenzene	111	80-120	%Rec	1	3/22/2016 9:40:41 PM	24355

Matrix: SOIL

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

- 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 Page 4 of 9
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1603A14

Date Reported: 3/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project:

Lab ID:

WPX NE Chaco Com #166H

1603A14-005

Client Sample ID: SC-6

Collection Date: 3/18/2016 10:21:00 AM

Received Date: 3/19/2016 11:00:00 AM

Analyses	Result	PQL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	GE ORGANICS	S				Analyst	: KJH
Diesel Range Organics (DRO)	31	9.8		mg/Kg	1	3/22/2016 7:56:59 PM	24348
Surr: DNOP	84.4	70-130		%Rec	1	3/22/2016 7:56:59 PM	24348
EPA METHOD 8015D: GASOLINE RAN	IGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/22/2016 10:04:17 PM	24355
Surr: BFB	113	66.2-112	S	%Rec	1	3/22/2016 10:04:17 PM	24355
EPA METHOD 8021B: VOLATILES						Analyst	: NSB
Benzene	ND	0.024		mg/Kg	1	3/22/2016 10:04:17 PM	24355
Toluene	ND	0.047		mg/Kg	1	3/22/2016 10:04:17 PM	24355
Ethylbenzene	ND	0.047		mg/Kg	1	3/22/2016 10:04:17 PM	24355
Xylenes, Total	ND	0.094		mg/Kg	1	3/22/2016 10:04:17 PM	24355
Surr: 4-Bromofluorobenzene	112	80-120		%Rec	1	3/22/2016 10:04:17 PM	24355

Matrix: SOIL

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

- 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 Page 5 of 9
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1603A14

Date Reported: 3/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-7

Project: WPX NE Chaco Com #166H

Collection Date: 3/18/2016 10:23:00 AM

Lab ID: 1603A14-006

Matrix: SOIL

Received Date: 3/19/2016 11:00:00 AM

Analyses	Result	PQL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	GE ORGANICS	S				Analys	: KJH
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	3/22/2016 8:18:45 PM	24348
Surr: DNOP	84.4	70-130		%Rec	1	3/22/2016 8:18:45 PM	24348
EPA METHOD 8015D: GASOLINE RAM	NGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/22/2016 10:27:52 PM	24355
Surr: BFB	116	66.2-112	S	%Rec	1	3/22/2016 10:27:52 PM	24355
EPA METHOD 8021B: VOLATILES						Analyst	: NSB
Benzene	ND	0.024		mg/Kg	1	3/22/2016 10:27:52 PM	24355
Toluene	ND	0.047		mg/Kg	1	3/22/2016 10:27:52 PM	24355
Ethylbenzene	ND	0.047		mg/Kg	1	3/22/2016 10:27:52 PM	24355
Xylenes, Total	ND	0.095		mg/Kg	1	3/22/2016 10:27:52 PM	24355
Surr: 4-Bromofluorobenzene	109	80-120		%Rec	1	3/22/2016 10:27:52 PM	24355

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

- 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 Page 6 of 9
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603A14 24-Mar-16**

J.

Client:

Rule Engineering LLC

Project:

WPX NE Chaco Com #166H

Sample ID LCS-24347 TestCode: EPA Method 8015M/D: Diesel Range Organics SampType: LCS Client ID: LCSS Batch ID: 24347 RunNo: 32965 SeqNo: 1011103 Prep Date: Analysis Date: 3/22/2016 Units: %Rec 3/21/2016 SPK value SPK Ref Val %REC %RPD **RPDLimit** Qual PQL LowLimit HighLimit Analyte Surr: DNOP 5.1 5.000 103 70 130

Sample ID MB-24347 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 24347 RunNo: 32965 Prep Date: Analysis Date: 3/22/2016 SeqNo: 1011105 Units: %Rec 3/21/2016 SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Analyte Result 130 Surr: DNOP 10 10.00 102

Sample ID LCS-24348 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 24348 RunNo: 32965 Prep Date: 3/21/2016 Analysis Date: 3/22/2016 SeqNo: 1011724 Units: mg/Kg SPK value SPK Ref Val LowLimit %RPD **RPDLimit** Analyte Result **PQL** %REC HighLimit Qual Diesel Range Organics (DRO) 36 10 50.00 72.8 65.8 136 78.1 70 Surr: DNOP 3.9 5.000 130

TestCode: EPA Method 8015M/D: Diesel Range Organics Sample ID MB-24348 SampType: MBLK Client ID: PBS Batch ID: 24348 RunNo: 32965 Prep Date: 3/21/2016 Analysis Date: 3/22/2016 SeqNo: 1011725 Units: mg/Kg SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Analyte Result **PQL** LowLimit ND Diesel Range Organics (DRO) 10 Surr: DNOP 7.7 10.00 76.7 70 130

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

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

Page 7 of 9

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603A14

24-Mar-16

Client:

Rule Engineering LLC

Project:

WPX NE Chaco Com #166H

Sample ID MB-24355

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

Client ID: **PBS**

3/21/2016

Batch ID: 24355

RunNo: 32985

Analysis Date: 3/22/2016

SeqNo: 1011660

Units: mg/Kg

Prep Date:

Result PQL 5.0 SPK value SPK Ref Val %REC LowLimit

Qual

Gasoline Range Organics (GRO)

ND 1100

1000

106

HighLimit 112 **RPDLimit**

Surr: BFB

Sample ID LCS-24355

SampType: LCS

TestCode: EPA Method 8015D: Gasoline Range

%RPD

%RPD

Client ID:

LCSS

Batch ID: 24355

RunNo: 32985

%REC

Prep Date:

3/21/2016 Analysis Date: 3/22/2016

SeqNo: 1011661

Units: mg/Kg

HighLimit

RPDLimit Qual

Analyte Gasoline Range Organics (GRO)

Result POL

SPK value 5.0 25.00

93.9 110 80

LowLimit

66.2

120

Surr: BFB

23 1100

1000

SPK Ref Val

0

66.2

112

Qualifiers:

ND

S

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded

% Recovery outside of range due to dilution or matrix

- Not Detected at the Reporting Limit R RPD outside accepted recovery limits

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

Page 8 of 9

Hall Environmental Analysis Laboratory, Inc.

WO#:

1603A14

24-Mar-16

Client:

Benzene

Toluene

Ethylbenzene

Xylenes, Total

Surr: 4-Bromofluorobenzene

Rule Engineering LLC

Project:

WPX NE Chaco Com #166H

0.89

0.89

0.92

2.7

1.1

0.025

0.050

0.050

0.10

1.000

1.000

1.000

3.000

1.000

Sample ID MB-24355	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: PBS	Batch	ID: 24	355	F	RunNo: 3					
Prep Date: 3/21/2016	Analysis D	ate: 3/	22/2016	S	SeqNo: 1	011677	Units: mg/K	g		
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		111	80	120			
Sample ID LCS-24355	SampT	ype: LC	s	Test	Code: El	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batch	ID: 24	355	R	tunNo: 3	2985				
Prep Date: 3/21/2016	Analysis D	ate: 3/	22/2016	S	eqNo: 1	011678	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

0

0

0

0

88.9

88.8

91.7

90.6

111

75.3

82.8

83.9

80

80

123

124

121

122

120

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

Page 9 of 9



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 ENGINEERII	NG LL Work Order Numbe	r: 1603/	A14		RcptNo	: 1
Received by/date:	03/19/16					
Logged By: Joe Archuleta	3/19/2016 11:00:00 A	М		H.Ost		
Completed By: Joe Archyleta	3/19/2016 12:23:03 P	M		Jean.		
Reviewed By:	05/21/16			,		
Chain of Custody	0-10119					
1. Custody seals intact on sample be	ottles?	Yes	[]	No []	Not Present	
2. Is Chain of Custody complete?		Yes		No []	Not Present	
3. How was the sample delivered?		Cour	ier			
Log In						
4. Was an attempt made to cool the	samples?	Yes		No 🗆	NA 🗀	
5. Were all samples received at a te	mperature of >0° C to 6.0°C	Yes		No [.]	NA []	
6. Sample(s) in proper container(s)?	,	Yes		No 🗆		
7. Sufficient sample volume for indic	ated test(s)?	Yes		No []		
8. Are samples (except VOA and ON	IG) properly preserved?	Yes		No []		
9. Was preservative added to bottles	17	Yes		No 🔛	NA []	
10.VOA vials have zero headspace?		Yes		No []	No VOA Vials	
11. Were any sample containers rece	eived broken?	Yes		No 🐼	# 45	
			-		# of preserved bottles checked	
12. Does paperwork match bottle labe (Note discrepancies on chain of contract of contra		Yes		No L	for pH: (<2	or >12 unless noted)
13. Are matrices correctly identified of		Yes		No [.]	Adjusted?	
14. Is it clear what analyses were requ		Yes		No 🗔		
15. Were all holding times able to be (If no, notify customer for authoriz		Yes		No 🗀	Checked by:	
Special Handling (If applicable	(e)					
16. Was client notified of all discrepar		Yes	[]	No 🗔	NA 🖃	
Person Notified:	Date	NATE NAME OF THE PARTY.	diam'regalik	Million and the sense of the annual state of the sense of		
By Whom:	Via:	eMa	ail [Phone F Fax	[] In Person	
Regarding:	والمراقبة والمارات المسالمة المستدر ودروي ووالورواء المالية المالية المسالم المساور وووو			ING a-manachamini Shillini-k-da aqays-ax	atura malika islining repart was in malika 162	
Client Instructions:	مستعد المعادلة المعاد	nalametakii ishbilan	DIMENSIONAL NA	ىدىدە دەھەر سولىلىلىلىلىلىلىلىلىلىلىلىلىلىلىلىلىلىلى	inder, a Jáda Huntygá ferfi ern ngua útuaudantsadhlipi, jergtegte	
17. Additional remarks:						
18. Cooler Information	see located located	0.15		l o	ī	
Cooler No Temp °C Cond	lition Seal Intact Seal No Yes	Seal Da	ite	Signed By	-	
I			41	T T	I	

C	hain-	of-Cu	stody Record	Turn-Around	ime:				35	НА	LL	E	NV	IR	O	NM	ENT	FAL	
Client:	Rule E	naines	uring, LLC	☑ Standard	Rush		-		_								TAS		
		J	3,	Project Name			2							nenta					
Mailing	Address:	501 A:	rport Dr., Svite 205	WPX NE C	haco Cor	n # lolet		490	1 Hav							A 8710	09		
			87401	Project #:					. 505-					505-3					
			-2787				Analysis Request									1			
			ruleengineering com	Project Mana	ger:		_	3	9	T			7						
	Package:		0 0				(8021)	IS OF	3		ŝ		14.80	PCB's					
¥ Stan	dard		☐ Level 4 (Full Validation)	Heather	Woods		99	(Ge	/ DRO / CES		SIMS)		PO.	2 PC					
Accredi		- 01		Sampler: H. 1	Upods /J.			TPH (Gas only)	2 5	=	270		S.	8082					O N
□ NEL		□ Othe	r	In the Control of the Paper State Control	Yes	□ No	+	+	SRC 44	50	or 8	os:	Š	68		OA			
□ EDD	(Type)_			Sample Temp	erature.		1	MTBE	98(hod	310	Veta	Ö,	Pesticides	OA	(Semi-VOA)		de de la companya de	es (Y
Date	Time	Matrix	Sample Request ID	Container	Preservative	HEAL No.	+	+	801	Me	8 (8)	48	IS (F	Pes	8	Se			lggr
Date	This	WIGUIX	Odiffple Request ID	Type and #	Туре	1603 A14	втех	втех	TPH 8015B (GRO / I	EDB (Method 504.1)	PAH's (8310 or 8270	RCRA 8 Metals	Anions (F,CI,NO3,NO2,PO4,SO4)	8081	8260B (VOA)	8270			Air Bubbles
3/18/11	09.57	Sail	SC-2	() Yoz Glass	Cold	-001	X	-	X	1 "	1	14.	4	ω.	80	80			
	1001			(1) 4 = GLASS		-00 Z	X		X										
			Sc-4	(1) 402 Glass		-003	X		X	\top						\top			
			50-5	(1) Yoz Gloss		-004	X	2	4	+									
	1021			(1) 402 Glass		-005	X		X	+									
	1023	9. 7. 1.		(1) 402 Gloss	1	-006	X		×	\top									
3/10/16	1023	2011	OC 7	(C) 707 (SIDE)	COID	00-	1			1									
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			+114																
					100														
								4											
Date:	Time:	Relinquish	ed by:	Received by:	, 1	Date Time	1	narks			7-1		-						
3/18/14	1732	Heat	the M. Woya	YNunter	e Walt	8/18/16 1732	-	37 0	Bill . Debl										
Date:	Time:	Relinquish	ed by:	Received by:		Daté Time	H	4	المان	DIE 1	Wa*	SUF	•						
3/18/16	1804	14	+ Wall	Mr. 0	that o	13/19/16 1100									2 2 2 2	29	,		
,	f necessary.	samples sub	mitted to Hall Environmental may be sub	contracted to other ac	credited laboratoric	es. This serves as notice of thi	s possi	oility, A	iny sub-	ontract	ac data	willb	e clear	y nota	ted on	the ans	lytical rep	מת.	



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

OrderNo.: 1604491

April 20, 2016

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

RE: WPX NE Chaco Com #166H

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/12/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers 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

Only

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1604491

Date Reported: 4/20/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-2

Project:

WPX NE Chaco Com #166H

Collection Date: 4/11/2016 9:50:00 AM

Lab ID:

1604491-001

Matrix: SOIL

Received Date: 4/12/2016 7:33:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	GE ORGANICS				Analyst	: KJH
Diesel Range Organics (DRO)	58	10	mg/Kg	1	4/18/2016 11:01:25 AM	24787
Surr: DNOP	75.7	70-130	%Rec	1	4/18/2016 11:01:25 AM	24787
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	4/13/2016 11:59:49 PM	24755
Surr: BFB	109	80-120	%Rec	1	4/13/2016 11:59:49 PM	24755
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.023	mg/Kg	1	4/13/2016 11:59:49 PM	24755
Toluene	ND	0.046	mg/Kg	1	4/13/2016 11:59:49 PM	24755
Ethylbenzene	ND	0.046	mg/Kg	1	4/13/2016 11:59:49 PM	24755
Xylenes, Total	ND	0.092	mg/Kg	1	4/13/2016 11:59:49 PM	24755
Surr: 4-Bromofluorobenzene	115	80-120	%Rec	1	4/13/2016 11:59:49 PM	24755

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

- 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 Page 1 of 7
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1604491

Date Reported: 4/20/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project: WPX NE Chaco Com #166H

Lab ID: 1604491-002

Client Sample ID: SC-3

Collection Date: 4/11/2016 10:00:00 AM

Received Date: 4/12/2016 7:33:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	GE ORGANICS	3			Analys	t: KJH
Diesel Range Organics (DRO)	34	9.7	mg/Kg	1	4/18/2016 11:22:57 AM	<i>I</i> 24787
Surr: DNOP	75.4	70-130	%Rec	1	4/18/2016 11:22:57 AM	1 24787
EPA METHOD 8015D: GASOLINE RAI	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	4/14/2016 12:23:19 AM	1 24755
Surr: BFB	110	80-120	%Rec	1	4/14/2016 12:23:19 AM	1 24755
EPA METHOD 8021B: VOLATILES					Analys	t: NSB
Benzene	ND	0.024	mg/Kg	1	4/14/2016 12:23:19 AM	1 24755
Toluene	ND	0.048	mg/Kg	1	4/14/2016 12:23:19 AM	1 24755
Ethylbenzene	ND	0.048	mg/Kg	1	4/14/2016 12:23:19 AM	24755
Xylenes, Total	ND	0.096	mg/Kg	1	4/14/2016 12:23:19 AM	1 24755
Surr: 4-Bromofluorobenzene	114	80-120	%Rec	1	4/14/2016 12:23:19 AM	1 24755

Matrix: SOIL

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

- 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 Page 2 of 7
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1604491

Date Reported: 4/20/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-4

Project: WPX NE Chaco Com #166H

Collection Date: 4/11/2016 10:06:00 AM

Lab ID: 1604491-003

Matrix: SOIL

Received Date: 4/12/2016 7:33:00 AM

Analyses	Result	PQL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS					Analyst	KJH
Diesel Range Organics (DRO)	1100	100		mg/Kg	10	4/18/2016 11:44:26 AM	24787
Surr: DNOP	0	70-130	S	%Rec	10	4/18/2016 11:44:26 AM	24787
EPA METHOD 8015D: GASOLINE RAN	GE					Analyst	NSB
Gasoline Range Organics (GRO)	43	4.8		mg/Kg	1	4/14/2016 12:46:44 AM	24755
Surr: BFB	182	80-120	S	%Rec	1	4/14/2016 12:46:44 AM	24755
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	ND	0.024		mg/Kg	1	4/14/2016 12:46:44 AM	24755
Toluene	0.049	0.048		mg/Kg	1	4/14/2016 12:46:44 AM	24755
Ethylbenzene	0.060	0.048		mg/Kg	1	4/14/2016 12:46:44 AM	24755
Xylenes, Total	0.46	0.097		mg/Kg	1	4/14/2016 12:46:44 AM	24755
Surr: 4-Bromofluorobenzene	128	80-120	S	%Rec	1	4/14/2016 12:46:44 AM	24755

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

- 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 Page 3 of 7
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1604491

Date Reported: 4/20/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project: WPX NE Chaco Com #166H

Lab ID: 1604491-004

Client Sample ID: SC-5

Collection Date: 4/11/2016 10:15:00 AM

Received Date: 4/12/2016 7:33:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAI	NGE ORGANICS				Analys	t: KJH
Diesel Range Organics (DRO)	51	9.7	mg/Kg	1	4/18/2016 12:06:00 PM	1 24787
Surr: DNOP	76.6	70-130	%Rec	1	4/18/2016 12:06:00 PM	1 24787
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	4/14/2016 1:10:02 AM	24755
Surr: BFB	109	80-120	%Rec	1	4/14/2016 1:10:02 AM	24755
EPA METHOD 8021B: VOLATILES					Analys	t: NSB
Benzene	ND	0.024	mg/Kg	1	4/14/2016 1:10:02 AM	24755
Toluene	ND	0.049	mg/Kg	1	4/14/2016 1:10:02 AM	24755
Ethylbenzene	ND	0.049	mg/Kg	1	4/14/2016 1:10:02 AM	24755
Xylenes, Total	ND	0.097	mg/Kg	1	4/14/2016 1:10:02 AM	24755
Surr: 4-Bromofluorobenzene	117	80-120	%Rec	1	4/14/2016 1:10:02 AM	24755

Matrix: SOIL

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

- 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 Page 4 of 7
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604491**

20-Apr-16

Client:

Rule Engineering LLC

Project:

WPX NE Chaco Com #166H

Sample ID LCS-24787 TestCode: EPA Method 8015M/D: Diesel Range Organics SampType: LCS Client ID: LCSS Batch ID: 24787 RunNo: 33593 Prep Date: 4/13/2016 SeqNo: 1033599 Analysis Date: 4/18/2016 Units: mg/Kg Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 50 10 50.00 99.9 65.8 136 Surr: DNOP 4.3 5.000 86.8 70 130

Sample ID MB-24787 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 24787 RunNo: 33593 Units: mg/Kg Prep Date: 4/13/2016 Analysis Date: 4/18/2016 SeqNo: 1033601 Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Diesel Range Organics (DRO) ND 10 Surr: DNOP 9.5 10.00 95.1 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
- 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

Page 5 of 7

Hall Environmental Analysis Laboratory, Inc.

WO#:

1604491

20-Apr-16

Client:

Rule Engineering LLC

Project:

WPX NE Chaco Com #166H

Project: WPX N	E Chaco Cor	11 #100)F1								
Sample ID MB-24755	SampTy	pe: ME	BLK	Tes	TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 24755 RunNo: 33489										
Prep Date: 4/12/2016	Analysis Da	ate: 4/	13/2016	5	Units: mg/K	(g					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	5.0									
Surr: BFB	1100		1000		106	80	120				
Sample ID LCS-24755	SampTy	pe: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	е		
Client ID: LCSS	Batch	ID: 24	755	F	RunNo: 3	3489					
Prep Date: 4/12/2016	Analysis Da	ite: 4/	13/2016	8	SeqNo: 10	030729	Units: mg/K	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
	00	FO	25.00	0	87.1	80	120				
Gasoline Range Organics (GRO)	22	5.0	25.00	U	07.1	00	120				

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

Page 6 of 7

Hall Environmental Analysis Laboratory, Inc.

WO#:

1604491

20-Apr-16

Client:

Rule Engineering LLC

Project:

WPX NE Chaco Com #166H

Sample ID MB-24755	SampT	уре: МЕ	BLK	Tes						
Client ID: PBS	Batch	n ID: 24	755	F	RunNo: 3					
Prep Date: 4/12/2016	Analysis Date: 4/13/2016			S	SeqNo: 1	030786	Units: mg/K			
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		112	80	120			

Sample ID LCS-24755	SampType: LCS TestCode: EPA Method 8021B: Volatiles											
Client ID: LCSS	Batch	ID: 24	755	F	RunNo: 3	3489						
Prep Date: 4/12/2016	Analysis D	ate: 4/	13/2016	SeqNo: 1030787			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	105	75.3	123					
Toluene	0.96	0.050	1.000	0	96.4	80	124					
Ethylbenzene	0.91	0.050	1.000	0	91.3	82.8	121					
Xylenes, Total	2.7	0.10	3.000	0	90.5	83.9	122					
Surr: 4-Bromofluorobenzene	1.2		1.000		121	80	120			S		

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- 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

That ye detected in the associated Method Diank

Page 7 of 7



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:	1604491		RcptNo: 1	
Received by/date: 1-19 04/12/16				
Logged By: Joe Archuleta 4/12/2016 7:33:00 AM	,	Jeas Jeas		
Completed By: Joe Archuleta 4/12/2016 3:20:53 PM		JE as		
Reviewed By: 9/12/16	,			
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 L.J	
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 🖢	# of account	
	_		# of preserved bottles checked	
12. Does paperwork match bottle labels?	Yes 🗹	No []	for pH: (<2 or >12 unless noted	d)
(Note discrepancies on chain of custody) 13. Are matrices correctly identified on Chain of Custody?	Yes 🙀	No L	Adjusted?	,
14. Is it clear what analyses were requested?	Yes 🔛	No 🗔		
15. Were all holding times able to be met?	Yes 🖈	No [_]	Checked by:	
(If no, notify customer for authorization.)				
Special Handling (if applicable)				
16. Was client notified of all discrepancies with this order?	Yes 🗌	No []	NA 🐼	
Person Notified: Date	n angada ng ng kabadia Kalisisisis Lasis Kabada	2001512126 2001221-7-20-1 e-w		
By Whom: Via:	eMail [_] Pho	one 🗍 Fax	[] In Person	
Regarding:	Additional total debasis discussion sein	eefika ee majukusiminsi kii mirriisiddi iid	### 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Client Instructions:	manuscrimina had namon para entoring sign in Chi Liu Shorr An alburaf shibiri	e ggrund - Lebesgior grundskalande e Lebesgior (blue o'r vindge) - Welge	entercommunication of the control of	
17. Additional remarks:				
18. Cooler Information Cooler No Temp °C Condition Seal Intact Seal No	Seal Date S	Signed By	I	
1 1.1 Good Yes	ocal Date 0	Jigiled by		

hain-	of-Cu	stody Record		HALL ENVIDONMENTAL										
R. le E	nainel	rine UC	NOTES OF THE PROPERTY OF THE P											
-	0	0	Project Name:											
Address:	501 4	100 S 110 205	A CONTRACTOR OF THE PROPERTY O	Was delined and the second of										
			Project #: Tel 505-345-3975 Fax 505-345-4107	1										
			Analysis Request											
			Project Manager:											
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tation			Sampler: H. Woods / J. Valda # = = = = = = = = = = = = = = = = = =	9										
	□ Othe	r	On Ice: No + + + ON 81 78 8	or N)										
(Type)_			Sample Temperature: 12 Sample Temperature: 12 Sample Temperature: 12 Sample Temperature: 12 Sample Temperature: 13 Sample Temperature: 14 Sample Temperature: 15 Sample Temperature: 15 Sample Temperature: 16 Sample Temperature: 16 Sample Temperature: 16 Sample Temperature: 17 Sample Temperature: 17 Sample Temperature: 18 Sample Temperature: 1	S (Y										
Time	Matrix	Sample Request ID	Container The Solutions (F, 00 A A A Nicoral Section 10 Series (Not 1)	Air Bubbles (Y										
950	Soll	5C-2												
1000	1:02	SC - 3	1) 402 Glass Cold -002 X X											
	1.02													
1015	Sor.1	sc-5												
Time:	Her	U M. W.	Received by: Pate Time Remarks: Direct Bill to Cappe WPX Received by: Date Time Attn: Debbu Wation											
	Address: Time Time: Time: Time:	Address: SOIA: (Minyton, Address: SOIA: (SOS) 7:10 Fax#: hwoods(Package: dard tation AP Othe (Type) Time Matrix 950 So(1 1000 So:1 1005 So:1 1015 So:1	Address: SOI Alread Dr. Sile 205 rmington, NM 97401 #: (505) 716-2787 Fax#: hwoods Prulengenering.con Package: dard	Standard										



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

September 30, 2016

Debbie Watson
WPX Energy
721 S Main Ave
Aztec, NM 87410

TEL: (505) 333-1880

FAX

RE: NE Chaco Com 166H Pipeline Release

OrderNo.: 1609D96

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/24/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers 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

Only

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1609D96

Date Reported: 9/30/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: WPX Energy

Client Sample ID: SC-4

Project: NE Chaco Com 166H Pipeline Release

Collection Date: 9/23/2016 10:18:00 AM

Lab ID: 1

1609D96-001

Matrix: SOIL

Received Date: 9/24/2016 9:30:00 AM

Analyses	Result	PQL Qu	ıal Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	SE ORGANICS	3			Analyst	TOM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	9/28/2016 12:25:08 PM	27707
Surr: DNOP	93.4	70-130	%Rec	1	9/28/2016 12:25:08 PM	27707
EPA METHOD 8015D: GASOLINE RAN	GE				Analyst	NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	9/29/2016 10:28:44 PM	27690
Surr: BFB	80.7	68.3-144	%Rec	1	9/29/2016 10:28:44 PM	27690
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.025	mg/Kg	1	9/29/2016 10:28:44 PM	27690
Toluene	ND	0.050	mg/Kg	1	9/29/2016 10:28:44 PM	27690
Ethylbenzene	ND	0.050	mg/Kg	1	9/29/2016 10:28:44 PM	27690
Xylenes, Total	ND	0.10	mg/Kg	1	9/29/2016 10:28:44 PM	27690
Surr: 4-Bromofluorobenzene	93.2	80-120	%Rec	1	9/29/2016 10:28:44 PM	27690

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

- 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 Page 1 of 4
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609D96

30-Sep-16

Client:

WPX Energy

Project: NE Chaco Com 166H Pipeline Release

Sample ID LCS-27685 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: LCSS Batch ID: 27685 RunNo: 37494

Prep Date: 9/26/2016 Analysis Date: 9/27/2016 SeqNo: 1166208 Units: %Rec

%RPD **RPDLimit** PQL SPK value SPK Ref Val %REC LowLimit HighLimit Qual Analyte Surr: DNOP 4.5 5.000 90.9 130

Sample ID MB-27685 TestCode: EPA Method 8015M/D: Diesel Range Organics SampType: MBLK

Client ID: **PBS** Batch ID: 27685 RunNo: 37494

Units: %Rec 9/26/2016

Prep Date: Analysis Date: 9/27/2016 SeqNo: 1166209

SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result LowLimit HighLimit Qual Surr: DNOP 9.0 10.00 90.1 130

Sample ID MB-27707 TestCode: EPA Method 8015M/D: Diesel Range Organics SampType: MBLK

Client ID: Batch ID: 27707 PBS RunNo: 37494

Prep Date: Analysis Date: 9/27/2016 SeqNo: 1166802 9/26/2016 Units: mg/Kg

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

Diesel Range Organics (DRO) ND 10

Surr: DNOP 8.7 10.00 87.3 70 130

Sample ID LCS-27707 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: LCSS Batch ID: 27707 RunNo: 37494

Prep Date: Analysis Date: 9/27/2016 SegNo: 1166803 9/26/2016 Units: mg/Kg

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 55 10 50.00 111 62.6 124

Surr: DNOP 4.9 5.000 98 9 70 130

Sample ID MB-27738 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: PRS Batch ID: 27738 RunNo: 37494

Prep Date: 9/27/2016 Analysis Date: 9/28/2016 SeqNo: 1167146 Units: %Rec SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result LowLimit HighLimit Qual Surr: DNOP 8.7 10.00

Sample ID LCS-27738 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: LCSS Batch ID: 27738 RunNo: 37494

Prep Date: 9/27/2016 Analysis Date: 9/28/2016 SeqNo: 1167147 Units: %Rec Analyte Result SPK value SPK Ref Val %REC %RPD LowLimit HighLimit **RPDLimit** Qual

Surr: DNOP 4.6 5.000 70 91.2 130

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

RPD outside accepted recovery limits R

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

Reporting Detection Limit

Sample container temperature is out of limit as specified

Page 2 of 4

Hall Environmental Analysis Laboratory, Inc.

WO#:

1609D96

30-Sep-16

Client:

WPX Energy

Project:

NE Chaco Com 166H Pipeline Release

Sample ID MB-27704

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS Batch ID: 27704

RunNo: 37528

Prep Date: 9/26/2016 Analysis Date: 9/28/2016

SeqNo: 1167737

Units: %Rec

144

Analyte Surr: BFB

820

SPK value SPK Ref Val 1000

68.3 81.6

HighLimit

RPDLimit Qual

Sample ID LCS-27704

SampType: LCS

TestCode: EPA Method 8015D: Gasoline Range

%REC

Client ID:

Prep Date:

LCSS

9/26/2016

Batch ID: 27704

RunNo: 37528

Units: %Rec

%RPD

Analyte

Result

Analysis Date: 9/28/2016

SeqNo: 1167738

LowLimit

HighLimit

Qual

Surr: BFB

930

Result

Result

28

910

ND

SPK value SPK Ref Val 1000

%REC 93.0

LowLimit 68.3 %RPD **RPDLimit**

Client ID:

Sample ID MB-27690

SampType: MBLK Batch ID: 27690

PQL

TestCode: EPA Method 8015D: Gasoline Range

144

RunNo: 37528

Units: mg/Kg

Analyte

Prep Date: 9/26/2016

PBS

Analysis Date: 9/28/2016 PQL

5.0

SeqNo: 1167758

%REC LowLimit

HighLimit

RPDLimit

Qual

Gasoline Range Organics (GRO)

Surr: BFB

830

TestCode: EPA Method 8015D: Gasoline Range

68.3

144

%RPD

%RPD

Sample ID LCS-27690

Prep Date:

Surr: BFB

Client ID: LCSS SampType: LCS Batch ID: 27690

PQL

5.0

SPK value SPK Ref Val

SPK value SPK Ref Val

1000

RunNo: 37528

82.8

Analyte Gasoline Range Organics (GRO)

9/26/2016

Analysis Date: 9/28/2016

SeqNo: 1167759

LowLimit

Units: mg/Kg

25.00 1000

110 90.7

%REC

74.6 68.3 HighLimit 123

144

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

R RPD outside accepted recovery limits % Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank B

Value above quantitation range I Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit Sample container temperature is out of limit as specified

Page 3 of 4

Hall Environmental Analysis Laboratory, Inc.

WO#:

1609D96

30-Sep-16

Client:

WPX Energy

Project: NE O	Chaco Com 16	6H Pipe	line Releas	e						***************************************				
Sample ID MB-27704	Samp	Гуре: МЕ	BLK	Tes	tCode: E	PA Method	8021B: Vola	tiles						
Client ID: PBS	Batc	h ID: 27	704	F	RunNo: 3	7528								
Prep Date: 9/26/2016	Analysis [Date: 9/	28/2016	5	SeqNo: 1	167885	Units: %Re	С						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Surr: 4-Bromofluorobenzene	0.95		1.000		95.3	80	120							
Sample ID LCS-27704	Samp	Гуре: LC	S	Tes	tCode: E	PA Method	8021B: Vola	tiles						
Client ID: LCSS		h ID: 27		F	RunNo: 3	7528								
Prep Date: 9/26/2016	Analysis [SegNo: 1		Units: %Re	С						
Anglido	Result	PQL	SDK value	SPK Ref Val	%REC	LowLimit	Highl imit	%RPD	RPDLimit	Qual				
Analyte Surr: 4-Bromofluorobenzene	1.0	PUL	1.000	SPK Rei Vai	103	80	HighLimit 120	70KPD	RPDLIMIL	Quai				
Sample ID MB-27690	Samp	Type: ME	BLK	Tes	tCode: El	e: EPA Method 8021B: Volatiles								
Client ID: PBS	Batcl	h ID: 27	690	F	RunNo: 3									
Prep Date: 9/26/2016	Analysis D	Date: 9/	28/2016	8	SeqNo: 1	eqNo: 1167923 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Benzene	ND	0.025												
Toluene	ND	0.050												
Ethylbenzene	ND	0.050												
Xylenes, Total	ND	0.10												
Surr: 4-Bromofluorobenzene	0.97		1.000		97.0	80	120							
Sample ID LCS-27690	SampT	ype: LC	s	Tes	tCode: El	PA Method	8021B: Volat	tiles						
Client ID: LCSS	Batcl	h ID: 27	690	F	RunNo: 3	7528								
Prep Date: 9/26/2016	Analysis D	Date: 9/	28/2016	S	SeqNo: 1	167924	Units: mg/K	g		0 2 8 0				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Benzene	0.94	0.025	1.000	0	94.5	75.3	123							
Toluene	0.98	0.050	1.000	0	98.1	80	124							
Ethylbenzene	1.0	0.050	1.000	0	102	82.8	121							
Xylenes, Total	3.0	0.10	3.000	0	99.9	83.9	122							
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120							

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded H
- Not Detected at the Reporting Limit ND
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits
- Page 4 of 4

- P Sample pH Not In Range
- Reporting Detection Limit
- 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

WPX ENERGY Work Order Number: 1609D96 RcptNo: 1 Client Name: Received by/date: Logged By: 9/24/2016 9:30:00 AM Lindsay Mandin Completed By: Lindsay Mangin 9/25/2016 11:25:55 AM Reviewed By: Ar 09/2016 Chain of Custody Not Present 1 Custody seals intact on sample bottles? No 🗌 Not Present 2. Is Chain of Custody complete? Courier 3. How was the sample delivered? Log In No 🗌 NA 🗌 4. Was an attempt made to cool the samples? No 🗌 NA 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C No 🗌 6. Sample(s) in proper container(s)? 7. Sufficient sample volume for indicated test(s)? Yes 8. Are samples (except VOA and ONG) properly preserved? NA 🗌 No M 9. Was preservative added to bottles? Yes No VOA Vials 10.VOA vials have zero headspace? No 🖈 11. Were any sample containers received broken? Yes # of preserved bottles checked No 🗌 for pH: 12. Does paperwork match bottle labels? (<2 or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? No 🗌 13. Are matrices correctly identified on Chain of Custody? No 🗌 14. Is it clear what analyses were requested? No 🗌 Checked by: Yes 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes NA 🔊 No 🗌 16. Was client notified of all discrepancies with this order? 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

lient:	WPX E	nergy		1.77									HALL ENVIRON ENTAL ANALYSIS LABORATORY www.hallenvironmental.com								
ailing Addre	ess:		PO Box 640	NE Chaco Com	166H Pipeline F	Release		49	01 H						ie, NV		09				
			ztec, NM 87410	Project #:						5-34					-345-4						
hone #:	505-333		5-386-9693	1	-			4		A	Analy	ysis	Requ		1- 14						
nail or Fax	t:	deborah.	watson@wpxenergy.com	Project Manag	er:							\neg				П	\neg				
A/QC Packag	je:			D. Watson				_													
Standard			☐ Level 4 (Full Validation)					ONLY													
ccreditation NELAP	:	□ Other_		Sampler: D Wa		□ N0		ORO C													
EDD (Type	e)			Sample hemp	fature . L		M 14 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16	Š									Or N				
Date .	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEALING	BTEX (8021)	TPH (8015) GRO/DRO	Chlorides								Air Bubbles (Y or N)				
9/23/2016	10:18	soil	SC-4	2-4 oz	cold	-001	х	х													
										Н	4	_		_	\square	\dashv	\dashv				
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ate:	Time:	Relinquishe	ed by:	Received by:	. 1	Date Time	Rer	nark	s:												
123/16	1500	Nechn	in Water		Malle	9/23/10 1500															
9/23/16	Time:	Relinquishe	tu Waller	Received by:	X 09	Date Time															
If necessar	y, samples	submitted to H	fall Environmental may be subcontracted	to other accredited lai	boratories. This ser	ves as notice of this possib	ility. A	ny sub	o-contr	acted o	lata wi	ll be c	dearty no	tated on	the anal	ytical re	eport.				