

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

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

Form C-141  
Revised August 8, 2011

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

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company: SJB Gathering LLC/WPX Energy LLC	Contact: Deborah Watson
Address: PO Box 640, Aztec, NM 87410	Telephone No.: 505-386-9693
Facility Name: NE Chaco Com 166H CDP Pipeline/Trunk 2-5	Facility Type: Pipeline

Surface Owner: BLM/State of NM	Mineral Owner: BLM/State of NM	API No.
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**LOCATION OF RELEASE**

30-039-31202

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	17	23N	07W	226	South	497	East	Rio Arriba

Latitude 36.231448 Longitude -107.590197

**NATURE OF RELEASE**

Type of Release: Crude Oil	Volume of Release: 22.7 bbls	Volume Recovered: 0 bbls
Source of Release: Human Error. Oil line connected to Produced Water line.	Date and Hour of Occurrence: 11/04/15, unknown	Date and Hour of Discovery: 11/04/15, approximately 13:15
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Katherina Diemer, BLM-FFO Cory Smith, NMOCD	
By Whom? Deborah Watson	Date and Hour: 11/04/15 approximately 13:30	DEC 06 2016
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*  
An unnamed drainage was impacted.

Describe Cause of Problem and Remedial Action Taken.\*

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.

Immediate Actions Include:

- Installation of oil absorbent pads and booms in strategic locations along the release path.
- Hand shoveling of impacted soil into sand bags, collected impacted soil taken to landfarm on November 4, 2015.
- Spec truck called in to recover crude oil in water can.
- Hydrovac truck called in to remove any ponding crude oil liquids.

Describe Area Affected and Cleanup Action Taken.\*

From the water can, the crude oil flowed north then east, approximately 1,070 feet.

- Impacted soils were excavated and transported to landfarm for disposal.
- Confirmation soil samples were collected from within the hydrocarbon impacted area. Representatives from BLM-FFO and/or NMOCD were in attendance for sampling events.
- All final laboratory results were reported below applicable NMOCD RRAL. Laboratory results are included within the attached report.
- Final report is attached.

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

Signature: <i>Deborah Watson</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Deborah Watson	Approved by Environmental Specialist: <i>[Signature]</i>	
Title: Environmental Specialist	Approval Date: 1/23/17	Expiration Date:
E-mail Address: deborah.watson@wpenergy.com	Conditions of Approval: _____	Attached <input type="checkbox"/>
Date: 12/5/2016	Phone: 505-386-9693	

\* Attach Additional Sheets If Necessary # NCS 15 341 30251

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**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

## 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, and 1609D96)

**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

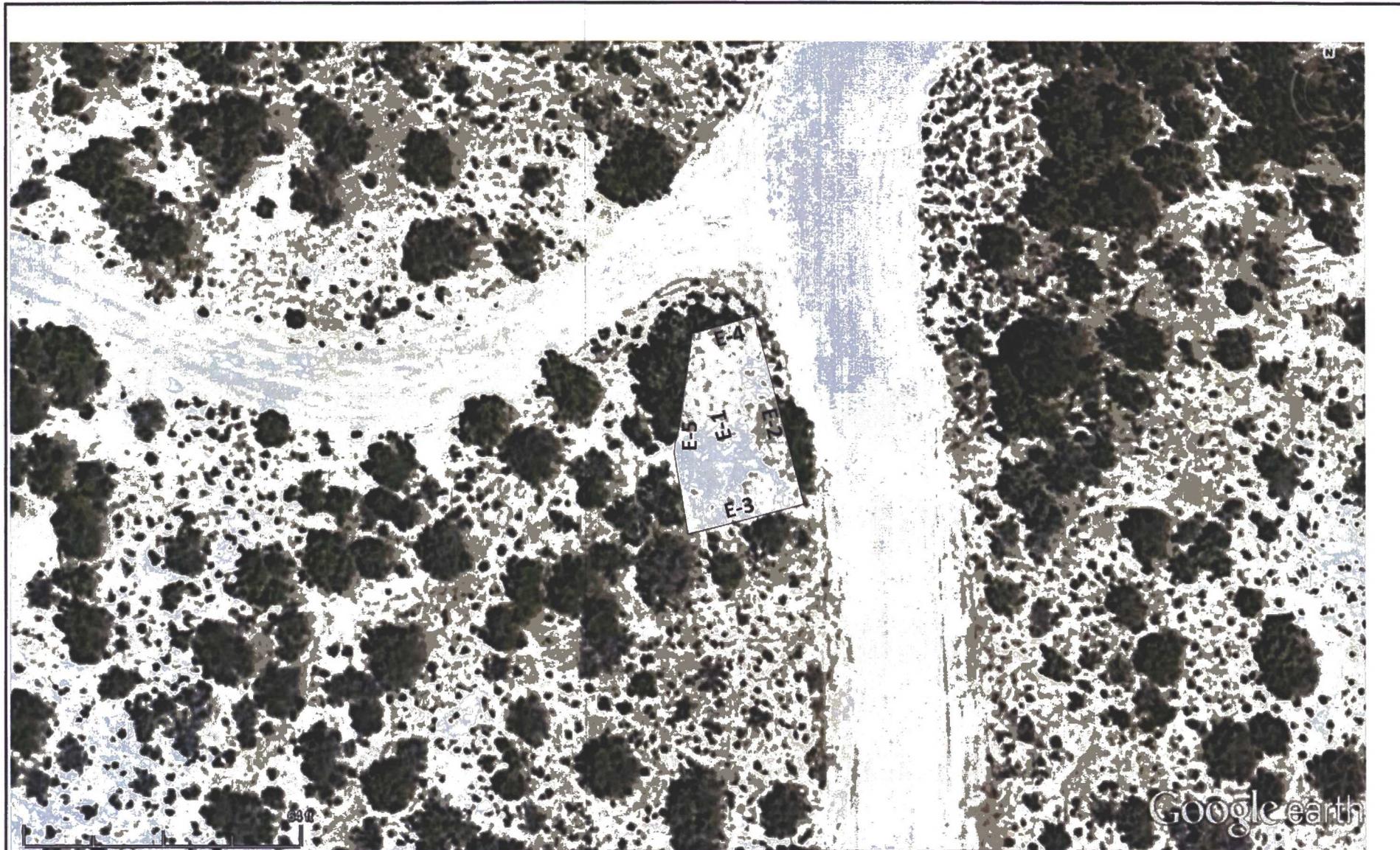


Figure 3. Soil Sample Locations (E-1 through E-5)  
NE Chaco Com 166H CDP Pipeline Release  
Section 17, Township 23N, Range 07W  
N36.231448, W107.590197  
Rio Arriba County, NM



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

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State of New Mexico  
Energy Minerals and Natural Resources

04/08-0528

Form C-138  
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 WASTE

<b>1. Generator Name and Address:</b> WPX Energy, PO Box 640, Aztec NM Requested by: Deborah Watson
<b>2. Originating Site:</b> NE Chaco Com 166H Pipeline Release Rio Arriba County, NM
<b>3. Location of Material (Street Address, City, State or ULSTR):</b> Section 17, T23N, R7W
<b>4. Source and Description of Waste:</b> Crude oil pipeline release impacted soil.  Estimated Volume _____ yd <sup>3</sup> / bbls Known Volume (to be entered by the operator at the end of the haul) <u>134/80</u> yd <sup>3</sup> / bbls
<b>5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS</b> I, <u>Deborah Watson</u> , representative or authorized agent for <u>WPX Energy</u> 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)  <input type="checkbox"/> RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. <u>Operator Use Only: Waste Acceptance Frequency</u> <input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Weekly <input type="checkbox"/> Per Load  <input checked="" type="checkbox"/> 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)  <input type="checkbox"/> MSDS Information <input type="checkbox"/> RCRA Hazardous Waste Analysis <input checked="" type="checkbox"/> Process Knowledge <input type="checkbox"/> Other (Provide description in Box 4)
<b>GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS</b>  I, <u>Deborah Watson</u> , representative for <u>WPX Energy</u> 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.
<b>5. Transporter:</b> <u>Halo, Adobe, CNJ, Kellyfield Services, Badger, Turco, 3E Energy, SWBZY</u>

#### 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: Landfarm Administrator DATE: 11-4-15

SIGNATURE: [Signature]  
Surface Waste Management Facility Authorized Agent

TELEPHONE NO.: 505-632-0615

District I  
1625 N. French Dr., Hobbs, NM 88240  
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04108-0528

Form C-138  
Revised August 1, 2011

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

### REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

<b>1. Generator Name and Address:</b> WPX Energy, PO Box 640, Aztec NM Requested by: Deborah Watson
<b>2. Originating Site:</b> NE Chaco Com 166H Pipeline Release Rio Arriba County, NM <span style="float: right; font-size: 2em;">Dec 2015</span>
<b>3. Location of Material (Street Address, City, State or ULSTR):</b> Section 17, T23N, R7W
<b>4. Source and Description of Waste:</b> Crude oil pipeline release impacted soil. Estimated Volume _____ yd <sup>3</sup> / bbls Known Volume (to be entered by the operator at the end of the haul) <u>312,120</u> yd <sup>3</sup> / bbls
<b>5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS</b> I, <u>Deborah Watson</u> , representative or authorized agent for <u>WPX Energy</u> 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) <input checked="" type="checkbox"/> RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. <u>Operator Use Only: Waste Acceptance Frequency</u> <input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Weekly <input type="checkbox"/> Per Load <input type="checkbox"/> 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) <input type="checkbox"/> MSDS Information <input type="checkbox"/> RCRA Hazardous Waste Analysis <input checked="" type="checkbox"/> Process Knowledge <input type="checkbox"/> Other (Provide description in Box 4)
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<b>5. Transporter:</b> <u>Kelley oil field, CNJ, Adobe, Yucca, 3E Energy, Swazee</u>

#### 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: Landfarm Administrator DATE: 12-7-15

SIGNATURE: [Signature]  
Surface Waste Management Facility Authorized Agent

TELEPHONE NO.: 505-632-0615

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Revised August 1, 2011  
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and Generator shall maintain and make this  
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## REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

<b>1. Generator Name and Address:</b> WPX Energy, PO Box 640, Aztec NM Requested by: Deborah Watson
<b>2. Originating Site:</b> NE Chaco Com 166H Pipeline Release Rio Arriba County, NM <span style="float: right;">March 2016</span>
<b>3. Location of Material (Street Address, City, State or ULSTR):</b> Section 17, T23N, R7W
<b>4. Source and Description of Waste:</b> Crude oil pipeline release impacted soil.  Estimated Volume _____ yd <sup>3</sup> / bbls    Known Volume (to be entered by the operator at the end of the haul) <u>175</u> yd <sup>3</sup> / bbls
<b>5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS</b> I, <u>Deborah Watson</u> , representative or authorized agent for <u>WPX Energy</u> 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) <input checked="" type="checkbox"/> RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. <i>Operator Use Only: Waste Acceptance Frequency</i> <input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Weekly <input type="checkbox"/> Per Load <input type="checkbox"/> 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) <input type="checkbox"/> MSDS Information <input type="checkbox"/> RCRA Hazardous Waste Analysis <input checked="" type="checkbox"/> Process Knowledge <input type="checkbox"/> Other (Provide description in Box 4)
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<b>5. Transporter:</b> <u>Halo, Adobe, ENR, 3 E Energy, Kelly Oilfield</u>

### OCD Permitted Surface Waste Management Facility

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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 Grabtree

TITLE: Environmental Manager    DATE: 3/14/16

SIGNATURE: [Signature]  
Surface Waste Management Facility Authorized Agent

TELEPHONE NO.: 505-632-0615

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04108-0528

**REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE**

<b>1. Generator Name and Address:</b> WPX Energy, PO Box 640, Aztec NM Requested by: Deborah Watson
<b>2. Originating Site:</b> NE Chaco Com 166H Pipeline Release Rio Arriba County, NM <span style="float: right;">May 2016</span>
<b>3. Location of Material (Street Address, City, State or ULSTR):</b> Section 17, T23N, R7W
<b>4. Source and Description of Waste:</b> Crude oil pipeline release impacted soil and washout.  Estimated Volume _____ yd <sup>3</sup> / bbls Known Volume (to be entered by the operator at the end of the haul) <u>45</u> yd <sup>3</sup> / bbls
<b>5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS</b> I, <u>Deborah Watson</u> , representative or authorized agent for <u>WPX Energy</u> 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) <input checked="" type="checkbox"/> 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 <input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Weekly <input type="checkbox"/> Per Load <input type="checkbox"/> 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) <input type="checkbox"/> MSDS Information <input type="checkbox"/> RCRA Hazardous Waste Analysis <input checked="" type="checkbox"/> Process Knowledge <input type="checkbox"/> Other (Provide description in Box 4)
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<b>5. Transporter:</b> 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 Manager DATE: 5/10/16

SIGNATURE: [Signature] TELEPHONE NO.: 505-632-0615  
Surface Waste Management Facility Authorized Agent



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

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Rule Engineering LLC

Client Sample ID: SC-5

Project: WPX NE Chaco Com #166

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

Lab ID: 1512B05-001

Matrix: SOIL

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

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	360	9.3		mg/Kg	1	12/30/2015 1:16:35 PM	22991
Surr: DNOP	83.8	70-130		%REC	1	12/30/2015 1:16:35 PM	22991
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	21	4.8		mg/Kg	1	12/29/2015 3:19:06 PM	22974
Surr: BFB	201	66.2-112	S	%REC	1	12/29/2015 3:19:06 PM	22974

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

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

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512B05

31-Dec-15

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

Sample ID	MB-22991	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	22991	RunNo:	31140					
Prep Date:	12/29/2015	Analysis Date:	12/30/2015	SeqNo:	953585	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	9.6		10.00		95.7	70	130			

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			
Surr: DNOP	4.4		5.000		89.0	70	130			

Sample ID	1512B05-001AMS	SampType:	MS	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:	953922	Units:	mg/Kg			
Analyte	Result	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			
Analyte	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	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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1512B05

31-Dec-15

**Client:** Rule Engineering LLC  
**Project:** WPX NE Chaco Com #166

Sample ID	<b>MB-22974</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>22974</b>	RunNo:	<b>31128</b>					
Prep Date:	<b>12/28/2015</b>	Analysis Date:	<b>12/29/2015</b>	SeqNo:	<b>952387</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		87.6	66.2	112			

Sample ID	<b>LCS-22974</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>22974</b>	RunNo:	<b>31128</b>					
Prep Date:	<b>12/28/2015</b>	Analysis Date:	<b>12/29/2015</b>	SeqNo:	<b>952388</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	79.6	122			
Surr: BFB	970		1000		96.5	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
- 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



Hall Environmental Analysis Laboratory  
 4991 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: **1512B05**      RcptNo: **1**

Received by/date: GA      12/23/15

Logged By: **Ashley Gallegos**      12/23/2015 8:05:00 AM      AG

Completed By: **Ashley Gallegos**      12/23/2015 1:10:48 PM      AG

Reviewed By: \_\_\_\_\_

### Chain of Custody

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

### Log In

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

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

### Special Handling (if applicable)

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

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

17. Additional remarks: \_\_\_\_\_

### 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-1.2	Good	Not Present			





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

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

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**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
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.3		mg/Kg	1	12/31/2015 9:43:07 AM	A31176
Surr: BFB	87.8	66.2-112		%REC	1	12/31/2015 9:43:07 AM	A31176
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.033		mg/Kg	1	12/31/2015 9:43:07 AM	C31176
Toluene	ND	0.033		mg/Kg	1	12/31/2015 9:43:07 AM	C31176
Ethylbenzene	ND	0.033		mg/Kg	1	12/31/2015 9:43:07 AM	C31176
Xylenes, Total	ND	0.066		mg/Kg	1	12/31/2015 9:43:07 AM	C31176
Surr: 4-Bromofluorobenzene	121	80-120	S	%REC	1	12/31/2015 9:43:07 AM	C31176

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

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

Analytical Report

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	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/31/2015 11:58:50 AM	23017
Surr: DNOP	79.9	70-130		%REC	1	12/31/2015 11:58:50 AM	23017
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.1		mg/Kg	1	12/31/2015 10:07:33 AM	A31176
Surr: BFB	85.9	66.2-112		%REC	1	12/31/2015 10:07:33 AM	A31176
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	ND	0.051		mg/Kg	1	12/31/2015 10:07:33 AM	C31176
Toluene	ND	0.051		mg/Kg	1	12/31/2015 10:07:33 AM	C31176
Ethylbenzene	ND	0.051		mg/Kg	1	12/31/2015 10:07:33 AM	C31176
Xylenes, Total	ND	0.10		mg/Kg	1	12/31/2015 10:07:33 AM	C31176
Surr: 4-Bromofluorobenzene	118	80-120		%REC	1	12/31/2015 10:07:33 AM	C31176

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

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

**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
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
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
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
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.

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

**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
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
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
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
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.

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1512C24  
04-Jan-16

Client: Rule Engineering LLC  
Project: WPX NE Chaco com #166H

Sample ID	MB-23017	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	23017	RunNo:	31167					
Prep Date:	12/31/2015	Analysis Date:	12/31/2015	SeqNo:	954044	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	11		10.00		108	70	130			

Sample ID	LCS-23017	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	23017	RunNo:	31167					
Prep Date:	12/31/2015	Analysis Date:	12/31/2015	SeqNo:	954045	Units:	mg/Kg			
Analyte	Result	PQL	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	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	E-1	Batch ID:	23017	RunNo:	31167					
Prep Date:	12/31/2015	Analysis Date:	12/31/2015	SeqNo:	954525	Units:	mg/Kg			
Analyte	Result	PQL	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	1512C24-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	E-1	Batch ID:	23017	RunNo:	31167					
Prep Date:	12/31/2015	Analysis Date:	12/31/2015	SeqNo:	954526	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	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.              | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits      |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                          |
| R RPD outside accepted recovery limits                  | RL Reporting Detection Limit                      |
| S % Recovery outside of range due to dilution or matrix |   |

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512C24

04-Jan-16

**Client:** Rule Engineering LLC  
**Project:** WPX NE Chaco com #166H

Sample ID	<b>5ML RB</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>A31176</b>	RunNo:	<b>31176</b>					
Prep Date:		Analysis Date:	<b>12/31/2015</b>	SeqNo:	<b>954725</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	840		1000		84.0	66.2	112			

Sample ID	<b>2.5UG GRO LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>A31176</b>	RunNo:	<b>31176</b>					
Prep Date:		Analysis Date:	<b>12/31/2015</b>	SeqNo:	<b>954726</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.2	79.6	122			
Surr: BFB	950		1000		95.3	66.2	112			

Sample ID	<b>1512C24-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>E-1</b>	Batch ID:	<b>A31176</b>	RunNo:	<b>31176</b>					
Prep Date:		Analysis Date:	<b>12/31/2015</b>	SeqNo:	<b>954727</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	17	3.3	16.57	0	101	62.5	151			
Surr: BFB	670		662.7		101	66.2	112			

Sample ID	<b>1512C24-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>E-1</b>	Batch ID:	<b>A31176</b>	RunNo:	<b>31176</b>					
Prep Date:		Analysis Date:	<b>12/31/2015</b>	SeqNo:	<b>954728</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range 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
- 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

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512C24

04-Jan-16

Client: Rule Engineering LLC  
 Project: WPX NE Chaco com #166H

Sample ID	<b>5ML RB</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>C31176</b>	RunNo:	<b>31176</b>					
Prep Date:		Analysis Date:	<b>12/31/2015</b>	SeqNo:	<b>954739</b>	Units:	<b>mg/Kg</b>			
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	<b>100NG BTEX LCSB</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>C31176</b>	RunNo:	<b>31176</b>					
Prep Date:		Analysis Date:	<b>12/31/2015</b>	SeqNo:	<b>954740</b>	Units:	<b>mg/Kg</b>			
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	<b>1512C24-002AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>E-2</b>	Batch ID:	<b>C31176</b>	RunNo:	<b>31176</b>					
Prep Date:		Analysis Date:	<b>12/31/2015</b>	SeqNo:	<b>954741</b>	Units:	<b>mg/Kg</b>			
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	<b>1512C24-002AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>E-2</b>	Batch ID:	<b>C31176</b>	RunNo:	<b>31176</b>					
Prep Date:		Analysis Date:	<b>12/31/2015</b>	SeqNo:	<b>954742</b>	Units:	<b>mg/Kg</b>			
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



Hall Environmental Analysis Laboratory  
 4961 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: **1512C24**

RcptNo: **1**

Received by/date: *JA* *12/31/15*

Logged By: **Joe Archuleta** **12/31/2015 7:45:00 AM** *JEL*

Completed By: **Joe Archuleta** **12/31/2015 8:17:32 AM** *JEL*

Reviewed By: *[Signature]* *12/31/15*

**Chain of Custody**

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

**Log In**

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

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

**Special Handling (if applicable)**

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

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

17. Additional remarks:

**18. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

# Chain-of-Custody Record

Client: Rude Engineering LLC

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

Phone #: (505) 716-2787

email or Fax#: hwoods@rudeengineering.com

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

Accreditation  
 NELAP       Other \_\_\_\_\_

EDD (Type) \_\_\_\_\_

Turn-Around Time:  
 Standard       Rush Same Day

Project Name: \_\_\_\_\_

Project #: \_\_\_\_\_

Project Manager: Heather Woods

Sampler: Justin Valdez / Heather Woods

On Ice:       Yes       No

Sample Temperature: 1.0



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TPH (Gas only)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / <del>8021</del> )	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)	
						1512C24													
12/30/15	1341	Soil	E-1	(1) 4 oz Glass	cold	-001	X		X										
12/30/15	1350	Soil	E-2	(1) 4 oz Glass	cold	-002	X		X										
12/30/15	1358	Soil	E-3	(1) 4 oz Glass	cold	-003	X		X										
12/30/15	1416	Soil	E-4	(1) 4 oz Glass	cold	-004	X		X										
<del>_____</del>																			

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/30/15	1650	Heather M. Woods	Justin Valdez	12/30/15	1650
Date:	Time:	Relinquished by:	Received by:	Date	Time
12/30/15	1710	Justin Valdez	Justin Valdez	12/31/15	0745

Remarks: Direct Bill to WPX  
Attn: Debbie Watson

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



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

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

OrderNo.: 1601029

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Rule Engineering LLC  
**Project:** WPX NE Chaco Com #166H  
**Lab ID:** 1601029-001

**Client Sample ID:** E-3 (R)  
**Collection Date:** 1/4/2016 1:20:00 PM  
**Received Date:** 1/5/2016 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
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
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
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.

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Rule Engineering LLC  
**Project:** WPX NE Chaco Com #166H  
**Lab ID:** 1601029-002

**Client Sample ID:** E-5  
**Collection Date:** 1/4/2016 1:30:00 PM  
**Received Date:** 1/5/2016 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
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
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
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.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	
	D Sample Diluted Due to Matrix	E Value above quantitation range	
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	Page 2 of 5
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range	
	R RPD outside accepted recovery limits	RL Reporting Detection Limit	
	S % Recovery outside of range due to dilution or matrix		

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601029

08-Jan-16

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

Sample ID	<b>MB-23066</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>23066</b>	RunNo:	<b>31230</b>					
Prep Date:	<b>1/5/2016</b>	Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956227</b>	Units:	<b>mg/Kg</b>			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	7.9		10.00		79.4	70	130			

Sample ID	<b>LCS-23066</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>23066</b>	RunNo:	<b>31230</b>					
Prep Date:	<b>1/5/2016</b>	Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956228</b>	Units:	<b>mg/Kg</b>			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.4	65.8	136			
Surr: DNOP	3.8		5.000		76.5	70	130			

Sample ID	<b>1601029-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>E-3 (R)</b>	Batch ID:	<b>23066</b>	RunNo:	<b>31230</b>					
Prep Date:	<b>1/5/2016</b>	Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956500</b>	Units:	<b>mg/Kg</b>			

Analyte	Result	PQL	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	<b>1601029-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>E-3 (R)</b>	Batch ID:	<b>23066</b>	RunNo:	<b>31230</b>					
Prep Date:	<b>1/5/2016</b>	Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956501</b>	Units:	<b>mg/Kg</b>			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.7	48.73	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
- 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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1601029  
08-Jan-16

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

Sample ID	<b>5ML RB</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>A31232</b>	RunNo:	<b>31232</b>					
Prep Date:		Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956882</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	830		1000		83.5	66.2	112			

Sample ID	<b>2.5UG GRO LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>A31232</b>	RunNo:	<b>31232</b>					
Prep Date:		Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956883</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.3	79.6	122			
Surr: BFB	1000		1000		101	66.2	112			

Sample ID	<b>1601029-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>E-3 (R)</b>	Batch ID:	<b>A31232</b>	RunNo:	<b>31232</b>					
Prep Date:		Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956884</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range 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	<b>1601029-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>E-3 (R)</b>	Batch ID:	<b>A31232</b>	RunNo:	<b>31232</b>					
Prep Date:		Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956885</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range 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.              | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits      |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                          |
| R RPD outside accepted recovery limits                  | RL Reporting Detection Limit                      |
| S % Recovery outside of range due to dilution or matrix |   |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1601029

08-Jan-16

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

Sample ID	<b>5ML RB</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>C31232</b>	RunNo:	<b>31232</b>					
Prep Date:		Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956895</b>	Units:	<b>mg/Kg</b>			
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	<b>100NG BTEX LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>C31232</b>	RunNo:	<b>31232</b>					
Prep Date:		Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956896</b>	Units:	<b>mg/Kg</b>			
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			
Ethylbenzene	0.96	0.050	1.000	0	96.4	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.6	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		126	80	120			S

Sample ID	<b>1601029-002AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>E-5</b>	Batch ID:	<b>C31232</b>	RunNo:	<b>31232</b>					
Prep Date:		Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956897</b>	Units:	<b>mg/Kg</b>			
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

Sample ID	<b>1601029-002AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>E-5</b>	Batch ID:	<b>C31232</b>	RunNo:	<b>31232</b>					
Prep Date:		Analysis Date:	<b>1/5/2016</b>	SeqNo:	<b>956898</b>	Units:	<b>mg/Kg</b>			
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



# Sample Log-In Check List

Client Name: **RULE ENGINEERING LL**

Work Order Number: **1601029**

RcptNo: **1**

Received by/date:

*[Signature]* 01/05/16

Logged By:

**Lindsay Mangin**

1/5/2016 8:15:00 AM

*[Signature]*

Completed By:

**Lindsay Mangin**

1/5/2016 8:25:25 AM

*[Signature]*

Reviewed By:

*[Signature]* 01/05/16

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

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

**Special Handling (if applicable)**

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

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

17. Additional remarks:

**18. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Yes			

# Chain-of-Custody Record

Client: Rule Engineering LLC

Mailing Address: 501 Airport Dr, Suite 205

Armington, NM 87401

Phone #: (505) 716-2787

Email or Fax#: hwoods@ruleengineering.com

VQC Package:

Standard  Level 4 (Full Validation)

Creditation:  NELAP  Other \_\_\_\_\_

EDD (Type) \_\_\_\_\_

Turn-Around Time:

Standard  Rush Same Day

Project Name:

WPX NE Chaco Com #166H

Project #:

Project Manager:

Heather Woods

Sampler: H. Woods / J. Valdez

On Ice:  Yes  No

Sample Temperature: 1.6



## HAL ENVIRONMENTAL ANALYSIS LABORATORY

www.halenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TPH (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / DRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
1/16	1320	Soil	E-3(R)	MEOH Kit (1) 4oz Glass	MeOH / Cold	1601028 -001	X	X										
1/16	1330	Soil	E-5	MEOH Kit (1) 4oz Glass	MeOH / Cold	-002	X	X										
NFS																		

Date:	Time:	Relinquished by:	Received by:	Date:	Time:
1/16	1714	Heather M. Woods	Christine Waele	1/16	1714
1/16	1754	Christine Waele	Christine Waele	01/05/16	0815

Remarks: Direct Bill to WPX  
Attn: Debbie Watson

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



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**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	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/7/2016 1:20:33 PM	23102
Surr: DNOP	77.4	70-130		%REC	1	1/7/2016 1:20:33 PM	23102
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.2		mg/Kg	1	1/7/2016 10:43:20 AM	A31307
Surr: BFB	96.7	66.2-112		%REC	1	1/7/2016 10:43:20 AM	A31307
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.032		mg/Kg	1	1/7/2016 10:43:20 AM	R31307
Toluene	ND	0.032		mg/Kg	1	1/7/2016 10:43:20 AM	R31307
Ethylbenzene	ND	0.032		mg/Kg	1	1/7/2016 10:43:20 AM	R31307
Xylenes, Total	ND	0.063		mg/Kg	1	1/7/2016 10:43:20 AM	R31307
Surr: 4-Bromofluorobenzene	129	80-120	S	%REC	1	1/7/2016 10:43:20 AM	R31307

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1601161

08-Jan-16

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

Sample ID	MB-23102	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	23102	RunNo:	31293					
Prep Date:	1/7/2016	Analysis Date:	1/7/2016	SeqNo:	958006	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	8.0		10.00		79.7	70	130			

Sample ID	MB-23116	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	23116	RunNo:	31303					
Prep Date:	1/7/2016	Analysis Date:	1/7/2016	SeqNo:	958503	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	14		10.00		137	70	130			S

Sample ID	LCS-23102	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	23102	RunNo:	31293					
Prep Date:	1/7/2016	Analysis Date:	1/7/2016	SeqNo:	958703	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.0	65.8	136			
Surr: DNOP	4.2		5.000		83.8	70	130			

### Qualifiers:

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

# QC SUMMARY REPORT

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	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	890		1000		88.5	66.2	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	SeqNo:	958473	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.8	79.6	122			
Surr: BFB	990		1000		99.0	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
- 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

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601161

08-Jan-16

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

Sample ID	<b>5ML RB</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>R31307</b>	RunNo:	<b>31307</b>					
Prep Date:		Analysis Date:	<b>1/7/2016</b>	SeqNo:	<b>958479</b>	Units:	<b>mg/Kg</b>			
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	<b>100NG BTEX LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>R31307</b>	RunNo:	<b>31307</b>					
Prep Date:		Analysis Date:	<b>1/7/2016</b>	SeqNo:	<b>958480</b>	Units:	<b>mg/Kg</b>			
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	<b>1601161-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>E-5 (R)</b>	Batch ID:	<b>R31307</b>	RunNo:	<b>31307</b>					
Prep Date:		Analysis Date:	<b>1/7/2016</b>	SeqNo:	<b>958481</b>	Units:	<b>mg/Kg</b>			
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	<b>1601161-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>E-5 (R)</b>	Batch ID:	<b>R31307</b>	RunNo:	<b>31307</b>					
Prep Date:		Analysis Date:	<b>1/7/2016</b>	SeqNo:	<b>958482</b>	Units:	<b>mg/Kg</b>			
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	0.82		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

**Sample Log-In Check List**

Client Name: **RULE ENGINEERING LL**

Work Order Number: **1601161**

RcptNo: **1**

Received by/date: *[Signature]* **01/07/16**

Logged By: **Lindsay Mangin** **1/7/2016 8:15:00 AM** *[Signature]*

Completed By: **Lindsay Mangin** **1/7/2016 8:33:13 AM** *[Signature]*

Reviewed By: **TO** **01/07/15**

**Chain of Custody**

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

**Log In**

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

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

**Special Handling (if applicable)**

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

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

17. Additional remarks:

**18. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

# Chain-of-Custody Record

Client: Rule Engineering LLC

Mailing Address: 501 Airport Dr, Suite 205  
Farmington, NM 87401  
 Phone #: (505) 716-2787

Email or Fax #: hwoods@ruleengineering.com

A/QC Package:  
 Standard       Level 4 (Full Validation)

Accreditation:  
 NELAP       Other \_\_\_\_\_

EDD (Type) \_\_\_\_\_

Turn-Around Time:

Standard       Rush Same Day

Project Name: \_\_\_\_\_

WPX Chaco Com # 166H

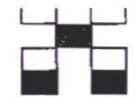
Project #: \_\_\_\_\_

Project Manager: \_\_\_\_\_

Heather Woods

Sampler: Heather Woods / Justin Valdez  
 On Ice:  Yes       No

Sample Temperature: 1.8



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

01/07/16  
AS

### Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / NESA)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)	
<u>6/16</u>	<u>1440</u>	<u>Soil</u>	<u>E-5(R)</u>	<u>Misc # KIL (1) 4oz Glass</u>	<u>MeOH / Cold</u>	<u>1601161 -001</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>										
<u>NFS HW</u>																			

Date: 6/16 Time: 1804 Relinquished by: Heather M. Wood

Received by: Christi Waeles Date: 6/16 Time: 1804

Remarks: Direct Bill to WPX  
Attn: Debbie Watson

Date: 2/16 Time: 1847 Relinquished by: Christi Waeles

Received by: [Signature] Date: 01/07/16 Time: 0815

per CW add BTEX A 01/07/16

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



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**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
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
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
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
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.

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

**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
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: 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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							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
<b>EPA METHOD 8021B: VOLATILES</b>							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.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Rule Engineering LLC

**Client Sample ID:** SC-4

**Project:** WPX NE Chaco Com #166H

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

**Lab ID:** 1603A14-003

**Matrix:** SOIL

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

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
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
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
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

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

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

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Rule Engineering LLC

Client Sample ID: SC-5

Project: WPX NE Chaco Com #166H

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

Lab ID: 1603A14-004

Matrix: SOIL

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

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							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
<b>EPA METHOD 8021B: VOLATILES</b>							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

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

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

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Rule Engineering LLC

Client Sample ID: SC-6

Project: WPX NE Chaco Com #166H

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

Lab ID: 1603A14-005

Matrix: SOIL

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

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							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
<b>EPA METHOD 8021B: VOLATILES</b>							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

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

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Rule Engineering LLC  
**Project:** WPX NE Chaco Com #166H  
**Lab ID:** 1603A14-006

**Client Sample ID:** SC-7  
**Collection Date:** 3/18/2016 10:23:00 AM  
**Received Date:** 3/19/2016 11:00:00 AM

**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
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
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
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.

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1603A14

24-Mar-16

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

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

Sample ID	<b>MB-24347</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>24347</b>	RunNo:	<b>32965</b>					
Prep Date:	<b>3/21/2016</b>	Analysis Date:	<b>3/22/2016</b>	SeqNo:	<b>1011105</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		102	70	130			

Sample ID	<b>LCS-24348</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>24348</b>	RunNo:	<b>32965</b>					
Prep Date:	<b>3/21/2016</b>	Analysis Date:	<b>3/22/2016</b>	SeqNo:	<b>1011724</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	36	10	50.00	0	72.8	65.8	136			
Surr: DNOP	3.9		5.000		78.1	70	130			

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

### Qualifiers:

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1603A14

24-Mar-16

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

Sample ID <b>MB-24355</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>24355</b>		RunNo: <b>32985</b>							
Prep Date: <b>3/21/2016</b>	Analysis Date: <b>3/22/2016</b>		SeqNo: <b>1011660</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		106	66.2	112			

Sample ID <b>LCS-24355</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>24355</b>		RunNo: <b>32985</b>							
Prep Date: <b>3/21/2016</b>	Analysis Date: <b>3/22/2016</b>		SeqNo: <b>1011661</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.9	80	120			
Surr: BFB	1100		1000		110	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
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1603A14

24-Mar-16

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

Sample ID	<b>MB-24355</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>24355</b>	RunNo:	<b>32985</b>					
Prep Date:	<b>3/21/2016</b>	Analysis Date:	<b>3/22/2016</b>	SeqNo:	<b>1011677</b>	Units:	<b>mg/Kg</b>			
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	<b>LCS-24355</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>24355</b>	RunNo:	<b>32985</b>					
Prep Date:	<b>3/21/2016</b>	Analysis Date:	<b>3/22/2016</b>	SeqNo:	<b>1011678</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	88.9	75.3	123			
Toluene	0.89	0.050	1.000	0	88.8	80	124			
Ethylbenzene	0.92	0.050	1.000	0	91.7	82.8	121			
Xylenes, Total	2.7	0.10	3.000	0	90.6	83.9	122			
Surr: 4-Bromofluorobenzene	1.1		1.000		111	80	120			

**Qualifiers:**

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



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: **1603A14**

RcptNo: 1

Received by/date: *JA* **03/19/16**  
 Logged By: **Joe Archuleta** **3/19/2016 11:00:00 AM**  
 Completed By: **Joe Archuleta** **3/19/2016 12:23:03 PM**  
 Reviewed By: *[Signature]* **ostalik**

*JA*  
*JA*

**Chain of Custody**

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

**Log In**

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

**Special Handling (if applicable)**

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

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

17. Additional remarks:

**18. Cooler Information**

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

# Chain-of-Custody Record

Client: Rule Engineering, LLC

Mailing Address: 501 Airport Dr., Suite 205  
Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

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

Accreditation  
 NELAP  Other \_\_\_\_\_

EDD (Type) \_\_\_\_\_

Turn-Around Time:  
 Standard  Rush \_\_\_\_\_

Project Name: WPX NE Chaco Com # 110lett

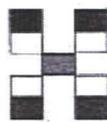
Project #:

Project Manager: Heather Woods

Sampler: H. Woods / J. Valdez

On Ice:  Yes  No

Sample Temperature: 12/



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TPH (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / <del>8021</del> )	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)	
3/18/16	0957	Soil	SC-2	(1) 4oz Glass	Cold	-001	X	X											
3/18/16	1001	Soil	SC-3	(1) 4oz Glass	Cold	-002	X	X											
3/18/16	1009	Soil	SC-4	(1) 4oz Glass	Cold	-003	X	X											
3/18/16	1016	Soil	SC-5	(1) 4oz Glass	Cold	-004	X	X											
3/18/16	1021	Soil	SC-6	(1) 4oz Glass	Cold	-005	X	X											
3/18/16	1023	Soil	SC-7	(1) 4oz Glass	Cold	-006	X	X											
<del>NEC H10</del>																			

Date: <u>3/18/16</u>	Time: <u>1732</u>	Relinquished by: <u>Heather M. Woods</u>	Received by: <u>Christine Walle</u>	Date: <u>3/18/16</u>	Time: <u>1732</u>
Date: <u>3/18/16</u>	Time: <u>1804</u>	Relinquished by: <u>Christine Walle</u>	Received by: <u>Donna</u>	Date: <u>03/19/16</u>	Time: <u>1100</u>

Remarks: Direct Bill to WPX  
Attn: Debbie Watson

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



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

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

OrderNo.: 1604491

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**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	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							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
<b>EPA METHOD 8021B: VOLATILES</b>							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.

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Rule Engineering LLC  
**Project:** WPX NE Chaco Com #166H  
**Lab ID:** 1604491-002

**Matrix:** SOIL

**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	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	34	9.7		mg/Kg	1	4/18/2016 11:22:57 AM	24787
Surr: DNOP	75.4	70-130		%Rec	1	4/18/2016 11:22:57 AM	24787
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/14/2016 12:23:19 AM	24755
Surr: BFB	110	80-120		%Rec	1	4/14/2016 12:23:19 AM	24755
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/14/2016 12:23:19 AM	24755
Toluene	ND	0.048		mg/Kg	1	4/14/2016 12:23:19 AM	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	24755
Surr: 4-Bromofluorobenzene	114	80-120		%Rec	1	4/14/2016 12:23:19 AM	24755

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

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

**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
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							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
<b>EPA METHOD 8021B: VOLATILES</b>							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.

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Rule Engineering LLC

**Client Sample ID:** SC-5

**Project:** WPX NE Chaco Com #166H

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

**Lab ID:** 1604491-004

**Matrix:** SOIL

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

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	51	9.7		mg/Kg	1	4/18/2016 12:06:00 PM	24787
Surr: DNOP	76.6	70-130		%Rec	1	4/18/2016 12:06:00 PM	24787
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
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
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
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

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

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	
	D Sample Diluted Due to Matrix	E Value above quantitation range	
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	Page 4 of 7
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range	
	R RPD outside accepted recovery limits	RL Reporting Detection Limit	
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified	

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604491

20-Apr-16

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

Sample ID	<b>LCS-24787</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>24787</b>	RunNo:	<b>33593</b>					
Prep Date:	<b>4/13/2016</b>	Analysis Date:	<b>4/18/2016</b>	SeqNo:	<b>1033599</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.9	65.8	136			
Surr: DNOP	4.3		5.000		86.8	70	130			

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

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604491

20-Apr-16

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

Sample ID <b>MB-24755</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>24755</b>	RunNo: <b>33489</b>								
Prep Date: <b>4/12/2016</b>	Analysis Date: <b>4/13/2016</b>	SeqNo: <b>1030728</b>			Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		106	80	120			

Sample ID <b>LCS-24755</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>24755</b>	RunNo: <b>33489</b>								
Prep Date: <b>4/12/2016</b>	Analysis Date: <b>4/13/2016</b>	SeqNo: <b>1030729</b>			Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.1	80	120			
Surr: BFB	1200		1000		116	80	120			

### Qualifiers:

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1604491

20-Apr-16

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

Sample ID	<b>MB-24755</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>24755</b>	RunNo:	<b>33489</b>					
Prep Date:	<b>4/12/2016</b>	Analysis Date:	<b>4/13/2016</b>	SeqNo:	<b>1030786</b>	Units:	<b>mg/Kg</b>			
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	<b>LCS-24755</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>24755</b>	RunNo:	<b>33489</b>					
Prep Date:	<b>4/12/2016</b>	Analysis Date:	<b>4/13/2016</b>	SeqNo:	<b>1030787</b>	Units:	<b>mg/Kg</b>			
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.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| R RPD outside accepted recovery limits                  | RL Reporting Detection Limit                                |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |



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: *L M*      *04/12/16*  
 Logged By: **Joe Archuleta**      **4/12/2016 7:33:00 AM**      *JCA*  
 Completed By: **Joe Archuleta**      **4/12/2016 3:20:53 PM**      *JCA*  
 Reviewed By: *JCA*      *04/12/16*

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

**Special Handling (if applicable)**

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

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

17. Additional remarks:

**18. Cooler Information**

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

# Chain-of-Custody Record

Client: Rule Engineering LLC

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

Phone #: (505) 716-2787

Email or Fax#: hwoods@ruleengineering.com

A/QC Package:  
 Standard  Level 4 (Full Validation)

Creditation:  
 NELAP  Other \_\_\_\_\_

EDD (Type) \_\_\_\_\_

Turn-Around Time:  
 Standard  Rush

Project Name: WPX NE Checo Com #1666H

Project #:

Project Manager: H. Woods

Sampler: H. Woods / J. Valdez

On Ice:  Yes  No

Sample Temperature: 121



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com  
 4901 Hawkins NE - Albuquerque, NM 87109  
 Tel. 505-345-3975 Fax 505-345-4107

### Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TPH (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / <del>TPH</del> )	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
11/16	950	Soil	SC-2	(1) 4oz Glass	Cold	1604491 -001	X	X										
11/16	1000	Soil	SC-3	(1) 4oz Glass	Cold	-002	X	X										
11/16	1006	Soil	SC-4	(1) 4oz Glass	Cold	-003	X	X										
11/16	1015	Soil	SC-5	(1) 4oz Glass	Cold	-004	X	X										

Date: 11/16 Time: 4:33 PM Relinquished by: H. Woods

Date: 12/16 Time: 0733 Received by: [Signature]

Remarks: Direct Bill to ~~Case~~ WPX  
Attn: Debbie Watson

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



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

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

**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: 1609D96-001

Matrix: SOIL

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

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
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
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
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.

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

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609D96

30-Sep-16

**Client:** WPX Energy  
**Project:** NE Chaco Com 166H Pipeline Release

Sample ID	<b>LCS-27685</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>27685</b>	RunNo:	<b>37494</b>					
Prep Date:	<b>9/26/2016</b>	Analysis Date:	<b>9/27/2016</b>	SeqNo:	<b>1166208</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		90.9	70	130			

Sample ID	<b>MB-27685</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>27685</b>	RunNo:	<b>37494</b>					
Prep Date:	<b>9/26/2016</b>	Analysis Date:	<b>9/27/2016</b>	SeqNo:	<b>1166209</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.0		10.00		90.1	70	130			

Sample ID	<b>MB-27707</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>27707</b>	RunNo:	<b>37494</b>					
Prep Date:	<b>9/26/2016</b>	Analysis Date:	<b>9/27/2016</b>	SeqNo:	<b>1166802</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	8.7		10.00		87.3	70	130			

Sample ID	<b>LCS-27707</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>27707</b>	RunNo:	<b>37494</b>					
Prep Date:	<b>9/26/2016</b>	Analysis Date:	<b>9/27/2016</b>	SeqNo:	<b>1166803</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.00	0	111	62.6	124			
Surr: DNOP	4.9		5.000		98.9	70	130			

Sample ID	<b>MB-27738</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>27738</b>	RunNo:	<b>37494</b>					
Prep Date:	<b>9/27/2016</b>	Analysis Date:	<b>9/28/2016</b>	SeqNo:	<b>1167146</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.7		10.00		87.1	70	130			

Sample ID	<b>LCS-27738</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>27738</b>	RunNo:	<b>37494</b>					
Prep Date:	<b>9/27/2016</b>	Analysis Date:	<b>9/28/2016</b>	SeqNo:	<b>1167147</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		91.2	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

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609D96

30-Sep-16

Client: WPX Energy  
 Project: NE Chaco Com 166H Pipeline Release

Sample ID	<b>MB-27704</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>27704</b>	RunNo:	<b>37528</b>					
Prep Date:	<b>9/26/2016</b>	Analysis Date:	<b>9/28/2016</b>	SeqNo:	<b>1167737</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	820		1000		81.6	68.3	144			

Sample ID	<b>LCS-27704</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>27704</b>	RunNo:	<b>37528</b>					
Prep Date:	<b>9/26/2016</b>	Analysis Date:	<b>9/28/2016</b>	SeqNo:	<b>1167738</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	930		1000		93.0	68.3	144			

Sample ID	<b>MB-27690</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>27690</b>	RunNo:	<b>37528</b>					
Prep Date:	<b>9/26/2016</b>	Analysis Date:	<b>9/28/2016</b>	SeqNo:	<b>1167758</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	830		1000		82.8	68.3	144			

Sample ID	<b>LCS-27690</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015D: Gasoline Range</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>27690</b>	RunNo:	<b>37528</b>					
Prep Date:	<b>9/26/2016</b>	Analysis Date:	<b>9/28/2016</b>	SeqNo:	<b>1167759</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	110	74.6	123			
Surr: BFB	910		1000		90.7	68.3	144			

**Qualifiers:**

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

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609D96

30-Sep-16

**Client:** WPX Energy  
**Project:** NE Chaco Com 166H Pipeline Release

Sample ID <b>MB-27704</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>27704</b>	RunNo: <b>37528</b>								
Prep Date: <b>9/26/2016</b>	Analysis Date: <b>9/28/2016</b>	SeqNo: <b>1167885</b>	Units: <b>%Rec</b>							
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 <b>LCS-27704</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>27704</b>	RunNo: <b>37528</b>								
Prep Date: <b>9/26/2016</b>	Analysis Date: <b>9/28/2016</b>	SeqNo: <b>1167903</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID <b>MB-27690</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>27690</b>	RunNo: <b>37528</b>								
Prep Date: <b>9/26/2016</b>	Analysis Date: <b>9/28/2016</b>	SeqNo: <b>1167923</b>	Units: <b>mg/Kg</b>							
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 <b>LCS-27690</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>27690</b>	RunNo: <b>37528</b>								
Prep Date: <b>9/26/2016</b>	Analysis Date: <b>9/28/2016</b>	SeqNo: <b>1167924</b>	Units: <b>mg/Kg</b>							
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			

**Qualifiers:**

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



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

# Sample Log-In Check List

Client Name: **WPX ENERGY**

Work Order Number: **1609D96**

RcptNo: **1**

Received by/date: *[Signature]* 09/24/16

Logged By: **Lindsay Mangin** **9/24/2016 9:30:00 AM** *[Signature]*

Completed By: **Lindsay Mangin** **9/25/2016 11:25:55 AM** *[Signature]*

Reviewed By: A 09/24/16

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

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

### Special Handling (if applicable)

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

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

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Yes			

Client: WPX Energy

Mailing Address: PO Box 640  
Aztec, NM 87410

Phone #: 505-333-1880/505-386-9693

Email or Fax#: [deborah.watson@wpxenergy.com](mailto:deborah.watson@wpxenergy.com)

A/QC Package:  
 Standard       Level 4 (Full Validation)

Accreditation:  
 NELAP       Other \_\_\_\_\_

Method (Type) \_\_\_\_\_

Standard       Rush

Project Name: NE Chaco Com 166H Pipeline Release

Project #:

Project Manager: D. Watson

Sampler: D Watson

On Ice:  Yes       No

Sample Temperature: \_\_\_\_\_



**HALL ENVIRONMENTAL ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

**Analysis Request**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No	BTEX (8021)	TPH (8015) GRO/DRO ONLY	Chlorides										Air Bubbles (Y or N)
9/23/2016	10:18	soil	SC-4	2-4 oz	cold	16091096 -001	X	X											

Date: 9/23/16	Time: 1500	Relinquished by: Deborah Watson	Received by: Christine Wheeler	Date: 9/23/16	Time: 1500	Remarks:
Date: 9/23/16	Time: 1454	Relinquished by: Christine Wheeler	Received by: [Signature]	Date: 09/24/16	Time: 0930	

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