AE Order Number Banner

Report Description

This report shows an AE Order Number in Barcode format for purposes of scanning. The Barcode format is Code 39.

App Number: pVF1805854730

3RP - 1062

WILLIAMS FOUR CORNERS, LLC

2/27/2018

3R-1062

Williams Four Corners LLC

Final C-141

Carracas CDP

02/27/2018

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

State of New Mexico
Energy Minerals and Natural Resources

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

OIL CONS. DIV DIST. 3
JAN 12 2018

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 ☒ Revised Final Report

Name of Company Williams Four Corners LLC	Contact Monica Sandoval
Address 1755 Arroyo Drive, Bloomfield, NM 87413	Telephone No. 505-632-4625
Facility Name Carracas CDP	Facility Type Compressor Station

Surface Owner US Forest Service	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	34	32N	5W					Rio Arriba

Latitude 36.938122° N **Longitude** -107.353703° W

NATURE OF RELEASE

Type of Release Lube Oil	Volume of Release 20 bbl	Volume Recovered 10 bbl
Source of Release: Bulk Lube Oil Tank Sight Glass	Date and Hour of Occurrence 6/8/2017 – 6/13/2017 unknown exact time or date	Date and Hour of Discovery 6/13/2017 9:30 AM MST
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Voicemail left with Vanessa Fields Follow up email sent to Vanessa Fields, Cory Smith and Whitney Thomas 6/13/2017 12:06 PM MST	
By Whom? Monica Sandoval	Date and Hour 6/13/2017 10:19 AM MST	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Not Applicable

Describe Cause of Problem and Remedial Action Taken.*
Bulk Lube Oil (refined/unused) tank has a broken sight glass. The cause of the broken sight glass is unknown, as it was a clean straight brake in the sight glass.

Describe Area Affected and Cleanup Action Taken.*

The release was contained in within the berm (secondary containment) area associated with the tank. Lube oil has been pumped on three occasions from the secondary containment area to the used lube oil tank onsite.

Williams began remediation actions on October 2, 2017. Retrofit of the below-grade tanks was occurring during the same time as the lube oil tank remediation. Waste characterization sampling was performed on October 4, 2017 for disposal of lube oil impacted soils. The field inspector indicated that the soils appeared to be clean and collected samples on October 6, 2017 from the floor and east/west sidewalls. After conducting further remediation, additional confirmation samples were collected from the excavation floor north/south side walls on October 12, 2017 and the results were below the remediation levels. The Williams COM received the October 12, 2017 sample results from analytical laboratory which were non-detect and continued to proceed on the project by backfilling and excavation. On October 24, 2017, Williams Environmental Specialist discovered that the excavation was backfilled and tanks had been placed back into service. The NMOCD was contacted on October 24, 2017 to communicate the concern that the 24 hour notification for witnessing confirmation sampling was not provided. Site activities were stopped on October 24, 2017.

Approximately 310 cubic yards of impacted soils were removed during the remediation for disposal. (supporting attachments pp 3-42)

On November 7, 2017 Heather Woods of Rule Engineering contacted Vanessa Fields to notify her that Rule Engineering had been retained to perform the site work on behalf of Williams.

Sampling took place on December 5th, samples were pulled by Heather Woods of Rule Engineering on behalf of Williams; with Vanessa from NMOCD present. The fill extended down to about 6 or 7 feet, and native sandy clay at about 8 feet in most of the borings. Borings were at 8 feet due to bedrock shale. West wall sample boring was an angled boring. Sample results were provided to NMOCD on December 18th. (supporting attachments pp 43-79)

On December 22nd Vanessa came back with approval of samples with no future action requested from OCD. (supporting attachments pp 79-82)

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: MonicaSandoval	OIL CONSERVATION DIVISION Approved by Environmental Specialist:	
Printed Name: Monica Sandoval		
Title: Environmental Specialist	Approval Date: 2/27/2018	Expiration Date:
E-mail Address: monica.sandoval@williams.com	Conditions of Approval: —	Attached ☐
Date: 1/8/2017 Phone: 505-632-4625		

* Attach Additional Sheets If Necessary

nVF1717255221

1755 Arroyo Drive
Bloomfield, NM 87413
(505) 632-4700
Fax (505) 632-4782

[Via Email]

October 27, 2017

Ms. Vanessa Fields
Environmental Specialist
1000 Rio Brazos Road
New Mexico Oil Conversation Division
Aztec, New Mexico 87410

Re: Carracas Lube Oil Release Remediation Actions

Ms. Fields:

This report is being provided based on our telephone discussion on October 24, 2017 in which Williams communicated the discovery that notification of confirmation sampling was not provided to the New Mexico Oil Conservation Division (NMOCD) for the Carracas lube oil remediation performed during October 2017. This report provides a summary of the events and the results of the completed remediation actions.

On June 13, 2017, Williams discovered that the sight glass associated with a 300 BBL lube oil tank at the Carracas compression station broken resulting in the release of 20 BBLS of lube oil into secondary containment. A liner was present in secondary containment, however it was damaged and allowed liquids to impact underlying soils. Initial notification was made to the NMOCD on June 13, 2017. The NMOCD conducted two visits to the facility during the month of June. The OCD recommended that Williams removal liquid present in secondary containment which Williams completed on June 21, 2017.

A summary of the remediation activities completed is provided below:

- Williams began remediation actions on October 2, 2017.
- Retrofit of the below-grade tanks (BGTs) was occurring during the same times as the lube oil tank remediation.
- Waste characterization sampling was performed on October 4, 2017 for disposal of lube oil impacted soils.
- The field inspector indicated that the soils appeared to be clean and collected samples on October 6, 2017 from the floor and east/west sidewalls. The sample collected from the excavation floor indicated remediation action levels were not achieved and further remediation was performed. The sample collected from the east/west side walls achieved the remediation levels.

- After conducting further remediation, additional confirmation samples were collected from the excavation floor and north/south sidewalls on October 12, 2017 and the results were below the remediation levels.
- The excavation dimensions were 25 feet x 30 feet with depths ranging from 5 to 8 feet as presented on the attached Remediation and Excavation Sampling Form.
- Approximately 310 cubic yards of impacted soils were removed during the remediation and disposed of at the IEI landfarm.

Prior to starting the remediation, the Williams Environmental Specialist notified the Williams Coordinator of Maintenance (COM) that a 24 hour notification to NMOCD was required in order to allow the NMOCD the opportunity to witness confirmation sampling prior to backfilling and tank reinstallation. During this project, BGTs within the same secondary containment were ongoing retrofit. The Williams Environmental Specialist communicated to the Williams COM as well as the field inspector that the NMOCD did not require notification and sampling for the BGTs unless impacts were observed. No impacts were observed beneath the BGTs. A misunderstanding occurred at this point as the Williams COM and the field inspector was under the impression that since the BGTs did not require notification, that further notifications were not required to complete confirmation sampling for the other portion of the project. The Williams COM received the October 12, 2107 sample results from analytical laboratory which were non-detect and continued to proceed on the project by backfilling the excavation.

On October 24, 2017, Williams Environmental Specialist discovered that the excavation was backfilled and the tanks had been placed back into service. The NMOCD was contacted on October 24, 2017 to communicate the concern that the 24 hour notification for witnessing confirmation sampling was not provided. The NMOCD requested that Williams stop site activities until the sampling concern could be resolved. Site activities were stopped on October 24, 2017. During subsequent discussion, the Williams COM communicated that he was under the impression that NMOCD would not be present for the lube oil tank sampling since they were not present for the BGT removal.

Attached photographs were collected by the field inspector during the remediation actions for review by the NMOCD. Although the 24 hour notifications were not provided, Williams requests that the OCD accept the results and allow Williams to complete site activities. The photographs demonstrate the visual impacts were no longer apparent within the excavation. Additionally the site risk ranking is 5,000 mg/kg for TPH. The results for the floor and north/south walls were non-detect and the results from the east/west sidewalls were non-detect with the exception of TPH-DRO and TPH-GRO with reported concentrations of 57 mg/kg and 1,000 mg/kg, respectively. As an alternative, Williams will consider the collection of confirmation samples using a hand auger beneath the lube oil tanks with NMOCD representatives on site if needed.

In regards to corrective action, Williams has discussed this matter internally with employees as well as our contract field inspections to ensure that this issue does not re occur.

Please contact me if you need any additional information or if you would like to discuss in further detail.

Respectfully submitted,

Monica Sandoval
Environmental Specialist

Attachment

From: Sandoval, Monica
To: Sandoval, Monica
Subject: FW: Schedule for Sampling at the Williams Carracas CDP
Date: Monday, January 08, 2018 1:48:43 PM

From: Fields, Vanessa, EMNRD [mailto:Vanessa.Fields@state.nm.us]
Sent: Friday, December 22, 2017 10:14 AM
To: Sandoval, Monica <Monica.Sandoval@Williams.com>; Heather Woods <hwoods@ruleengineering.com>
Cc: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Webre, Matt <Matt.Webre@Williams.com>
Subject: RE: Schedule for Sampling at the Williams Carracas CDP

Good morning Monica,

No further action is requested from the OCD at this time. Analytical results were below regulatory standards. Please send a hardcopy of all analytical results and all communication regarding this project along with your final C-141.

Please let me know if you have any further questions.

Merry Christmas!!

Thank You,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Sandoval, Monica [mailto:Monica.Sandoval@Williams.com]
Sent: Friday, December 22, 2017 10:03 AM
To: Heather Woods <hwoods@ruleengineering.com>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Cc: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Webre, Matt <Matt.Webre@Williams.com>
Subject: RE: Schedule for Sampling at the Williams Carracas CDP

Vanessa,

Can you please provide NMOCD's recommendations on additional clean up, if any is needed?

Thank-you,
Monica Sandoval

From: Heather Woods [mailto:hwoods@ruleengineering.com]
Sent: Monday, December 18, 2017 12:01 PM
To: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Cc: Sandoval, Monica <Monica.Sandoval@Williams.com>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: [EXTERNAL] RE: Schedule for Sampling at the Williams Carracas CDP

Good Afternoon Vanessa,

I apologize. Monica alerted me Friday evening that the results had been sent out on Thursday, but I had not received them. Attached is a copy of the laboratory report along with a Figure illustrating the boring locations and a summary table of the field and laboratory results. The soils encountered generally consisted of red brown clayey sand fill to about 7 feet and was underlain by grey sandy lean clay (weathered shale) to auger refusal on the more competent weathered shale at the bottom of the borings. As you will notice, the sample at SB-3 @ 2.5 feet has a MRO concentration of 3,100 mg/kg. This sample did consist of the clayey sand backfill material and did have a slight odor, but was not stained. The samples above and below it did not have an odor. Please let me know if you have any questions.

Many Thanks,
Heather

From: Fields, Vanessa, EMNRD [mailto:Vanessa.Fields@state.nm.us]
Sent: Monday, December 18, 2017 10:36 AM
To: Heather Woods <hwoods@ruleengineering.com>
Cc: Sandoval, Monica <Monica.Sandoval@Williams.com>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: RE: Schedule for Sampling at the Williams Carracas CDP

Good morning,

Could you please provide the analytical results from the sampling that occurred on the 5th?

Thank you,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119

Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Heather Woods [mailto:hwoods@ruleengineering.com]
Sent: Tuesday, December 12, 2017 8:09 AM
To: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Cc: Sandoval, Monica <Monica.Sandoval@Williams.com>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: Re: Schedule for Sampling at the Williams Carracas CDP

Vanessa,

We have not received the lab results. I expect to have them Thursday.

Thanks,
Heather

On Dec 12, 2017, at 7:37 AM, "Fields, Vanessa, EMNRD" <Vanessa.Fields@state.nm.us> wrote:

> Good morning,
>
> Have you received the analytical results from last week's sampling?
>
> Thank you,
>
> Vanessa Fields
> Environmental Specialist
> Oil Conservation Division
> Energy, Minerals, & Natural Resources
> 1000 Rio Brazos, Aztec, NM 87410
> (505)334-6178 ext 119
> Cell: (505) 419-0463
> vanessa.fields@state.nm.us

> **From:** Heather Woods [mailto:hwoods@ruleengineering.com]
> **Sent:** Tuesday, November 28, 2017 10:35 AM
> **To:** Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
> **Cc:** Sandoval, Monica <Monica.Sandoval@Williams.com>
> **Subject:** Schedule for Sampling at the Williams Carracas CDP
>
> Good Morning Vanessa,

I would like to notify you that we will be sampling at the Williams Carracas CDP on December 5th, 2017, around 9:00 a.m., and may continue into the next day if needed. Please let me know if you have any questions.

Many Thanks,
Heather

Heather M. Woods, P.G.

<image001.jpg>
501 Airport Drive, Suite 205
Farmington, NM 87401
Office: **(505) 325-1055**
Fax: **(303) 431-3750**
Cell: **(505) 716-2787**

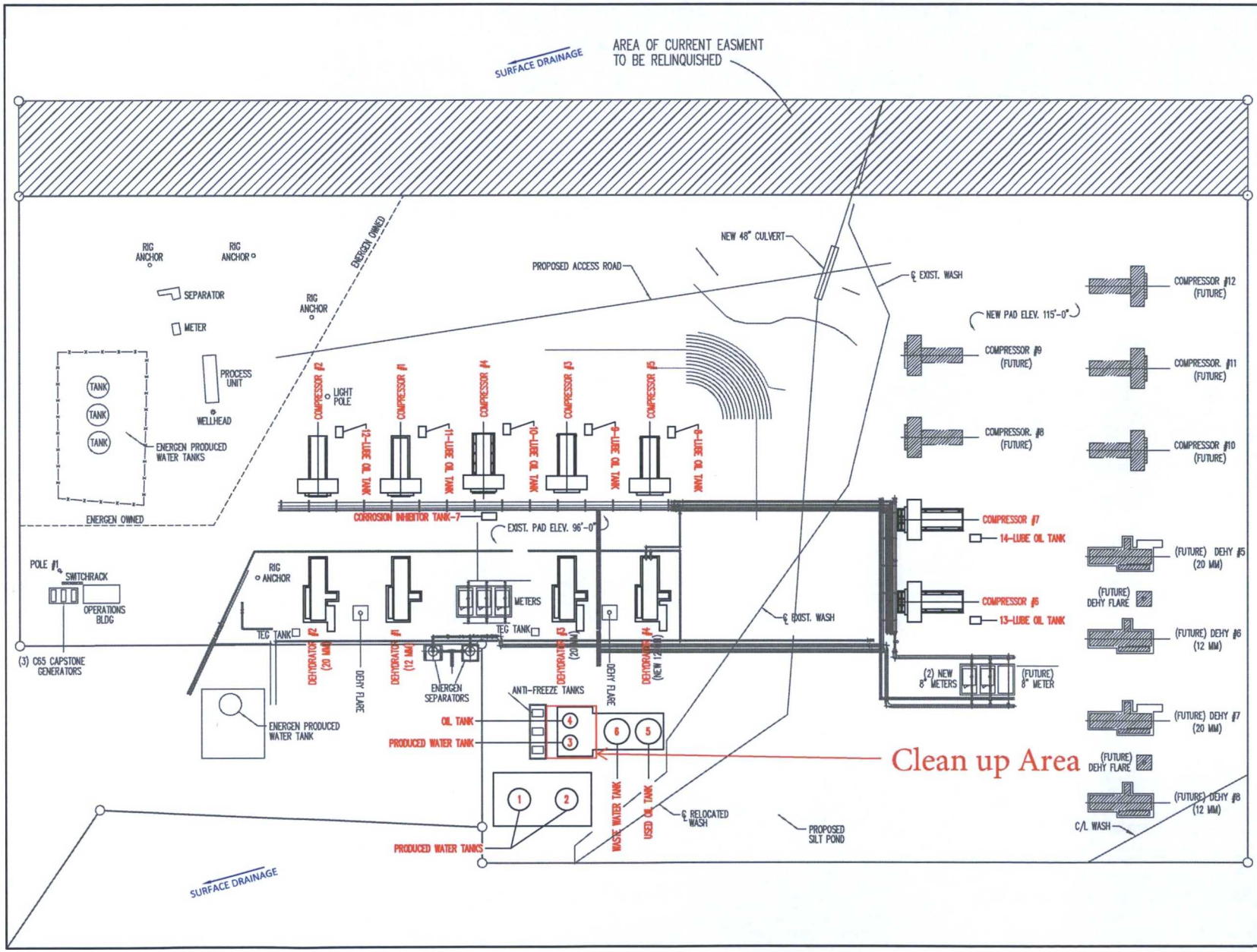


FIGURE 2

FACILITY LAYOUT
WILLIAMS FOUR CORNERS LLC
CARRACAS CDP FACILITY
SW¼ NW¼, SECTION 34, T32N, R5W
RIO ARRIBA COUNTY, NEW MEXICO
N36.93812, W107.35370

animas environmental services
Farmington, NM • Durango, CO
animasenvironmental.com

DRAWN BY:	DATE DRAWN:
C. Lameman	Decemeber 3, 2013
REVISIONS BY:	**DATE REVISED:**
C. Lameman	Decemeber 31, 2015
CHECKED BY:	**DATE CHECKED:**
S. Hinds	Decemeber 31, 2015
APPROVED BY:	**DATE APPROVED:**
E. McNally	Decemeber 31, 2015

NOTE: SITE DIAGRAM OBTAINED FROM WILLIAMS.

SCALE
50 30 0 50
10
(1 INCH = 50 FEET)

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

Revised A...

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

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. **Generator Name and Address:**
Williams Four Corners LLC, 1755 Arroyo Drive, Bloomfield, NM 87413

2. **Originating Site:**
Carracas Compressor Station

3. **Location of Material (Street Address, City, State or ULSTR):**
Unit F, Section 34, Township 32N, Range 5W
Rio Arriba County, NM

4. **Source and Description of Waste:** Impacted soil from a broken site glass on a lube oil storage tank.

Estimated Volume 100 yd^3 Known Volume (to be entered by the operator at the end of the haul) _____ yd^3 / bbls

5. **GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS**

MonicaSandoval Monica Sandoval Williams Four Corners LLC

I, _____, representative or authorized agent for _____ do hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☐ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. *Operator Use Only: Waste Acceptance Frequency* ☐ *Monthly* ☐ *Weekly* ☐ *Per Load*

☒ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☒ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

MonicaSandoval Monica Sandoval Williams Four Corners LLC

I, _____, representative for _____ authorize Industrial Ecosystems, Inc. to complete the required testing/sign the Generator Waste Testing Certification.

I, _____, representative for Industrial Ecosystems, Inc. do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. **Transporter:**
Triple F Trucking

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: JFJ Landfarm c/o Industrial Ecosystems, Inc. Permit # NM-01-0010B

Address of Facility: 49 CR 3150, Aztec, NM 87410

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: _____ TITLE: _____ DATE: _____

SIGNATURE: _____ TELEPHONE NO.: _____

Surface Waste Management Facility Authorized Agent

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

October 12, 2017

Monica Sandoval
Williams Field Services
1755 Arroyo Dr.,
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Caracass CDP Cleanup OrderNo.: 1710289

Dear Monica Sandoval:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/5/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1710289**
Date Reported: **10/12/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: Caracass CDP Cleanup
Lab ID: 1710289-001 **Matrix:** SOIL

Client Sample ID: CAR-1-COMP
Collection Date: 10/4/2017 9:30:00 AM
Received Date: 10/5/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 7471: MERCURY						Analyst: **ELS**	
Mercury	ND	0.033		mg/Kg	1	10/10/2017 11:48:20 AM	34324
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	3.8	2.5		mg/Kg	1	10/9/2017 11:20:03 AM	34274
Barium	310	0.20		mg/Kg	2	10/9/2017 2:19:44 PM	34274
Cadmium	ND	0.098		mg/Kg	1	10/9/2017 9:39:58 AM	34274
Chromium	7.2	0.29		mg/Kg	1	10/9/2017 11:20:03 AM	34274
Lead	3.8	0.25		mg/Kg	1	10/9/2017 9:39:58 AM	34274
Selenium	ND	2.5		mg/Kg	1	10/9/2017 9:39:58 AM	34274
Silver	ND	0.25		mg/Kg	1	10/9/2017 9:39:58 AM	34274

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710289**

12-Oct-17

Client: Williams Field Services

Project: Caracass CDP Cleanup

Sample ID	**MB-34324**	SampType:	**MBLK**		TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID:	**34324**		RunNo:	**46230**					
Prep Date:	**10/10/2017**	Analysis Date:	**10/10/2017**		SeqNo:	**1472015**	Units:	**mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		ND	0.033								

Sample ID	**LCS-34324**	SampType:	**LCS**		TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID:	**34324**		RunNo:	**46230**					
Prep Date:	**10/10/2017**	Analysis Date:	**10/10/2017**		SeqNo:	**1472016**	Units:	**mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.17	0.033	0.1667	0	103	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
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710289**

12-Oct-17

Client: Williams Field Services

Project: Caracass CDP Cleanup

Sample ID	**MB-34274**	SampType: **MBLK**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**PBS**	Batch ID: **34274**		RunNo: **46195**					
Prep Date:	**10/6/2017**	Analysis Date: **10/9/2017**		SeqNo: **1470617**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.10								
Cadmium	ND	0.10								
Lead	ND	0.25								
Selenium	ND	2.5								
Silver	ND	0.25								

Sample ID	**LCS-34274**	SampType: **LCS**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**LCSS**	Batch ID: **34274**		RunNo: **46195**					
Prep Date:	**10/6/2017**	Analysis Date: **10/9/2017**		SeqNo: **1470618**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	25	0.10	25.00	0	98.0	80	120			
Cadmium	25	0.10	25.00	0	99.8	80	120			
Lead	24	0.25	25.00	0	96.0	80	120			
Selenium	24	2.5	25.00	0	94.5	80	120			

Sample ID	**LCS-34274(AG)**	SampType: **LCS**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**LCSS**	Batch ID: **34274**		RunNo: **46195**					
Prep Date:	**10/6/2017**	Analysis Date: **10/9/2017**		SeqNo: **1470622**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	4.9	0.25	5.000	0	98.6	80	120			

Sample ID	**LLLCS-34274**	SampType: **LCSLL**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**BatchQC**	Batch ID: **34274**		RunNo: **46195**					
Prep Date:	**10/6/2017**	Analysis Date: **10/9/2017**		SeqNo: **1470623**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.10	0.1000	0	99.5	50	150			
Cadmium	0.10	0.10	0.1000	0	102	50	150			
Lead	ND	0.25	0.2500	0	84.6	50	150			
Selenium	3.4	2.5	2.500	0	137	50	150			
Silver	ND	0.25	0.2500	0	96.6	50	150			

Sample ID	**MB-34274**	SampType: **MBLK**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**PBS**	Batch ID: **34274**		RunNo: **46195**					
Prep Date:	**10/6/2017**	Analysis Date: **10/9/2017**		SeqNo: **1470803**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710289**

12-Oct-17

Client: Williams Field Services

Project: Caracass CDP Cleanup

Sample ID **MB-34274**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **34274**	RunNo: **46195**
Prep Date: **10/6/2017**	Analysis Date: **10/9/2017**	SeqNo: **1470803** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.30								

Sample ID **LCS-34274**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **34274**	RunNo: **46195**
Prep Date: **10/6/2017**	Analysis Date: **10/9/2017**	SeqNo: **1470804** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	102	80	120			
Chromium	24	0.30	25.00	0	97.9	80	120			

Sample ID **LLLCS-34274**	SampType: **LCSLL**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **BatchQC**	Batch ID: **34274**	RunNo: **46195**
Prep Date: **10/6/2017**	Analysis Date: **10/9/2017**	SeqNo: **1470945** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5	1.000	0	108	50	150			
Chromium	0.32	0.30	0.3000	0	108	50	150			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: WILLIAMS FIELD SERVI Work Order Number: 1710289 RcptNo: 1

Received By: Anne Thorne 10/5/2017 7:00:00 AM Anne Thorne
Completed By: Anne Thorne 10/5/2017 8:34:33 AM Anne Thorne
Reviewed By: 10/5/17

Chain of Custody

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

Log In

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

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

Special Handling (if applicable)

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

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ 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	1.4	Good	Yes			

Chain-of-Custody Record

Client: Williams Field Service

Mailing Address: 1755 Arroya Drive
Bloomfield, New Mexico 87413

Phone #: 505-632-4625

email or Fax#: monica.sandoval@williams

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
~~☐ Standard~~ ☒ Rush 10/9 Am Results

Project Name: Carcass CDP Clean up

Project #: UW017230686

Project Manager: Monica Sandoval

Sampler: MS

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.4 CF 1.0 = 1.4

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 + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
10/4/17	9:30	Soil	CAR-1-COMP.	(2) 4 oz	ICE	001							X					
~~10/4/17~~	~~9:30~~	~~Soil~~	~~CAR-1-COMP~~	~~4 oz~~	~~ICE~~								X		MS			

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/4/17	1606	Mike Stahl		10/4/17	1606
10/4/17	1921			10/5/17	0700

Remarks:

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

Remediation Excavation and Sampling Form

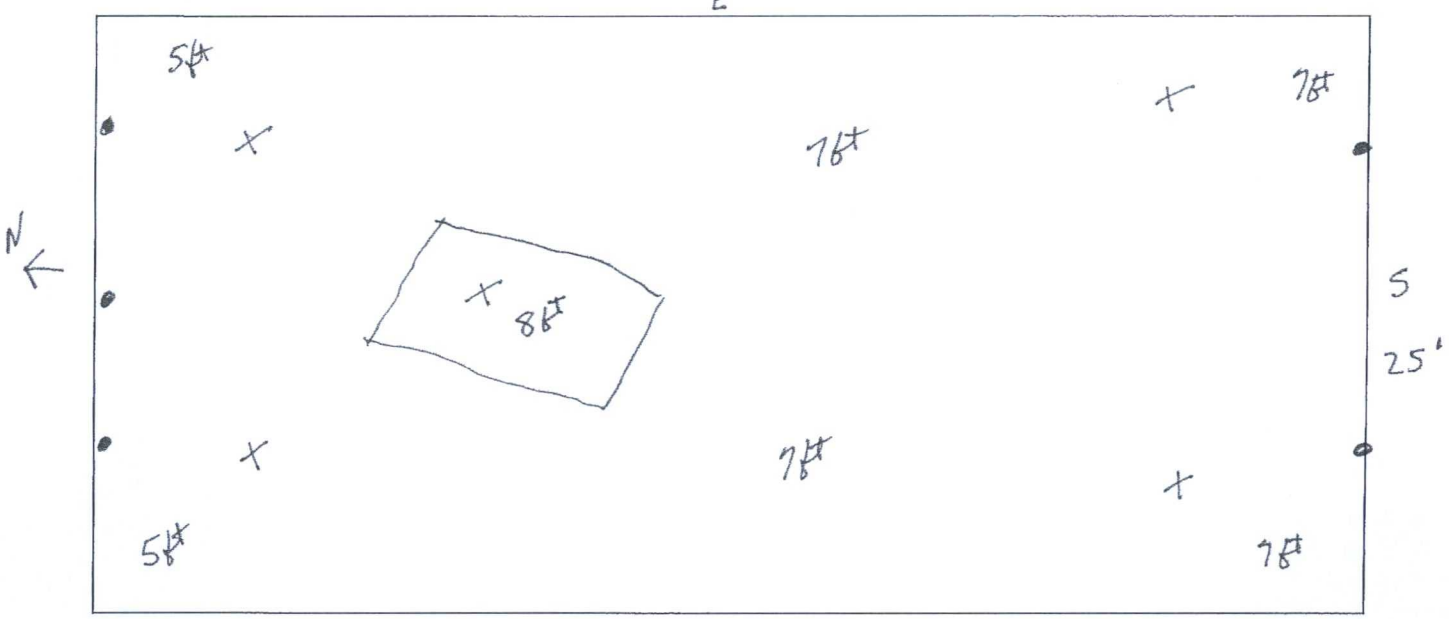
Site Name Caracass CDP Lube Oil Spill

Excavation Dimensions (feet)

25ft Length 30ft Width 5 to 8ft Depth

Excavation Diagram and Sample Locations

(Depict notable site features, excavation extents, visual observations, sample locations, north arrow, etc.)



Sample Information

OCD Witness Sampling Yes or No

Agency(s) Representative(s) _____

Sample ID	Sample Date	Type (Composite, Grab)	Location (Floor, Sidewall)	Comments
CAR-W-COMP	10-12-17	composite	sidewall	
CAR-B-COMP	10-12-17	composite	Floor	
CAR-LOB	10-6-17	Composite	Floor	
CAR-LOEW	10-6-17	Composite	Wall	

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

October 11, 2017

Monica Sandoval
Williams Field Services
188 Co. Rd 4900
Bloomfield, NM 87413
TEL:
FAX

RE: Caracuss CDP Cleanup OrderNo.: 1710440

Dear Monica Sandoval:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/7/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1710440**
Date Reported: **10/11/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: Caracuss CDP Cleanup
Lab ID: 1710440-001 **Matrix:** SOIL

Client Sample ID: L-0-B
Collection Date: 10/6/2017 12:45:00 PM
Received Date: 10/7/2017 10:35:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	10/9/2017 3:01:29 PM	34306
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	400	100		mg/Kg	10	10/9/2017 10:26:30 AM	34298
Motor Oil Range Organics (MRO)	2900	500		mg/Kg	10	10/9/2017 10:26:30 AM	34298
Surr: DNOP	0	70-130	S	%Rec	10	10/9/2017 10:26:30 AM	34298
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	110	20		mg/Kg	5	10/9/2017 11:35:10 AM	G46204
Surr: BFB	271	54-150	S	%Rec	5	10/9/2017 11:35:10 AM	G46204
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.10		mg/Kg	5	10/9/2017 11:35:10 AM	B46204
Toluene	ND	0.20		mg/Kg	5	10/9/2017 11:35:10 AM	B46204
Ethylbenzene	0.28	0.20		mg/Kg	5	10/9/2017 11:35:10 AM	B46204
Xylenes, Total	3.3	0.41		mg/Kg	5	10/9/2017 11:35:10 AM	B46204
Surr: 4-Bromofluorobenzene	101	66.6-132		%Rec	5	10/9/2017 11:35:10 AM	B46204

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: Caracuss CDP Cleanup
Lab ID: 1710440-002 **Matrix:** SOIL

Client Sample ID: L-0-E-W
Collection Date: 10/6/2017 1:00:00 PM
Received Date: 10/7/2017 10:35:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	10/9/2017 3:38:43 PM	34306
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	57	19		mg/Kg	2	10/9/2017 12:17:05 PM	34298
Motor Oil Range Organics (MRO)	1000	96		mg/Kg	2	10/9/2017 12:17:05 PM	34298
Surr: DNOP	101	70-130		%Rec	2	10/9/2017 12:17:05 PM	34298
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.5		mg/Kg	1	10/9/2017 11:58:38 AM	G46204
Surr: BFB	113	54-150		%Rec	1	10/9/2017 11:58:38 AM	G46204
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.027		mg/Kg	1	10/9/2017 11:58:38 AM	B46204
Toluene	ND	0.055		mg/Kg	1	10/9/2017 11:58:38 AM	B46204
Ethylbenzene	ND	0.055		mg/Kg	1	10/9/2017 11:58:38 AM	B46204
Xylenes, Total	ND	0.11		mg/Kg	1	10/9/2017 11:58:38 AM	B46204
Surr: 4-Bromofluorobenzene	95.1	66.6-132		%Rec	1	10/9/2017 11:58:38 AM	B46204

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710440**

11-Oct-17

Client: Williams Field Services

Project: Caracuss CDP Cleanup

Sample ID	**MB-34306**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**34306**	RunNo:	**46208**					
Prep Date:	**10/9/2017**	Analysis Date:	**10/9/2017**	SeqNo:	**1472041**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-34306**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**34306**	RunNo:	**46208**					
Prep Date:	**10/9/2017**	Analysis Date:	**10/9/2017**	SeqNo:	**1472042**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710440**

11-Oct-17

Client: Williams Field Services

Project: Caracuss CDP Cleanup

Sample ID **LCS-34298**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **34298**	RunNo: **46197**
Prep Date: **10/9/2017**	Analysis Date: **10/9/2017**	SeqNo: **1470767** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.3	73.2	114			
Surr: DNOP	4.2		5.000		83.3	70	130			

Sample ID **MB-34298**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **34298**	RunNo: **46197**
Prep Date: **10/9/2017**	Analysis Date: **10/9/2017**	SeqNo: **1470768** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.8		10.00		98.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710440**

11-Oct-17

Client: Williams Field Services

Project: Caracuss CDP Cleanup

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G46204**	RunNo: **46204**
Prep Date:	Analysis Date: **10/9/2017**	SeqNo: **1471397** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	930		1000		93.3	54	150			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G46204**	RunNo: **46204**
Prep Date:	Analysis Date: **10/9/2017**	SeqNo: **1471398** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	114	76.4	125			
Surr: BFB	1100		1000		107	54	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710440**

11-Oct-17

Client: Williams Field Services

Project: Caracuss CDP Cleanup

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B46204**	RunNo: **46204**
Prep Date:	Analysis Date: **10/9/2017**	SeqNo: **1471413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.97		1.000		97.4	66.6	132			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B46204**	RunNo: **46204**
Prep Date:	Analysis Date: **10/9/2017**	SeqNo: **1471414** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	97.7	80	120			
Toluene	0.96	0.050	1.000	0	96.5	80	120			
Ethylbenzene	1.0	0.050	1.000	0	99.8	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.8	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	66.6	132			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: WILLIAMS FIELD SERVI Work Order Number: 1710440 RcptNo: 1

Received By: Andy Freeman 10/7/2017 10:35:00 AM
Completed By: Anne Thorne 10/9/2017 8:02:55 AM
Reviewed By: 10/9/17

Chain of Custody

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

Log In

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

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

Special Handling (if applicable)

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

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ 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	2.2	Good	Yes			

Chain-of-Custody Record

Client: Williams Field Service

Mailing Address: 1755 Arroya Drive
Bloomfield New Mexico 87413

Phone #: 505-632-4625

email or Fax#: monica.sandoval@williams

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time: Overnight Same Day
☐ Standard ☒ Rush 10-9-A.M. Results

Project Name: Carracass CDP cleanup

Project #: UW017230 686

Project Manager: Monica Sandoval

Sampler: MS

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.2°C

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and # (KS 10/09/17 Mixed Kits)	Preservative Type	HEAL No. (FW0440)	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride				Air Bubbles (Y or N)
10-6-17	1245	Soil	L-O-B	4 oz	Ice	001	X		X									X				
10-6-17	1300	Soil	L-O-E-W	4 oz	Ice	002	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
10/6/17	1505	Mike Stahl	Chat Ward	10/6/17	1505	
10/6/17	1844	Chat Ward		10/7/17	1035	

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

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

October 16, 2017

Monica Sandoval
Williams Field Services
188 Co. Rd 4900
Bloomfield, NM 87413
TEL:
FAX

RE: Caracass CDP Cleanup OrderNo.: 1710756

Dear Monica Sandoval:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/13/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1710756**
Date Reported: **10/16/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: Caracass CDP Cleanup
Lab ID: 1710756-001 **Matrix:** SOIL

Client Sample ID: CAR-W-COMP
Collection Date: 10/12/2017 1:30:00 PM
Received Date: 10/13/2017 7:56:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	10/13/2017 11:13:05 AM	34404
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	10/13/2017 10:02:36 AM	34400
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/13/2017 10:02:36 AM	34400
Surr: DNOP	95.6	70-130		%Rec	1	10/13/2017 10:02:36 AM	34400
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.0		mg/Kg	1	10/13/2017 9:42:19 AM	34383
Surr: BFB	94.4	54-150		%Rec	1	10/13/2017 9:42:19 AM	34383
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.020		mg/Kg	1	10/13/2017 9:42:19 AM	34383
Toluene	ND	0.040		mg/Kg	1	10/13/2017 9:42:19 AM	34383
Ethylbenzene	ND	0.040		mg/Kg	1	10/13/2017 9:42:19 AM	34383
Xylenes, Total	ND	0.081		mg/Kg	1	10/13/2017 9:42:19 AM	34383
Surr: 4-Bromofluorobenzene	100	66.6-132		%Rec	1	10/13/2017 9:42:19 AM	34383

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Field Services
Project: Caracass CDP Cleanup
Lab ID: 1710756-002 **Matrix:** SOIL

Client Sample ID: CAR-B-COMP
Collection Date: 10/12/2017 2:00:00 PM
Received Date: 10/13/2017 7:56:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	10/13/2017 11:50:17 AM	34404
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/13/2017 10:24:42 AM	34400
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/13/2017 10:24:42 AM	34400
Surr: DNOP	92.9	70-130		%Rec	1	10/13/2017 10:24:42 AM	34400
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/13/2017 10:05:41 AM	34383
Surr: BFB	97.0	54-150		%Rec	1	10/13/2017 10:05:41 AM	34383
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/13/2017 10:05:41 AM	34383
Toluene	ND	0.048		mg/Kg	1	10/13/2017 10:05:41 AM	34383
Ethylbenzene	ND	0.048		mg/Kg	1	10/13/2017 10:05:41 AM	34383
Xylenes, Total	ND	0.096		mg/Kg	1	10/13/2017 10:05:41 AM	34383
Surr: 4-Bromofluorobenzene	102	66.6-132		%Rec	1	10/13/2017 10:05:41 AM	34383

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710756**

16-Oct-17

Client: Williams Field Services

Project: Caracass CDP Cleanup

Sample ID	**MB-34404**	SampType: **mblk**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID: **34404**			RunNo: **46328**					
Prep Date:	**10/13/2017**	Analysis Date: **10/13/2017**			SeqNo: **1476892**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-34404**	SampType: **lcs**			TestCode: **EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID: **34404**			RunNo: **46328**					
Prep Date:	**10/13/2017**	Analysis Date: **10/13/2017**			SeqNo: **1476893**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710756**

16-Oct-17

Client: Williams Field Services

Project: Caracass CDP Cleanup

Sample ID **LCS-34400**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **34400**	RunNo: **46322**
Prep Date: **10/13/2017**	Analysis Date: **10/13/2017**	SeqNo: **1475537** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	88.3	73.2	114			
Surr: DNOP	4.3		5.000		86.4	70	130			

Sample ID **MB-34400**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **34400**	RunNo: **46322**
Prep Date: **10/13/2017**	Analysis Date: **10/13/2017**	SeqNo: **1475538** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		94.9	70	130			

Sample ID **1710756-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **CAR-W-COMP**	Batch ID: **34400**	RunNo: **46322**
Prep Date: **10/13/2017**	Analysis Date: **10/13/2017**	SeqNo: **1475799** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	9.5	47.35	0	88.1	55.8	122			
Surr: DNOP	4.3		4.735		90.2	70	130			

Sample ID **1710756-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **CAR-W-COMP**	Batch ID: **34400**	RunNo: **46322**
Prep Date: **10/13/2017**	Analysis Date: **10/13/2017**	SeqNo: **1475800** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	9.2	45.83	0	83.7	55.8	122	8.37	20	
Surr: DNOP	4.0		4.583		86.4	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710756**

16-Oct-17

Client: Williams Field Services

Project: Caracass CDP Cleanup

Sample ID	**MB-34383**	SampType: **MBLK**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID: **34383**		RunNo: **46333**					
Prep Date:	**10/12/2017**	Analysis Date: **10/13/2017**		SeqNo: **1476152**		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	950		1000		94.7	54	150			

Sample ID	**LCS-34383**	SampType: **LCS**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID: **34383**		RunNo: **46333**					
Prep Date:	**10/12/2017**	Analysis Date: **10/13/2017**		SeqNo: **1476153**		Units: **mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	30	5.0	25.00	0	119	75.9	131			
Surr: BFB	1100		1000		109	54	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710756**

16-Oct-17

Client: Williams Field Services

Project: Caracass CDP Cleanup

Sample ID **MB-34383**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **34383**	RunNo: **46333**
Prep Date: **10/12/2017**	Analysis Date: **10/13/2017**	SeqNo: **1476175** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		102	66.6	132			

Sample ID **LCS-34383**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **34383**	RunNo: **46333**
Prep Date: **10/12/2017**	Analysis Date: **10/13/2017**	SeqNo: **1476176** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	97.1	80	120			
Toluene	0.97	0.050	1.000	0	97.0	80	120			
Ethylbenzene	1.0	0.050	1.000	0	99.6	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.4	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	66.6	132			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: WILLIAMS FIELD SERVI Work Order Number: 1710756 RcptNo: 1

Received By: Anne Thorne 10/13/2017 7:56:00 AM Anne Thorne
Completed By: Anne Thorne 10/13/2017 8:04:02 AM Anne Thorne
Reviewed By: KT/DDS 10/13/17

Chain of Custody

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

Log In

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

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

Special Handling (if applicable)

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

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ 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: Williams Field Services

Mailing Address: 1775 Arroya Dr. Bloomfield N.M. 87413

Phone #: 505-632-4625

email or Fax#: monica.sandoval@Williams

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time: Same Day
☐ Standard ☒ Rush ~~48-44 results~~

Project Name: Carcass CDP cleanup

Project #: W.O. UW017230686

Project Manager: Monica Sandoval

Sampler: MS

On Ice: ☒ Yes ☐ No

Sample Temperature: .0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1710756	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chlorides	Air Bubbles (Y or N)
10/12/17	1330	soil	CAR-W-COMP	4oz Mesh kits	ICE	-001	X		X									+ + Chlorides	
10/12/17	1400	soil	CAR-B-COMP	4oz	ICE	-002	X		X										

Remarks:

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/12/17	1655	Mike Stehle	Christy Walters	10/12/17	1655
10/12/17	1844	Christy Walters		10/13/17	0756

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.

Ranking Score Determination
Site Name Carracas
Legal (Unit, Sec, Twn, Rng) Unit F, Section 34, Township32N, Range 5W
GPS Coordinates 36.938532, -107.353838

Ranking Score based on NMOCD Guidelines for Remediation of Leaks, Spills, and Releases dated August 13, 1993.

Depth to Ground *- The operator should determine the depth to ground water at each site. The depth to ground water is defined as the vertical distance from the lowermost contaminants to the seasonal high water elevation of the ground water. If the exact depth to ground water is unknown, the ground water depth can be estimated using either local water well information, published regional ground water information, data on file with the New Mexico State Engineer Office or the vertical distance from adjacent ground water or surface water.*

Notes: Distance to well is 6849 meters, depth of water is 950 feet

Depth to Groundwater	<50 feet	50 – 99 feet	>100 feet
Ranking Score (circle one)	20	10	0

Wellhead Protection Area *- The operator should determine the horizontal distance from all water sources including private and domestic water sources. Water sources are defined as wells, springs or other sources of fresh water extraction. Private and domestic water sources are those water sources used by less than five households for domestic or stock purposes.*

Notes: Nearest Water Well is 6849 meters

Wellhead Protection Area	<1000 from a water source; or <200 feet from a private domestic water source	
Ranking Score (circle one)	Yes → 20	No → 0

Distance To Nearest Surface Water Body *- The operator should determine the horizontal distance to all downgradient surface water bodies. Surface water bodies are defined as perennial rivers, streams, creeks, irrigation canals and ditches, lakes, ponds and playas.*

Notes: 871.3 feet to the nearest stream directly west of facility. All other nearby streams greater than 1,000 feet.

Distance to Surface Water Body	<200 horizontal feet	200 – 1,000 horizontal feet	>1,000 horizontal feet
Ranking Score (circle one)	20	10	0

Remediation Action Levels

Ranking Score (Circle One)	**>19**	**10 - 19**	**0 - 9**
Benzene		10 mg/kg	
BTEX (total)		50 mg/kg	
TPH (GRO and DRO)	100 mg/kg	1,000 mg/kg	5,000 mg/kg

Ranking Completed by (print and sign) Monica Sandoval
Date 10/10/2017

Sources:
GPS Conversion Tool
New Mexico Water Rights Reporting System – Water Column/Average Depth to Water Report
New Mexico Oil and Gas Map

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
SJ 02232		RA	1	1	3	20	32N	04W	296509	4094133*	6849	950	800	150
SJ 02711		SJ	3	1	3	11	32N	06W	283293	4096778*	9750	200	120	80
SJ 04225 POD1	SJM1	RA		4	3	23	31N	06W	282900	4084335	9939	320	60	260

Average Depth to Water: **326 feet**

Minimum Depth: **60 feet**

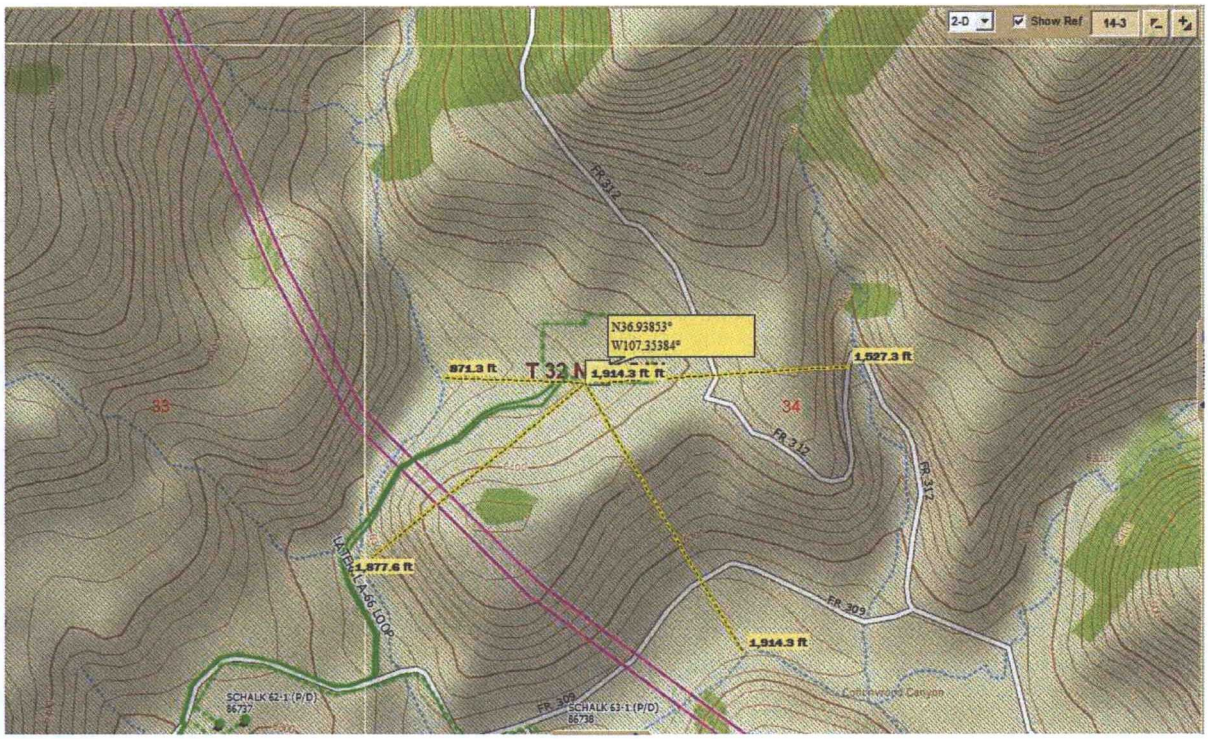
Maximum Depth: **800 feet**

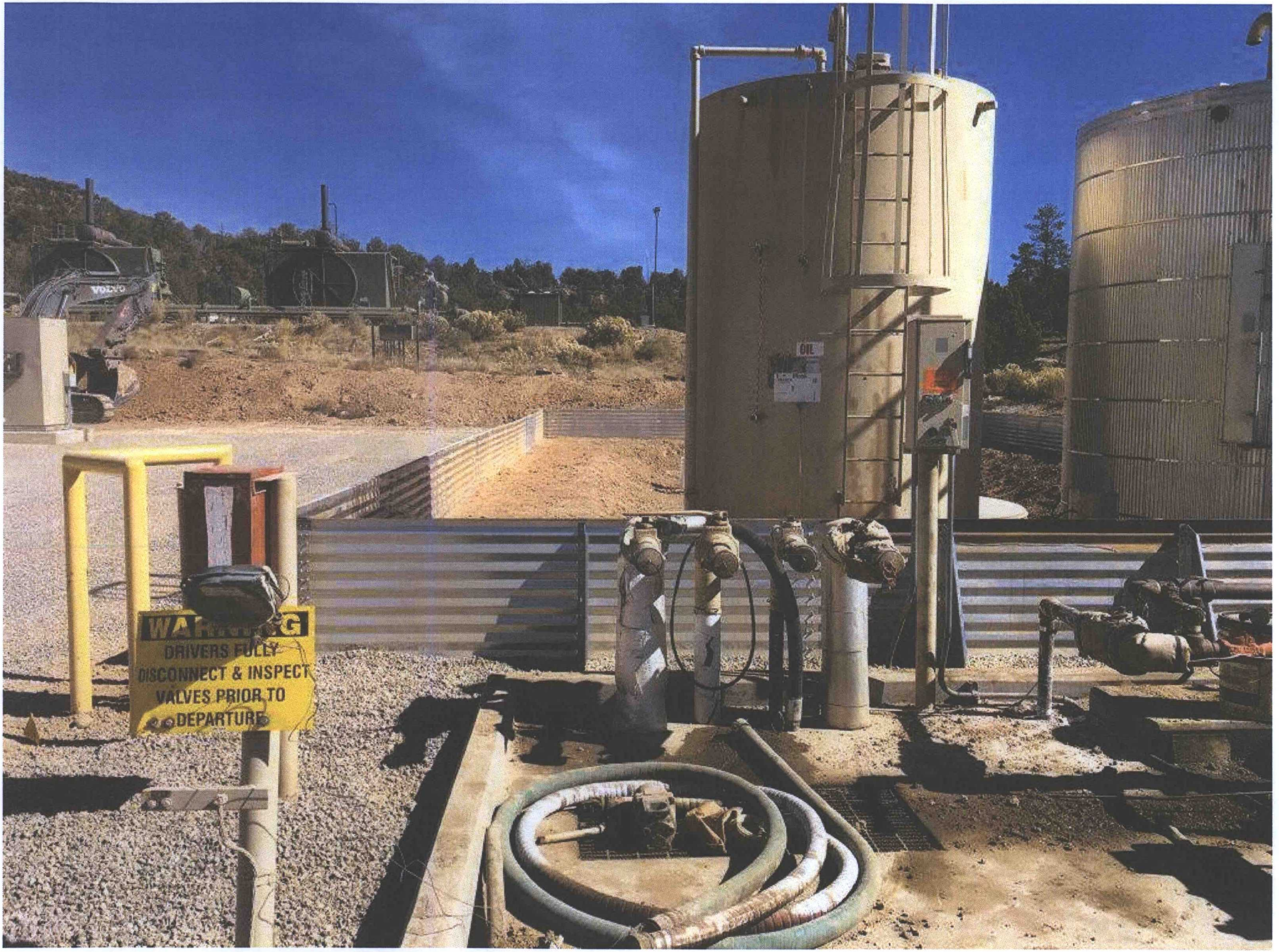
Record Count: 3

UTMNAD83 Radius Search (in meters):

Easting (X): 290724 **Northing (Y):** 4090465 **Radius:** 10000

***UTM location was derived from PLSS - see Help**


2-D
Show Ref
14-3
FR 312
N36.93853°
W107.35384°
971.3 ft
T 32 N
1,914.3 ft ft
1,527.3 ft
33
34
FR 317
FR 317
1,877.6 ft
LATERAL CASA LOOP
FR 309
1,914.3 ft
SCHALK 62-1 (P/D)
86737
FR 309
SCHALK 63-1 (P/D)
86738


OIL
DRIVERS FULLY
DISCONNECT & INSPECT
VALVES PRIOR TO
DEPARTURE

From: Heather Woods
To: Fields, Vanessa, EMNRD
Cc: Sandoval, Monica; Smith, Cory, EMNRD
Subject: [EXTERNAL] RE: Schedule for Sampling at the Williams Carracas CDP
Date: Monday, December 18, 2017 12:04:36 PM
Attachments: 171218 Williams Carracas Boring Location Map.pdf
Rpt_1712530_Final_v1.pdf
171218 Table A Carracas CDP Field Screening and Laboratory Results.pdf

---

Good Afternoon Vanessa,

I apologize. Monica alerted me Friday evening that the results had been sent out on Thursday, but I had not received them. Attached is a copy of the laboratory report along with a Figure illustrating the boring locations and a summary table of the field and laboratory results. The soils encountered generally consisted of red brown clayey sand fill to about 7 feet and was underlain by grey sandy lean clay (weathered shale) to auger refusal on the more competent weathered shale at the bottom of the borings. As you will notice, the sample at SB-3 @ 2.5 feet has a MRO concentration of 3,100 mg/kg. This sample did consist of the clayey sand backfill material and did have a slight odor, but was not stained. The samples above and below it did not have an odor. Please let me know if you have any questions.

Many Thanks,
Heather

From: Fields, Vanessa, EMNRD [mailto:Vanessa.Fields@state.nm.us]
Sent: Monday, December 18, 2017 10:36 AM
To: Heather Woods <hwoods@ruleengineering.com>
Cc: Sandoval, Monica <Monica.Sandoval@Williams.com>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: RE: Schedule for Sampling at the Williams Carracas CDP

Good morning,

Could you please provide the analytical results from the sampling that occurred on the 5th?

Thank you,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Heather Woods [mailto:hwoods@ruleengineering.com]
Sent: Tuesday, December 12, 2017 8:09 AM
To: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Cc: Sandoval, Monica <Monica.Sandoval@Williams.com>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: Re: Schedule for Sampling at the Williams Carracas CDP

Vanessa,

We have not received the lab results. I expect to have them Thursday.

Thanks,
Heather

On Dec 12, 2017, at 7:37 AM, "Fields, Vanessa, EMNRD" <Vanessa.Fields@state.nm.us> wrote:

> Good morning,
>
> Have you received the analytical results from last week's sampling?
>
> Thank you,
>
> Vanessa Fields
> Environmental Specialist
> Oil Conservation Division
> Energy, Minerals, & Natural Resources
> 1000 Rio Brazos, Aztec, NM 87410
> (505)334-6178 ext 119
> Cell: (505) 419-0463
> vanessa.fields@state.nm.us

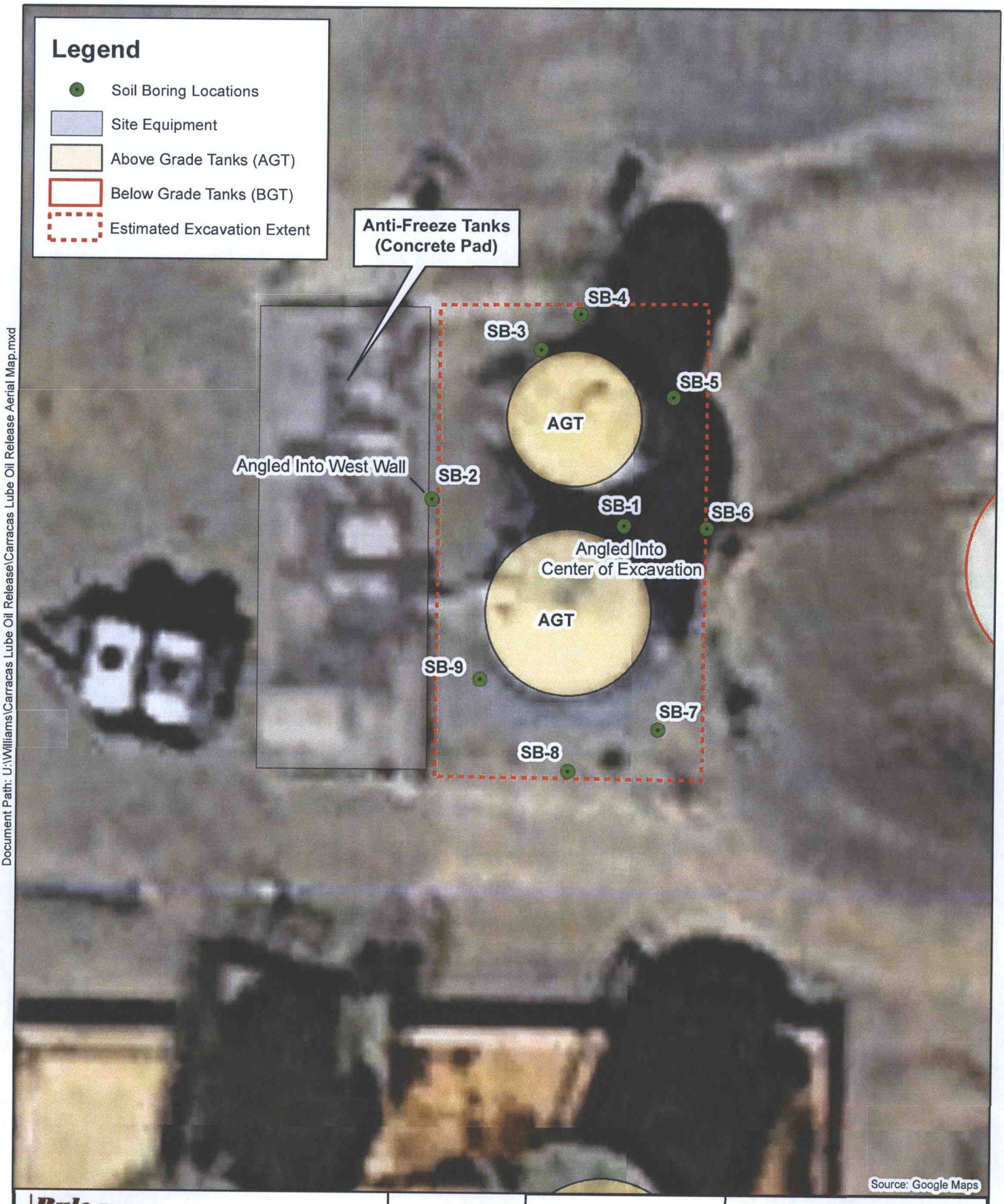
> **From:** Heather Woods [mailto:hwoods@ruleengineering.com]
> **Sent:** Tuesday, November 28, 2017 10:35 AM
> **To:** Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
> **Cc:** Sandoval, Monica <Monica.Sandoval@Williams.com>
> **Subject:** Schedule for Sampling at the Williams Carracas CDP
>
> Good Morning Vanessa,
>
> I would like to notify you that we will be sampling at the Williams Carracas CDP on December 5th, 2017, around 9:00 a.m., and may continue into the next day if needed.

Please let me know if you have any questions.

Many Thanks,
Heather

Heather M. Woods, P.G.

<image001.jpg>
501 Airport Drive, Suite 205
Farmington, NM 87401
Office: **(505) 325-1055**
Fax: **(303) 431-3750**
Cell: **(505) 716-2787**



Document Path: U:\Williams\Carracas Lube Oil Release\Carracas Lube Oil Release Aerial Map.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

0 2.5 5 10 15 20 Feet

1 inch = 10 feet

N

Williams

F-S34-T32N-R05W
N36.93854, W107.35394
Rio Arriba County, NM

Figure A
Soil Boring Location Map
Carracas Lube Oil Release

Table A. Field Screening and Laboratory Analytical Results
Williams Field Services
Carracas CDP
Rio Arriba County, New Mexico

Sample Name	Date	Approximate Sample Depth (ft bgs)	Field Results	Laboratory Results							
			Field VOCs by PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylben-zene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH as GRO (mg/kg)	TPH as DRO (mg/kg)	TPH as MRO (mg/kg)
NMOCD Action Level*			100	10	NE	NE	NE	50		1,000**	
SB-1	12/5/2017	3	0.1	--	--	--	--	--	--	--	--
		4	0.2	--	--	--	--	--	--	--	--
		5	0.2	--	--	--	--	--	--	--	--
		6	0.3	<0.024	<0.048	<0.048	<0.097	ND	<4.8	<9.8	<49
		7	0.2	--	--	--	--	--	--	--	--
		8.5	0.2	--	--	--	--	--	--	--	--
		10	0.0	--	--	--	--	--	--	--	--
		11	0.0	--	--	--	--	--	--	--	--
		12	0.0	<0.24	<0.049	<0.049	<0.097	ND	<4.9	<9.5	<48
SB-2	12/5/2017	1	0.2								
		2	1.4	<0.024	<0.047	<0.047	<0.094	ND	<4.7	<9.4	<47
		3	0.3	--	--	--	--	--	--	--	--
		4	0.2	--	--	--	--	--	--	--	--
		5	0.2	--	--	--	--	--	--	--	--
		6	0.2	<0.023	<0.046	<0.046	<0.092	ND	<4.6	<9.9	<49
SB-3	12/5/2017	1.5	0.2	--	--	--	--	--	--	--	--
		2.5	2.1	<0.024	<0.049	<0.049	<0.097	ND	<4.9	<97	3,100
		3.5	0.2	--	--	--	--	--	--	--	--
		4.5	0.2	--	--	--	--	--	--	--	--
		6	0.2	--	--	--	--	--	--	--	--
		7	0.2	<0.025	<0.049	<0.049	<0.098	ND	<4.9	<9.2	<46
SB-4	12/5/2017	1	0.2	--	--	--	--	--	--	--	--
		2	0.2	--	--	--	--	--	--	--	--
		3	0.2	--	--	--	--	--	--	--	--
		4	0.2	--	--	--	--	--	--	--	--
		5	0.2	<0.024	<0.049	<0.049	<0.097	ND	<4.9	<9.3	<46
		6	0.2	<0.024	<0.049	<0.049	<0.097	ND	<4.9	<9.3	<47

Table A. Field Screening and Laboratory Analytical Results
Williams Field Services
Carracas CDP
Rio Arriba County, New Mexico

Sample Name	Date	Approximate Sample Depth (ft bgs)	Field Results	Laboratory Results							
			Field VOCs by PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylben-zene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH as GRO (mg/kg)	TPH as DRO (mg/kg)	TPH as MRO (mg/kg)
NMOCD Action Level*			100	10	NE	NE	NE	50	1,000**		
SB-5	12/6/2017	2	0.1	--	--	--	--	--	--	--	--
		3	0.1	--	--	--	--	--	--	--	--
		4	0.1	--	--	--	--	--	--	--	--
		5	0.4	<0.024	<0.048	<0.048	<0.097	ND	<4.8	12	<46
		6	0.3	--	--	--	--	--	--	--	--
		7	0.1	<0.024	<0.049	<0.049	<0.098	ND	<4.9	<9.6	<48
		8	0.0	--	--	--	--	--	--	--	--
		9	0.1	<0.023	<0.046	<0.046	<0.92	ND	<4.6	<9.5	<48
SB-6	12/6/2017	1	0.1	--	--	--	--	--	--	--	--
		2	0.1	--	--	--	--	--	--	--	--
		3	0.1	--	--	--	--	--	--	--	--
		4	0.1	--	--	--	--	--	--	--	--
		5	0.1	--	--	--	--	--	--	--	--
		6	0.1	--	--	--	--	--	--	--	--
		7	0.2	<0.023	<0.046	<0.046	<0.092	ND	<4.6	<9.2	<46
		8	0.1	<0.023	<0.046	<0.046	<0.093	ND	<4.6	<9.2	<46
SB-7	12/6/2017	1	0.2	--	--	--	--	--	--	--	--
		2	0.1	--	--	--	--	--	--	--	--
		3	0.1	--	--	--	--	--	--	--	--
		4	0.1	--	--	--	--	--	--	--	--
		5	0.1	--	--	--	--	--	--	--	--
		6	0.1	--	--	--	--	--	--	--	--
		7	0.2	<0.025	<0.050	<0.050	<0.099	ND	<5.0	<9.9	<50
		8	0.1	<0.025	<0.049	<0.049	<0.098	ND	<4.9	<9.7	<49

Table A. Field Screening and Laboratory Analytical Results
Williams Field Services
Carracas CDP
Rio Arriba County, New Mexico

Sample Name	Date	Approximate Sample Depth (ft bgs)	Field Results	Laboratory Results							
			Field VOCs by PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylben-zene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH as GRO (mg/kg)	TPH as DRO (mg/kg)	TPH as MRO (mg/kg)
NMOCD Action Level*			100	10	NE	NE	NE	50	1,000**		
SB-8	12/6/2017	1	0.0	--	--	--	--	--	--	--	--
		2	0.0	--	--	--	--	--	--	--	--
		3	0.0	--	--	--	--	--	--	--	--
		4	1.2	<0.024	<0.048	<0.048	<0.097	ND	<4.8	<9.3	<46
		5	0.5	--	--	--	--	--	--	--	--
		6	0.0	--	--	--	--	--	--	--	--
		7	0.0	<0.024	<0.048	<0.048	<0.096	ND	<4.8	<9.4	<47
		8	0.0	--	--	--	--	--	--	--	--
		8.5	0.0	<0.024	<0.047	<0.047	<0.094	ND	<4.7	<9.4	<47
SB-9	126/2017	1	0.1	--	--	--	--	--	--	--	--
		2	0.2	--	--	--	--	--	--	--	--
		3	0.0	--	--	--	--	--	--	--	--
		4	0.0	--	--	--	--	--	--	--	--
		5	0.0	--	--	--	--	--	--	--	--
		6	0.1	--	--	--	--	--	--	--	--
		7	0.0	<0.024	<0.048	<0.048	<0.096	ND	<4.8	<9.7	<48
		8	0.0	<0.024	<0.048	<0.048	<0.096	ND	<4.8	<9.8	<49

Notes:
VOCs - volatile organic compounds
PID - photoionization detector
ft bgs - feet below grade surface
ppm - parts per million
mg/kg - milligrams per kilogram
NE - not-established
TPH - total petroleum hydrocarbons
GRO - gasoline range organics
DRO - diesel range organics
MRO - mineral oil range organics
NMOCD - New Mexico Oil Conservation Division
*Based on the NMOCD *Guidelines for Remediation of Leaks, Spills and Releases (August 1993)*
**Based on a site ranking of 10.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

December 14, 2017

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205
Farmington, NM 87401
TEL: (505) 325-1055
FAX

RE: Williams Carracas CDP OrderNo.: 1712530

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 20 sample(s) on 12/8/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712530**
Date Reported: **12/14/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-001 **Matrix:**

Client Sample ID: SB-1 @ 6
Collection Date: 12/5/2017 1:37:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/13/2017 1:08:24 PM	35468
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/13/2017 1:08:24 PM	35468
Surr: DNOP	97.0	70-130		%Rec	1	12/13/2017 1:08:24 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/12/2017 7:10:28 PM	35439
Surr: BFB	78.5	15-316		%Rec	1	12/12/2017 7:10:28 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/12/2017 7:10:28 PM	35439
Toluene	ND	0.048		mg/Kg	1	12/12/2017 7:10:28 PM	35439
Ethylbenzene	ND	0.048		mg/Kg	1	12/12/2017 7:10:28 PM	35439
Xylenes, Total	ND	0.097		mg/Kg	1	12/12/2017 7:10:28 PM	35439
Surr: 4-Bromofluorobenzene	98.3	80-120		%Rec	1	12/12/2017 7:10:28 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-002 **Matrix:**

Client Sample ID: SB-1 @ 12
Collection Date: 12/5/2017 1:35:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/13/2017 2:14:37 PM	35468
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/13/2017 2:14:37 PM	35468
Surr: DNOP	105	70-130		%Rec	1	12/13/2017 2:14:37 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/12/2017 7:33:56 PM	35439
Surr: BFB	85.7	15-316		%Rec	1	12/12/2017 7:33:56 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/12/2017 7:33:56 PM	35439
Toluene	ND	0.049		mg/Kg	1	12/12/2017 7:33:56 PM	35439
Ethylbenzene	ND	0.049		mg/Kg	1	12/12/2017 7:33:56 PM	35439
Xylenes, Total	ND	0.097		mg/Kg	1	12/12/2017 7:33:56 PM	35439
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	12/12/2017 7:33:56 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-003 **Matrix:**

Client Sample ID: SB-2 @ 2
Collection Date: 12/5/2017 2:20:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/13/2017 2:36:47 PM	35468
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/13/2017 2:36:47 PM	35468
Surr: DNOP	94.5	70-130		%Rec	1	12/13/2017 2:36:47 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/12/2017 7:57:20 PM	35439
Surr: BFB	84.7	15-316		%Rec	1	12/12/2017 7:57:20 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/12/2017 7:57:20 PM	35439
Toluene	ND	0.047		mg/Kg	1	12/12/2017 7:57:20 PM	35439
Ethylbenzene	ND	0.047		mg/Kg	1	12/12/2017 7:57:20 PM	35439
Xylenes, Total	ND	0.094		mg/Kg	1	12/12/2017 7:57:20 PM	35439
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	12/12/2017 7:57:20 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-004 **Matrix:**

Client Sample ID: SB-2 @ 6
Collection Date: 12/5/2017 2:40:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/13/2017 2:58:47 PM	35468
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/13/2017 2:58:47 PM	35468
Surr: DNOP	94.2	70-130		%Rec	1	12/13/2017 2:58:47 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/12/2017 8:20:44 PM	35439
Surr: BFB	85.8	15-316		%Rec	1	12/12/2017 8:20:44 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	12/12/2017 8:20:44 PM	35439
Toluene	ND	0.046		mg/Kg	1	12/12/2017 8:20:44 PM	35439
Ethylbenzene	ND	0.046		mg/Kg	1	12/12/2017 8:20:44 PM	35439
Xylenes, Total	ND	0.092		mg/Kg	1	12/12/2017 8:20:44 PM	35439
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	12/12/2017 8:20:44 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-005 **Matrix:**

Client Sample ID: SB-3 @ 2.5
Collection Date: 12/5/2017 2:49:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	97		mg/Kg	10	12/13/2017 3:21:00 PM	35468
Motor Oil Range Organics (MRO)	3100	480	D	mg/Kg	10	12/13/2017 3:21:00 PM	35468
Surr: DNOP	0	70-130	S	%Rec	10	12/13/2017 3:21:00 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/12/2017 8:44:06 PM	35439
Surr: BFB	84.0	15-316		%Rec	1	12/12/2017 8:44:06 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/12/2017 8:44:06 PM	35439
Toluene	ND	0.049		mg/Kg	1	12/12/2017 8:44:06 PM	35439
Ethylbenzene	ND	0.049		mg/Kg	1	12/12/2017 8:44:06 PM	35439
Xylenes, Total	ND	0.097		mg/Kg	1	12/12/2017 8:44:06 PM	35439
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	12/12/2017 8:44:06 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-006 **Matrix:**

Client Sample ID: SB-3 @ 7
Collection Date: 12/5/2017 3:05:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	12/13/2017 4:27:12 PM	35468
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/13/2017 4:27:12 PM	35468
Surr: DNOP	97.7	70-130		%Rec	1	12/13/2017 4:27:12 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/12/2017 9:07:28 PM	35439
Surr: BFB	80.1	15-316		%Rec	1	12/12/2017 9:07:28 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	12/12/2017 9:07:28 PM	35439
Toluene	ND	0.049		mg/Kg	1	12/12/2017 9:07:28 PM	35439
Ethylbenzene	ND	0.049		mg/Kg	1	12/12/2017 9:07:28 PM	35439
Xylenes, Total	ND	0.098		mg/Kg	1	12/12/2017 9:07:28 PM	35439
Surr: 4-Bromofluorobenzene	99.3	80-120		%Rec	1	12/12/2017 9:07:28 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-007 **Matrix:**

Client Sample ID: SB-4 @ 5
Collection Date: 12/5/2017 3:55:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/13/2017 4:49:25 PM	35468
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/13/2017 4:49:25 PM	35468
Surr: DNOP	96.1	70-130		%Rec	1	12/13/2017 4:49:25 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/12/2017 9:30:51 PM	35439
Surr: BFB	83.3	15-316		%Rec	1	12/12/2017 9:30:51 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/12/2017 9:30:51 PM	35439
Toluene	ND	0.049		mg/Kg	1	12/12/2017 9:30:51 PM	35439
Ethylbenzene	ND	0.049		mg/Kg	1	12/12/2017 9:30:51 PM	35439
Xylenes, Total	ND	0.097		mg/Kg	1	12/12/2017 9:30:51 PM	35439
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	12/12/2017 9:30:51 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-008 **Matrix:**

Client Sample ID: SB-4 @ 6
Collection Date: 12/5/2017 4:00:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/13/2017 5:11:30 PM	35468
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/13/2017 5:11:30 PM	35468
Surr: DNOP	97.8	70-130		%Rec	1	12/13/2017 5:11:30 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/12/2017 9:54:10 PM	35439
Surr: BFB	82.3	15-316		%Rec	1	12/12/2017 9:54:10 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/12/2017 9:54:10 PM	35439
Toluene	ND	0.049		mg/Kg	1	12/12/2017 9:54:10 PM	35439
Ethylbenzene	ND	0.049		mg/Kg	1	12/12/2017 9:54:10 PM	35439
Xylenes, Total	ND	0.097		mg/Kg	1	12/12/2017 9:54:10 PM	35439
Surr: 4-Bromofluorobenzene	99.0	80-120		%Rec	1	12/12/2017 9:54:10 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-009 **Matrix:**

Client Sample ID: SB-5 @ 5
Collection Date: 12/6/2017 10:50:00 AM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	12	9.1		mg/Kg	1	12/13/2017 5:33:35 PM	35468
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/13/2017 5:33:35 PM	35468
Surr: DNOP	97.2	70-130		%Rec	1	12/13/2017 5:33:35 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/12/2017 10:17:31 PM	35439
Surr: BFB	80.2	15-316		%Rec	1	12/12/2017 10:17:31 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/12/2017 10:17:31 PM	35439
Toluene	ND	0.048		mg/Kg	1	12/12/2017 10:17:31 PM	35439
Ethylbenzene	ND	0.048		mg/Kg	1	12/12/2017 10:17:31 PM	35439
Xylenes, Total	ND	0.097		mg/Kg	1	12/12/2017 10:17:31 PM	35439
Surr: 4-Bromofluorobenzene	98.9	80-120		%Rec	1	12/12/2017 10:17:31 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-010 **Matrix:**

Client Sample ID: SB-5 @ 7
Collection Date: 12/6/2017 11:00:00 AM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/13/2017 5:55:37 PM	35468
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/13/2017 5:55:37 PM	35468
Surr: DNOP	97.4	70-130		%Rec	1	12/13/2017 5:55:37 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/12/2017 10:40:54 PM	35439
Surr: BFB	82.9	15-316		%Rec	1	12/12/2017 10:40:54 PM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/12/2017 10:40:54 PM	35439
Toluene	ND	0.049		mg/Kg	1	12/12/2017 10:40:54 PM	35439
Ethylbenzene	ND	0.049		mg/Kg	1	12/12/2017 10:40:54 PM	35439
Xylenes, Total	ND	0.098		mg/Kg	1	12/12/2017 10:40:54 PM	35439
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	12/12/2017 10:40:54 PM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-011 **Matrix:**

Client Sample ID: SB-5 @ 9
Collection Date: 12/6/2017 11:10:00 AM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/13/2017 6:17:41 PM	35468
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/13/2017 6:17:41 PM	35468
Surr: DNOP	101	70-130		%Rec	1	12/13/2017 6:17:41 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/13/2017 12:14:06 AM	35439
Surr: BFB	81.3	15-316		%Rec	1	12/13/2017 12:14:06 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	12/13/2017 12:14:06 AM	35439
Toluene	ND	0.046		mg/Kg	1	12/13/2017 12:14:06 AM	35439
Ethylbenzene	ND	0.046		mg/Kg	1	12/13/2017 12:14:06 AM	35439
Xylenes, Total	ND	0.092		mg/Kg	1	12/13/2017 12:14:06 AM	35439
Surr: 4-Bromofluorobenzene	97.5	80-120		%Rec	1	12/13/2017 12:14:06 AM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-012 **Matrix:**

Client Sample ID: SB-6 @ 7
Collection Date: 12/6/2017 11:29:00 AM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	12/13/2017 6:39:34 PM	35468
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/13/2017 6:39:34 PM	35468
Surr: DNOP	99.7	70-130		%Rec	1	12/13/2017 6:39:34 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/13/2017 12:37:23 AM	35439
Surr: BFB	79.7	15-316		%Rec	1	12/13/2017 12:37:23 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	12/13/2017 12:37:23 AM	35439
Toluene	ND	0.046		mg/Kg	1	12/13/2017 12:37:23 AM	35439
Ethylbenzene	ND	0.046		mg/Kg	1	12/13/2017 12:37:23 AM	35439
Xylenes, Total	ND	0.092		mg/Kg	1	12/13/2017 12:37:23 AM	35439
Surr: 4-Bromofluorobenzene	98.3	80-120		%Rec	1	12/13/2017 12:37:23 AM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-013 **Matrix:**

Client Sample ID: SB-6 @ 8
Collection Date: 12/6/2017 11:34:00 AM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	12/13/2017 7:01:36 PM	35468
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/13/2017 7:01:36 PM	35468
Surr: DNOP	100	70-130		%Rec	1	12/13/2017 7:01:36 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/13/2017 1:00:33 AM	35439
Surr: BFB	80.1	15-316		%Rec	1	12/13/2017 1:00:33 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	12/13/2017 1:00:33 AM	35439
Toluene	ND	0.046		mg/Kg	1	12/13/2017 1:00:33 AM	35439
Ethylbenzene	ND	0.046		mg/Kg	1	12/13/2017 1:00:33 AM	35439
Xylenes, Total	ND	0.093		mg/Kg	1	12/13/2017 1:00:33 AM	35439
Surr: 4-Bromofluorobenzene	96.7	80-120		%Rec	1	12/13/2017 1:00:33 AM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-014 **Matrix:**

Client Sample ID: SB-7 @ 7
Collection Date: 12/6/2017 12:06:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/13/2017 7:23:33 PM	35468
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/13/2017 7:23:33 PM	35468
Surr: DNOP	97.9	70-130		%Rec	1	12/13/2017 7:23:33 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/13/2017 1:23:46 AM	35439
Surr: BFB	81.6	15-316		%Rec	1	12/13/2017 1:23:46 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	12/13/2017 1:23:46 AM	35439
Toluene	ND	0.050		mg/Kg	1	12/13/2017 1:23:46 AM	35439
Ethylbenzene	ND	0.050		mg/Kg	1	12/13/2017 1:23:46 AM	35439
Xylenes, Total	ND	0.099		mg/Kg	1	12/13/2017 1:23:46 AM	35439
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	12/13/2017 1:23:46 AM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-015 **Matrix:**

Client Sample ID: SB-7 @ 8
Collection Date: 12/6/2017 12:11:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/13/2017 7:45:32 PM	35468
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/13/2017 7:45:32 PM	35468
Surr: DNOP	98.5	70-130		%Rec	1	12/13/2017 7:45:32 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/13/2017 1:46:59 AM	35439
Surr: BFB	77.9	15-316		%Rec	1	12/13/2017 1:46:59 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	12/13/2017 1:46:59 AM	35439
Toluene	ND	0.049		mg/Kg	1	12/13/2017 1:46:59 AM	35439
Ethylbenzene	ND	0.049		mg/Kg	1	12/13/2017 1:46:59 AM	35439
Xylenes, Total	ND	0.098		mg/Kg	1	12/13/2017 1:46:59 AM	35439
Surr: 4-Bromofluorobenzene	96.7	80-120		%Rec	1	12/13/2017 1:46:59 AM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-016 **Matrix:**

Client Sample ID: SB-8 @ 4
Collection Date: 12/6/2017 12:23:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/13/2017 8:07:32 PM	35468
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/13/2017 8:07:32 PM	35468
Surr: DNOP	96.7	70-130		%Rec	1	12/13/2017 8:07:32 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/13/2017 2:10:09 AM	35439
Surr: BFB	78.2	15-316		%Rec	1	12/13/2017 2:10:09 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/13/2017 2:10:09 AM	35439
Toluene	ND	0.048		mg/Kg	1	12/13/2017 2:10:09 AM	35439
Ethylbenzene	ND	0.048		mg/Kg	1	12/13/2017 2:10:09 AM	35439
Xylenes, Total	ND	0.097		mg/Kg	1	12/13/2017 2:10:09 AM	35439
Surr: 4-Bromofluorobenzene	94.9	80-120		%Rec	1	12/13/2017 2:10:09 AM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-017 **Matrix:**

Client Sample ID: SB-8 @ 7
Collection Date: 12/6/2017 12:37:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/13/2017 8:29:33 PM	35468
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/13/2017 8:29:33 PM	35468
Surr: DNOP	98.9	70-130		%Rec	1	12/13/2017 8:29:33 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/13/2017 2:33:13 AM	35439
Surr: BFB	84.2	15-316		%Rec	1	12/13/2017 2:33:13 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/13/2017 2:33:13 AM	35439
Toluene	ND	0.048		mg/Kg	1	12/13/2017 2:33:13 AM	35439
Ethylbenzene	ND	0.048		mg/Kg	1	12/13/2017 2:33:13 AM	35439
Xylenes, Total	ND	0.096		mg/Kg	1	12/13/2017 2:33:13 AM	35439
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	12/13/2017 2:33:13 AM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-018 **Matrix:**

Client Sample ID: SB-8 @ 8.5
Collection Date: 12/6/2017 12:47:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/13/2017 8:51:23 PM	35468
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/13/2017 8:51:23 PM	35468
Surr: DNOP	96.7	70-130		%Rec	1	12/13/2017 8:51:23 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/13/2017 2:56:16 AM	35439
Surr: BFB	80.1	15-316		%Rec	1	12/13/2017 2:56:16 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/13/2017 2:56:16 AM	35439
Toluene	ND	0.047		mg/Kg	1	12/13/2017 2:56:16 AM	35439
Ethylbenzene	ND	0.047		mg/Kg	1	12/13/2017 2:56:16 AM	35439
Xylenes, Total	ND	0.094		mg/Kg	1	12/13/2017 2:56:16 AM	35439
Surr: 4-Bromofluorobenzene	97.5	80-120		%Rec	1	12/13/2017 2:56:16 AM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-019 **Matrix:**

Client Sample ID: SB-9 @ 7
Collection Date: 12/6/2017 1:17:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/13/2017 9:13:21 PM	35468
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/13/2017 9:13:21 PM	35468
Surr: DNOP	93.8	70-130		%Rec	1	12/13/2017 9:13:21 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/13/2017 3:19:16 AM	35439
Surr: BFB	77.3	15-316		%Rec	1	12/13/2017 3:19:16 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/13/2017 3:19:16 AM	35439
Toluene	ND	0.048		mg/Kg	1	12/13/2017 3:19:16 AM	35439
Ethylbenzene	ND	0.048		mg/Kg	1	12/13/2017 3:19:16 AM	35439
Xylenes, Total	ND	0.096		mg/Kg	1	12/13/2017 3:19:16 AM	35439
Surr: 4-Bromofluorobenzene	98.2	80-120		%Rec	1	12/13/2017 3:19:16 AM	35439

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: Williams Carracas CDP
Lab ID: 1712530-020 **Matrix:**

Client Sample ID: SB-9 @ 8
Collection Date: 12/6/2017 1:22:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/13/2017 9:35:26 PM	35468
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/13/2017 9:35:26 PM	35468
Surr: DNOP	95.2	70-130		%Rec	1	12/13/2017 9:35:26 PM	35468
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/13/2017 3:42:17 AM	35439
Surr: BFB	79.4	15-316		%Rec	1	12/13/2017 3:42:17 AM	35439
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/13/2017 3:42:17 AM	35439
Toluene	ND	0.048		mg/Kg	1	12/13/2017 3:42:17 AM	35439
Ethylbenzene	ND	0.048		mg/Kg	1	12/13/2017 3:42:17 AM	35439
Xylenes, Total	ND	0.096		mg/Kg	1	12/13/2017 3:42:17 AM	35439
Surr: 4-Bromofluorobenzene	99.2	80-120		%Rec	1	12/13/2017 3:42:17 AM	35439

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712530**

14-Dec-17

Client: Rule Engineering LLC
Project: Williams Carracas CDP

Sample ID	LCS-35476	SampType:	LCS		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	LCSS	Batch ID:	35476		RunNo:	47737				
Prep Date:	12/13/2017	Analysis Date:	12/13/2017		SeqNo:	1526304	Units:	%Rec		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		89.2	70	130			

Sample ID	MB-35476	SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	PBS	Batch ID:	35476		RunNo:	47737				
Prep Date:	12/13/2017	Analysis Date:	12/13/2017		SeqNo:	1526305	Units:	%Rec		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.6		10.00		96.0	70	130			

Sample ID	1712530-001AMS	SampType:	MS		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	SB-1 @ 6	Batch ID:	35468		RunNo:	47737				
Prep Date:	12/12/2017	Analysis Date:	12/13/2017		SeqNo:	1526761	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.2	45.83	6.423	88.1	55.8	125			
Surr: DNOP	4.4		4.583		96.4	70	130			

Sample ID	1712530-001AMSD	SampType:	MSD		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	SB-1 @ 6	Batch ID:	35468		RunNo:	47737				
Prep Date:	12/12/2017	Analysis Date:	12/13/2017		SeqNo:	1526762	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	9.6	48.03	6.423	91.5	55.8	125	7.35	20	
Surr: DNOP	4.6		4.803		95.7	70	130	0	0	

Sample ID	LCS-35468	SampType:	LCS		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	LCSS	Batch ID:	35468		RunNo:	47737				
Prep Date:	12/12/2017	Analysis Date:	12/13/2017		SeqNo:	1526766	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	95.0	73.2	114			
Surr: DNOP	4.6		5.000		92.8	70	130			

Sample ID	MB-35468	SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	PBS	Batch ID:	35468		RunNo:	47737				
Prep Date:	12/12/2017	Analysis Date:	12/13/2017		SeqNo:	1526767	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712530**

14-Dec-17

Client: Rule Engineering LLC

Project: Williams Carracas CDP

Sample ID	**MB-35468**	SampType: **MBLK**		TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID: **35468**		RunNo: **47737**					
Prep Date:	**12/12/2017**	Analysis Date: **12/13/2017**		SeqNo: **1526767**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.1		10.00		91.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712530**

14-Dec-17

Client: Rule Engineering LLC

Project: Williams Carracas CDP

Sample ID **MB-35439**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35439**	RunNo: **47704**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525337** 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	800		1000		79.9	15	316			

Sample ID **LCS-35439**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35439**	RunNo: **47704**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525338** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	110	75.9	131			
Surr: BFB	990		1000		99.3	15	316			

Sample ID **1712530-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SB-1 @ 12**	Batch ID: **35439**	RunNo: **47704**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525341** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	4.8	23.83	0	118	77.8	128			
Surr: BFB	920		953.3		96.5	15	316			

Sample ID **1712530-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SB-1 @ 12**	Batch ID: **35439**	RunNo: **47704**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525342** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.6	23.00	0	116	77.8	128	5.95	20	
Surr: BFB	850		920.0		92.6	15	316	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712530**

14-Dec-17

Client: Rule Engineering LLC

Project: Williams Carracas CDP

Sample ID **MB-35439**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35439**	RunNo: **47704**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525370** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		99.1	80	120			

Sample ID **LCS-35439**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35439**	RunNo: **47704**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525371** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	96.5	77.3	128			
Toluene	0.97	0.050	1.000	0	97.5	79.2	125			
Ethylbenzene	0.98	0.050	1.000	0	97.9	80.7	127			
Xylenes, Total	3.0	0.10	3.000	0	98.9	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120			

Sample ID **1712530-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SB-1 @ 6**	Batch ID: **35439**	RunNo: **47704**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525373** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.024	0.9794	0	89.7	80.9	132			
Toluene	0.90	0.049	0.9794	0	92.1	79.8	136			
Ethylbenzene	0.89	0.049	0.9794	0	91.2	79.4	140			
Xylenes, Total	2.7	0.098	2.938	0	93.5	78.5	142			
Surr: 4-Bromofluorobenzene	0.99		0.9794		101	80	120			

Sample ID **1712530-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SB-1 @ 6**	Batch ID: **35439**	RunNo: **47704**
Prep Date: **12/11/2017**	Analysis Date: **12/12/2017**	SeqNo: **1525374** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	0.9852	0	90.4	80.9	132	1.41	20	
Toluene	0.92	0.049	0.9852	0	93.1	79.8	136	1.72	20	
Ethylbenzene	0.92	0.049	0.9852	0	93.6	79.4	140	3.13	20	
Xylenes, Total	2.8	0.099	2.956	0	95.3	78.5	142	2.42	20	
Surr: 4-Bromofluorobenzene	1.0		0.9852		103	80	120	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 1712530 RcptNo: 1

Received By: Anne Thorne 12/8/2017 7:55:00 AM Anne Thorne
Completed By: Anne Thorne 12/11/2017 8:48:04 AM Anne Thorne
Reviewed By: IMD 12/11/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# 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	1.0	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering, LLC

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

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

QA/QC Package: Monica.Sandoval.williams.com

☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Williams Carracas CDP

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods / Justin Valdez

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. 1717530	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
2/5/17	1337	Soil	SB-1@6	(1) 4oz Glass	Non	-001	X		X													
2/5/17	1335	Soil	SB-1@12			-002	X		X													
2/5/17	1420	Soil	SB-2@2			-003	X		X													
2/5/17	1440	Soil	SB-2@6			-004	X		X													
2/5/17	1449	Soil	SB-3@2.5			-005	X		X													
12/5/17	1505	Soil	SB-3@7			-006	X		X													
12/5/17	1555	Soil	SB-4@5			-007	X		X													
2/5/17	1600	Soil	SB-4@6			-008	X		X													
12/6/17	1050	Soil	SB-5@5			-009	X		X													
12/6/17	1100	Soil	SB-5@7			-010	X		X													
12/6/17	1110	Soil	SB-5@9			-011	X		X													
12/4/17	1129	Soil	SB-6@7			-012	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
12/7/17	1930	Heather M. Woods		12/7/17	1930	Direct Bill to Williams
12/7/17	2003			12/08/17	0755	Page 1 of 2

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.

Chain-of-Custody Record

Client: Rule Engineering, LLC

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

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

QA/QC Package: monica.sandoval@williams.com
☑ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name: Williams Carracas CDP

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods / Justin Valdez

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
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Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1712530	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
2/6/17	1134	Soil	SB-6@8	(1) 4oz Glass	Non	013	X		X													
2/6/17	1206	Soil	SB-7@7			014	X		X													
2/6/17	1211	Soil	SB-7@8			015	X		X													
2/6/17	1223	Soil	SB-8@4			016	X		X													
12/6/17	1237	Soil	SB-8@7			017	X		X													
2/6/17	1247	Soil	SB-8@8.5			018	X		X													
2/6/17	1317	Soil	SB-9@7			019	X		X													
2/6/17	1322	Soil	SB-9@8			020	X		X													

Date	Time	Relinquished by	Received by	Date	Time
12/7/17	1930	Heather M. Woods		12/7/17	1930
12/7/17	2007			12/8/17	0755

Remarks: Direct Bill to Williams