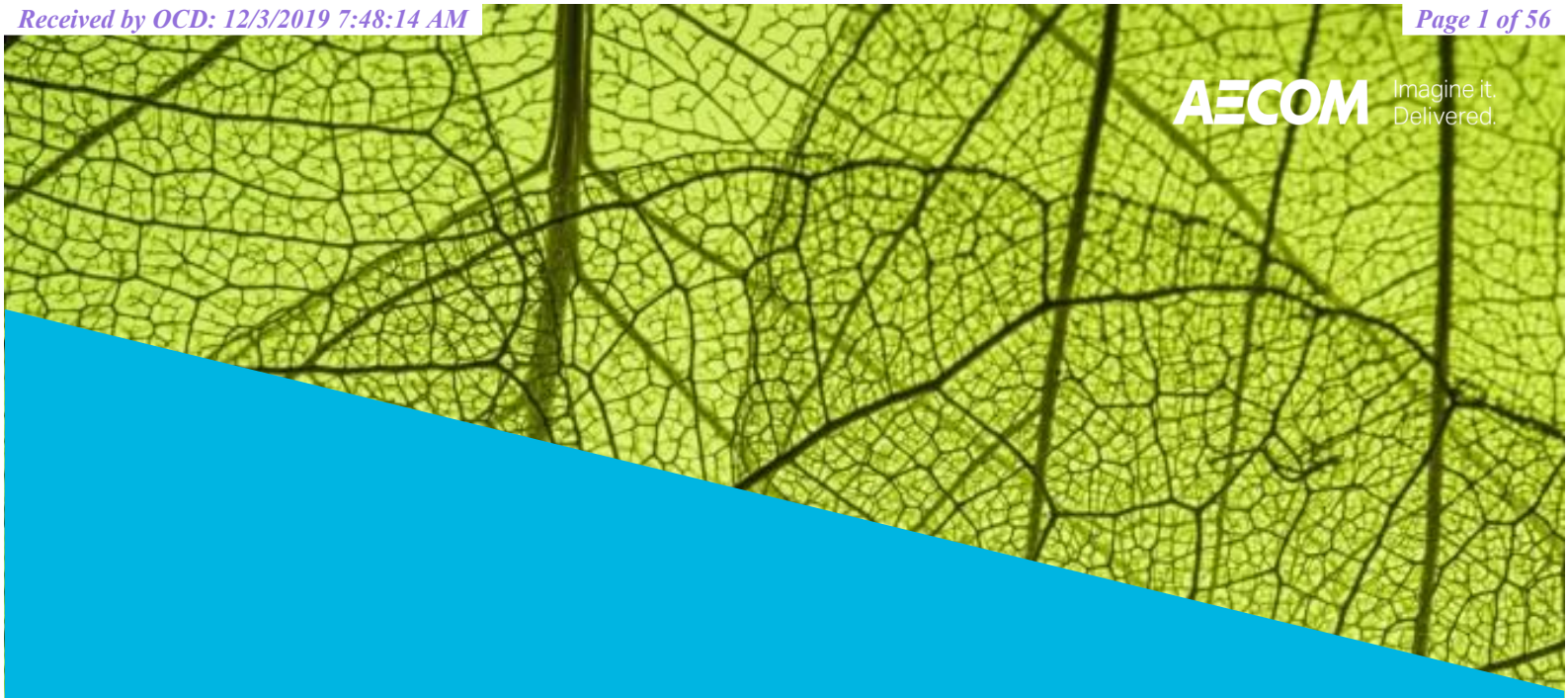

AECOM Imagine it. Delivered.

Initial Site Assessment/Characterization Report

Central Vacuum Unit Header 3 Trunkline New Mexico Oil Conservation Division (NMOCD) District RP #1RP-5706

Prepared For:
Chevron Mid-Continent Business Unit (MCBU)

Prepared By:
AECOM
19219 Katy Freeway, Suite 100
Houston, Texas 77094

November 2019

9WQYW-191203-C-1410

Initial Site Assessment/Characterization Report

Central Vacuum Unit Header 3 Trunkline Produced Water Spill Site
Lea County, New Mexico
NMOCD RP #1RP-5706

Chevron Mid-Continent Business Unit (MCBU)

November 2019
AECOM Project No. 60615071

Prepared by: Wally Gilmore, P.G.
Senior Project Manager

Reviewed by: Peter Hicks
Team Leader

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Tables

Appendices

1. Executive Summary

Central Vacuum Unit Header 3 Trunkline, Lea County, NM, 1RP-5706

Site Background		
Release Description: On August 30, 2019, approximately 106 barrels (bbls) of produced water with a dissolved chloride concentration less than 10,000 milligrams per liter (mg/L) were released at the Site due to internal corrosion of an injection line.	**Release Response:** Stopped the release at source, secured the impacted area to prevent impact to protect human health and the environment, contained the release, and recovered approximately 80 bbls of produced water.	**Current and Planned Future Land Use:** The CVU Battery site is immediately adjacent to the north. The Site and surrounding area are used for oil and gas exploration, development and production (E&P), and livestock grazing. Future land use is expected to be the same as the current use.

Summary of Sensitive Receptor Survey

Depth to Groundwater: Based on an online Water Column/Average Depth to Water Report from the New Mexico Water Rights Reporting System (NMWRRS) for wells located within 1,000 meters of the Site, the shallowest potential depth to groundwater beneath the Site is 60 feet below ground surface (ft bgs) and the average depth to groundwater is 105 ft bgs. NMOCD may require a soil boring to verify depth to groundwater is below 50 ft bgs since there are no readily available records for water wells that are located within ½-mile of the Site and no more than 25 years old.

Sensitive Receptors Survey Results:

- There are nine known water wells within ½ mile of the Site. The closest water well identified in the online NMWRRS report is a well drilled by Darrell Crass Drilling Co. in February 2019 and perforated from 130 to 210 and 230 to 250 ft bgs at a location approximately 0.24-miles east of the Site. The initial use and current status of this water well is currently unknown.
- No continuously flowing watercourses, known springs, or wells used for domestic or stock watering purposes were identified within ½ mile of the Site.
- The Site is not located within 200 ft of any lakebed, known sinkhole, or playa lake.
- No occupied permanent residence, school, hospital, institution, church, incorporated municipal boundaries or defined municipal fresh water well fields are located within 10 miles of the Site.
- No wetlands are present within 300 feet of the Site.
- No subsurface mines are located beneath the Site, no karst geology features or other unstable areas are known to be located near the Site, and the Site is not located within a 100-year floodplain.

Operations near the Site are for oil and gas exploration, development, production, or storage only, and no impact to areas that are not on an exploration, development, production, or storage site are expected.

Constituent	19.15.29.12 NMAC Table I Regulatory Limits (GW>50 feet) (mg/kg)	19.15.29.13.D.(1) NMAC Reclamation Standard (mg/kg)	Maximum Concentration Detected (mg/kg)
Chloride	**10,000**	**600**	
TPH	**2,500**		
BTEX	**50**		
Benzene	**10**		

Soil Assessment Results Discussion

Soil Sample Results Comparison to 19.15.29.12 NMAC Table I Regulatory Limits:

- The regulatory limits in Table I above are associated with protection of sensitive receptors, which are primarily water resources for this Site. None of the constituent concentrations reported for the shallow soil samples exceed the regulatory limits shown above in Table I for sites where groundwater is deeper than 50 ft bgs.
- A soil boring will be advanced to 51 ft bgs to verify depth to groundwater is greater than 50 ft bgs at the CVU Battery site immediately adjacent to the north. The observations for that boring will be reported in the future *Site Assessment Report/Remediation Plan* that will be prepared for the Site.

Soil Sample Results Comparison to 19.15.29.13.D.(1) NMAC Reclamation Standard of 600 mg/kg Chloride:

- The soil analytical results for the Site were also compared to the chloride regulatory limit of 600 milligrams per kilogram (mg/kg) specified for the upper four feet of soil under 19.15.29.13.D.(1) NMAC for RESTORATION, RECLAMATION AND RE-VEGETATION. A chloride concentration of 751 milligrams per kilogram (mg/kg) was reported for boring CVUH3-1 (0-1 ft bgs). Chloride concentrations reported for boring CVUH3-5 were 822 mg/kg and 1,020 mg/kg at 1-2 ft bgs and 2-3 ft bgs, respectively.
- Proposed additional soil assessment activities include drilling and sampling of four additional borings. Borings CVUH3-2 and CVUH3-3 will be re-drilled since those borings could only be drilled to one ft bgs. In addition, horizontal delineation borings will be drilled north of CVUH3-1 and south of CVUH3-5. The borings will be drilled to a total depth of five ft bgs using a combination of hand auger and air rotary drilling methods as appropriate for sample collection and Chevron safety requirements. Soil samples will be collected at one ft depth intervals from ground surface to total depth for laboratory analysis of chloride.

Path Forward Recommendations

Complete additional soil assessment and provide the findings to the NMOCD in a *Site Assessment Report/Remediation Plan*.

2. Introduction

On behalf of Chevron Mid-Continent Business Unit (MCBU), AECOM Technical Services, Inc. (AECOM) has prepared this Initial Assessment/Characterization Report to describe the initial assessment activities that have been conducted to characterize potential impacts to environmental media (soil and groundwater) resulting from a produced water spill that occurred at the Central Vacuum Unit (CVU) Header 3 Trunkline site in Lea County, New Mexico ("the Site").

3. Background

The Site is located at Latitude 32.793125° North, Longitude 103.504785° West in Lea County, New Mexico (**Figure 1**).

On August 30, 2019, approximately 106 barrels (bbls) of produced water with a dissolved chloride concentration less than 10,000 milligrams per liter (mg/L) were released at the Site due to internal corrosion of an injection line. Approximately 80 bbls of produced water were reported to have been recovered. As required by the New Mexico Oil Conservation Division (NMOCD) under 19.15.29 New Mexico Administrative Code (NMAC), Chevron's initial response to the release included:

- Stopping the release at the source;
- Securing the impacted soil area to protect human health and the environment;
- Containing the released produced water and crude oil; and
- Recovering approximately 80 bbls of produced water.

A Release Notification, Form C-141, dated September 12, 2019, was submitted to the NMOCD. The Form C-141 documents the responsible party, location of the release source, nature and volume of the release, and initial response to the release. NMOCD assigned District RP #1RP-5706 to the release. An updated Form C-141 is provided as **Appendix A**.

4. Initial Site Assessment/Characterization

The findings from an initial desktop assessment/characterization of the Site are summarized below.

- The Site is situated within the Vacuum Oil Field, approximately nine miles northeast of the Mescalero Ridge, which forms the western edge of the Llano Estacado. The Llano Estacado is a vast plateau in Southeastern New Mexico and West Texas that is capped by erosion-resistant caliche, which is typically referred to as the Caprock.
- Based on an online Water Column/Average Depth to Water Report from the New Mexico Water Rights Reporting System (NMWRRS) for wells located within 1,000 meters (about 3,281 feet) of the Site, the shallowest potential depth to groundwater beneath the site is 60 ft below ground surface (ft bgs) and the average depth to groundwater is 105 feet bgs. A copy of the *Water Column/Average Depth to Water* Report is provided as Appendix B.
- The underlying soils at the Site are comprised of gravelly loam and loam down to 10 inches, and caliche from 10-80 inches. Soil sampling has been initiated to characterize potential chloride and petroleum hydrocarbon impacts to the Site.
- There are no continuously flowing watercourses or other significant watercourses within ½ mile of the Site.

- The Site is not located within 200 ft of any lakebed, known sinkhole, or playa lake.
- The nearest occupied permanent residence, school, hospital, institution, or church is greater than 10 miles from the Site.
- There are no known springs or wells used for domestic or stock watering purposes within ½ mile of the Site.
- There are nine known water wells within ½ mile of the Site. The closest water well identified in the online NMWRRS report is a well drilled by Darrell Crass Drilling Co. in February 2019 and perforated from 130 to 210 and 230 to 250 ft bgs at a location approximately 0.24-miles east of the Site. The initial use and current status of this water well is currently unknown.
- No incorporated municipal boundaries or defined municipal fresh water well fields are located within 12 miles of the Site, which is the approximate distance from the Site to Lovington, NM northeast of the Site.
- No wetlands are present within 300 feet of the Site. A review of the online U.S. Fish & Wildlife Wetlands Mapper tool indicates the presence of a 6.26-acre palustrine, unconsolidated bottom, semi permanently flooded (PUBF) wetland area approximately 0.17 miles east of the Site.
- No subsurface mines are located beneath the Site.
- No karst geology features or other unstable areas are known to be located near the Site.
- A 100-year floodplain was not identified within 10 miles of the site.
- Operations near the Site are for oil and gas exploration, development, production, or storage only, and no impact to areas that are not on an exploration, development, production, or storage site are expected. The CVU Battery site is immediately adjacent to the north.

In summary, no sensitive environmental and/or ecological receptors were identified within the search criteria distances described in 19.15.29.11 and 19.15.29.12.C.(4) NMAC. **Figure 1** shows the Site and surrounding area on a topographic map. Based on information obtained during the initial desktop assessment/characterization and the volume of produced water released and recovered, no impact to groundwater, surface water, springs, or other sources of fresh water is suspected.

5. Initial Soil Assessment

On October 24, 2019, initial soil assessment activities were conducted at the Site, which included collection of soil samples from five hand auger boring locations (CVUH3-1 through CVUH3-5) as shown on **Figure 2**. Hand auger boring CVUH3-3 was drilled in a topographically low area in the immediate spill location, just outside of an area where standing water was observed at the time of sampling. The remaining borings were drilled at locations outside the release area for horizontal delineation purposes. Site photographs are provided **in Appendix C**.

In each of the hand auger borings, brown silty clay with some sand was encountered from the ground surface to the total depths of the borings at one to three ft bgs. Borings were terminated due to auger refusal in apparent hard caliche material. Soil samples were collected from each of the borings and field-screened for petroleum hydrocarbons using a photoionization detector (PID) to measure volatile organic vapor concentrations. A Summary of Field Sample Collection and Screening Activities is provided as **Appendix D**.

The soil samples were transferred into clean, laboratory-provided sample containers, labeled and placed on ice in laboratory-provided coolers. Chain of Custody forms were completed, and the samples were shipped to the ALS Laboratory in Houston, Texas for analysis of benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8260C, total petroleum hydrocarbons (TPH) by EPA Method 8015M and chloride by EPA Method 9056A.The laboratory results are summarized in **Table 1** and the laboratory analytical report is provided as **Appendix E**.

At the conclusion of drilling and soil sampling activities, the soil borings were backfilled with bentonite chips. Investigation derived waste (IDW) (including soil cuttings, disposable sampling equipment and disposable personal protective equipment (PPE) such as nitrile gloves) was placed in a 55-gallon drum currently stored at the Chevron Central Vacuum Unit #084 site pending characterization and offsite disposal.

5.1 Initial Soil Sampling Results

The soil analytical results were initially compared to *Table I, Closure Criteria for Soils Impacted by a Release* provided in 19.15.29.12 NMAC, which includes the following:

Table I
Closure Criteria for Soils Impacted by a Release

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/L TDS	Constituent	Limit
≤ 50 feet bgs	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
51 feet – 100 feet bgs	Chloride	10,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg

The regulatory limits in Table I above are associated with protection of sensitive receptors, which are primarily water resources for this Site. None of the constituent of concern (COC) concentrations reported by the laboratory exceeded the regulatory limits shown above in Table I for sites where groundwater is deeper than 50 ft bgs. As described above in *Section 4*, it is currently anticipated that depth to groundwater is greater than 50 ft bgs at the Site. Based on September 6, 2019 guidance issued by the New Mexico Energy, Minerals and Natural Resources Department entitled *Procedures for Implementation of the Spill Rule (19.15.29 NMAC)*, NMOCD may require a soil boring to verify depth to groundwater is below 50 ft bgs since there are no readily available records for water wells that are located within ½-mile of the Site and no more than 25 years old.

The soil analytical results for the Site were also compared to the chloride regulatory limit of 600 milligrams per kilogram (mg/kg) specified for the upper four feet of soil under 19.15.29.13.D.(1) NMAC for *RESTORATION, RECLAMATION AND RE-VEGETATION*. A chloride concentration of 751 milligrams per kilogram (mg/kg) was reported for boring CVUH3-1 (0-1 ft bgs). Chloride concentrations reported for boring CVUH3-5 were 822 mg/kg and 1,020 mg/kg at 1-2 ft bgs and 2-3 ft bgs, respectively.

The laboratory analytical results for the initial soil assessment samples are summarized in **Table 1** and on **Figure 2**. The laboratory analytical report is provided in **Appendix F**.

6. Additional Proposed Soil Assessment

Additional soil assessment is planned pursuant to the following project objectives:

- Delineate the vertical and horizontal extent of soil impacted by chloride and petroleum hydrocarbons associated with the release; and
- Develop an appropriate Remediation/Restoration Plan for the Site.

Proposed additional soil assessment activities include drilling and sampling of four additional borings as shown on **Figure 3** and further described below. Borings CVUH3-2 and CVUH3-3 will be re-drilled since those borings could only be drilled to one ft bgs. Horizontal delineation borings will be drilled north of CVUH3-1 and south of CVUH3-5. The borings will be drilled to a total depth of five ft bgs using a

combination of hand auger and air rotary drilling methods as appropriate for sample collection and Chevron safety requirements. Soil samples will be collected at one ft depth intervals to a total depth of five ft bgs in each of the proposed borings. Each depth interval sample will be field-screened for elevated petroleum hydrocarbon concentrations using a PID to measure organic vapor concentrations and for elevated chloride concentrations using an electrical conductivity (EC) meter.

Each of the depth interval samples from all borings will be submitted for laboratory analysis of chloride. No BTEX and TPH analysis will be performed for additional soil samples collected from the Site unless field screening indicates the presence of residual petroleum hydrocarbons.

The soil samples will be submitted for laboratory analysis of chloride by EPA Method 9056A. The soil samples will be collected in clean, laboratory-provided sample containers, labeled, and placed on ice in laboratory-provided coolers. AECOM will complete Chain of Custody forms and arrange for shipment/transportation of the samples to AECOM's subcontractor, ALS Laboratory in Houston, Texas.

In addition to the shallow soil sampling described above, it is anticipated that a soil boring will be advanced to 51 ft bgs to visually verify depth to groundwater is greater than 50 ft bgs at the CVU Battery site immediately adjacent to the north.

At the conclusion of additional drilling and soil sampling activities, the soil borings will be backfilled with bentonite chips. Investigation derived waste (IDW) (including soil cuttings, disposable sampling equipment and disposable personal protective equipment (PPE) such as nitrile gloves) will be placed in a 55-gallon drum stored at the Chevron CVU Battery site pending characterization and offsite disposal. The CVU Battery site is located immediately north of the area where the injection line release occurred.

7. Schedule and Reporting

The additional drilling and soil sampling activities will be scheduled upon receipt of NMOCD comments regarding the proposed soil assessment activities described herein. A *Site Assessment Report/Remediation Plan* describing the soil sampling activities and results will be provided to NMOCD within 45 days of receipt of the analytical results from ALS Laboratory. The report will include the following:

- Executive Summary;
- Background information;
- Scaled map showing the impacted area, surface features, subsurface features, and delineation points;
- Summary of the field and laboratory analytical data;
- Field soil boring logs;
- Photographs of the Site;
- Data interpretation relative to the nature and extent of potential impacted soil; and
- Recommendations for Site Remediation/Reclamation.

8. References

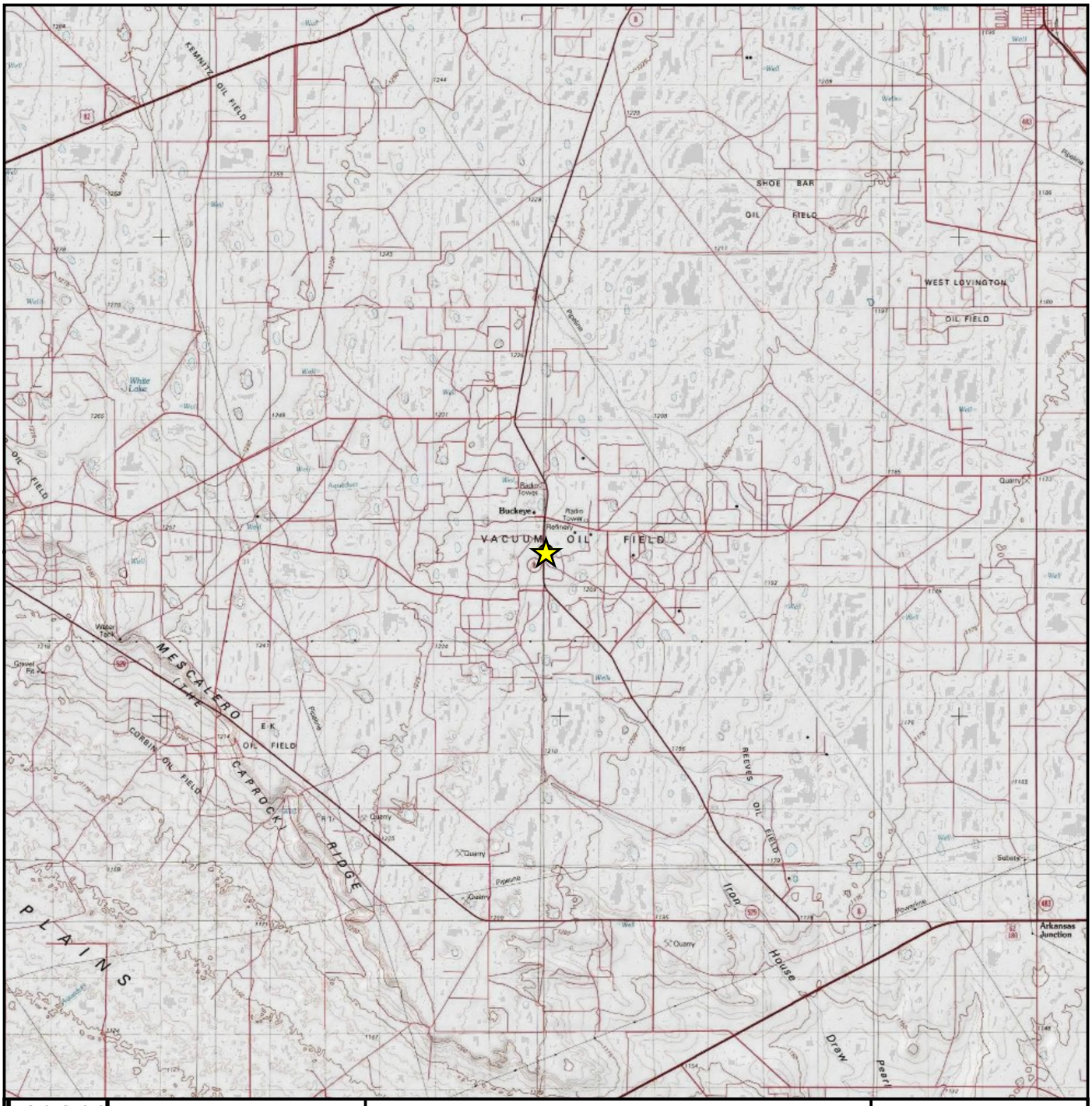
New Mexico Water Rights Reporting System (NMWRRS), Water Column/Average Depth to Water Report. http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html .

National Wetlands Inventory, surface waters and wetlands. https://www.fws.gov/wetlands/data/mapper.html

Google Earth Pro.

United States Department of Agriculture – Natural Resources Conservation Service. Web Soil Survey. Available on line at https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

Figures



Legend

☆ Central Vacuum Unit
Header 3 Trunkline
Site Location

Map Location

Site Location Map

Central Vacuum Unit
Header 3 Trunkline
Lea County, New Mexico
Chevron MCBU

N

0 1.5 3 4.5 6 Miles

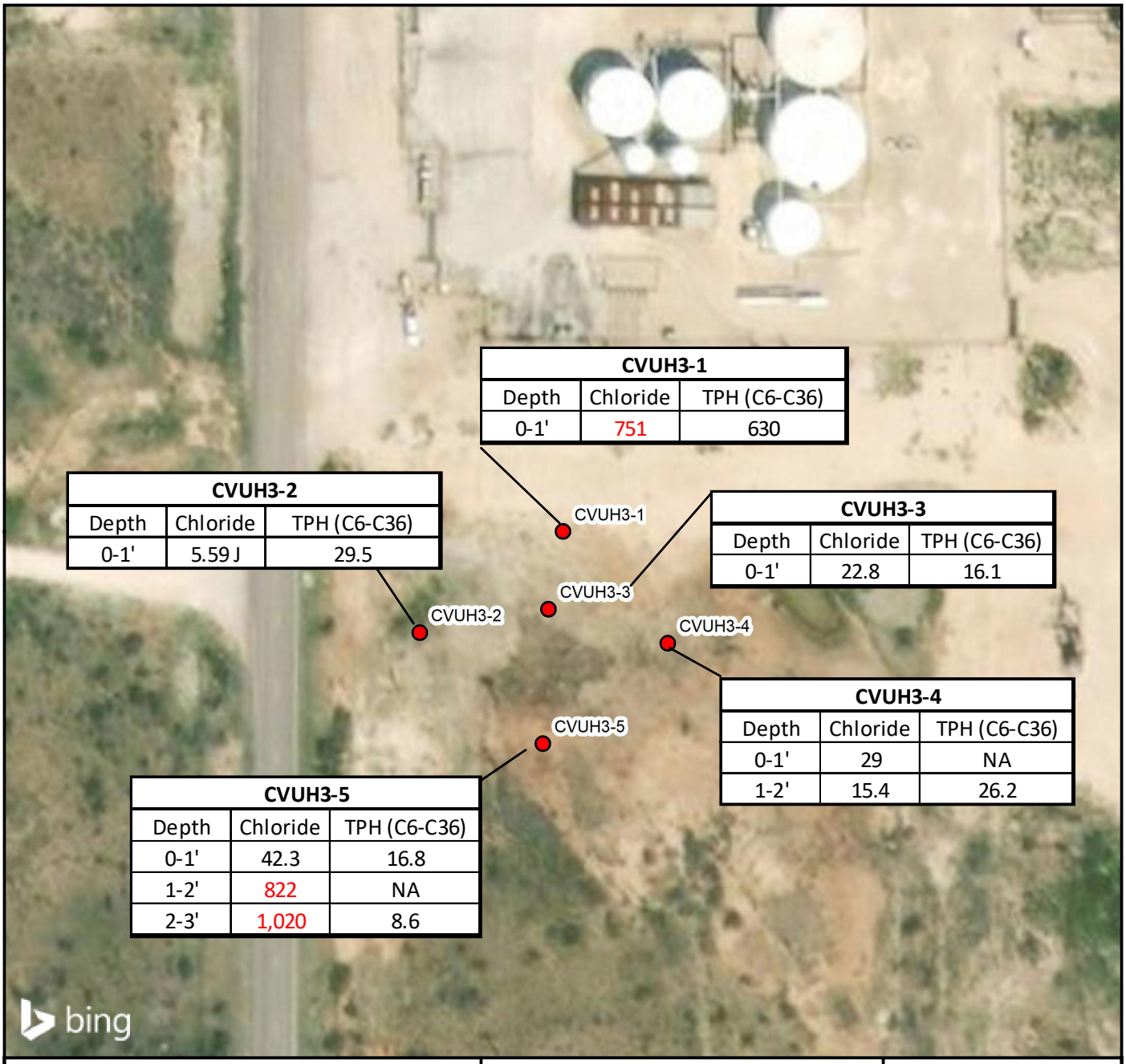
Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere

AECOM

Figure 1

Date: November 2019

Project #: 60615071



CVUH3-1		
Depth	Chloride	TPH (C6-C36)
0-1'	751	630

CVUH3-2		
Depth	Chloride	TPH (C6-C36)
0-1'	5.59 J	29.5

CVUH3-3		
Depth	Chloride	TPH (C6-C36)
0-1'	22.8	16.1

CVUH3-4		
Depth	Chloride	TPH (C6-C36)
0-1'	29	NA
1-2'	15.4	26.2

CVUH3-5		
Depth	Chloride	TPH (C6-C36)
0-1'	42.3	16.8
1-2'	822	NA
2-3'	1,020	8.6

Legend

- Soil Boring Locations

Samples Collected October 24, 2019

Soil analytical results reported in milligrams per kilogram (mg/kg)

J - Indicates that the result is less than the Method Quantitation Limit (MQL) but greater than or equal to the Method Detection Limit (MDL).

Regulatory Limits:
TPH - 2,500 mg/kg (Based on depth to groundwater greater than 50 feet)
Chloride - 600 mg/kg (Soil Reclamation Limit)

Red Font - Exceeds Regulatory Limit

Sample Location Map

Central Vacuum Unit
Header 3 Trunkline
Lea County, New Mexico
Chevron MCBU

N

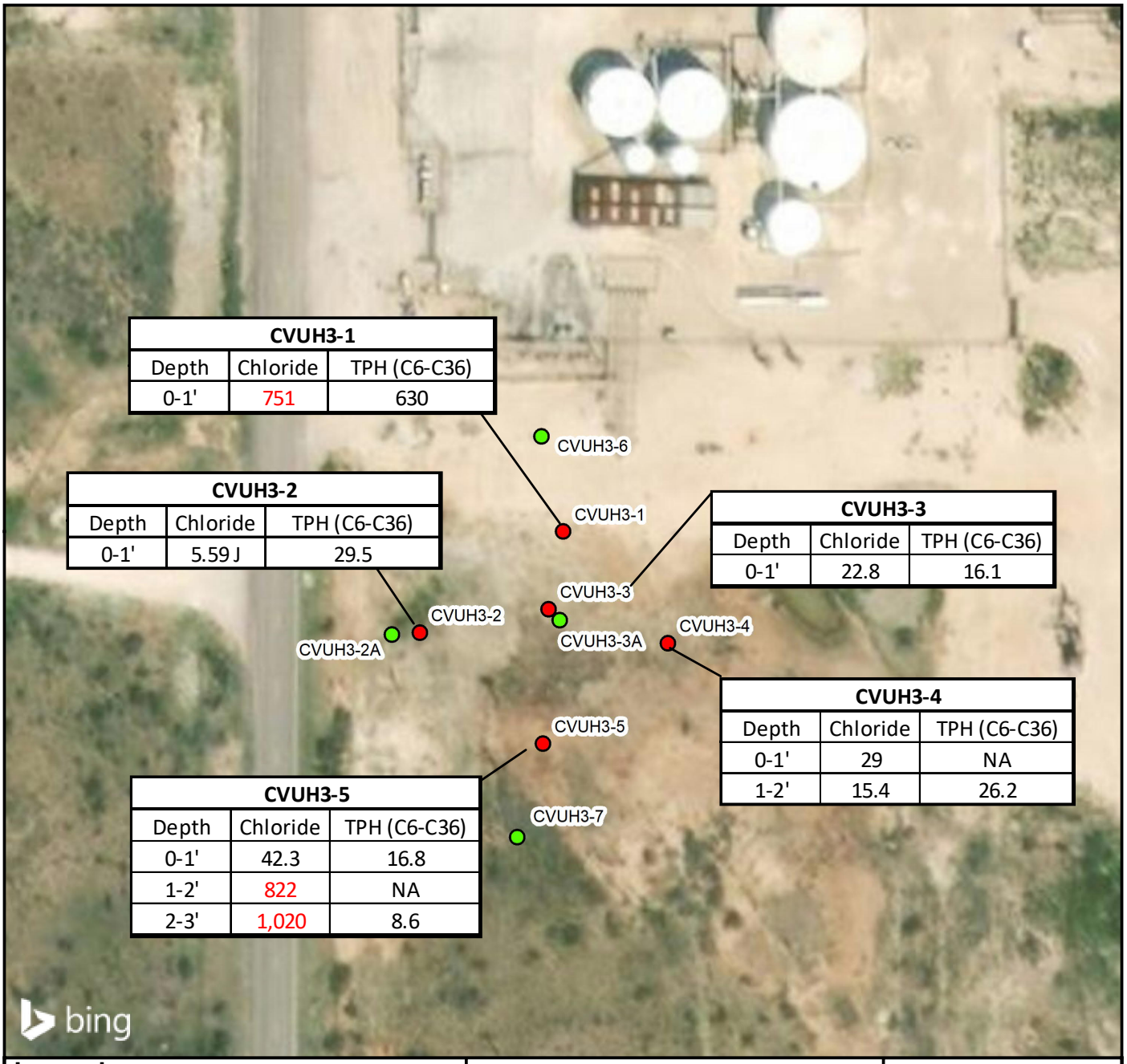
0 50 100 150 200 Feet

AECOM

Figure 2

Date: November 2019

Project #: 60615071



Legend

- Soil Boring Locations
- Proposed Soil Borings

Samples Collected October 24, 2019

Soil analytical results reported in milligrams per kilogram (mg/kg)

J - Indicates that the result is less than the Method Quantitation Limit (MQL) but greater than or equal to the Method Detection Limit (MDL).

Regulatory Limits:
TPH - 2,500 mg/kg (Based on depth to groundwater greater than 50 feet)
Chloride - 600 mg/kg (Soil Reclamation Limit)

Red Font - Exceeds Regulatory Limit

Proposed Soil Boring Location Map
Sample Location Map

Central Vacuum Unit
Header 3 Trunkline
Lea County, New Mexico
Chevron MCBU

N

0 50 100 150 200 Feet

AECOM

Figure 3

Date: November 2019

Project #: 60615071

Tables

Table 1
Soil Analytical Results
Central Vacuum Unit Header 3 Trunkline
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft bgs)	Total Petroleum Hydrocarbons (EPA 8015B)				Volatile Organics (EPA 8260B)				Chloride (Method 9056A)
			GRO C6-C10	DRO C10-C28	MRO C28-C36	TPH GRO+DRO+MRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	
Regulatory Limits			--	--	--	2500*	10	--	--	--	600**
CVUH3-1	10/24/19	0-1	0.011 U	**280**	**350**	**630**	0.00056 U	0.00068 U	0.00079 U	0.0011 U	**751**
CVUH3-2	10/24/19	0-1	0.012 U	**4.5**	**25**	**29.5**	0.00060 U	0.00072 U	0.00084 U	0.0012 U	**5.59 J**
CVUH3-3	10/24/19	0-1	0.013 U	**2.1**	**14**	**16.1**	0.00061 U	0.00073 U	0.00085 U	0.0012 U	**22.8**
CVUH3-4	10/24/19	0-1	-	**-**	**-**	**-**	-	-	-	-	**29**
CVUH3-4	10/24/19	1-2	0.012 U	**5.2**	**21**	**26.2**	0.00062 U	0.00074 U	0.00086 U	0.0012 U	**15.4**
CVUH3-5	10/24/19	0-1	0.011 U	**1.8 J**	**15**	**16.8**	0.00054 U	0.00065 U	0.00076 U	0.0011 U	**42.3**
CVUH3-5	10/24/19	1-2	-	**-**	**-**	**-**	-	-	-	-	**822**
CVUH3-5	10/24/19	2-3	0.013 U	**1.6 J**	**7.0**	**8.6**	0.00058 U	0.00070 U	0.00082 U	0.0012 U	**1,020**

Notes:

1. Soil analyses performed by ALS Laboratory in Houston, Texas.
2. Units for all analytical data provided are mg/Kg (milligrams per kilogram).
3. GRO - Gasoline Range Organic Compounds
4. DRO - Diesel Range Organic Compounds
5. MRO - Motor Oil/Lube Range Organic Compounds
6. Regulatory Limits are from 19.15.29 New Mexico Administrative Code (NMAC).
7. J - Indicates that the result is less than the Method Quantitation Limit (MQL) but greater than or equal to the Method Detection Limit (MDL).
8. U - Indicates that the analyte was analyzed but not detected at or above the laboratory MDL.
9. **Bold** - Detectable concentration that exceeds laboratory method reporting limits.
10. **Bold and Shaded** - Reported concentration exceeds Regulatory Limits.
11. ft bgs - feet below ground surface.
12. -- Indicates that no applicable regulatory limit exists for that analyte.

* Based on anticipated depth to groundwater > 50 ft bgs.

** Regulatory limit for final soil reclamation. The regulatory limit for protection of sensitive receptors may be 10,000 mg/kg based on anticipated depth to groundwater > 50 ft bgs.

Appendix A

Form C-141 – Central Vacuum Unit Header 3 Trunkline

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NRM1927331340
District RP	1RP 5706
Facility ID	fPAC0801739380
Application ID	pRM1927330755

Release Notification

Responsible Party

Responsible Party: **Chevron USA Inc.**	OGRID: **4323**
Contact Name: **Josepha DeLeon**	Contact Telephone: **575-263-0424**
Contact email: **jdxd@chevron.com**	Incident # *(assigned by OCD)*
Contact mailing address: **1616 Bender Blvd., Hobbs, NM 88240**	

Location of Release Source

Latitude: 32.793125 Longitude: - 103.504785
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: **Central Vacuum Unit Header 3 Trunkline**	Site Type: **Injection**
Date Release Discovered: **08/30/2019; 07:00 AM**	API# *(if applicable):* ***N/A***

Unit Letter	Section	Township	Range	County
C	30	17S	35E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls): **106**	Volume Recovered (bbls): **80**
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release **Internal corrosion on injection line.**		

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NRM1927331340
District RP	1RP_5706
Facility ID	fPAC0801739380
Application ID	pRM1927330755

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? **"unauthorized release greater than 25 barrels"**

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
YES, by Josepha DeLeon to Dylan Ross-Coss, email 08/30/2019; 09:19 AM

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:
N/A

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: **Josepha DeLeon** Title: **Environmental Compliance Specialist**

Signature: JdeLeon Date: September 12, 2019

email: jdxd@chevron.com Telephone: 575-263-0424

OCD Only

Received by: Ramona Marcus Date: 09/30/2019

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☐ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☐ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☐ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☐ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☐ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: _____ Title: _____

Signature:_____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Appendix B

NMWRRS Water Column/Average Depth to Water

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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 04247 POD8		L	LE	2	1	3	31	17S	35E	640299	3629077	392	270	60	210
L 04247 POD6	R	L	LE	2	1	3	31	17S	35E	640299	3629074	394	232	117	115
L 14180 POD1		L	LE	4	2	2	36	17S	34E	639756	3629715	451	231	126	105
L 14180 POD2		L	LE	4	2	2	36	17S	34E	639781	3629735	454	233	126	107
L 03873		L	LE	3	2	1	31	17S	35E	640421	3629674*	528	230	88	142
L 04247 POD5		L	LE	3	1	3	31	17S	35E	640040	3628781	561	235	95	140
L 04247 POD7		L	LE	1	3	3	31	17S	35E	640054	3628747	596		240	
L 13804 POD2		L	LE	2	2	1	31	17S	35E	640532	3629826	712	130	115	15
L 13804 POD1		L	LE	2	2	1	31	17S	35E	640572	3629790	719	157	115	42
L 05288		L	LE		4	4	36	17S	34E	639760	3628552*	828	231	90	141
L 05288	R	L	LE		4	4	36	17S	34E	639760	3628552*	828	231	90	141
L 07481		L	LE		3	3	30	17S	35E	640138	3630176*	843	145	105	40
L 07481 S		L	LE		3	3	30	17S	35E	640138	3630176*	843	200	80	120
L 07481 S	R	L	LE		3	3	30	17S	35E	640138	3630176*	843	200	80	120
L 02308		L	LE		4	4	25	17S	34E	639736	3630168*	869	130	76	54
L 03874		L	LE	3	1	2	31	17S	35E	640823	3629678*	880	229	90	139

Average Depth to Water: **105 feet**

Minimum Depth: **60 feet**

Maximum Depth: **240 feet**

Record Count: 16

UTMNAD83 Radius Search (in meters):

Easting (X): 640009.296 **Northing (Y):** 3629342.128 **Radius:** 1000

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

Appendix C

Photographic Documentation

Client: Chevron MCBU	Project Number: 60615071
Project Name: Central Vacuum Unit (CVU) Header 3 Trunkline 1RP-5706	Site Location: Lea County, New Mexico

SPILL AREA	
Photograph No. 1 **Photographer:** J. Lovely **Date:** 10/24/2019 **Comments:** Looking south from the location of boring CVUH3-3.	
SPILL AREA	
Photograph No. 2 **Photographer:** J. Lovely **Date:** 10/24/2019 **Comments:** Looking north from the location of boring CVUH3-5. Note the CVU Battery site immediately adjacent to the north.	

Appendix D

Summary of Field Sample Collection and Screening Activities

Sample Collection and Screening
Central Vacuum Unit (CVU) Header 3 Trunkline

Date	Boring ID	Depth (ft bgs)	Lithology	Time	PID (ppm)
10/24/2019	CVUH3-1	0-1	Silty Clay, brown, some sand, moist	1015	1.5
10/24/2019	CVUH3-2	0-1	Silty Clay, brown, some sand, moist	1025	2.2
10/24/2019	CVUH3-3	0-1	Silty Clay, brown, some sand, moist	1038	1.7
10/24/2019	CVUH3-4	0-1	Silty Clay, brown, some sand, moist	1055	1.8
		1-2		1105	1.9
10/24/2019	CVUH3-5	0-1	Silty Clay, brown, some sand, moist	1122	2.4
		1-2	- Turning reddish brown	1138	1.5
		2-3	-Reddish brown, damp	1150	1

Appendix E

Laboratory Analytical Report

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 04, 2019

Wallace Gilmore
AECOM
19219 Katy Freeway
Suite 100
Houston, TX 77094

Work Order: **HS19101572**

Laboratory Results for: **Chevron CVU Header 3**

Dear Wallace,

ALS Environmental received 9 sample(s) on Oct 25, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER
Dane J. Wacasey

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Work Order: HS19101572

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19101572-01	CVUH3-1 (0-1ft)	Soil		24-Oct-2019 10:15	25-Oct-2019 09:10	☐
HS19101572-02	CVUH3-2 (0-1ft)	Soil		24-Oct-2019 10:25	25-Oct-2019 09:10	☐
HS19101572-03	CVUH3-3 (0-1ft)	Soil		24-Oct-2019 10:38	25-Oct-2019 09:10	☐
HS19101572-04	CVUH3-4 (0-1ft)	Soil		24-Oct-2019 10:55	25-Oct-2019 09:10	☐
HS19101572-05	CVUH3-4 (1-2ft)	Soil		24-Oct-2019 11:05	25-Oct-2019 09:10	☐
HS19101572-06	CVUH3-5 (0-1ft)	Soil		24-Oct-2019 11:22	25-Oct-2019 09:10	☐
HS19101572-07	CVUH3-5 (1-2ft)	Soil		24-Oct-2019 11:38	25-Oct-2019 09:10	☐
HS19101572-08	CVUH3-5 (2-3ft)	Soil		24-Oct-2019 11:50	25-Oct-2019 09:10	☐
HS19101572-09	TB-01	Water	Not ALS provided	24-Oct-2019 00:00	25-Oct-2019 09:10	☐

ALS Houston, US Date: 04-Nov-19

Client: AECOM **CASE NARRATIVE**
Project: Chevron CVU Header 3
Work Order: HS19101572

GC Semivolatiles by Method SW8015M

Batch ID: 147033

Sample ID: CVUH3-2 (0-1ft) (HS19101572-02MS)

- The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS may be due to sample matrix interference.

Sample ID: CVUH3-2 (0-1ft) (HS19101572-02MSD)

- The recovery of the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MSD may be due to sample matrix interference.

GC Volatiles by Method SW8015

Batch ID: R349293

Sample ID: CVUH3-1 (0-1ft) (HS19101572-01MS/MSD)

- Surrogate recoveries were outside of the control limits due to matrix interference.

GCMS Volatiles by Method SW8260

Batch ID: R349579

Sample ID: CVUH3-3 (0-1ft) (HS19101572-03MS)

- MS/MSD failed QC limits for some compounds.

Batch ID: R349220

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method ASTM D2216

Batch ID: R349386

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9250

Batch ID: 147089

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Sample ID: CVUH3-1 (0-1ft)
Collection Date: 24-Oct-2019 10:15

ANALYTICAL REPORT
WorkOrder:HS19101572
Lab ID:HS19101572-01
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		**Method:SW8260**					Analyst: WLR
Benzene	< 0.00056		0.00056	0.0056	mg/Kg-dry	1	31-Oct-2019 23:58
Ethylbenzene	< 0.00079		0.00079	0.0056	mg/Kg-dry	1	31-Oct-2019 23:58
Toluene	< 0.00068		0.00068	0.0056	mg/Kg-dry	1	31-Oct-2019 23:58
Xylenes, Total	< 0.0011		0.0011	0.0056	mg/Kg-dry	1	31-Oct-2019 23:58
Surr: 1,2-Dichloroethane-d4	*112*			*70-126*	*%REC*	*1*	*31-Oct-2019 23:58*
Surr: 4-Bromofluorobenzene	*102*			*70-130*	*%REC*	*1*	*31-Oct-2019 23:58*
Surr: Dibromofluoromethane	*103*			*70-130*	*%REC*	*1*	*31-Oct-2019 23:58*
Surr: Toluene-d8	*97.5*			*70-130*	*%REC*	*1*	*31-Oct-2019 23:58*
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**					Analyst: QX
Gasoline Range Organics	< 0.011		0.011	0.056	mg/Kg-dry	1	28-Oct-2019 12:49
Surr: 4-Bromofluorobenzene	*113*			*70-123*	*%REC*	*1*	*28-Oct-2019 12:49*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**			Prep:SW3541 / 31-Oct-2019		Analyst: PVL
TPH (Diesel Range)	**280**		**5.7**	**19**	**mg/Kg-dry**	10	31-Oct-2019 13:01
TPH (Motor Oil Range)	**350**		**5.7**	**39**	**mg/Kg-dry**	10	31-Oct-2019 13:01
Surr: 2-Fluorobiphenyl	*88.9*			*60-129*	*%REC*	*10*	*31-Oct-2019 13:01*
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: DFF
Percent Moisture	**12.1**		**0.0100**	**0.0100**	**wt%**	1	29-Oct-2019 09:40
CHLORIDE BY SW-846 9250		**Method:SW9250**			Prep:ASTM Leachate / 01-Nov-2019		Analyst: KVL
Chloride	**751**		**15.4**	**56.3**	**mg/Kg-dry**	5	01-Nov-2019 16:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Sample ID: CVUH3-2 (0-1ft)
Collection Date: 24-Oct-2019 10:25

ANALYTICAL REPORT
WorkOrder:HS19101572
Lab ID:HS19101572-02
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		**Method:SW8260**					Analyst: WLR
Benzene	< 0.00060		0.00060	0.0060	mg/Kg-dry	1	01-Nov-2019 00:23
Ethylbenzene	< 0.00084		0.00084	0.0060	mg/Kg-dry	1	01-Nov-2019 00:23
Toluene	< 0.00072		0.00072	0.0060	mg/Kg-dry	1	01-Nov-2019 00:23
Xylenes, Total	< 0.0012		0.0012	0.0060	mg/Kg-dry	1	01-Nov-2019 00:23
Surr: 1,2-Dichloroethane-d4	*106*			*70-126*	*%REC*	*1*	*01-Nov-2019 00:23*
Surr: 4-Bromofluorobenzene	*103*			*70-130*	*%REC*	*1*	*01-Nov-2019 00:23*
Surr: Dibromofluoromethane	*102*			*70-130*	*%REC*	*1*	*01-Nov-2019 00:23*
Surr: Toluene-d8	*100*			*70-130*	*%REC*	*1*	*01-Nov-2019 00:23*
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**					Analyst: QX
Gasoline Range Organics	< 0.012		0.012	0.059	mg/Kg-dry	1	28-Oct-2019 13:05
Surr: 4-Bromofluorobenzene	*112*			*70-123*	*%REC*	*1*	*28-Oct-2019 13:05*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**			Prep:SW3541 / 31-Oct-2019		Analyst: PVL
TPH (Diesel Range)	**4.5**		**0.59**	**2.0**	**mg/Kg-dry**	1	31-Oct-2019 12:12
TPH (Motor Oil Range)	**25**		**0.59**	**4.0**	**mg/Kg-dry**	1	31-Oct-2019 12:12
Surr: 2-Fluorobiphenyl	*71.2*			*60-129*	*%REC*	*1*	*31-Oct-2019 12:12*
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: DFF
Percent Moisture	**15.6**		**0.0100**	**0.0100**	**wt%**	1	29-Oct-2019 09:40
CHLORIDE BY SW-846 9250		**Method:SW9250**			Prep:ASTM Leachate / 01-Nov-2019		Analyst: KVL
Chloride	**5.59**	J	**3.22**	**11.8**	**mg/Kg-dry**	1	01-Nov-2019 15:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Sample ID: CVUH3-3 (0-1ft)
Collection Date: 24-Oct-2019 10:38

ANALYTICAL REPORT
WorkOrder:HS19101572
Lab ID:HS19101572-03
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		**Method:SW8260**					Analyst: WLR
Benzene	< 0.00061		0.00061	0.0061	mg/Kg-dry	1	31-Oct-2019 23:33
Ethylbenzene	< 0.00085		0.00085	0.0061	mg/Kg-dry	1	31-Oct-2019 23:33
Toluene	< 0.00073		0.00073	0.0061	mg/Kg-dry	1	31-Oct-2019 23:33
Xylenes, Total	< 0.0012		0.0012	0.0061	mg/Kg-dry	1	31-Oct-2019 23:33
Surr: 1,2-Dichloroethane-d4	*107*			*70-126*	*%REC*	*1*	*31-Oct-2019 23:33*
Surr: 4-Bromofluorobenzene	*103*			*70-130*	*%REC*	*1*	*31-Oct-2019 23:33*
Surr: Dibromofluoromethane	*103*			*70-130*	*%REC*	*1*	*31-Oct-2019 23:33*
Surr: Toluene-d8	*100*			*70-130*	*%REC*	*1*	*31-Oct-2019 23:33*
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**					Analyst: QX
Gasoline Range Organics	< 0.013		0.013	0.063	mg/Kg-dry	1	28-Oct-2019 13:21
Surr: 4-Bromofluorobenzene	*113*			*70-123*	*%REC*	*1*	*28-Oct-2019 13:21*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**			Prep:SW3541 / 31-Oct-2019		Analyst: PVL
TPH (Diesel Range)	**2.1**		**0.61**	**2.1**	**mg/Kg-dry**	1	31-Oct-2019 14:13
TPH (Motor Oil Range)	**14**		**0.61**	**4.2**	**mg/Kg-dry**	1	31-Oct-2019 14:13
Surr: 2-Fluorobiphenyl	*82.8*			*60-129*	*%REC*	*1*	*31-Oct-2019 14:13*
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: DFF
Percent Moisture	**18.7**		**0.0100**	**0.0100**	**wt%**	1	29-Oct-2019 09:40
CHLORIDE BY SW-846 9250		**Method:SW9250**			Prep:ASTM Leachate / 01-Nov-2019		Analyst: KVL
Chloride	**22.8**		**3.34**	**12.2**	**mg/Kg-dry**	1	01-Nov-2019 15:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Sample ID: CVUH3-4 (0-1ft)
Collection Date: 24-Oct-2019 10:55

ANALYTICAL REPORT
WorkOrder:HS19101572
Lab ID:HS19101572-04
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: DFF
Percent Moisture	**12.9**		**0.0100**	**0.0100**	**wt%**	1	29-Oct-2019 09:40
CHLORIDE BY SW-846 9250		**Method:SW9250**			Prep:ASTM Leachate / 01-Nov-2019		Analyst: KVL
Chloride	**29.0**		**3.10**	**11.3**	**mg/Kg-dry**	1	01-Nov-2019 15:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Sample ID: CVUH3-4 (1-2ft)
Collection Date: 24-Oct-2019 11:05

ANALYTICAL REPORT
WorkOrder:HS19101572
Lab ID:HS19101572-05
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		**Method:SW8260**					Analyst: WLR
Benzene	< 0.00062		0.00062	0.0062	mg/Kg-dry	1	01-Nov-2019 00:49
Ethylbenzene	< 0.00086		0.00086	0.0062	mg/Kg-dry	1	01-Nov-2019 00:49
Toluene	< 0.00074		0.00074	0.0062	mg/Kg-dry	1	01-Nov-2019 00:49
Xylenes, Total	< 0.0012		0.0012	0.0062	mg/Kg-dry	1	01-Nov-2019 00:49
Surr: 1,2-Dichloroethane-d4	*109*			*70-126*	*%REC*	*1*	*01-Nov-2019 00:49*
Surr: 4-Bromofluorobenzene	*102*			*70-130*	*%REC*	*1*	*01-Nov-2019 00:49*
Surr: Dibromofluoromethane	*102*			*70-130*	*%REC*	*1*	*01-Nov-2019 00:49*
Surr: Toluene-d8	*99.5*			*70-130*	*%REC*	*1*	*01-Nov-2019 00:49*
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**					Analyst: QX
Gasoline Range Organics	< 0.012		0.012	0.062	mg/Kg-dry	1	28-Oct-2019 13:37
Surr: 4-Bromofluorobenzene	*108*			*70-123*	*%REC*	*1*	*28-Oct-2019 13:37*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**			Prep:SW3541 / 31-Oct-2019		Analyst: PVL
TPH (Diesel Range)	**5.2**		**0.63**	**2.1**	**mg/Kg-dry**	1	31-Oct-2019 14:37
TPH (Motor Oil Range)	**21**		**0.63**	**4.3**	**mg/Kg-dry**	1	31-Oct-2019 14:37
Surr: 2-Fluorobiphenyl	*79.9*			*60-129*	*%REC*	*1*	*31-Oct-2019 14:37*
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: DFF
Percent Moisture	**21.3**		**0.0100**	**0.0100**	**wt%**	1	29-Oct-2019 09:40
CHLORIDE BY SW-846 9250		**Method:SW9250**			Prep:ASTM Leachate / 01-Nov-2019		Analyst: KVL
Chloride	**15.4**		**3.45**	**12.6**	**mg/Kg-dry**	1	01-Nov-2019 15:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Sample ID: CVUH3-5 (0-1ft)
Collection Date: 24-Oct-2019 11:22

ANALYTICAL REPORT
WorkOrder:HS19101572
Lab ID:HS19101572-06
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		**Method:SW8260**					Analyst: WLR
Benzene	< 0.00054		0.00054	0.0054	mg/Kg-dry	1	01-Nov-2019 01:13
Ethylbenzene	< 0.00076		0.00076	0.0054	mg/Kg-dry	1	01-Nov-2019 01:13
Toluene	< 0.00065		0.00065	0.0054	mg/Kg-dry	1	01-Nov-2019 01:13
Xylenes, Total	< 0.0011		0.0011	0.0054	mg/Kg-dry	1	01-Nov-2019 01:13
Surr: 1,2-Dichloroethane-d4	*105*			*70-126*	*%REC*	*1*	*01-Nov-2019 01:13*
Surr: 4-Bromofluorobenzene	*103*			*70-130*	*%REC*	*1*	*01-Nov-2019 01:13*
Surr: Dibromofluoromethane	*97.6*			*70-130*	*%REC*	*1*	*01-Nov-2019 01:13*
Surr: Toluene-d8	*99.5*			*70-130*	*%REC*	*1*	*01-Nov-2019 01:13*
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**					Analyst: QX
Gasoline Range Organics	< 0.011		0.011	0.054	mg/Kg-dry	1	28-Oct-2019 14:34
Surr: 4-Bromofluorobenzene	*114*			*70-123*	*%REC*	*1*	*28-Oct-2019 14:34*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**			Prep:SW3541 / 31-Oct-2019		Analyst: PVL
TPH (Diesel Range)	**1.8**	J	**0.56**	**1.9**	**mg/Kg-dry**	1	31-Oct-2019 15:01
TPH (Motor Oil Range)	**15**		**0.56**	**3.8**	**mg/Kg-dry**	1	31-Oct-2019 15:01
Surr: 2-Fluorobiphenyl	*104*			*60-129*	*%REC*	*1*	*31-Oct-2019 15:01*
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: DFF
Percent Moisture	**10.9**		**0.0100**	**0.0100**	**wt%**	1	29-Oct-2019 09:40
CHLORIDE BY SW-846 9250		**Method:SW9250**			Prep:ASTM Leachate / 01-Nov-2019		Analyst: KVL
Chloride	**42.3**		**3.06**	**11.2**	**mg/Kg-dry**	1	01-Nov-2019 15:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Sample ID: CVUH3-5 (1-2ft)
Collection Date: 24-Oct-2019 11:38

ANALYTICAL REPORT
WorkOrder:HS19101572
Lab ID:HS19101572-07
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: DFF
Percent Moisture	**21.2**		**0.0100**	**0.0100**	**wt%**	1	29-Oct-2019 09:40
CHLORIDE BY SW-846 9250		**Method:SW9250**			Prep:ASTM Leachate / 01-Nov-2019		Analyst: KVL
Chloride	**822**		**17.3**	**63.2**	**mg/Kg-dry**	5	01-Nov-2019 16:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Sample ID: CVUH3-5 (2-3ft)
Collection Date: 24-Oct-2019 11:50

ANALYTICAL REPORT
WorkOrder:HS19101572
Lab ID:HS19101572-08
Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		**Method:SW8260**					Analyst: WLR
Benzene	< 0.00058		0.00058	0.0058	mg/Kg-dry	1	01-Nov-2019 01:38
Ethylbenzene	< 0.00082		0.00082	0.0058	mg/Kg-dry	1	01-Nov-2019 01:38
Toluene	< 0.00070		0.00070	0.0058	mg/Kg-dry	1	01-Nov-2019 01:38
Xylenes, Total	< 0.0012		0.0012	0.0058	mg/Kg-dry	1	01-Nov-2019 01:38
Surr: 1,2-Dichloroethane-d4	*105*			*70-126*	*%REC*	*1*	*01-Nov-2019 01:38*
Surr: 4-Bromofluorobenzene	*102*			*70-130*	*%REC*	*1*	*01-Nov-2019 01:38*
Surr: Dibromofluoromethane	*100*			*70-130*	*%REC*	*1*	*01-Nov-2019 01:38*
Surr: Toluene-d8	*98.0*			*70-130*	*%REC*	*1*	*01-Nov-2019 01:38*
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**					Analyst: QX
Gasoline Range Organics	< 0.013		0.013	0.063	mg/Kg-dry	1	28-Oct-2019 14:50
Surr: 4-Bromofluorobenzene	*116*			*70-123*	*%REC*	*1*	*28-Oct-2019 14:50*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**			Prep:SW3541 / 31-Oct-2019		Analyst: PVL
TPH (Diesel Range)	**1.6**	J	**0.59**	**2.0**	**mg/Kg-dry**	1	31-Oct-2019 15:25
TPH (Motor Oil Range)	**7.0**		**0.59**	**4.0**	**mg/Kg-dry**	1	31-Oct-2019 15:25
Surr: 2-Fluorobiphenyl	*75.9*			*60-129*	*%REC*	*1*	*31-Oct-2019 15:25*
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: DFF
Percent Moisture	**15.9**		**0.0100**	**0.0100**	**wt%**	1	29-Oct-2019 09:40
CHLORIDE BY SW-846 9250		**Method:SW9250**			Prep:ASTM Leachate / 01-Nov-2019		Analyst: KVL
Chloride	**1,020**		**16.3**	**59.4**	**mg/Kg-dry**	5	01-Nov-2019 16:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
Sample ID: TB-01
Collection Date: 24-Oct-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19101572
Lab ID:HS19101572-09
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C	**Method:SW8260**						Analyst: PC
Benzene	< 0.60		0.60	5.0	ug/L	1	27-Oct-2019 22:54
Ethylbenzene	< 0.50		0.50	5.0	ug/L	1	27-Oct-2019 22:54
Toluene	< 0.50		0.50	5.0	ug/L	1	27-Oct-2019 22:54
Xylenes, Total	< 0.50		0.50	5.0	ug/L	1	27-Oct-2019 22:54
Surr: 1,2-Dichloroethane-d4	*84.0*			*70-126*	*%REC*	*1*	*27-Oct-2019 22:54*
Surr: 4-Bromofluorobenzene	*102*			*82-124*	*%REC*	*1*	*27-Oct-2019 22:54*
Surr: Dibromofluoromethane	*88.4*			*77-123*	*%REC*	*1*	*27-Oct-2019 22:54*
Surr: Toluene-d8	*96.8*			*82-127*	*%REC*	*1*	*27-Oct-2019 22:54*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 04-Nov-19

Weight / Prep Log

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

Batch ID: 3406 **Start Date:** 26 Oct 2019 17:02 **End Date:** 26 Oct 2019 17:02
Method: VOLATILES BY SW8260C

Sample ID	Container	Sample Wt/Vol	Final Volume	Weight Factor	Container Type
HS19101572-01	1	5.045 (g)	5 (mL)	0.99	Bulk (5030B)
HS19101572-02	1	4.955 (g)	5 (mL)	1.01	Bulk (5030B)
HS19101572-03	1	5.039 (g)	5 (mL)	0.99	Bulk (5030B)
HS19101572-05	1	5.16 (g)	5 (mL)	0.97	Bulk (5030B)
HS19101572-06	1	5.143 (g)	5 (mL)	0.97	Bulk (5030B)
HS19101572-08	1	5.096 (g)	5 (mL)	0.98	Bulk (5030B)

Batch ID: 3408 **Start Date:** 28 Oct 2019 11:24 **End Date:** 28 Oct 2019 11:24
Method: GASOLINE RANGE ORGANICS BY SW8015C **Prep Code:**

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS19101572-01	1	5.05 (g)	5 (mL)	0.99	Bulk (5030B)
HS19101572-02	1	5.029 (g)	5 (mL)	0.99	Bulk (5030B)
HS19101572-03	1	4.836 (g)	5 (mL)	1.03	Bulk (5030B)
HS19101572-05	1	5.083 (g)	5 (mL)	0.98	Bulk (5030B)
HS19101572-06	1	5.175 (g)	5 (mL)	0.97	Bulk (5030B)
HS19101572-08	1	4.731 (g)	5 (mL)	1.06	Bulk (5030B)

Batch ID: 147033 **Start Date:** 31 Oct 2019 09:13 **End Date:** 31 Oct 2019 16:30
Method: SOPREP: 3541 TPH **Prep Code:** 8015SPR_LL

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19101572-01	1	30 (g)	1 (mL)	0.03332
HS19101572-02	1	30 (g)	1 (mL)	0.0332
HS19101572-03	1	30 (g)	1 (mL)	0.03324
HS19101572-05	1	30 (g)	1 (mL)	0.03307
HS19101572-06	1	30 (g)	1 (mL)	0.03319
HS19101572-08	1	30 (g)	1 (mL)	0.03324

Batch ID: 147089 **Start Date:** 01 Nov 2019 10:23 **End Date:** 01 Nov 2019 11:00
Method: SOLID CHLORIDE PREP **Prep Code:** CHLORIDE LEACH

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19101572-01		5 (grams)	50 (mL)	9.89
HS19101572-02		5 (grams)	50 (mL)	9.929
HS19101572-03		5 (grams)	50 (mL)	9.9
HS19101572-04		5 (grams)	50 (mL)	9.843
HS19101572-05		5 (grams)	50 (mL)	9.922
HS19101572-06		5 (grams)	50 (mL)	9.946
HS19101572-07		5 (grams)	50 (mL)	9.966
HS19101572-08		5 (grams)	50 (mL)	9.988

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 147033 (0)	**Test Name :** TPH DRO/ORO BY SW8015C				**Matrix:** Soil	
HS19101572-01	CVUH3-1 (0-1ft)	24 Oct 2019 10:15		31 Oct 2019 09:13	31 Oct 2019 13:01	10
HS19101572-02	CVUH3-2 (0-1ft)	24 Oct 2019 10:25		31 Oct 2019 09:13	31 Oct 2019 12:12	1
HS19101572-03	CVUH3-3 (0-1ft)	24 Oct 2019 10:38		31 Oct 2019 09:13	31 Oct 2019 14:13	1
HS19101572-05	CVUH3-4 (1-2ft)	24 Oct 2019 11:05		31 Oct 2019 09:13	31 Oct 2019 14:37	1
HS19101572-06	CVUH3-5 (0-1ft)	24 Oct 2019 11:22		31 Oct 2019 09:13	31 Oct 2019 15:01	1
HS19101572-08	CVUH3-5 (2-3ft)	24 Oct 2019 11:50		31 Oct 2019 09:13	31 Oct 2019 15:25	1
Batch ID: 147089 (0)	**Test Name :** CHLORIDE BY SW-846 9250				**Matrix:** Soil	
HS19101572-01	CVUH3-1 (0-1ft)	24 Oct 2019 10:15		01 Nov 2019 10:23	01 Nov 2019 16:49	5
HS19101572-02	CVUH3-2 (0-1ft)	24 Oct 2019 10:25		01 Nov 2019 10:23	01 Nov 2019 15:50	1
HS19101572-03	CVUH3-3 (0-1ft)	24 Oct 2019 10:38		01 Nov 2019 10:23	01 Nov 2019 15:50	1
HS19101572-04	CVUH3-4 (0-1ft)	24 Oct 2019 10:55		01 Nov 2019 10:23	01 Nov 2019 15:50	1
HS19101572-05	CVUH3-4 (1-2ft)	24 Oct 2019 11:05		01 Nov 2019 10:23	01 Nov 2019 15:51	1
HS19101572-06	CVUH3-5 (0-1ft)	24 Oct 2019 11:22		01 Nov 2019 10:23	01 Nov 2019 15:51	1
HS19101572-07	CVUH3-5 (1-2ft)	24 Oct 2019 11:38		01 Nov 2019 10:23	01 Nov 2019 16:49	5
HS19101572-08	CVUH3-5 (2-3ft)	24 Oct 2019 11:50		01 Nov 2019 10:23	01 Nov 2019 16:49	5
Batch ID: R349220 (0)	**Test Name :** VOLATILES - SW8260C				**Matrix:** Water	
HS19101572-09	TB-01	24 Oct 2019 00:00			27 Oct 2019 22:54	1
Batch ID: R349293 (0)	**Test Name :** GASOLINE RANGE ORGANICS BY SW8015C				**Matrix:** Soil	
HS19101572-01	CVUH3-1 (0-1ft)	24 Oct 2019 10:15			28 Oct 2019 12:49	1
HS19101572-02	CVUH3-2 (0-1ft)	24 Oct 2019 10:25			28 Oct 2019 13:05	1
HS19101572-03	CVUH3-3 (0-1ft)	24 Oct 2019 10:38			28 Oct 2019 13:21	1
HS19101572-05	CVUH3-4 (1-2ft)	24 Oct 2019 11:05			28 Oct 2019 13:37	1
HS19101572-06	CVUH3-5 (0-1ft)	24 Oct 2019 11:22			28 Oct 2019 14:34	1
HS19101572-08	CVUH3-5 (2-3ft)	24 Oct 2019 11:50			28 Oct 2019 14:50	1
Batch ID: R349386 (0)	**Test Name :** MOISTURE - ASTM D2216				**Matrix:** Soil	
HS19101572-01	CVUH3-1 (0-1ft)	24 Oct 2019 10:15			29 Oct 2019 09:40	1
HS19101572-02	CVUH3-2 (0-1ft)	24 Oct 2019 10:25			29 Oct 2019 09:40	1
HS19101572-03	CVUH3-3 (0-1ft)	24 Oct 2019 10:38			29 Oct 2019 09:40	1
HS19101572-04	CVUH3-4 (0-1ft)	24 Oct 2019 10:55			29 Oct 2019 09:40	1
HS19101572-05	CVUH3-4 (1-2ft)	24 Oct 2019 11:05			29 Oct 2019 09:40	1
HS19101572-06	CVUH3-5 (0-1ft)	24 Oct 2019 11:22			29 Oct 2019 09:40	1
HS19101572-07	CVUH3-5 (1-2ft)	24 Oct 2019 11:38			29 Oct 2019 09:40	1
HS19101572-08	CVUH3-5 (2-3ft)	24 Oct 2019 11:50			29 Oct 2019 09:40	1

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R349579 (0)	**Test Name :** VOLATILES BY SW8260C				**Matrix:** Soil	
HS19101572-01	CVUH3-1 (0-1ft)	24 Oct 2019 10:15			31 Oct 2019 23:58	1
HS19101572-02	CVUH3-2 (0-1ft)	24 Oct 2019 10:25			01 Nov 2019 00:23	1
HS19101572-03	CVUH3-3 (0-1ft)	24 Oct 2019 10:38			31 Oct 2019 23:33	1
HS19101572-05	CVUH3-4 (1-2ft)	24 Oct 2019 11:05			01 Nov 2019 00:49	1
HS19101572-06	CVUH3-5 (0-1ft)	24 Oct 2019 11:22			01 Nov 2019 01:13	1
HS19101572-08	CVUH3-5 (2-3ft)	24 Oct 2019 11:50			01 Nov 2019 01:38	1

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

QC BATCH REPORT

Batch ID: 147033 (0) **Instrument: FID-7** **Method: TPH DRO/ORO BY SW8015C**

MBLK Sample ID: **MBLK-147033** Units: **mg/Kg** Analysis Date: **31-Oct-2019 13:49**
Client ID: Run ID: **FID-7_349591** SeqNo: **5324682** PrepDate: **31-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	< 0.50	1.7								
TPH (Motor Oil Range)	< 0.50	3.4								
Surr: 2-Fluorobiphenyl	*2.345*	*0.10*	*3.33*	*0*	*70.4*	*70 - 130*				

LCS Sample ID: **LCS-147033** Units: **mg/Kg** Analysis Date: **31-Oct-2019 14:13**
Client ID: Run ID: **FID-7_349591** SeqNo: **5324683** PrepDate: **31-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	35.21	1.7	33.33	0	106	70 - 130				
TPH (Motor Oil Range)	29.77	3.4	33.33	0	89.3	70 - 130				
Surr: 2-Fluorobiphenyl	*2.83*	*0.10*	*3.33*	*0*	*85.0*	*70 - 130*				

MS Sample ID: **HS19101572-02MS** Units: **mg/Kg** Analysis Date: **31-Oct-2019 12:36**
Client ID: **CVUH3-2 (0-1ft)** Run ID: **FID-7_349591** SeqNo: **5324680** PrepDate: **31-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	33.44	1.7	33.23	3.805	89.2	70 - 130				
TPH (Motor Oil Range)	33.04	3.4	33.23	21.42	35.0	70 - 130				S
Surr: 2-Fluorobiphenyl	*2.45*	*0.10*	*3.32*	*0*	*73.8*	*60 - 129*				

MSD Sample ID: **HS19101572-02MSD** Units: **mg/Kg** Analysis Date: **31-Oct-2019 13:01**
Client ID: **CVUH3-2 (0-1ft)** Run ID: **FID-7_349591** SeqNo: **5324681** PrepDate: **31-Oct-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	31.98	1.7	33.21	3.805	84.8	70 - 130	33.44	4.48	30	
TPH (Motor Oil Range)	32.82	3.4	33.21	21.42	34.3	70 - 130	33.04	0.69	30	S
Surr: 2-Fluorobiphenyl	*2.431*	*0.10*	*3.318*	*0*	*73.3*	*60 - 129*	*2.45*	*0.778*	*30*	

The following samples were analyzed in this batch: HS19101572-01 HS19101572-02 HS19101572-03 HS19101572-05 HS19101572-06 HS19101572-08

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

QC BATCH REPORT

Batch ID: R349293 (0) **Instrument:** FID-14 **Method:** GASOLINE RANGE ORGANICS BY SW8015C

MBLK Sample ID: **MBLK-191028** Units: **mg/Kg** Analysis Date: **28-Oct-2019 11:07**
Client ID: Run ID: **FID-14_349293** SeqNo: **5318094** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	< 0.010	0.050								
Surr: 4-Bromofluorobenzene	*0.1055*	*0.0050*	*0.1*	*0*	*105*	*75 - 121*				

LCS Sample ID: **LCS-191028** Units: **mg/Kg** Analysis Date: **28-Oct-2019 10:51**
Client ID: Run ID: **FID-14_349293** SeqNo: **5318093** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9947	0.050	1	0	99.5	72 - 121				
Surr: 4-Bromofluorobenzene	*0.08236*	*0.0050*	*0.1*	*0*	*82.4*	*75 - 121*				

MS Sample ID: **HS19101572-01MS** Units: **mg/Kg** Analysis Date: **28-Oct-2019 15:05**
Client ID: **CVUH3-1 (0-1ft)** Run ID: **FID-14_349293** SeqNo: **5318107** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8251	0.052	1.04	0	79.3	70 - 130				
Surr: 4-Bromofluorobenzene	*0.06795*	*0.0052*	*0.104*	*0*	*65.3*	*70 - 123*				S

MSD Sample ID: **HS19101572-01MSD** Units: **mg/Kg** Analysis Date: **28-Oct-2019 15:21**
Client ID: **CVUH3-1 (0-1ft)** Run ID: **FID-14_349293** SeqNo: **5318108** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8756	0.050	1	0	87.6	70 - 130	0.8251	5.94	30	
Surr: 4-Bromofluorobenzene	*0.0678*	*0.0050*	*0.1*	*0*	*67.8*	*70 - 123*	*0.06795*	*0.21*	*30*	S

The following samples were analyzed in this batch: HS19101572-01 HS19101572-02 HS19101572-03 HS19101572-05 HS19101572-06 HS19101572-08

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

QC BATCH REPORT

Batch ID: R349220 (0) **Instrument: VOA6** **Method: VOLATILES - SW8260C**

MBLK Sample ID: **VBLKW-191027** Units: **ug/L** Analysis Date: **27-Oct-2019 13:17**
Client ID: Run ID: **VOA6_349220** SeqNo: **5316649** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	< 0.60	5.0								
Ethylbenzene	< 0.50	5.0								
Toluene	< 0.50	5.0								
Xylenes, Total	< 0.50	5.0								
Surr: 1,2-Dichloroethane-d4	*40.92*	*0*	*50*	*0*	*81.8*	*70 - 130*				
Surr: 4-Bromofluorobenzene	*50.93*	*0*	*50*	*0*	*102*	*82 - 115*				
Surr: Dibromofluoromethane	*43.42*	*0*	*50*	*0*	*86.8*	*73 - 126*				
Surr: Toluene-d8	*48.24*	*0*	*50*	*0*	*96.5*	*81 - 120*				

LCS Sample ID: **VLCSW-191027** Units: **ug/L** Analysis Date: **27-Oct-2019 12:29**
Client ID: Run ID: **VOA6_349220** SeqNo: **5316648** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.3	5.0	20	0	96.5	74 - 120				
Ethylbenzene	21.1	5.0	20	0	105	77 - 117				
Toluene	20.66	5.0	20	0	103	77 - 118				
Xylenes, Total	64.15	5.0	60	0	107	75 - 122				
Surr: 1,2-Dichloroethane-d4	*45.64*	*0*	*50*	*0*	*91.3*	*70 - 130*				
Surr: 4-Bromofluorobenzene	*50.87*	*0*	*50*	*0*	*102*	*82 - 115*				
Surr: Dibromofluoromethane	*46.95*	*0*	*50*	*0*	*93.9*	*73 - 126*				
Surr: Toluene-d8	*43.91*	*0*	*50*	*0*	*87.8*	*81 - 120*				

MS Sample ID: **HS19101575-03MS** Units: **ug/L** Analysis Date: **27-Oct-2019 16:05**
Client ID: Run ID: **VOA6_349220** SeqNo: **5316654** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	16.35	5.0	20	0	81.7	70 - 127				
Ethylbenzene	19.78	5.0	20	0	98.9	70 - 124				
Toluene	18.76	5.0	20	0	93.8	70 - 123				
Xylenes, Total	59.08	5.0	60	0	98.5	70 - 130				
Surr: 1,2-Dichloroethane-d4	*41.19*	*0*	*50*	*0*	*82.4*	*70 - 126*				
Surr: 4-Bromofluorobenzene	*51.55*	*0*	*50*	*0*	*103*	*82 - 124*				
Surr: Dibromofluoromethane	*43.77*	*0*	*50*	*0*	*87.5*	*77 - 123*				
Surr: Toluene-d8	*48.41*	*0*	*50*	*0*	*96.8*	*82 - 127*				

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

QC BATCH REPORT

Batch ID: R349220 (0) **Instrument: VOA6** **Method: VOLATILES - SW8260C**

MSD Sample ID: **HS19101575-03MSD** Units: **ug/L** Analysis Date: **27-Oct-2019 16:29**
Client ID: Run ID: **VOA6_349220** SeqNo: **5316655** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	15.52	5.0	20	0	77.6	70 - 127	16.35	5.23	20	
Ethylbenzene	18.78	5.0	20	0	93.9	70 - 124	19.78	5.21	20	
Toluene	18.22	5.0	20	0	91.1	70 - 123	18.76	2.91	20	
Xylenes, Total	57.34	5.0	60	0	95.6	70 - 130	59.08	2.99	20	
Surr: 1,2-Dichloroethane-d4	*40.93*	*0*	*50*	*0*	*81.9*	*70 - 126*	*41.19*	*0.625*	*20*	
Surr: 4-Bromofluorobenzene	*51.24*	*0*	*50*	*0*	*102*	*82 - 124*	*51.55*	*0.606*	*20*	
Surr: Dibromofluoromethane	*43.51*	*0*	*50*	*0*	*87.0*	*77 - 123*	*43.77*	*0.599*	*20*	
Surr: Toluene-d8	*47.99*	*0*	*50*	*0*	*96.0*	*82 - 127*	*48.41*	*0.882*	*20*	

The following samples were analyzed in this batch: HS19101572-09

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

QC BATCH REPORT

Batch ID: R349579 (0) **Instrument: VOA5** **Method: VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKS2-103119** Units: **ug/Kg** Analysis Date: **31-Oct-2019 23:08**
Client ID: Run ID: **VOA5_349579** SeqNo: **5324335** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	< 0.50	5.0								
Ethylbenzene	< 0.70	5.0								
Toluene	< 0.60	5.0								
Xylenes, Total	< 1.0	5.0								
Surr: 1,2-Dichloroethane-d4	*50.59*	*0*	*50*	*0*	*101*	*76 - 125*				
Surr: 4-Bromofluorobenzene	*49.75*	*0*	*50*	*0*	*99.5*	*80 - 120*				
Surr: Dibromofluoromethane	*49.12*	*0*	*50*	*0*	*98.2*	*80 - 119*				
Surr: Toluene-d8	*49.42*	*0*	*50*	*0*	*98.8*	*81 - 118*				

LCS Sample ID: **VLCSS2-103119** Units: **ug/Kg** Analysis Date: **31-Oct-2019 22:18**
Client ID: Run ID: **VOA5_349579** SeqNo: **5324334** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	42.56	5.0	50	0	85.1	75 - 124				
Ethylbenzene	41.66	5.0	50	0	83.3	70 - 123				
Toluene	41.75	5.0	50	0	83.5	76 - 122				
Xylenes, Total	122.4	5.0	150	0	81.6	77 - 128				
Surr: 1,2-Dichloroethane-d4	*56.58*	*0*	*50*	*0*	*113*	*76 - 125*				
Surr: 4-Bromofluorobenzene	*50.68*	*0*	*50*	*0*	*101*	*80 - 120*				
Surr: Dibromofluoromethane	*52.91*	*0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*49.26*	*0*	*50*	*0*	*98.5*	*81 - 118*				

MS Sample ID: **HS19101572-03MS** Units: **ug/Kg** Analysis Date: **01-Nov-2019 02:03**
Client ID: **CVUH3-3 (0-1ft)** Run ID: **VOA5_349579** SeqNo: **5324318** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	34.24	5.0	50	0	68.5	70 - 130				S
Ethylbenzene	29.68	5.0	50	0	59.4	70 - 130				S
Toluene	32.13	5.0	50	0	64.3	70 - 130				S
Xylenes, Total	83.84	5.0	150	0	55.9	70 - 130				S
Surr: 1,2-Dichloroethane-d4	*58.5*	*0*	*50*	*0*	*117*	*70 - 126*				
Surr: 4-Bromofluorobenzene	*52.05*	*0*	*50*	*0*	*104*	*70 - 130*				
Surr: Dibromofluoromethane	*52.35*	*0*	*50*	*0*	*105*	*70 - 130*				
Surr: Toluene-d8	*49.33*	*0*	*50*	*0*	*98.7*	*70 - 130*				

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

QC BATCH REPORT

Batch ID: R349579 (0) **Instrument:** VOA5 **Method:** VOLATILES BY SW8260C

MSD Sample ID: **HS19101572-03MSD** Units: **ug/Kg** Analysis Date: **01-Nov-2019 02:28**
Client ID: **CVUH3-3 (0-1ft)** Run ID: **VOA5_349579** SeqNo: **5324319** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	31.46	4.9	49	0	64.2	70 - 130	34.24	8.45	30	S
Ethylbenzene	27.04	4.9	49	0	55.2	70 - 130	29.68	9.3	30	S
Toluene	28.66	4.9	49	0	58.5	70 - 130	32.13	11.4	30	S
Xylenes, Total	73.82	4.9	147	0	50.2	70 - 130	83.84	12.7	30	S
Surr: 1,2-Dichloroethane-d4	*56.21*	*0*	*49*	*0*	*115*	*70 - 126*	*58.5*	*3.98*	*30*	
Surr: 4-Bromofluorobenzene	*50.7*	*0*	*49*	*0*	*103*	*70 - 130*	*52.05*	*2.62*	*30*	
Surr: Dibromofluoromethane	*52.16*	*0*	*49*	*0*	*106*	*70 - 130*	*52.35*	*0.374*	*30*	
Surr: Toluene-d8	*49.82*	*0*	*49*	*0*	*102*	*70 - 130*	*49.33*	*0.975*	*30*	

The following samples were analyzed in this batch: HS19101572-01 HS19101572-02 HS19101572-03 HS19101572-05 HS19101572-06 HS19101572-08

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

QC BATCH REPORT

Batch ID: 147089 (0) **Instrument: Gall01** **Method: CHLORIDE BY SW-846 9250**

MBLK Sample ID: **MBLK-147089** Units: **mg/Kg** Analysis Date: **01-Nov-2019 15:50**
Client ID: Run ID: **Gall01_349661** SeqNo: **5327934** PrepDate: **01-Nov-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	< 2.74	10.0								

LCS Sample ID: **LCS-147089** Units: **mg/Kg** Analysis Date: **01-Nov-2019 15:50**
Client ID: Run ID: **Gall01_349661** SeqNo: **5327932** PrepDate: **01-Nov-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	197	10.0	200	0	98.5	80 - 120				

LCSD Sample ID: **LCSD-147089** Units: **mg/Kg** Analysis Date: **01-Nov-2019 15:50**
Client ID: Run ID: **Gall01_349661** SeqNo: **5327933** PrepDate: **01-Nov-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	197.5	10.0	200	0	98.7	80 - 120	197	0.211	30	

MS Sample ID: **HS19101572-08MS** Units: **mg/Kg** Analysis Date: **01-Nov-2019 18:04**
Client ID: **CVUH3-5 (2-3ft)** Run ID: **Gall01_349661** SeqNo: **5327942** PrepDate: **01-Nov-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1689	49.2	983.9	855.7	84.7	80 - 120				

MSD Sample ID: **HS19101572-08MSD** Units: **mg/Kg** Analysis Date: **01-Nov-2019 18:04**
Client ID: **CVUH3-5 (2-3ft)** Run ID: **Gall01_349661** SeqNo: **5327943** PrepDate: **01-Nov-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1696	49.4	988.9	855.7	84.9	80 - 120	1689	0.409	30	

The following samples were analyzed in this batch:

HS19101572-01	HS19101572-02	HS19101572-03	HS19101572-04
HS19101572-05	HS19101572-06	HS19101572-07	HS19101572-08

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

QC BATCH REPORT

Batch ID: R349386 (0) **Instrument:** Balance1 **Method:** MOISTURE - ASTM D2216

DUP Sample ID: **HS19101258-06DUP** Units: **wt%** Analysis Date: **29-Oct-2019 09:40**
Client ID: Run ID: **Balance1_349386** SeqNo: **5320100** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	22.3	0.0100					22.2	0.449	20	

The following samples were analyzed in this batch:

HS19101572-01	HS19101572-02	HS19101572-03	HS19101572-04
HS19101572-05	HS19101572-06	HS19101572-07	HS19101572-08

ALS Houston, US Date: 04-Nov-19

Client: AECOM
Project: Chevron CVU Header 3
WorkOrder: HS19101572

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
Date	
mg/Kg-dry	Milligrams per Kilogram- Dry weight corrected

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 04-Nov-19

Sample Receipt Checklist

Client Name: AECOM-Houston Date/Time Received: **25-Oct-2019 09:10**

Work Order: HS19101572 Received by: **JRM**

Checklist completed by: *Paresh M. Giga* 25-Oct-2019
eSignature Date

Reviewed by: *Dane J. Wacasey* 1-Nov-2019
eSignature Date

Matrices: **Soil/Water** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:190327
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.5c U/C	IR25	
Cooler(s)/Kit(s):	Blue		
Date/Time sample(s) sent to storage:	10/25/19 19:15		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes: Trip blank received was not ALS provided

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 190327

HS19101572

AECOM
Chevron CVU Header 3

IV

Customer Information		Project Information		ALS Project Manager:	
Purchase Order		Project Name	Chevron CVU Header 3	A	8260_S (8260 BTEX)
Work Order		Project Number	60615071	B	8015_GRO_S (8015 TPH-GRO)
Company Name	AECOM	Bill To Company	AECOM	C	8015M_S_LL (8015 TPH-DRO/ORO)
Send Report To	Wallace Gilmore	Invoice Attn	USAPImaging - AP	D	CL_S_9250 AutoUV (SW9250 Chloride (UV))
Address	19219 Katy Freeway Suite 100	Address	PO Box 203970	E	MOIST_ASTM (D2216 Moisture %)
City/State/Zip	Houston, TX 77094	City/State/Zip	Austin TX 78720	F	
Phone	(281) -64-6-24	Phone	(512) 419-6825	G	
Fax	(713) 780-0838	Fax		H	
e-Mail Address	Wallace.Gilmore@aecom.com	e-Mail Address	USAPImaging@aecom.com	I	
				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	CVUH3-1 (0-1 ft)	10/24/19	1015	So:1	None	2	X	X	X	X	X						
2	CVUH3-2 (0-1 ft)	10/24/19	1025	So:1	None	2	X	X	X	X	X						
3	CVUH3-3 (0-1 ft)	10/24/19	1038	So:1	None	2	X	X	X	X	X						
4	CVUH 3-4 (0-1 ft)	10/24/19	1055	So:1	None	2	X	X	X	X	X						
5	CVUH3-4 (1-2 ft)	10/24/19	1105	So:1	None	2	X			X	X						
6	CVUH3-5 (0-1 ft)	10/24/19	1122	So:1	None	2	X	X	X	X	X						
7	CVUH3-5 (1-2 ft)	10/24/19	1138	So:1	None	2	X	X	X	X	X						
8	CVUH3-5 (2-3ft)	10/24/19	1150	So:1	None	1				X	X						
9	TB-01	10/24/19	—	Water	HCL	2	X	X	X	X	X						
10							X										

Sampler(s) Please Print & Sign: James Lovely

Shipment Method: FedEx

Required Turnaround Time: (Check Box) [X] STD 10 Wk Days [ ] 5 Wk Days [ ] 2 Wk Days [ ] 24 Hour [ ] Other

Results Due Date:

Relinquished by: — Date: 10/24/19 Time: 1530 Received by:

Relinquished by: — Date: 10/25/19 Time: 09:10 Received by (Laboratory): J. Mason

Logged by (Laboratory): — Date: — Time: — Checked by (Laboratory):

Notes: AECOM CEMC Hobbs NM

Cooler ID	Cooler Temp.
	UC
Blue	1.5
	1.1225
	CF0.0

QC Package: (Check One Box Below)

- [X] Level II Std QC
- [ ] Level III Std QC/Raw Data
- [ ] Level IV SW846/CLP
- [ ] Other
- [ ] TRRP Checklist
- [ ] TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note:
1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

CUSTODY SEAL
DATE 10/24/19
SIGNATURE

Blue

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

SM 10/25/19

Blue OCT 25 2019

ORIGIN ID:HOBA (432) 352-3662
JAMES LOVELY

10450 STANCLIFF RD STE 210

HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 24OCT19
ACTWGT: 16.90 LB
CAD: 6994246/SSFE2021
DIMS: 20x12x11 IN

BILL THIRD PARTY

0

ALS GROUP
10450 STANCLIFF RD
STE 210
HOUSTON TX 77099

Blue

(281) 530-5656 REF:
INV:
PO: DEPT:

FedEx
Express

TRK# 0201 7804 9604 9233

FRI - 25 OCT 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US IAH

Part # 156297-435 RRD22 Exp 05/20