Initial Site Assessment/Characterization Report

Cotton Hills 23 26 27 Federal Com #001H
New Mexico Oil Conservation Division (NMOCD) District RP #2RP-5462

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

Prepared By:
AECOM
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August 2019

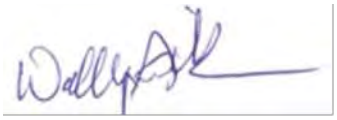
8HGQ6-190826-C-1410

Initial Site Assessment/Characterization Report

Cotton Hills 23 26 27 Federal Com #001H
Produced Water Spill Site
Eddy County, New Mexico
NMOCD RP #2RP-5462

Chevron Mid-Continent Business Unit (MCBU)

August 2019



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

Reviewed by: Peter Hicks
Team Leader

Table of Contents

Figures

Tables

Appendices

1. 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 Cotton Hills 23 26 27 Federal Com #001H site in Eddy County, New Mexico ("the Site").

2. Background

The Site is located at Latitude 32.0345573° North, Longitude 104.1587753° West in Eddy County, New Mexico (**Figure 1**).

On May 15, 2019, approximately 14.29 barrels (bbls) of produced water with a dissolved chloride concentration greater than 10,000 milligrams per liter (mg/L) were reported to have been released to an unlined well pad. The release was associated with a pumping unit packing failure. Approximately 10 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; and
- Containing the released produced water and crude oil; and
- Recovering approximately 10 bbls of produced water.

A Release Notification, Form C-141, dated May 22, 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 #2RP-5462 to the release. An updated Form C-141 is provided as **Appendix A**.

3. Initial Site Assessment/Characterization

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

- Based on an online Water Column/Average Depth to Water Report from the New Mexico Water Rights Reporting System (NMWRRS), there are no wells located within 1,000 meters (about 3,281 feet) of the Site. A copy of the *Water Column/Average* Depth to Water Report is provided as **Appendix B**. Future sampling will include drilling of vertical delineation borings. One of the borings will be drilled to a depth of 51 feet below ground surface (ft bgs) to determine if groundwater is present to that depth.
- The underlying soils at the Site are comprised of sandy clay and it currently seems unlikely that the release resulted in chloride impact to groundwater. 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 no known water wells within ½ mile of the Site.
- No incorporated municipal boundaries or defined municipal fresh water well fields are located within 14 miles of the Site, which is the approximate distance from the Site to Malaga, NM northeast 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.
- A 100-year floodplain was identified at the Owl Draw, approximately 0.5 miles south 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.

Figure 1 shows the location of 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 currently suspected. However, sampling is required to characterize the extent of potential chloride impacts to soil at the Site.

4. Initial Soil Assessment

On June 26, 2019, initial soil assessment activities were conducted at the Site which included collection of soil samples from seven hand auger boring locations (CH-01 through CH-07) as shown on **Figure 2**. At the time of sampling, the surface area affected by the spill appeared as a stained area that was noticeably darker than the remainder of the well pad surface. Site photographs are provided **in Appendix C**. Hand auger borings CH-04 and CH-05 were advanced within the spill in areas where ponding of surface water was evident. Boring CH-01 was drilled within the apparent spill area, and borings CH-02 and CH-03 were drilled immediately adjacent to the spill area. Borings CH-06 and CH-07 were drilled five to ten feet outside of the spill area

In each of the hand auger borings, caliche and some fine to coarse sand (well pad material) were encountered from the ground surface to the total depth of the borings. The borings were terminated at one ft bgs due to auger refusal in hard caliche. Soil samples were collected from each of the borings and field-screened using a photoionization detector (PID) to measure volatile organic vapor concentrations. Samples were also field screened to identify elevated chloride concentrations using a Field Scout Direct Soil EC Meter to measure electrical conductivity (EC) and a procedure described in *A Guide for Remediation of Salt/Hydrocarbon Impacted Soil* developed by the North Dakota Industrial Commission Department of Mineral Resources. A copy of this procedure is provided in **Appendix D**. A Summary of Field Sample Collection and Screening Activities is provided as **Appendix E**.

The soil samples from each hand auger boring 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 TestAmerica laboratory in Houston, Texas for analysis of benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8260B, total petroleum hydrocarbons (TPH) by EPA Method 8015B and chloride by EPA Method 9056A. The BTEX and TPH samples were collected using laboratory-provided EnCore® sampling kits in accordance with United

States Environmental Protection Agency (EPA) Method 5035/5035A. The laboratory results are summarized in **Table 1** and the laboratory analytical report is provided as **Appendix F**.

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 No. 084 site pending offsite disposal.

4.1 Initial Soil Sampling Results

The soil analytical results have initially been compared to the following:

- TPH regulatory limit of 100 milligrams per kilogram (mg/kg) in Table I of 19.15.29.12.E.2 NMAC for areas where groundwater is present at a depth of less than 50 ft bgs. Future soil delineation activities will include advancing a deep boring to 51 ft bgs to determine if groundwater is present within the upper 50 feet beneath the site. If no groundwater is encountered in the deep boring, the regulatory limit of 2,500 mg/kg will then be used to evaluate soil TPH results for the Site.
- Chloride regulatory limit of 600 mg/kg as specified for the upper four feet of soil under 19.15.29.13.D.1 NMAC for *RESTORATION, RECLAMATION AND RE-VEGETATION*.

Laboratory analytical results for five of the seven borings indicated chloride and TPH concentrations exceeding the regulatory limits of 600 mg/kg and 100 mg/kg, respectively (See **Table 1** and **Figure 2**). The samples that demonstrated exceedances of regulatory limits were collected within, or immediately adjacent to, the spill area. The highest chloride (24,000 mg/kg) and TPH (38,084 mg/kg) concentrations were reported for CH-04, which was within the spill area at a location where surface water ponding was most evident. The samples collected from CH-06 and CH-07, which were located 5 to 10 feet outside of the spill area, exhibited chloride and TPH concentrations below the regulatory limits.

5. 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;
- Determine if groundwater is present to a depth of 50 ft bgs; and
- Develop an appropriate Remediation/Restoration Plan for the Site.

Proposed additional soil assessment activities include drilling and sampling of six horizontal delineation borings (proposed additional boring locations PCH-08 throughPCH-13) and three vertical delineation soil borings (proposed additional boring locations PCH-14 through PCH-16) as shown on **Figure 3** and further described below.

The borings will be drilled using a combination of hand auger, driven split-spoon 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 borings. In proposed vertical delineation borings PCH-14 through PCH-16, samples will also be collected from 5 to 7.5 and 7.5 to 10 ft bgs. 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 EC meter. The boring that exhibits the highest and deepest PID field screening will be drilled to 51 ft bgs to evaluate depth to groundwater beneath the Site. Below a depth of 10 ft bgs in the deep boring, split-spoon samples will be collected at ten foot intervals for potential laboratory analysis based on field screening results.

Each of the depth interval samples will be submitted for laboratory analysis of chloride. In addition, up to two samples from each of the borings, including the sample interval that records the highest PID reading and the sample interval at the borehole terminus, will be submitted for laboratory analysis of TPH. If no elevated PID readings are observed in the horizontal delineation borings, only a composite sample from 0 to 2 ft bgs will be submitted for laboratory analysis of TPH.

The selected soil samples will be submitted for laboratory analysis of chloride by EPA Method 9056A and TPH by EPA Method 8015B. 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, TestAmerica Laboratory in Houston, Texas.

After soil sampling activities have been completed, 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 55 gallon drum(s). One composite IDW sample from the drum(s) will be collected for waste characterization. The IDW characterization sample will be analyzed for:

- Inorganic Anions (including chloride) by EPA Method 9056A;
- Toxicity Characteristic Leaching Procedure (TCLP) Resource Conservation and Recovery Act (RCRA) Metals by SW-846 1311/6010C;
- BTEX by EPA Method 8021 or 8260B; and
- TPH by EPA Method 8015M.

AECOM will subcontract with S Brothers Waste Services, Inc. for waste manifesting, transportation and disposal. Upon receipt of the laboratory analytical report, AECOM will prepare a waste profile. AECOM will coordinate with MCBU to obtain the appropriate signatures from the waste generator (MCBU) on the waste profile and waste manifest. AECOM will then coordinate pick-up of the drums by S Brothers Waste Services, Inc. for transportation and disposal at a Chevron approved waste disposal facility that accepts oil and gas exploration and production (E&P) exempt wastes. The IDW drum(s) will be disposed at the Chevron-approved Sundance disposal facility near Eunice, New Mexico.

6. 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 report describing the soil sampling activities and results will be provided to NMOCD within 30 days of receipt of the analytical results from TestAmerica. 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.

7. References

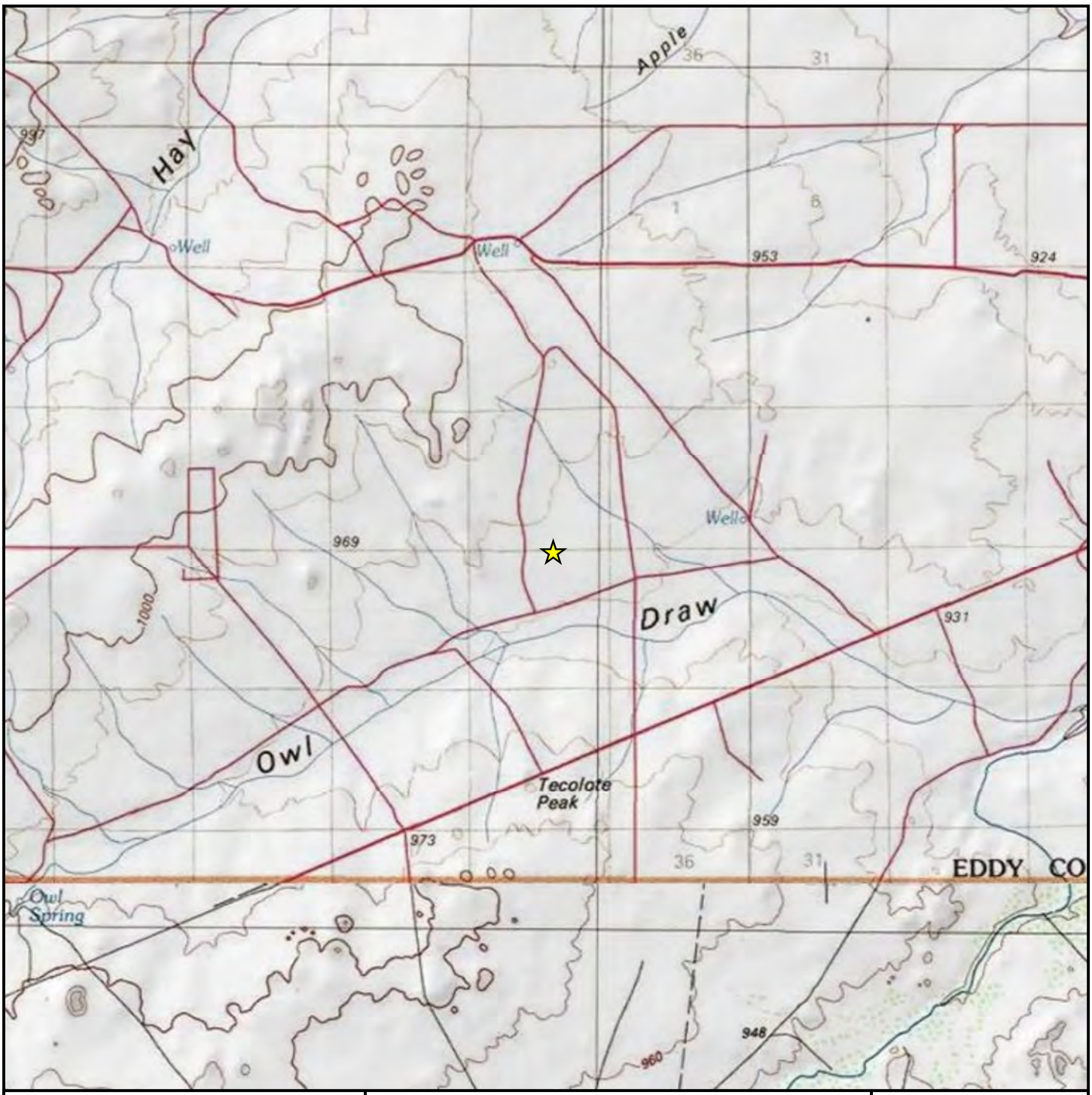
New Mexico Water Rights Reporting System (NMWRRS), Water Column/Average Depth To Water Report. http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html .

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

☆ Site Location

Map Location

Site Location Map

Cotton Hills
Eddy County, New Mexico
Chevron MCBU

N

0 0.75 1.5 2.25 3 Miles

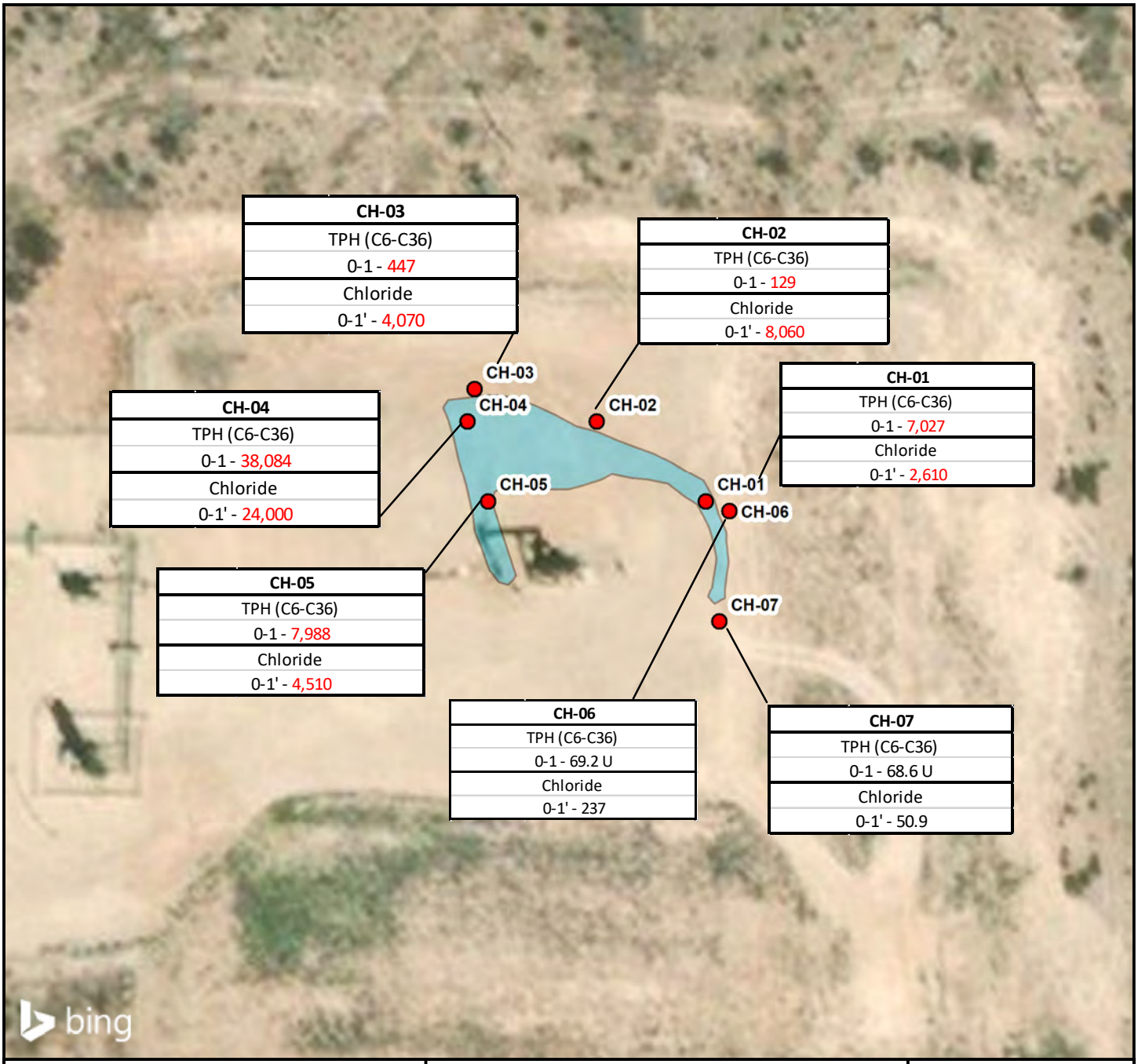
Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere

AECOM

Figure 1

Date: July 2019

Project #: 60608301



Legend

- Soil Boring Locations
- Approximate Spill Area

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

Regulatory Limits:
TPH - 100 mg/kg
Chloride - 600 mg/kg

U - Analyte was not detected at or above laboratory Sample Detection Limit

Red Font -
Exceeds Regulatory Limit

Sample Location Map

Cotton Hills
23 26 27 Federal Com #001H
Eddy County, New Mexico
Chevron MCBU

N

0 25 50 75 100
Feet

AECOM

Figure 2

Date: July 2019

Project #: 60608301

Document Path: I:\Temporary\Tanner_Grulke\Cotton Hills\Cotton Hills Sample Location Map.mxd

Legend

- Soil Boring Locations Not Exceeding Regulatory Limits (6-26-19)
- Soil Boring Locations Exceeding Regulatory Limits (6-26-19)
- Proposed Boring Locations
- Approximate Spill Area

Proposed Soil Boring Location Map

Cotton Hills
23 26 27 Federal Com #001H
Eddy County, New Mexico
Chevron MCBU

N

0 25 50 75 100 Feet

AECOM

Figure 3

Date: July 2019

Project #: 60608301

Document Path: I:\Temporary\Tanner_Grulke\Cotton Hills\Cotton Hills Proposed Additional Borings Map.mxd

Tables

Table 1
Soil Analytical Results
Cotton Hills 23 26 27 Federal Com #001H
Eddy 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			--	--	--	100	10	--	--	--	600
CH-01 - 0-1	06/26/19	0-1	**327**	**5,490**	**1210**	**7,027**	0.000582 U	**0.0103**	**0.00496**	**0.230**	**2,610**
CH-02 - 0-1	06/26/19	0-1	**0.0834** J	**70.8**	**58**	**129**	0.000574 U	0.00126 U	0.000929 U	0.00103 U	**8,060**
CH-03 - 0-1	06/26/19	0-1	0.065 U	**303**	**144**	**447**	0.000578 U	0.00127 U	0.000936 U	0.00104 U	**4,070**
CH-04 - 0-1	06/26/19	0-1	**174** E	**30,500**	**7410**	**38,084**	**0.001340** J	**1.50**	**0.848**	**19.2**	**24,000**
CH-05 - 0-1	06/26/19	0-1	**168**	**6,700**	**1,120**	**7,988**	0.000563 U	**0.00215** J	**0.00224** J	**0.189**	**4,510**
CH-06 - 0-1	06/26/19	0-1	0.0631 U	34.6 U	34.6 U	69.2 U	0.000618 U	0.00135 U	0.00100 U	0.00111 U	**237**
CH-07 - 0-1	06/26/19	0-1	0.0631 U	34.3 U	34.3 U	68.6 U	0.000667 U	0.00146 U	0.00108 U	0.00120 U	**50.9**

Notes:

1. Soil analyses performed by TestAmerica Laboratories, Inc. 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. E - Indicates that the result is greater than the UQL and the concentration is an estimated value.
8. J - Indicates that the result is less than the Method Quantitation Limit (MQL) but greater than or equal to the Sample Detection Limit (SDL).
9. U - Indicates that the analyte was analyzed but not detected at or above the laboratory SDL.
10. **Bold** - Detectable concentration that exceeds laboratory method reporting limits.
11. **Bold and Shaded** - Reported concentration exceeds Regulatory Limits.
12. ft bgs - feet below ground surface.
13. -- Indicates that no applicable regulatory limit exists for that analyte.

Appendix A

Form C-141 –Cotton Hills 23 26 27 Federal Com #001H

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	NAB1915130679
District RP	2RP-5462
Facility ID	
Application ID	pAB1915130417

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)* NAB1915130679
Contact mailing address: 1616 W. Bender Blvd., Hobbs, NM 88240	

Location of Release Source

Latitude 32.0345573 Longitude -104.1587753

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Cotton Hills 23 26 27 Federal Com #001H	Site Type: Gas Well
Date Release Discovered: 05/15/2019	API# *(if applicable): 30-015-41535*

Unit Letter	Section	Township	Range	County
B	23	26S	27E	Eddy

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): 14.29 barrels	Volume Recovered (bbls): 10 barrels
	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: Pumping unit packing failure. Spill to unlined well pad.

Pictures and calculation attached at the end.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1915130679
District RP	2RP-5462
Facility ID	
Application ID	pAB1915130417

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?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

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:

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.

Signature: JdeLeon

Date: May 22, 2019

Printed Name: Josepha DeLeon

Title: Environmental Compliance Specialist

email: jdxd@chevron.com

Telephone: 432-425-1528

OCD Only

Received by: Amalia Bustamante

Date: 5/31/2019

State of New Mexico
Oil Conservation Division

Incident ID	NAB1915130679
District RP	2RP-5462
Facility ID	
Application ID	pAB1915130417

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?	Unknown (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	NAB9195130679
District RP	2RP-5462
Facility ID	
Application ID	pAB1915130417

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: Amy Barnhill Title: Waste and Water Specialist

Signature: Amy Barnhill Date: 8-26-19

email: ABarnhill@chevron.com Telephone: 432-687-7108

OCD Only

Received by: Date:

Appendix B

NMWRRS Water Column/Average Depth to Water Report

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

UTMNAD83 Radius Search (in meters):

Easting (X): 579429.64 **Northing (Y):** 3544575.38 **Radius:** 1000

7/26/19 3:33 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix C

Photographic Documentation

Client: Chevron MCBU	**Project Number: 60608301**
Project Name: Cotton Hills 23 26 27 Federal Com #001H	**Site Location: Eddy County, New Mexico**

SPILL AREA	
Photograph No. 1 **Photographer:** L. Harris **Date:** 6/26/2019 **Comments:** Looking west at western extent of spill area.	
SPILL AREA	
Photograph No. 2 **Photographer:** L. Harris **Date:** 6/26/2019 **Comments:** Looking southwest at the spill area.	

Client: Chevron MCBU	Project Number: 60608301
Project Name: Cotton Hills 23 26 27 Federal Com #001H	Site Location: Eddy County, New Mexico

SPILL AREA

Photograph No. 3 **Photographer:** L. Harris **Date:** 6/26/2019 **Comments:** Looking south at spill area. The red flags on the left mark an electrical line. The white flags on the right show boring locations CH-03 and CH-04.	

SPILL AREA

Photograph No. 4 **Photographer:** L. Harris **Date:** 6/26/2019 **Comments:** Looking southeast at the spill area.	

Appendix D

Field Screening Procedure for Chloride

A GUIDE FOR REMEDIATION

OF

SALT/HYDROCARBON

IMPACTED SOIL

Distributed by:
North Dakota Industrial Commission
Department of Mineral Resources
Bismarck, ND 58505-0840

Funded by the Oil and Gas Research Council

Technical Author
Len J. Gawel, Ph.D.
BioRem Environmental Consultants
1601 Meadowbrook Dr.
Ponca City, OK 74606
(580) 762-3805

V. Soil Analytical Tests

A. Analytical Procedure to Determine the Electrical Conductivity (EC) of Soil:

- Soil sample preparation

  a) Mix soil sample from 0-6 inch analysis.
  b) If soil is "wet," reduce soil moisture content by air drying.
  c) If soil is "damp," proceed with analysis.

- Measure a level tablespoon of soil into 60 ml of distilled water. This will result in a 1 to 5 dilution of soil, one part soil into four parts distilled water. The volume of one level tablespoon is 15 ml.

- Shake mixture for 2 minutes. After mixing, allow sample to stand for additional 2 minutes.

- Prepare the syringe with the millipore filter adaptor and draw the fluid sample (0.5 to 1 ml) into syringe.

- Place the fluid sample onto the instrument sensor and discard the first sample load. Repeat this "flushing" procedure, then test and record the third load. **AECOM to also use chloride test strips.**

- Calculate the EC by multiplying the EC reading on the meter by five.
  Instrument EC reading x 5 = soil EC

- Wash the instrument sensor using a dedicated "wash syringe" and distilled water.

- Record results of the test and other information and disable and discard the syringe.

- Repeat procedure for additional depths, if necessary.

Note: Use the same fluid sample to measure the pH. No additional calculations are needed; pH is measured directly by the meter.

Note: Most EC units read as microsiemens per centimeter (uS/cm). In addition, high EC readings may read as millisiemens per centimeter (mS/cm). It should be noted one millisiemen (mS/cm) is equal to 1,000 microsiemens (uS/cm). Either unit may be used, but to compare data, choose one unit for all analyses, and convert all readings to the chosen unit. This remediation guide uses uS/cm.

A siemen is an inverse ohm (conductance = 1/resistance). The original siemen was measured though a distance of one meter. Most of the field equipment measure one centimeter unit (cm). Although not precise, one millimhos/cm is equal to one millisiemen/cm. For remediation purposes the field guide uses mS/cm or uS/cm.

Appendix E

Summary of Field Sample Collection and Screening Activities

Sample Collection and Screening
Cotton Hills 23 26 27 Federal Com #001H

Date	Boring ID	Depth (ft bgs)	Time	Lithology	PID (ppm)	Conductivity Probe (mS/cm)	ChlorideTest Strip (ppm Cl-)	ChlorideTest Strip (%NaCl)	EC Meter (mS/cm)
6/26/2019	CH-01	0-1	1050	0-1 ft bgs:Caliche with some fine to coarse sand	655.3	0.50	ND	ND	15.4
6/26/2019	CH-02	0-1	1105	0-1 ft bgs:Caliche with some fine to coarse sand	2.3	0.13	1275.00	2.1	23.1
6/26/2019	CH-03	0-1	1115	0-1 ft bgs:Caliche with some fine to coarse sand	6.8	0.33	725.00	0.12	14.9
6/26/2019	CH-04	0-1	1125	0-1 ft bgs:Caliche with some fine to coarse sand	898.7	0.19	3015.00	0.495	37.9
6/26/2019	CH-05	0-1	1135	0-1 ft bgs:Caliche with some fine to coarse sand	504.2	1.84	2805.00	0.46	25.25
6/26/2019	CH-06	0-1	1145	0-1 ft bgs:Caliche with some fine to coarse sand	4.3	0.07	160.00	0.025	11.85
6/26/2019	CH-07	0-1	1155	0-1 ft bgs:Caliche with some fine to coarse sand	0.1	0.03	ND	ND	11.6

Appendix F

Laboratory Analytical Report

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

Laboratory Job ID: 600-187716-1
Client Project/Site: Cotton Hills

For:
AECOM
19219 Katy Freeway
Suite 100
Houston, Texas 77094

Attn: Mr. Wallace Gilmore

Authorized for release by:
7/16/2019 11:23:17 AM

Sachin Kudchadkar, Senior Project Manager
(713)690-4444
sachin.kudchadkar@testamericainc.com

Table of Contents

Case Narrative

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

Job ID: 600-187716-1

Laboratory: Eurofins TestAmerica, Houston

Narrative

Job Narrative
600-187716-1

Comments
No additional comments.

Receipt
The samples were received on 6/27/2019 9:57 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

GC/MS VOA
Method(s) 8260B: Internal standard response for (1,4-Dichlorobenzene-d4) for the following sample was outside acceptance criteria: CH - 01 - 0 - 1 (600-187716-1). This ISTD does not correspond to any of the requested target compounds; therefore, the data have been reported.

Method(s) 8260B: The following sample was diluted to bring the concentration of target analytes within the calibration range: CH - 04 - 0 - 1 (600-187716-4). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The following sample was diluted to bring the concentration of target analytes within the calibration range: CH - 04 - 0 - 1 (600-187716-4). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
Method(s) 8015B: The following sample required a dilution due to the nature of the sample matrix: CH - 01 - 0 - 1 (600-187716-1). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method(s) 8015B: Sample was originally prepped as a low level solid with 0.5g and exceeded the calibration range. Per the SOP sample was prepped as a MeOH extract and was ND. Non-homogenization of the sample is suspected and both set of data have been reported.

CH - 04 - 0 - 1 (600-187716-4)

Method(s) 8015B: Sample was prepped at a MeOH and was ND. Non-homogenized sample is suspected, both sets of data have been reported.

CH - 04 - 0 - 1 (600-187716-4)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method(s) 8015B: The following sample required a dilution due to the nature of the sample matrix: CH - 04 - 0 - 1 (600-187716-4). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 600-187716-1 (Continued)

Laboratory: Eurofins TestAmerica, Houston (Continued)

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Industrial Hygiene
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: AECOM
Job ID: 600-187716-1
Project/Site: Cotton Hills

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL HOU
8015B	Gasoline Range Organics - (GC)	SW846	TAL CAN
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL CAN
9056A	Anions, Ion Chromatography	SW846	TAL HOU
3546	Microwave Extraction	SW846	TAL CAN
5030A	Purge and Trap	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL HOU
5035	Closed System Purge & Trap/Field Methanol	SW846	TAL HOU
5035	Closed System Purge & Trap/Laboratory Preservation	SW846	TAL HOU
DI Leach	Deionized Water Leaching Procedure (Routine)	ASTM	TAL HOU

Protocol References:

ASTM = ASTM International

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: AECOM
Job ID: 600-187716-1
Project/Site: Cotton Hills

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
600-187716-1	CH - 01 - 0 - 1	Solid	06/26/19 10:50	06/27/19 09:57	
600-187716-2	CH - 02 - 0 - 1	Solid	06/26/19 11:05	06/27/19 09:57	
600-187716-3	CH - 03 - 0 - 1	Solid	06/26/19 11:15	06/27/19 09:57	
600-187716-4	CH - 04 - 0 - 1	Solid	06/26/19 11:25	06/27/19 09:57	
600-187716-5	CH - 05 - 0 - 1	Solid	06/26/19 11:35	06/27/19 09:57	
600-187716-6	CH - 06 - 0 - 1	Solid	06/26/19 11:45	06/27/19 09:57	
600-187716-7	CH - 07 - 0 - 1	Solid	06/26/19 11:55	06/27/19 09:57	
600-187716-8	TRIP BLANK	Water	06/26/19 00:00	06/27/19 09:57	

Client Sample ID: CH - 01 - 0 - 1

Lab Sample ID: 600-187716-1

Date Collected: 06/26/19 10:50

Matrix: Solid

Date Received: 06/27/19 09:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000582	U	0.00462	0.000582	mg/Kg		06/27/19 13:58	07/01/19 12:14	1
Ethylbenzene	**0.00496**		0.00462	0.000943	mg/Kg		06/27/19 13:58	07/01/19 12:14	1
Toluene	**0.0103**		0.00462	0.00128	mg/Kg		06/27/19 13:58	07/01/19 12:14	1
Xylenes, Total	**0.230**		0.00462	0.00104	mg/Kg		06/27/19 13:58	07/01/19 12:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*61 - 130*	*06/27/19 13:58*	*07/01/19 12:14*	*1*
Dibromofluoromethane	*105*		*68 - 140*	*06/27/19 13:58*	*07/01/19 12:14*	*1*
Toluene-d8 (Surr)	*96*		*50 - 130*	*06/27/19 13:58*	*07/01/19 12:14*	*1*
4-Bromofluorobenzene	*116*	*	*57 - 140*	*06/27/19 13:58*	*07/01/19 12:14*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	**327000**		99800	53000	ug/Kg		07/05/19 13:55	07/08/19 10:00	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*15*	*X*	*36 - 157*	*07/05/19 13:55*	*07/08/19 10:00*	*20*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	**5490**		991	685	mg/Kg		07/10/19 12:12	07/12/19 21:26	20
C28-C36	**1210**		991	685	mg/Kg		07/10/19 12:12	07/12/19 21:26	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*91*		*26 - 125*	*07/10/19 12:12*	*07/12/19 21:26*	*20*

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2610**		399	53.3	mg/Kg			07/06/19 01:08	100

Client Sample ID: CH - 02 - 0 - 1

Lab Sample ID: 600-187716-2

Date Collected: 06/26/19 11:05

Matrix: Solid

Date Received: 06/27/19 09:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000574	U	0.00455	0.000574	mg/Kg		06/27/19 13:58	06/29/19 21:01	1
Ethylbenzene	0.000929	U	0.00455	0.000929	mg/Kg		06/27/19 13:58	06/29/19 21:01	1
Toluene	0.00126	U	0.00455	0.00126	mg/Kg		06/27/19 13:58	06/29/19 21:01	1
Xylenes, Total	0.00103	U	0.00455	0.00103	mg/Kg		06/27/19 13:58	06/29/19 21:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*61 - 130*	*06/27/19 13:58*	*06/29/19 21:01*	*1*
Dibromofluoromethane	*103*		*68 - 140*	*06/27/19 13:58*	*06/29/19 21:01*	*1*
Toluene-d8 (Surr)	*102*		*50 - 130*	*06/27/19 13:58*	*06/29/19 21:01*	*1*
4-Bromofluorobenzene	*96*		*57 - 140*	*06/27/19 13:58*	*06/29/19 21:01*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	**83.4**	**J**	99.8	64.1	ug/Kg		07/01/19 09:46	07/01/19 23:18	1

Client Sample ID: CH - 02 - 0 - 1

Lab Sample ID: 600-187716-2

Date Collected: 06/26/19 11:05

Matrix: Solid

Date Received: 06/27/19 09:57

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	*88*		*43 - 120*	*07/01/19 09:46*	*07/01/19 23:18*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	**70.8**		49.9	34.5	mg/Kg		07/10/19 12:12	07/12/19 21:53	1
C28-C36	**58.0**		49.9	34.5	mg/Kg		07/10/19 12:12	07/12/19 21:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*85*		*26 - 125*	*07/10/19 12:12*	*07/12/19 21:53*	*1*

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8060**		398	53.2	mg/Kg			07/06/19 01:26	100

Client Sample ID: CH - 03 - 0 - 1

Lab Sample ID: 600-187716-3

Date Collected: 06/26/19 11:15

Matrix: Solid

Date Received: 06/27/19 09:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000578	U	0.00459	0.000578	mg/Kg		06/27/19 13:58	06/29/19 21:24	1
Ethylbenzene	0.000936	U	0.00459	0.000936	mg/Kg		06/27/19 13:58	06/29/19 21:24	1
Toluene	0.00127	U	0.00459	0.00127	mg/Kg		06/27/19 13:58	06/29/19 21:24	1
Xylenes, Total	0.00104	U	0.00459	0.00104	mg/Kg		06/27/19 13:58	06/29/19 21:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*104*		*61 - 130*	*06/27/19 13:58*	*06/29/19 21:24*	*1*
Dibromofluoromethane	*106*		*68 - 140*	*06/27/19 13:58*	*06/29/19 21:24*	*1*
Toluene-d8 (Surr)	*105*		*50 - 130*	*06/27/19 13:58*	*06/29/19 21:24*	*1*
4-Bromofluorobenzene	*94*		*57 - 140*	*06/27/19 13:58*	*06/29/19 21:24*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	65.0	U	101	65.0	ug/Kg		07/01/19 09:46	07/01/19 23:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	*90*		*43 - 120*	*07/01/19 09:46*	*07/01/19 23:59*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	**303**		51.4	35.5	mg/Kg		07/10/19 12:12	07/12/19 22:20	1
C28-C36	**144**		51.4	35.5	mg/Kg		07/10/19 12:12	07/12/19 22:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*77*		*26 - 125*	*07/10/19 12:12*	*07/12/19 22:20*	*1*

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4070**		396	52.9	mg/Kg			07/06/19 01:44	100

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

Client Sample ID: CH - 04 - 0 - 1
Date Collected: 06/26/19 11:25
Date Received: 06/27/19 09:57

Lab Sample ID: 600-187716-4
Matrix: Solid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.00134**	**J**	0.00498	0.000627	mg/Kg		06/27/19 13:58	06/29/19 22:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*61 - 130*	*06/27/19 13:58*	*06/29/19 22:56*	*1*
Dibromofluoromethane	*110*		*68 - 140*	*06/27/19 13:58*	*06/29/19 22:56*	*1*
Toluene-d8 (Surr)	*104*		*50 - 130*	*06/27/19 13:58*	*06/29/19 22:56*	*1*
4-Bromofluorobenzene	*96*		*57 - 140*	*06/27/19 13:58*	*06/29/19 22:56*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**0.848**		0.256	0.0521	mg/Kg		06/27/19 13:58	07/02/19 18:17	1
Toluene	**1.50**		0.256	0.0706	mg/Kg		06/27/19 13:58	07/02/19 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*61 - 130*	*06/27/19 13:58*	*07/02/19 18:17*	*1*
Dibromofluoromethane	*96*		*68 - 140*	*06/27/19 13:58*	*07/02/19 18:17*	*1*
Toluene-d8 (Surr)	*99*		*50 - 130*	*06/27/19 13:58*	*07/02/19 18:17*	*1*
4-Bromofluorobenzene	*89*		*57 - 140*	*06/27/19 13:58*	*07/02/19 18:17*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	**19.2**		1.28	0.289	mg/Kg		06/27/19 13:58	07/03/19 15:26	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*61 - 130*	*06/27/19 13:58*	*07/03/19 15:26*	*5*
Dibromofluoromethane	*97*		*68 - 140*	*06/27/19 13:58*	*07/03/19 15:26*	*5*
Toluene-d8 (Surr)	*94*		*50 - 130*	*06/27/19 13:58*	*07/03/19 15:26*	*5*
4-Bromofluorobenzene	*95*		*57 - 140*	*06/27/19 13:58*	*07/03/19 15:26*	*5*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	2630	U	4960	2630	ug/Kg		07/05/19 13:55	07/06/19 06:30	1
C6-C10	**174000**	**E**	1000	642	ug/Kg		07/08/19 09:36	07/09/19 01:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*42*		*36 - 157*	*07/05/19 13:55*	*07/06/19 06:30*	*1*
Trifluorotoluene (Surr)	*81*		*43 - 120*	*07/08/19 09:36*	*07/09/19 01:10*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	**30500**		4900	3390	mg/Kg		07/10/19 12:12	07/12/19 22:47	100
C28-C36	**7410**		4900	3390	mg/Kg		07/10/19 12:12	07/12/19 22:47	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*157*	*X*	*26 - 125*	*07/10/19 12:12*	*07/12/19 22:47*	*100*

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**24000**		2000	266	mg/Kg			07/06/19 02:01	500

Client Sample ID: CH - 05 - 0 - 1

Lab Sample ID: 600-187716-5

Date Collected: 06/26/19 11:35

Matrix: Solid

Date Received: 06/27/19 09:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000563	U	0.00446	0.000563	mg/Kg		06/27/19 13:58	07/01/19 11:51	1
Ethylbenzene	**0.00224**	**J**	0.00446	0.000911	mg/Kg		06/27/19 13:58	07/01/19 11:51	1
Toluene	**0.00215**	**J**	0.00446	0.00123	mg/Kg		06/27/19 13:58	07/01/19 11:51	1
Xylenes, Total	**0.189**		0.00446	0.00101	mg/Kg		06/27/19 13:58	07/01/19 11:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*61 - 130*	*06/27/19 13:58*	*07/01/19 11:51*	*1*
Dibromofluoromethane	*87*		*68 - 140*	*06/27/19 13:58*	*07/01/19 11:51*	*1*
Toluene-d8 (Surr)	*85*		*50 - 130*	*06/27/19 13:58*	*07/01/19 11:51*	*1*
4-Bromofluorobenzene	*107*		*57 - 140*	*06/27/19 13:58*	*07/01/19 11:51*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	**168000**		5100	2710	ug/Kg		07/05/19 13:55	07/06/19 08:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*36*		*36 - 157*	*07/05/19 13:55*	*07/06/19 08:25*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	**6700**		1000	692	mg/Kg		07/10/19 09:48	07/12/19 18:33	20
C28-C36	**1120**		1000	692	mg/Kg		07/10/19 09:48	07/12/19 18:33	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*93*		*26 - 125*	*07/10/19 09:48*	*07/12/19 18:33*	*20*

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4510**		397	53.0	mg/Kg			07/06/19 02:19	100

Client Sample ID: CH - 06 - 0 - 1

Lab Sample ID: 600-187716-6

Date Collected: 06/26/19 11:45

Matrix: Solid

Date Received: 06/27/19 09:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000618	U	0.00490	0.000618	mg/Kg		06/27/19 13:58	06/29/19 21:47	1
Ethylbenzene	0.00100	U	0.00490	0.00100	mg/Kg		06/27/19 13:58	06/29/19 21:47	1
Toluene	0.00135	U	0.00490	0.00135	mg/Kg		06/27/19 13:58	06/29/19 21:47	1
Xylenes, Total	0.00111	U	0.00490	0.00111	mg/Kg		06/27/19 13:58	06/29/19 21:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*61 - 130*	*06/27/19 13:58*	*06/29/19 21:47*	*1*
Dibromofluoromethane	*104*		*68 - 140*	*06/27/19 13:58*	*06/29/19 21:47*	*1*
Toluene-d8 (Surr)	*103*		*50 - 130*	*06/27/19 13:58*	*06/29/19 21:47*	*1*
4-Bromofluorobenzene	*98*		*57 - 140*	*06/27/19 13:58*	*06/29/19 21:47*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	63.1	U	98.2	63.1	ug/Kg		07/03/19 11:14	07/04/19 15:06	1

Client Sample ID: CH - 06 - 0 - 1

Lab Sample ID: 600-187716-6

Date Collected: 06/26/19 11:45

Matrix: Solid

Date Received: 06/27/19 09:57

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	*90*		*43 - 120*	*07/03/19 11:14*	*07/04/19 15:06*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	34.6	U	50.1	34.6	mg/Kg		07/10/19 09:48	07/11/19 23:21	1
C28-C36	34.6	U	50.1	34.6	mg/Kg		07/10/19 09:48	07/11/19 23:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*69*		*26 - 125*	*07/10/19 09:48*	*07/11/19 23:21*	*1*

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**237**		200	26.6	mg/Kg			07/08/19 15:52	50

Client Sample ID: CH - 07 - 0 - 1

Lab Sample ID: 600-187716-7

Date Collected: 06/26/19 11:55

Matrix: Solid

Date Received: 06/27/19 09:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000667	U	0.00530	0.000667	mg/Kg		06/27/19 13:58	06/29/19 22:10	1
Ethylbenzene	0.00108	U	0.00530	0.00108	mg/Kg		06/27/19 13:58	06/29/19 22:10	1
Toluene	0.00146	U	0.00530	0.00146	mg/Kg		06/27/19 13:58	06/29/19 22:10	1
Xylenes, Total	0.00120	U	0.00530	0.00120	mg/Kg		06/27/19 13:58	06/29/19 22:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*108*		*61 - 130*	*06/27/19 13:58*	*06/29/19 22:10*	*1*
Dibromofluoromethane	*106*		*68 - 140*	*06/27/19 13:58*	*06/29/19 22:10*	*1*
Toluene-d8 (Surr)	*107*		*50 - 130*	*06/27/19 13:58*	*06/29/19 22:10*	*1*
4-Bromofluorobenzene	*96*		*57 - 140*	*06/27/19 13:58*	*06/29/19 22:10*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	63.1	U	98.2	63.1	ug/Kg		07/01/19 09:46	07/02/19 02:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	*87*		*43 - 120*	*07/01/19 09:46*	*07/02/19 02:43*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	34.3	U	49.7	34.3	mg/Kg		07/10/19 09:48	07/12/19 00:44	1
C28-C36	34.3	U	49.7	34.3	mg/Kg		07/10/19 09:48	07/12/19 00:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*68*		*26 - 125*	*07/10/19 09:48*	*07/12/19 00:44*	*1*

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**50.9**		3.98	0.532	mg/Kg			07/09/19 17:09	1

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

Client Sample ID: TRIP BLANK
Date Collected: 06/26/19 00:00
Date Received: 06/27/19 09:57

Lab Sample ID: 600-187716-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000176	U	0.00100	0.000176	mg/L			06/30/19 15:10	1
Ethylbenzene	0.000212	U	0.00100	0.000212	mg/L			06/30/19 15:10	1
Toluene	0.000198	U	0.00100	0.000198	mg/L			06/30/19 15:10	1
Xylenes, Total	0.000366	U	0.00100	0.000366	mg/L			06/30/19 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*122*		*50 - 134*		*06/30/19 15:10*	*1*
Dibromofluoromethane	*115*		*62 - 130*		*06/30/19 15:10*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*06/30/19 15:10*	*1*
4-Bromofluorobenzene	*89*		*67 - 139*		*06/30/19 15:10*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	ISTD response or retention time outside acceptable limits
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.

GC VOA

Qualifier	Qualifier Description
E	Result is greater then the UQL and the concentration is an estimated value.
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.
X	Surrogate is outside control limits

GC Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
X	Surrogate is outside control limits

HPLC/IC

Qualifier	Qualifier Description
N1	MS, MSD: Spike recovery exceeds upper or lower control limits.
N2	RPD of the MS and MSD exceeds the control limits
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(61-130)	(68-140)	(50-130)	(57-140)
600-187716-1	CH - 01 - 0 - 1	114	105	96	116 *
600-187716-2	CH - 02 - 0 - 1	108	103	102	96
600-187716-3	CH - 03 - 0 - 1	104	106	105	94
600-187716-4	CH - 04 - 0 - 1	113	110	104	96
600-187716-4 - DL	CH - 04 - 0 - 1	97	96	99	89
600-187716-4 - DL2	CH - 04 - 0 - 1	102	97	94	95
600-187716-5	CH - 05 - 0 - 1	84	87	85	107
600-187716-6	CH - 06 - 0 - 1	109	104	103	98
600-187716-7	CH - 07 - 0 - 1	108	106	107	96
LCS 600-268339/4	Lab Control Sample	101	100	102	93
LCS 600-268395/3	Lab Control Sample	73	80	83	95
LCS 600-268517/1-A	Lab Control Sample	95	93	97	92
LCSD 600-268339/5	Lab Control Sample Dup	114	107	99	92
LCSD 600-268395/4	Lab Control Sample Dup	77	81	83	95
LCSD 600-268517/2-A	Lab Control Sample Dup	87	87	90	82
MB 600-268339/7	Method Blank	107	104	103	94
MB 600-268395/6	Method Blank	99	90	79	91
MB 600-268517/3-A	Method Blank	103	98	96	99

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(50-134)	(62-130)	(70-130)	(67-139)
600-187716-8	TRIP BLANK	122	115	86	89
LCS 600-268365/4	Lab Control Sample	116	109	82	83
LCSD 600-268365/5	Lab Control Sample Dup	115	110	84	84
MB 600-268365/7	Method Blank	114	111	83	83

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TFT2	TFT2
Lab Sample ID	Client Sample ID	(43-120)	(43-120)
240-115438-B-1-B MS	Matrix Spike	94	94
240-115438-B-1-C MSD	Matrix Spike Duplicate	77	77
600-187716-2	CH - 02 - 0 - 1	88	88

Surrogate Summary

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) TFT2 (43-120)	TFT2 (43-120)
600-187716-3	CH - 03 - 0 - 1	90	90
600-187716-4	CH - 04 - 0 - 1	81	81
600-187716-6	CH - 06 - 0 - 1	90	90
600-187716-7	CH - 07 - 0 - 1	87	87
LCS 240-389163/2-A	Lab Control Sample	101	101
LCS 240-389621/2-A	Lab Control Sample	97	97
LCS 240-390100/2-A	Lab Control Sample	93	93
MB 240-389163/1-A	Method Blank	89	89
MB 240-389621/1-A	Method Blank	90	90
MB 240-390100/1-A	Method Blank	91	91

Surrogate Legend

TFT = Trifluorotoluene (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) TFT2 (36-157)
600-187716-1	CH - 01 - 0 - 1	15 X
600-187716-4	CH - 04 - 0 - 1	42
600-187716-4 MS	CH - 04 - 0 - 1	47
600-187716-4 MSD	CH - 04 - 0 - 1	46
600-187716-5	CH - 05 - 0 - 1	36
LCS 240-389898/2-A	Lab Control Sample	50
MB 240-389898/1-A	Method Blank	54

Surrogate Legend

TFT = Trifluorotoluene (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) OTPH1 (26-125)
600-187716-1	CH - 01 - 0 - 1	91
600-187716-2	CH - 02 - 0 - 1	85
600-187716-3	CH - 03 - 0 - 1	77
600-187716-4	CH - 04 - 0 - 1	157 X
600-187716-5	CH - 05 - 0 - 1	93
600-187716-6	CH - 06 - 0 - 1	69
600-187716-7	CH - 07 - 0 - 1	68
600-187822-A-11-B MS	Matrix Spike	76
600-187822-A-11-C MSD	Matrix Spike Duplicate	82
LCS 240-390478/19-A	Lab Control Sample	69
LCS 240-390514/12-A	Lab Control Sample	86
MB 240-390478/18-A	Method Blank	69
MB 240-390514/11-A	Method Blank	73

Surrogate Legend

Surrogate Summary

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

OTPH = o-Terphenyl (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 600-268339/7
Matrix: Solid
Analysis Batch: 268339

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000630	U	0.00500	0.000630	mg/Kg			06/29/19 14:03	1
Ethylbenzene	0.00102	U	0.00500	0.00102	mg/Kg			06/29/19 14:03	1
Toluene	0.00138	U	0.00500	0.00138	mg/Kg			06/29/19 14:03	1
Xylenes, Total	0.00113	U	0.00500	0.00113	mg/Kg			06/29/19 14:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*61 - 130*		*06/29/19 14:03*	*1*
Dibromofluoromethane	*104*		*68 - 140*		*06/29/19 14:03*	*1*
Toluene-d8 (Surr)	*103*		*50 - 130*		*06/29/19 14:03*	*1*
4-Bromofluorobenzene	*94*		*57 - 140*		*06/29/19 14:03*	*1*

Lab Sample ID: LCS 600-268339/4
Matrix: Solid
Analysis Batch: 268339

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.05084		mg/Kg		102	70 - 131
Ethylbenzene	0.0500	0.05101		mg/Kg		102	66 - 130
Toluene	0.0500	0.04956		mg/Kg		99	67 - 130
Xylenes, Total	0.100	0.1079		mg/Kg		108	63 - 130
m-Xylene & p-Xylene	0.0500	0.05339		mg/Kg		107	64 - 130
o-Xylene	0.0500	0.05447		mg/Kg		109	62 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*61 - 130*
Dibromofluoromethane	*100*		*68 - 140*
Toluene-d8 (Surr)	*102*		*50 - 130*
4-Bromofluorobenzene	*93*		*57 - 140*

Lab Sample ID: LCSD 600-268339/5
Matrix: Solid
Analysis Batch: 268339

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0500	0.05408		mg/Kg		108	70 - 131	6	30
Ethylbenzene	0.0500	0.05173		mg/Kg		103	66 - 130	1	30
Toluene	0.0500	0.05012		mg/Kg		100	67 - 130	1	30
Xylenes, Total	0.100	0.1089		mg/Kg		109	63 - 130	1	30
m-Xylene & p-Xylene	0.0500	0.05333		mg/Kg		107	64 - 130	0	30
o-Xylene	0.0500	0.05557		mg/Kg		111	62 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*114*		*61 - 130*
Dibromofluoromethane	*107*		*68 - 140*
Toluene-d8 (Surr)	*99*		*50 - 130*
4-Bromofluorobenzene	*92*		*57 - 140*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-268365/7
Matrix: Water
Analysis Batch: 268365

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000176	U	0.00100	0.000176	mg/L			06/30/19 14:42	1
Ethylbenzene	0.000212	U	0.00100	0.000212	mg/L			06/30/19 14:42	1
Toluene	0.000198	U	0.00100	0.000198	mg/L			06/30/19 14:42	1
Xylenes, Total	0.000366	U	0.00100	0.000366	mg/L			06/30/19 14:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*50 - 134*		*06/30/19 14:42*	*1*
Dibromofluoromethane	*111*		*62 - 130*		*06/30/19 14:42*	*1*
Toluene-d8 (Surr)	*83*		*70 - 130*		*06/30/19 14:42*	*1*
4-Bromofluorobenzene	*83*		*67 - 139*		*06/30/19 14:42*	*1*

Lab Sample ID: LCS 600-268365/4
Matrix: Water
Analysis Batch: 268365

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01002		mg/L		100	70 - 130
Ethylbenzene	0.0100	0.008261		mg/L		83	70 - 130
Toluene	0.0100	0.008150		mg/L		82	70 - 130
Xylenes, Total	0.0200	0.01810		mg/L		91	70 - 130
o-Xylene	0.0100	0.008986		mg/L		90	70 - 130
m-Xylene & p-Xylene	0.0100	0.009115		mg/L		91	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*116*		*50 - 134*
Dibromofluoromethane	*109*		*62 - 130*
Toluene-d8 (Surr)	*82*		*70 - 130*
4-Bromofluorobenzene	*83*		*67 - 139*

Lab Sample ID: LCSD 600-268365/5
Matrix: Water
Analysis Batch: 268365

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0100	0.009532		mg/L		95	70 - 130	5	20
Ethylbenzene	0.0100	0.008629		mg/L		86	70 - 130	4	20
Toluene	0.0100	0.008104		mg/L		81	70 - 130	1	20
Xylenes, Total	0.0200	0.01744		mg/L		87	70 - 130	4	20
o-Xylene	0.0100	0.008645		mg/L		86	70 - 130	4	20
m-Xylene & p-Xylene	0.0100	0.008795		mg/L		88	70 - 130	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*115*		*50 - 134*
Dibromofluoromethane	*110*		*62 - 130*
Toluene-d8 (Surr)	*84*		*70 - 130*
4-Bromofluorobenzene	*84*		*67 - 139*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-268395/6
Matrix: Solid
Analysis Batch: 268395

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000630	U	0.00500	0.000630	mg/Kg			07/01/19 11:27	1
Ethylbenzene	0.00102	U	0.00500	0.00102	mg/Kg			07/01/19 11:27	1
Toluene	0.00138	U	0.00500	0.00138	mg/Kg			07/01/19 11:27	1
Xylenes, Total	0.00113	U	0.00500	0.00113	mg/Kg			07/01/19 11:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*61 - 130*		*07/01/19 11:27*	*1*
Dibromofluoromethane	*90*		*68 - 140*		*07/01/19 11:27*	*1*
Toluene-d8 (Surr)	*79*		*50 - 130*		*07/01/19 11:27*	*1*
4-Bromofluorobenzene	*91*		*57 - 140*		*07/01/19 11:27*	*1*

Lab Sample ID: LCS 600-268395/3
Matrix: Solid
Analysis Batch: 268395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.04739		mg/Kg		95	70 - 131
Ethylbenzene	0.0500	0.04787		mg/Kg		96	66 - 130
Toluene	0.0500	0.04620		mg/Kg		92	67 - 130
Xylenes, Total	0.100	0.09559		mg/Kg		96	63 - 130
m-Xylene & p-Xylene	0.0500	0.04776		mg/Kg		96	64 - 130
o-Xylene	0.0500	0.04783		mg/Kg		96	62 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*73*		*61 - 130*
Dibromofluoromethane	*80*		*68 - 140*
Toluene-d8 (Surr)	*83*		*50 - 130*
4-Bromofluorobenzene	*95*		*57 - 140*

Lab Sample ID: LCSD 600-268395/4
Matrix: Solid
Analysis Batch: 268395

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0500	0.04824		mg/Kg		96	70 - 131	2	30
Ethylbenzene	0.0500	0.04884		mg/Kg		98	66 - 130	2	30
Toluene	0.0500	0.04683		mg/Kg		94	67 - 130	1	30
Xylenes, Total	0.100	0.09857		mg/Kg		99	63 - 130	3	30
m-Xylene & p-Xylene	0.0500	0.04926		mg/Kg		99	64 - 130	3	30
o-Xylene	0.0500	0.04931		mg/Kg		99	62 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*77*		*61 - 130*
Dibromofluoromethane	*81*		*68 - 140*
Toluene-d8 (Surr)	*83*		*50 - 130*
4-Bromofluorobenzene	*95*		*57 - 140*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-268517/3-A
Matrix: Solid
Analysis Batch: 268524

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 268517

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0788	U	0.625	0.0788	mg/Kg		07/02/19 10:00	07/02/19 14:46	1
Ethylbenzene	0.128	U	0.625	0.128	mg/Kg		07/02/19 10:00	07/02/19 14:46	1
Toluene	0.173	U	0.625	0.173	mg/Kg		07/02/19 10:00	07/02/19 14:46	1
Xylenes, Total	0.141	U	0.625	0.141	mg/Kg		07/02/19 10:00	07/02/19 14:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*61 - 130*	*07/02/19 10:00*	*07/02/19 14:46*	*1*
Dibromofluoromethane	*98*		*68 - 140*	*07/02/19 10:00*	*07/02/19 14:46*	*1*
Toluene-d8 (Surr)	*96*		*50 - 130*	*07/02/19 10:00*	*07/02/19 14:46*	*1*
4-Bromofluorobenzene	*99*		*57 - 140*	*07/02/19 10:00*	*07/02/19 14:46*	*1*

Lab Sample ID: LCS 600-268517/1-A
Matrix: Solid
Analysis Batch: 268524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 268517

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	6.25	5.305		mg/Kg		85	70 - 131
Ethylbenzene	6.25	5.470		mg/Kg		88	66 - 130
Toluene	6.25	5.395		mg/Kg		86	67 - 130
Xylenes, Total	12.5	11.25		mg/Kg		90	63 - 130
m-Xylene & p-Xylene	6.25	5.479		mg/Kg		88	64 - 130
o-Xylene	6.25	5.774		mg/Kg		92	62 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*61 - 130*
Dibromofluoromethane	*93*		*68 - 140*
Toluene-d8 (Surr)	*97*		*50 - 130*
4-Bromofluorobenzene	*92*		*57 - 140*

Lab Sample ID: LCSD 600-268517/2-A
Matrix: Solid
Analysis Batch: 268524

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 268517

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	6.25	4.806		mg/Kg		77	70 - 131	10	30
Ethylbenzene	6.25	5.011		mg/Kg		80	66 - 130	9	30
Toluene	6.25	4.842		mg/Kg		77	67 - 130	11	30
Xylenes, Total	12.5	10.10		mg/Kg		81	63 - 130	11	30
m-Xylene & p-Xylene	6.25	4.950		mg/Kg		79	64 - 130	10	30
o-Xylene	6.25	5.153		mg/Kg		82	62 - 130	11	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*87*		*61 - 130*
Dibromofluoromethane	*87*		*68 - 140*
Toluene-d8 (Surr)	*90*		*50 - 130*
4-Bromofluorobenzene	*82*		*57 - 140*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 240-389163/1-A
Matrix: Solid
Analysis Batch: 389182

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 389163

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	64.2	U	100	64.2	ug/Kg		07/01/19 09:46	07/01/19 13:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*89*		*43 - 120*	*07/01/19 09:46*	*07/01/19 13:23*	*1*

Lab Sample ID: LCS 240-389163/2-A
Matrix: Solid
Analysis Batch: 389182

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 389163

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C6-C10	800	890.3		ug/Kg		111	76 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*101*		*43 - 120*

Lab Sample ID: MB 240-389621/1-A
Matrix: Solid
Analysis Batch: 389626

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 389621

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	64.2	U	100	64.2	ug/Kg		07/03/19 11:14	07/04/19 06:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*90*		*43 - 120*	*07/03/19 11:14*	*07/04/19 06:09*	*1*

Lab Sample ID: LCS 240-389621/2-A
Matrix: Solid
Analysis Batch: 389626

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 389621

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C6-C10	800	786.0		ug/Kg		98	76 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*97*		*43 - 120*

Lab Sample ID: MB 240-389898/1-A
Matrix: Solid
Analysis Batch: 389903

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 389898

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	2650	U	5000	2650	ug/Kg		07/05/19 13:55	07/06/19 04:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*54*		*36 - 157*	*07/05/19 13:55*	*07/06/19 04:34*	*1*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: LCS 240-389898/2-A
Matrix: Solid
Analysis Batch: 389903

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 389898

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C6-C10			40000	36430		ug/Kg		91	65 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*50*		*36 - 157*

Lab Sample ID: 600-187716-4 MS
Matrix: Solid
Analysis Batch: 389903

Client Sample ID: CH - 04 - 0 - 1
Prep Type: Total/NA
Prep Batch: 389898

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
C6-C10	2630	U	40200	32330		ug/Kg		80	32 - 120		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*47*		*36 - 157*

Lab Sample ID: 600-187716-4 MSD
Matrix: Solid
Analysis Batch: 389903

Client Sample ID: CH - 04 - 0 - 1
Prep Type: Total/NA
Prep Batch: 389898

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C6-C10	2630	U	40900	32300		ug/Kg		79	32 - 120	0	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Trifluorotoluene (Surr)	*46*		*36 - 157*

Lab Sample ID: MB 240-390100/1-A
Matrix: Solid
Analysis Batch: 390038

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 390100

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	64.2	U	100	64.2	ug/Kg		07/08/19 09:36	07/08/19 10:04	1
C6-C10	64.2	U	100	64.2	ug/Kg		07/08/19 09:36	07/08/19 10:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*91*		*43 - 120*	*07/08/19 09:36*	*07/08/19 10:04*	*1*
Trifluorotoluene (Surr)	*91*		*43 - 120*	*07/08/19 09:36*	*07/08/19 10:04*	*1*

Lab Sample ID: LCS 240-390100/2-A
Matrix: Solid
Analysis Batch: 390038

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 390100

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C6-C10			800	848.8		ug/Kg		106	76 - 120		
C6-C10			800	848.8		ug/Kg		106	76 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*93*		*43 - 120*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: LCS 240-390100/2-A
Matrix: Solid
Analysis Batch: 390115

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 390100

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	93		43 - 120

Lab Sample ID: 240-115438-B-1-B MS
Matrix: Solid
Analysis Batch: 390038

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 390100

Surrogate	MS %Recovery	MS Qualifier	Limits
Trifluorotoluene (Surr)	94		43 - 120

Lab Sample ID: 240-115438-B-1-C MSD
Matrix: Solid
Analysis Batch: 390038

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 390100

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Trifluorotoluene (Surr)	77		43 - 120

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 240-390478/18-A
Matrix: Solid
Analysis Batch: 390809

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 390478

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	34.6	U	50.0	34.6	mg/Kg		07/10/19 09:48	07/11/19 17:45	1
C28-C36	34.6	U	50.0	34.6	mg/Kg		07/10/19 09:48	07/11/19 17:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	69		26 - 125	07/10/19 09:48	07/11/19 17:45	1

Lab Sample ID: LCS 240-390478/19-A
Matrix: Solid
Analysis Batch: 390809

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 390478

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10 - C28]	250	182.9		mg/Kg		73	45 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	69		26 - 125

Lab Sample ID: MB 240-390514/11-A
Matrix: Solid
Analysis Batch: 390979

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 390514

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	34.6	U	50.0	34.6	mg/Kg		07/10/19 12:12	07/12/19 20:32	1
C28-C36	34.6	U	50.0	34.6	mg/Kg		07/10/19 12:12	07/12/19 20:32	1

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 240-390514/11-A
Matrix: Solid
Analysis Batch: 390979

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 390514

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	73		26 - 125	07/10/19 12:12	07/12/19 20:32	1

Lab Sample ID: LCS 240-390514/12-A
Matrix: Solid
Analysis Batch: 390979

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 390514

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10 - C28]			250	203.0		mg/Kg		81	45 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	86		26 - 125

Lab Sample ID: 600-187822-A-11-B MS
Matrix: Solid
Analysis Batch: 390979

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 390514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10 - C28]	35.6	U	241	179.8		mg/Kg		75	27 - 120		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	76		26 - 125

Lab Sample ID: 600-187822-A-11-C MSD
Matrix: Solid
Analysis Batch: 390979

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 390514

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10 - C28]	35.6	U	244	190.6		mg/Kg		78	27 - 120	6	40

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	82		26 - 125

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 600-268802/1-A
Matrix: Solid
Analysis Batch: 268797

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.534	U	4.00	0.534	mg/Kg			07/05/19 17:16	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 600-268802/2-A
Matrix: Solid
Analysis Batch: 268797

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			200	197.6		mg/Kg		99	90 - 110		

Lab Sample ID: 600-187699-A-2-B MS
Matrix: Solid
Analysis Batch: 268797

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	2590		4990	6399	N1	mg/Kg		76	80 - 120		

Lab Sample ID: 600-187699-A-2-C MSD
Matrix: Solid
Analysis Batch: 268797

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2590		4990	6387	N1	mg/Kg		76	80 - 120	0	20

Lab Sample ID: MB 600-268903/1-A
Matrix: Solid
Analysis Batch: 268878

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.534	U	4.00	0.534	mg/Kg			07/08/19 15:17	1

Lab Sample ID: LCS 600-268903/2-A
Matrix: Solid
Analysis Batch: 268878

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			200	198.0		mg/Kg		99	90 - 110		

Lab Sample ID: 600-187716-6 MS
Matrix: Solid
Analysis Batch: 268878

Client Sample ID: CH - 06 - 0 - 1
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	237		4990	5040		mg/Kg		96	80 - 120		

Lab Sample ID: 600-187716-6 MSD
Matrix: Solid
Analysis Batch: 268878

Client Sample ID: CH - 06 - 0 - 1
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	237		4990	6219	N2	mg/Kg		120	80 - 120	21	20

Unadjusted Detection Limits

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	MQL	MDL	Units
Benzene	0.00100	0.000176	mg/L
Ethylbenzene	0.00100	0.000212	mg/L
Toluene	0.00100	0.000198	mg/L
Xylenes, Total	0.00100	0.000366	mg/L

Method: 8260B - Volatile Organic Compounds (GC/MS)

Prep: 5035

Analyte	MQL	MDL	Units
Benzene	0.00500	0.000630	mg/Kg
Ethylbenzene	0.00500	0.00102	mg/Kg
Toluene	0.00500	0.00138	mg/Kg
Xylenes, Total	0.00500	0.00113	mg/Kg

Method: 8015B - Gasoline Range Organics - (GC)

Prep: 5030A

Analyte	MQL	MDL	Units
C6-C10	100	64.2	ug/Kg

Method: 8015B - Gasoline Range Organics - (GC)

Prep: 5030B

Analyte	MQL	MDL	Units
C6-C10	5000	2650	ug/Kg

Method: 8015B - Diesel Range Organics (DRO) (GC)

Prep: 3546

Analyte	MQL	MDL	Units
C28-C36	50.0	34.6	mg/Kg
Diesel Range Organics [C10 - C28]	50.0	34.6	mg/Kg

Method: 9056A - Anions, Ion Chromatography - Soluble

Leach: DI Leach

Analyte	MQL	MDL	Units
Chloride	4.00	0.534	mg/Kg

GC/MS VOA

Analysis Batch: 268339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-2	CH - 02 - 0 - 1	Total/NA	Solid	8260B	268347
600-187716-3	CH - 03 - 0 - 1	Total/NA	Solid	8260B	268347
600-187716-4	CH - 04 - 0 - 1	Total/NA	Solid	8260B	268347
600-187716-6	CH - 06 - 0 - 1	Total/NA	Solid	8260B	268347
600-187716-7	CH - 07 - 0 - 1	Total/NA	Solid	8260B	268347
MB 600-268339/7	Method Blank	Total/NA	Solid	8260B	
LCS 600-268339/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 600-268339/5	Lab Control Sample Dup	Total/NA	Solid	8260B	

Prep Batch: 268347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-1	CH - 01 - 0 - 1	Total/NA	Solid	5035	
600-187716-2	CH - 02 - 0 - 1	Total/NA	Solid	5035	
600-187716-3	CH - 03 - 0 - 1	Total/NA	Solid	5035	
600-187716-4	CH - 04 - 0 - 1	Total/NA	Solid	5035	
600-187716-5	CH - 05 - 0 - 1	Total/NA	Solid	5035	
600-187716-6	CH - 06 - 0 - 1	Total/NA	Solid	5035	
600-187716-7	CH - 07 - 0 - 1	Total/NA	Solid	5035	

Analysis Batch: 268365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-8	TRIP BLANK	Total/NA	Water	8260B	
MB 600-268365/7	Method Blank	Total/NA	Water	8260B	
LCS 600-268365/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 600-268365/5	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 268395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-1	CH - 01 - 0 - 1	Total/NA	Solid	8260B	268347
600-187716-5	CH - 05 - 0 - 1	Total/NA	Solid	8260B	268347
MB 600-268395/6	Method Blank	Total/NA	Solid	8260B	
LCS 600-268395/3	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 600-268395/4	Lab Control Sample Dup	Total/NA	Solid	8260B	

Prep Batch: 268517

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 600-268517/3-A	Method Blank	Total/NA	Solid	5030B	
LCS 600-268517/1-A	Lab Control Sample	Total/NA	Solid	5030B	
LCSD 600-268517/2-A	Lab Control Sample Dup	Total/NA	Solid	5030B	

Prep Batch: 268519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-4 - DL	CH - 04 - 0 - 1	Total/NA	Solid	5035	
600-187716-4 - DL2	CH - 04 - 0 - 1	Total/NA	Solid	5035	

Analysis Batch: 268524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-4 - DL	CH - 04 - 0 - 1	Total/NA	Solid	8260B	268519
MB 600-268517/3-A	Method Blank	Total/NA	Solid	8260B	268517
LCS 600-268517/1-A	Lab Control Sample	Total/NA	Solid	8260B	268517
LCSD 600-268517/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	268517

QC Association Summary

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

GC/MS VOA

Analysis Batch: 268654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-4 - DL2	CH - 04 - 0 - 1	Total/NA	Solid	8260B	268519

GC VOA

Prep Batch: 389163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-2	CH - 02 - 0 - 1	Total/NA	Solid	5030A	
600-187716-3	CH - 03 - 0 - 1	Total/NA	Solid	5030A	
600-187716-7	CH - 07 - 0 - 1	Total/NA	Solid	5030A	
MB 240-389163/1-A	Method Blank	Total/NA	Solid	5030A	
LCS 240-389163/2-A	Lab Control Sample	Total/NA	Solid	5030A	

Analysis Batch: 389182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-2	CH - 02 - 0 - 1	Total/NA	Solid	8015B	389163
600-187716-3	CH - 03 - 0 - 1	Total/NA	Solid	8015B	389163
600-187716-7	CH - 07 - 0 - 1	Total/NA	Solid	8015B	389163
MB 240-389163/1-A	Method Blank	Total/NA	Solid	8015B	389163
LCS 240-389163/2-A	Lab Control Sample	Total/NA	Solid	8015B	389163

Prep Batch: 389621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-6	CH - 06 - 0 - 1	Total/NA	Solid	5030A	
MB 240-389621/1-A	Method Blank	Total/NA	Solid	5030A	
LCS 240-389621/2-A	Lab Control Sample	Total/NA	Solid	5030A	

Analysis Batch: 389626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-6	CH - 06 - 0 - 1	Total/NA	Solid	8015B	389621
MB 240-389621/1-A	Method Blank	Total/NA	Solid	8015B	389621
LCS 240-389621/2-A	Lab Control Sample	Total/NA	Solid	8015B	389621

Prep Batch: 389898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-1	CH - 01 - 0 - 1	Total/NA	Solid	5030B	
600-187716-4	CH - 04 - 0 - 1	Total/NA	Solid	5030B	
600-187716-5	CH - 05 - 0 - 1	Total/NA	Solid	5030B	
MB 240-389898/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-389898/2-A	Lab Control Sample	Total/NA	Solid	5030B	
600-187716-4 MS	CH - 04 - 0 - 1	Total/NA	Solid	5030B	
600-187716-4 MSD	CH - 04 - 0 - 1	Total/NA	Solid	5030B	

Analysis Batch: 389903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-4	CH - 04 - 0 - 1	Total/NA	Solid	8015B	389898
600-187716-5	CH - 05 - 0 - 1	Total/NA	Solid	8015B	389898
MB 240-389898/1-A	Method Blank	Total/NA	Solid	8015B	389898
LCS 240-389898/2-A	Lab Control Sample	Total/NA	Solid	8015B	389898
600-187716-4 MS	CH - 04 - 0 - 1	Total/NA	Solid	8015B	389898
600-187716-4 MSD	CH - 04 - 0 - 1	Total/NA	Solid	8015B	389898

QC Association Summary

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

GC VOA

Analysis Batch: 390037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-1	CH - 01 - 0 - 1	Total/NA	Solid	8015B	389898

Analysis Batch: 390038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-390100/1-A	Method Blank	Total/NA	Solid	8015B	390100
LCS 240-390100/2-A	Lab Control Sample	Total/NA	Solid	8015B	390100
240-115438-B-1-B MS	Matrix Spike	Total/NA	Solid	8015B	390100
240-115438-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	390100

Prep Batch: 390100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-4	CH - 04 - 0 - 1	Total/NA	Solid	5030A	
MB 240-390100/1-A	Method Blank	Total/NA	Solid	5030A	
LCS 240-390100/2-A	Lab Control Sample	Total/NA	Solid	5030A	
240-115438-B-1-B MS	Matrix Spike	Total/NA	Solid	5030A	
240-115438-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5030A	

Analysis Batch: 390115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-4	CH - 04 - 0 - 1	Total/NA	Solid	8015B	390100
MB 240-390100/1-A	Method Blank	Total/NA	Solid	8015B	390100
LCS 240-390100/2-A	Lab Control Sample	Total/NA	Solid	8015B	390100

GC Semi VOA

Prep Batch: 390478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-5	CH - 05 - 0 - 1	Total/NA	Solid	3546	
600-187716-6	CH - 06 - 0 - 1	Total/NA	Solid	3546	
600-187716-7	CH - 07 - 0 - 1	Total/NA	Solid	3546	
MB 240-390478/18-A	Method Blank	Total/NA	Solid	3546	
LCS 240-390478/19-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 390514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-1	CH - 01 - 0 - 1	Total/NA	Solid	3546	
600-187716-2	CH - 02 - 0 - 1	Total/NA	Solid	3546	
600-187716-3	CH - 03 - 0 - 1	Total/NA	Solid	3546	
600-187716-4	CH - 04 - 0 - 1	Total/NA	Solid	3546	
MB 240-390514/11-A	Method Blank	Total/NA	Solid	3546	
LCS 240-390514/12-A	Lab Control Sample	Total/NA	Solid	3546	
600-187822-A-11-B MS	Matrix Spike	Total/NA	Solid	3546	
600-187822-A-11-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	

Analysis Batch: 390809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-6	CH - 06 - 0 - 1	Total/NA	Solid	8015B	390478
600-187716-7	CH - 07 - 0 - 1	Total/NA	Solid	8015B	390478
MB 240-390478/18-A	Method Blank	Total/NA	Solid	8015B	390478
LCS 240-390478/19-A	Lab Control Sample	Total/NA	Solid	8015B	390478

QC Association Summary

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

GC Semi VOA

Analysis Batch: 390979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-1	CH - 01 - 0 - 1	Total/NA	Solid	8015B	390514
600-187716-2	CH - 02 - 0 - 1	Total/NA	Solid	8015B	390514
600-187716-3	CH - 03 - 0 - 1	Total/NA	Solid	8015B	390514
600-187716-4	CH - 04 - 0 - 1	Total/NA	Solid	8015B	390514
MB 240-390514/11-A	Method Blank	Total/NA	Solid	8015B	390514
LCS 240-390514/12-A	Lab Control Sample	Total/NA	Solid	8015B	390514
600-187822-A-11-B MS	Matrix Spike	Total/NA	Solid	8015B	390514
600-187822-A-11-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	390514

Analysis Batch: 390987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-5	CH - 05 - 0 - 1	Total/NA	Solid	8015B	390478

HPLC/IC

Analysis Batch: 268797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-1	CH - 01 - 0 - 1	Soluble	Solid	9056A	268802
600-187716-2	CH - 02 - 0 - 1	Soluble	Solid	9056A	268802
600-187716-3	CH - 03 - 0 - 1	Soluble	Solid	9056A	268802
600-187716-4	CH - 04 - 0 - 1	Soluble	Solid	9056A	268802
600-187716-5	CH - 05 - 0 - 1	Soluble	Solid	9056A	268802
MB 600-268802/1-A	Method Blank	Soluble	Solid	9056A	268802
LCS 600-268802/2-A	Lab Control Sample	Soluble	Solid	9056A	268802
600-187699-A-2-B MS	Matrix Spike	Soluble	Solid	9056A	268802
600-187699-A-2-C MSD	Matrix Spike Duplicate	Soluble	Solid	9056A	268802

Leach Batch: 268802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-1	CH - 01 - 0 - 1	Soluble	Solid	DI Leach	
600-187716-2	CH - 02 - 0 - 1	Soluble	Solid	DI Leach	
600-187716-3	CH - 03 - 0 - 1	Soluble	Solid	DI Leach	
600-187716-4	CH - 04 - 0 - 1	Soluble	Solid	DI Leach	
600-187716-5	CH - 05 - 0 - 1	Soluble	Solid	DI Leach	
MB 600-268802/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 600-268802/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
600-187699-A-2-B MS	Matrix Spike	Soluble	Solid	DI Leach	
600-187699-A-2-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 268878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-6	CH - 06 - 0 - 1	Soluble	Solid	9056A	268903
MB 600-268903/1-A	Method Blank	Soluble	Solid	9056A	268903
LCS 600-268903/2-A	Lab Control Sample	Soluble	Solid	9056A	268903
600-187716-6 MS	CH - 06 - 0 - 1	Soluble	Solid	9056A	268903
600-187716-6 MSD	CH - 06 - 0 - 1	Soluble	Solid	9056A	268903

Leach Batch: 268903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-6	CH - 06 - 0 - 1	Soluble	Solid	DI Leach	
600-187716-7	CH - 07 - 0 - 1	Soluble	Solid	DI Leach	

HPLC/IC (Continued)

Leach Batch: 268903 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 600-268903/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 600-268903/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
600-187716-6 MS	CH - 06 - 0 - 1	Soluble	Solid	DI Leach	
600-187716-6 MSD	CH - 06 - 0 - 1	Soluble	Solid	DI Leach	

Analysis Batch: 268963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187716-7	CH - 07 - 0 - 1	Soluble	Solid	9056A	268903

Lab Chronicle

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

Client Sample ID: CH - 01 - 0 - 1

Lab Sample ID: 600-187716-1

Date Collected: 06/26/19 10:50
Matrix: Solid
Date Received: 06/27/19 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			268347	06/27/19 13:58	KLV	TAL HOU
Total/NA	Analysis	8260B		1	268395	07/01/19 12:14	WS1	TAL HOU
Total/NA	Prep	5030B			389898	07/05/19 13:55	KMG	TAL CAN
Total/NA	Analysis	8015B		20	390037	07/08/19 10:00	KMG	TAL CAN
Total/NA	Prep	3546			390514	07/10/19 12:12	EMB	TAL CAN
Total/NA	Analysis	8015B		20	390979	07/12/19 21:26	DEB	TAL CAN
Soluble	Leach	DI Leach			268802	07/05/19 18:31	SKR	TAL HOU
Soluble	Analysis	9056A		100	268797	07/06/19 01:08	SKR	TAL HOU

Client Sample ID: CH - 02 - 0 - 1

Lab Sample ID: 600-187716-2

Date Collected: 06/26/19 11:05
Matrix: Solid
Date Received: 06/27/19 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			268347	06/27/19 13:58	KLV	TAL HOU
Total/NA	Analysis	8260B		1	268339	06/29/19 21:01	KLV	TAL HOU
Total/NA	Prep	5030A			389163	07/01/19 09:46	LKG	TAL CAN
Total/NA	Analysis	8015B		1	389182	07/01/19 23:18	LKG	TAL CAN
Total/NA	Prep	3546			390514	07/10/19 12:12	EMB	TAL CAN
Total/NA	Analysis	8015B		1	390979	07/12/19 21:53	DEB	TAL CAN
Soluble	Leach	DI Leach			268802	07/05/19 18:31	SKR	TAL HOU
Soluble	Analysis	9056A		100	268797	07/06/19 01:26	SKR	TAL HOU

Client Sample ID: CH - 03 - 0 - 1

Lab Sample ID: 600-187716-3

Date Collected: 06/26/19 11:15
Matrix: Solid
Date Received: 06/27/19 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			268347	06/27/19 13:58	KLV	TAL HOU
Total/NA	Analysis	8260B		1	268339	06/29/19 21:24	KLV	TAL HOU
Total/NA	Prep	5030A			389163	07/01/19 09:46	LKG	TAL CAN
Total/NA	Analysis	8015B		1	389182	07/01/19 23:59	LKG	TAL CAN
Total/NA	Prep	3546			390514	07/10/19 12:12	EMB	TAL CAN
Total/NA	Analysis	8015B		1	390979	07/12/19 22:20	DEB	TAL CAN
Soluble	Leach	DI Leach			268802	07/05/19 18:31	SKR	TAL HOU
Soluble	Analysis	9056A		100	268797	07/06/19 01:44	SKR	TAL HOU

Client Sample ID: CH - 04 - 0 - 1

Lab Sample ID: 600-187716-4

Date Collected: 06/26/19 11:25
Matrix: Solid
Date Received: 06/27/19 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			268347	06/27/19 13:58	KLV	TAL HOU
Total/NA	Analysis	8260B		1	268339	06/29/19 22:56	KLV	TAL HOU

Lab Chronicle

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

Client Sample ID: CH - 04 - 0 - 1

Lab Sample ID: 600-187716-4

Date Collected: 06/26/19 11:25

Matrix: Solid

Date Received: 06/27/19 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		268519	06/27/19 13:58	KLV	TAL HOU
Total/NA	Analysis	8260B	DL	1	268524	07/02/19 18:17	KLV	TAL HOU
Total/NA	Prep	5035	DL2		268519	06/27/19 13:58	KLV	TAL HOU
Total/NA	Analysis	8260B	DL2	5	268654	07/03/19 15:26	KLV	TAL HOU
Total/NA	Prep	5030B			389898	07/05/19 13:55	KMG	TAL CAN
Total/NA	Analysis	8015B		1	389903	07/06/19 06:30	KMG	TAL CAN
Total/NA	Prep	5030A			390100	07/08/19 09:36	KMG	TAL CAN
Total/NA	Analysis	8015B		1	390115	07/09/19 01:10	KMG	TAL CAN
Total/NA	Prep	3546			390514	07/10/19 12:12	EMB	TAL CAN
Total/NA	Analysis	8015B		100	390979	07/12/19 22:47	DEB	TAL CAN
Soluble	Leach	DI Leach			268802	07/05/19 18:31	SKR	TAL HOU
Soluble	Analysis	9056A		500	268797	07/06/19 02:01	SKR	TAL HOU

Client Sample ID: CH - 05 - 0 - 1

Lab Sample ID: 600-187716-5

Date Collected: 06/26/19 11:35

Matrix: Solid

Date Received: 06/27/19 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			268347	06/27/19 13:58	KLV	TAL HOU
Total/NA	Analysis	8260B		1	268395	07/01/19 11:51	WS1	TAL HOU
Total/NA	Prep	5030B			389898	07/05/19 13:55	KMG	TAL CAN
Total/NA	Analysis	8015B		1	389903	07/06/19 08:25	KMG	TAL CAN
Total/NA	Prep	3546			390478	07/10/19 09:48	ZMF	TAL CAN
Total/NA	Analysis	8015B		20	390987	07/12/19 18:33	DEB	TAL CAN
Soluble	Leach	DI Leach			268802	07/05/19 18:31	SKR	TAL HOU
Soluble	Analysis	9056A		100	268797	07/06/19 02:19	SKR	TAL HOU

Client Sample ID: CH - 06 - 0 - 1

Lab Sample ID: 600-187716-6

Date Collected: 06/26/19 11:45

Matrix: Solid

Date Received: 06/27/19 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			268347	06/27/19 13:58	KLV	TAL HOU
Total/NA	Analysis	8260B		1	268339	06/29/19 21:47	KLV	TAL HOU
Total/NA	Prep	5030A			389621	07/03/19 11:14	LKG	TAL CAN
Total/NA	Analysis	8015B		1	389626	07/04/19 15:06	KMG	TAL CAN
Total/NA	Prep	3546			390478	07/10/19 09:48	ZMF	TAL CAN
Total/NA	Analysis	8015B		1	390809	07/11/19 23:21	DEB	TAL CAN
Soluble	Leach	DI Leach			268903	07/08/19 14:57	SKR	TAL HOU
Soluble	Analysis	9056A		50	268878	07/08/19 15:52	SKR	TAL HOU

Lab Chronicle

Client: AECOM
Project/Site: Cotton Hills

Job ID: 600-187716-1

Client Sample ID: CH - 07 - 0 - 1

Lab Sample ID: 600-187716-7

Date Collected: 06/26/19 11:55

Matrix: Solid

Date Received: 06/27/19 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			268347	06/27/19 13:58	KLV	TAL HOU
Total/NA	Analysis	8260B		1	268339	06/29/19 22:10	KLV	TAL HOU
Total/NA	Prep	5030A			389163	07/01/19 09:46	LKG	TAL CAN
Total/NA	Analysis	8015B		1	389182	07/02/19 02:43	LKG	TAL CAN
Total/NA	Prep	3546			390478	07/10/19 09:48	ZMF	TAL CAN
Total/NA	Analysis	8015B		1	390809	07/12/19 00:44	DEB	TAL CAN
Soluble	Leach	DI Leach			268903	07/08/19 14:57	SKR	TAL HOU
Soluble	Analysis	9056A		1	268963	07/09/19 17:09	SKR	TAL HOU

Client Sample ID: TRIP BLANK

Lab Sample ID: 600-187716-8

Date Collected: 06/26/19 00:00

Matrix: Water

Date Received: 06/27/19 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	268365	06/30/19 15:10	PXS	TAL HOU

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Accreditation/Certification Summary

Client: AECOM
Job ID: 600-187716-1
Project/Site: Cotton Hills

Laboratory: Eurofins TestAmerica, Houston

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Texas	NELAP	6	T104704223-18-23	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State		2927	02-23-20
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-20
Florida	NELAP		E87225	06-30-20
Illinois	NELAP	5	200004	07-31-19 *
Illinois	NELAP		004498	07-31-19
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State		OH00048	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-20
New Jersey	NELAP		OH001	06-30-20
New York	NELAP	2	10975	03-31-20
New York	NELAP		10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Oregon	NELAP		4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Pennsylvania	NELAP		68-00340	08-31-19
Texas	NELAP	6	T104704517-18-10	08-31-19 *
Texas	NELAP		T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Virginia	NELAP		010101	09-14-19
Washington	State		C971	01-12-20
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State		210	12-31-19
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: SF	Lab PM: Kudchadkar, Sachin G	Carrier Tracking No(s):	COC No: 600-69310-18903.1
Client Contact: Mr. Wallace Gilmore	Phone: 505 699 3257	E-Mail: sachin.kudchadkar@testamericainc.com		Page: Page 1/1
Company: AECOM				Job #:
Address: 19219 Katy Freeway Suite 100	Due Date Requested:			
City: Houston	TAT Requested (days):			
State, Zip: TX, 77094				
Phone: 713-520-990(Tel) 713-520-680(Fax)	PO #:			
Email: wallace.gilmore@aecom.com	WO #:			
Project Name: Chevron	Project #: 60008660			
Site: Cotton Hills	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	TX_1005 - (TPH	8260B - BTEX Only	9056_ORGFM_28D - Chloride	1311/ 6010B, 7470A - TCLP metals	moisture	Total Number of containers	Special Instructions/Note:
Preservation Code:							N	N	N	N	N		
CH-01-0-1	6/26/19	1050	G	Solid			2	3	1		1		
CH-02-0-1	6/26/19	1105	G	Solid			2	3	1		1		
CH-03-0-1	6/26/19	1115	G	Solid			2	3	1		1		
CH-04-0-1	6/26/19	1125	G	Solid			2	3	1		1		
CH-05-0-1	6/26/19	1135	G	Solid			2	3	1		1		
CH-06-0-1	6/26/19	1145	G	Solid			2	3	1		1		
CH-07-0-1	6/26/19	1155	G	Solid			2	3	1		1		
				Solid									
				Solid									
				Solid									
				Solid									

600-187716 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	6/25/19 1630	AECOM	Received by:	6/27/19 957	TAH
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Loc: 600
187716

TestAmerica Houston

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Receipt Checklist

'19 JUN 27 9:57

Date/Time Received: _____

JOB NUMBER: _____ CLIENT: Aecom

UNPACKED BY: 47 CARRIER/DRIVER: FedEx

Custody Seal Present: ☒ YES ☐ NO Number of Coolers Received: 1

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Them CF	Corrected Temp (°C)
WB	Y / N	Y / N	2.1	078	+0.1	2.2
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				YR 6/27/19
	Y / N	Y / N				
	Y / N	Y / N				

CF = correction factor

Samples received on ice? ☒ YES ☐ NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED: ☒ NO ☐ YES

Base samples are>pH 12: ☐ YES ☐ NO Acid preserved are<pH 2: ☐ YES ☐ NO

pH paper Lot #_____

VOA headspace acceptable (5-6mm): ☒ YES ☐ NO ☐ NA

	YES	NO
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	☒	☐

COMMENTS:

YR 6/27/19

HS-SA-WI-013 Rev. 3; 07/01/2014

600-187716 Waybill

FedEx
TRK# 0221 4840 2906 6603

THU – 27 JUN 10:30A
PRIORITY OVERNIGHT

AB LKSA

77040
TX – US IAH

#20265 06/26 565J1/D210/23AD

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone: 713-690-4444 Fax: 713-690-5646

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kudchadkar, Sachin G	Carrier Tracking No(s):	COC No: 600-40347.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sachin.kudchadkar@testamericainc.com	State of Origin: Texas	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Texas		Job #: 600-187716-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 7/11/2019			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Chevron	Project #: 60008660			
Site:	SSOW#:			

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

C155 GC

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8015B_GRO/5030B_SolidNAC (MOD) Copy Analytes	8015B_DRO/3546 (MOD) Diesel Range Organics [C10-C28]	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
CH - 01 - 0 - 1 (600-187716-1)	6/26/19	10:50 Central		Solid			X	X	3	
CH - 02 - 0 - 1 (600-187716-2)	6/26/19	11:05 Central		Solid			X	X	3	
CH - 03 - 0 - 1 (600-187716-3)	6/26/19	11:15 Central		Solid			X	X	3	
CH - 04 - 0 - 1 (600-187716-4)	6/26/19	11:25 Central		Solid			X	X	3	
CH - 05 - 0 - 1 (600-187716-5)	6/26/19	11:35 Central		Solid			X	X	3	
CH - 06 - 0 - 1 (600-187716-6)	6/26/19	11:45 Central		Solid			X	X	3	
CH - 07 - 0 - 1 (600-187716-7)	6/26/19	11:55 Central		Solid			X	X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1					6-28-19 915	ETAC
2						
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____

Canton Facility

Client TA Houston Site Name _____ Cooler unpacked by: MM

Cooler Received on 6-28-19 Opened on 6-28-19

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-8 (CF +0.1 °C) Observed Cooler Temp. 2.4 °C Corrected Cooler Temp. 2.5 °C

IR GUN #36 (CF +0.6°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Are these work share samples?	Yes	No
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC984738
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
16. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Sample Receipt Checklist

Client: AECOM

Job Number: 600-187716-1

Login Number: 187716

List Source: Eurofins TestAmerica, Houston

List Number: 1

Creator: Rubio, Yuri

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Received Trip Blank(s) not listed on COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

19219 Katy Freeway, Suite 100
Houston, Texas 77094
Phone: 281-646-2400

aecom.com