V47B6-191028-C-1410

1RP-5583
Delineation Report and Remediation Plan
SD Pad 15
Produced Water Release
Lea County, New Mexico

Latitude: N 32.03518°
Longitude: W -103.62980°

LAI Project No. 19-0154-01

October 22, 2019

Prepared for:
Chevron USA Inc.
6301 Deauville Blvd.
Midland, Texas 79706

Prepared by:
Larson & Associates, Inc.
507 North Marienfeld Street, Suite 205
Midland, Texas 79701

Mark J. Larson, P.G.
Certified Professional Geologist #10490

Rachel E. Owen
Sr. Geoscientist

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1.0 INTRODUCTION

Larson & Associates, Inc. (LAI), has prepared this delineation report and remediation plan on behalf of Chevron USA Inc. (Chevron) for submittal to the New Mexico Oil Conservation Division (OCD) District 1 for a produced water release at the SD Pad 15 (Site) located in Unit C (NE/4, NW/4), Section 24, Township 26 South, Range 32 East in Lea County New Mexico. The geodetic position is North 32.03518° and West -103.62980°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The release was discovered on June 15, 2019 at 4:00 AM. The spill occurred from a ruptured layflat line on a discharge inline pump during a hydraulic fracturing job. Chevron reported 29.7 barrels (bbls) of produced water released. No fluid was recovered. The affected area measures approximately 12,559 square feet. LAI calculated the spill volume at approximately 70 bbls based on depth of impacted soil between 1 to 2 feet and average soil moisture of 3% from laboratory analysis. The initial C-141 was submitted to OCD District 1 on June 24, 2019 and assigned remediation permit number 1RP-5583. Appendix A presents the initial C-141. Appendix B presents OCD communications.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,567 feet above mean sea level (msl);
- The surface topography gradually decreases to the southwest;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as “Pyote and Maljamar fine sands, 0 to 3 percent slopes ”, consisting of 0 to 24 inches of fine sand, underlain by 24 to 50 inches of a sandy clay loam, and 50 to 60 inches of cemented material (caliche);
- The geology is Eolian and piedmont deposits (Holocene to middle Pleistocene)- interlayed eolian sands and piedmont-slope deposits;
- Groundwater occurs at approximately 180 feet below ground surface (bgs) (2013);
- According to the New Mexico Office of the State Engineer (OSE) website the nearest freshwater well is located in Unit K (NE/4, SW/4) in Section 21, Township 26 South, Range 32 East approximately 3.14 miles or 16,603.32 feet southwest of the Site.

1.3 Remediation Action Levels

The following remediation standards are based on closure criteria for soils impacted by a release as presented in Table 1 of 19.15.29 NMAC:

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 2,500 mg/Kg
- Chloride 20,000 mg/Kg

Further, 19.15.29.13 NMAC (Restoration, Reclamation and Re-Vegetation) requires the operator to restore the impacted surface area that existed prior to the release or their final land use.

2.0 DELINEATION

On June 28, 2019, LAI personnel used a stainless steel hand auger to collect soil samples from thirteen (13) locations inside of the spill area and in each cardinal direction of the spill (HA-1 through HA-13) to vertically and horizontally delineate the release. The samples were collected at 1 foot intervals to approximately 2 feet bgs. The soil samples were delivered under chain of custody and preservation to Permian Basin Environmental Laboratory (PBEL) in Midland, Texas. The upper samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH), including gasoline range organics (C6-C12), diesel range organics (>C12-C28) and oil range organics (>C28-C35) by EPA SW-846 Methods 8021B and 8015M, respectively. All samples were analyzed for chloride by EPA Method 300. Figure 2 presents an aerial photograph showing the sample locations. Benzene, BTEX, and TPH were reported below the remediation action levels of 10 milligrams per kilogram (mg/Kg), 50 mg/Kg, and 2,500 mg/Kg in all samples. Chloride exceeded the surface restoration levels of 600 mg/Kg in the following samples:

HA-2, 0 to 1' - 3,000 mg/Kg
HA-3, 1 to 2' – 4,910 mg/Kg
HA-5, 1 to 2' – 4,350 mg/Kg
HA-8, 0 to 1' – 6,600 mg/Kg
HA-9, 0 to 1' – 7,280 mg/Kg
HA-10, 0 to 1' – 8,220 mg/Kg
HA-11, 0 to 1' – 1,740 mg/Kg
HA-13, 1 to 2' – 7,720 mg/Kg
HA-3, 0 to 1' – 6,850 mg/Kg
HA-5, 0 to 1' – 4,890 mg/Kg
HA-6, 1 to 2' – 9,270 mg/Kg
HA-8, 1 to 2' – 8,840 mg/Kg
HA-9, 1 to 2' – 7,210 mg/Kg
HA-10 1 to 2' – 7,510 mg/Kg
HA-13, 0 to 1' – 6,970 mg/Kg

On August 21 and 22, 2019, LAI personnel used direct push technology (DPT) to further delineate the release. Soil samples were collected at 5 and 10 feet bgs depending on subsurface conditions. The samples were delivered under chain of custody and preservation to PBEL for chloride by Method 300. All sample locations were delineated below remediation action levels for chloride (600 mg/kg from 0 to 4 feet and 20,000 mg/Kg greater than 4 feet). Table 1 presents the soil sample analytical data summary. Appendix C presents the laboratory reports.

3.0 Remediation Plan

Chevron proposes the following remedial actions:

- Excavate 10' X 10' encompassing HA-2 to 2 feet bgs;
- Excavate 10' X 10' encompassing HA-11 to 2 feet bgs;
- Excavate 240' X 30' encompassing HA-3, HA-5, and HA-6, HA-8, HA-9, HA-10, and HA-13 to 3 feet bgs;
- Collect bottom and sidewall confirmation soil samples and analyze for BTEX, TPH and chloride;
- Backfill excavations with clean topsoil in pasture assuming achievement of OCD remediation levels;
- Seed the pasture area with BLM Mix No. 3.

Figure 3 presents the proposed excavation areas.

Tables

Table 1
Soil Sample Analytical Data Summary
Chevron USA, SD Pad 15 Produced Water Spill
Lea County, NM
N32° 02' 6.65" W103° 37' 47.37"

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	C6 - C35 (mg/Kg)	chloride (mg/Kg)
RRAL				10	50				2,500	20,000
HA-1	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.0	<25.0	<25.0	<25.0	228
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	89.2
HA-2	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	**3,000**
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<25.5	<25.5	<25.5	<25.5	338
HA-3	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	**6,850**
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<26.3	<26.3	<26.3	<26.3	**4,910**
	5	8/21/2019	In-situ	--	--	--	--	--	--	899
	10	8/21/2019	In-situ	--	--	--	--	--	--	50.8
HA-4	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.5	<25.5	<25.5	<25.5	9.09
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<27.5	<27.5	<27.5	<27.5	11.2
HA-5	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	**4,890**
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<26.0	<26.0	<26.0	<26.0	**4,350**
	5	8/22/2019	In-situ	--	--	--	--	--	--	9.86
	10	8/22/2019	In-situ	--	--	--	--	--	--	1.54
HA-6	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	50.9
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	**9,270**
	5	8/22/2019	In-situ	--	--	--	--	--	--	10.3
HA-7	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	184
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<26.0	<26.0	<26.0	<26.0	25.4
HA-8	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	**6,600**
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<26.0	<26.0	<26.0	<26.0	**8,840**
	5	8/22/2019	In-situ	--	--	--	--	--	--	11.8
HA-9	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<26.0	<26.0	<26.0	<26.0	**7,280**
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<26.0	<26.0	<26.0	<26.0	**7,210**
	5	8/22/2019	In-situ	--	--	--	--	--	--	9.63

Table 1
Soil Sample Analytical Data Summary
Chevron USA, SD Pad 15 Produced Water Spill
Lea County, NM
N32° 02' 6.65" W103° 37' 47.37"

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	C6 - C35 (mg/Kg)	chloride (mg/Kg)
RRAL				**10**	**50**				**2,500**	**20,000**
HA-10	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	**8,220**
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<26.0	<26.0	<26.0	<26.0	**7,510**
	5	8/22/2019	In-situ	--	--	--	--	--	--	15.4
HA-11	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	**1,740**
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<26.0	<26.0	<26.0	<26.0	107
HA-12	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	58.3
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<27.2	<27.2	<27.2	<27.2	3.37
HA-13	0 - 1	06/28/2019	In-situ	<0.00100	<0.00600	<25.8	<25.8	<25.8	<25.8	**6,970**
	1 - 2	06/28/2019	In-situ	<0.00100	<0.00600	<26.0	<26.0	<26.0	<26.0	**7,720**
	5	8/22/2019	In-situ	--	--	--	--	--	--	2.36
	10	8/22/2019	In-situ	--	--	--	--	--	--	2.76

Notes: analysis performed by Permian Baisin Environmentnal Lab by Method
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram
Exceeds New Mexico OCD Remediation Levels

Figures

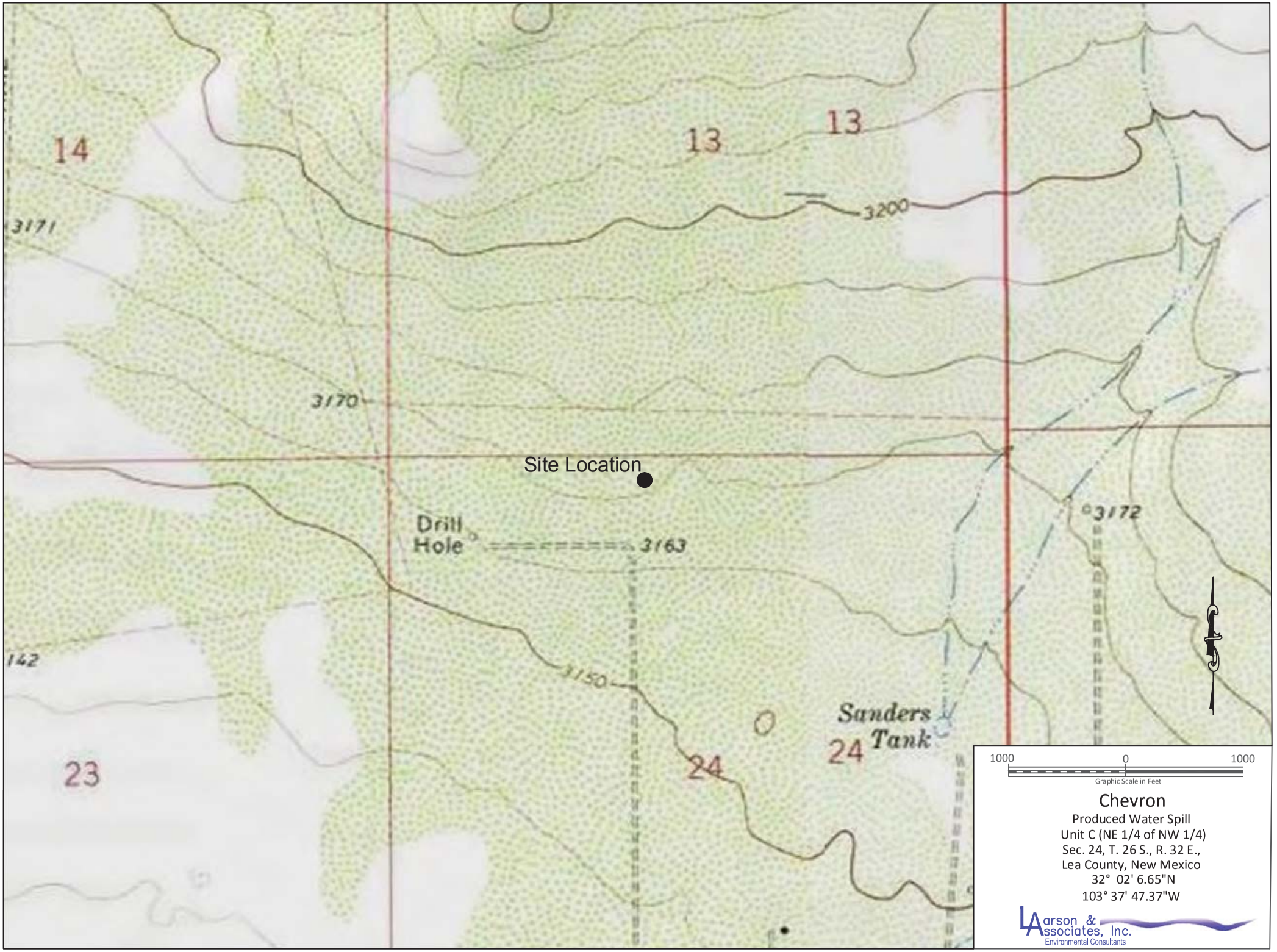

Figure 1 - Topographic Map

Figure 2 - Aerial Map Showing Soil Sample Locations

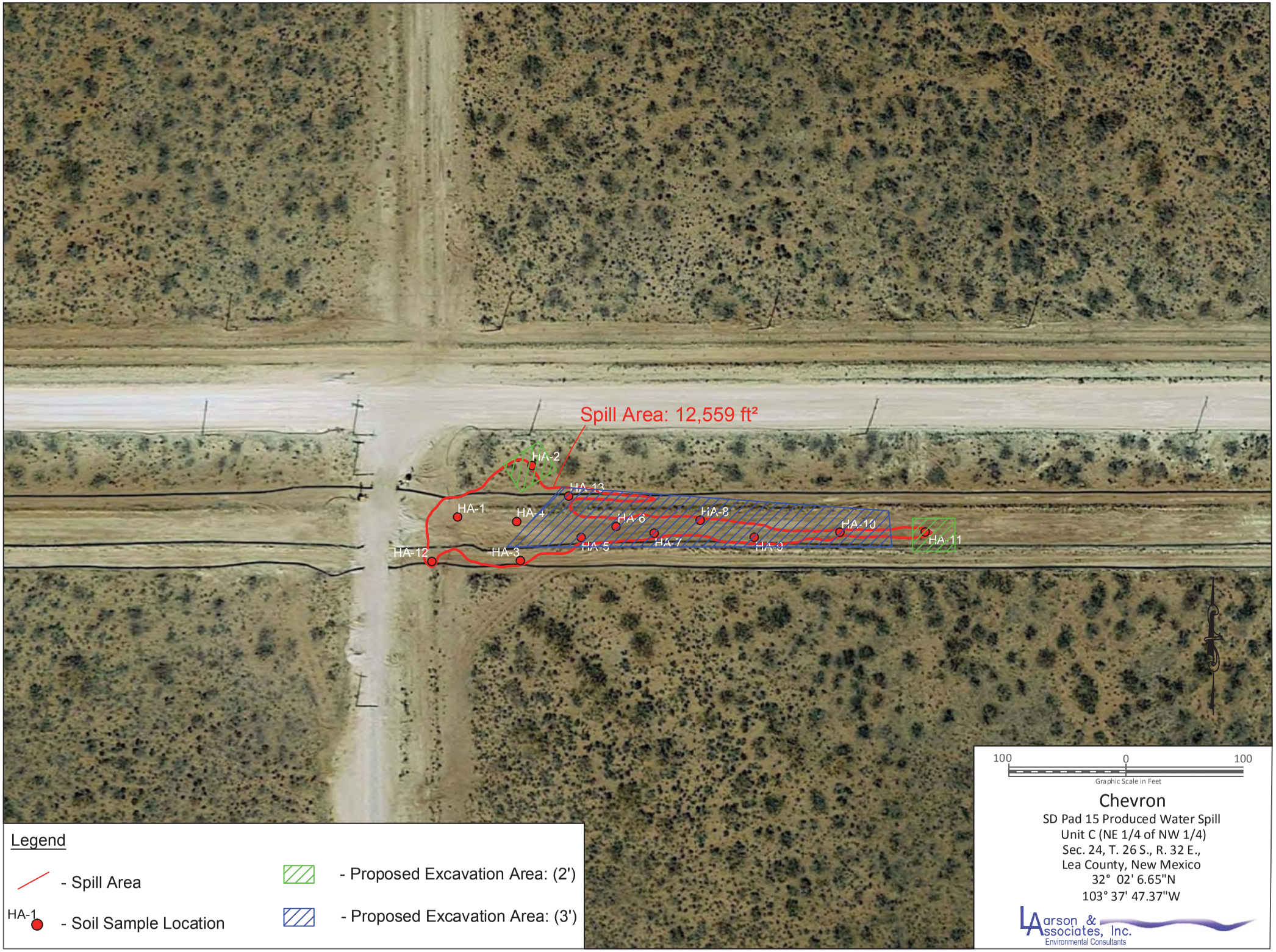

Figure 3 - Aerial Map Showing Proposed Excavation Locations

Appendix A

Initial C-141

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	NDHR1917930656
District RP	1RP-5583
Facility ID	
Application ID	pDHR1917930486

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)* NDHR1917930656
Contact mailing address: 1616 W. Bender Blvd., Hobbs, NM 88242	

Location of Release Source

Latitude 32.021226 Longitude -103.600054

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: SD EA 2932 Federal Comp P11 #014H	Site Type: Oil
Date Release Discovered: 06/15/2019; 04:00 AM	API# *(if applicable): 30-025-44334*

Unit Letter	Section	Township	Range	County
D	29	26S	33E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water (and fresh water)	Volume Released (bbls): 29.7 barrels	Volume Recovered (bbls): 0 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)

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1917930656
District RP	1RP-5583
Facility ID	
Application ID	pDHR1917930486

Cause of Release:

Ruptured layflat on discharge inline pump. Immediately shut down frac job and replaced hose.

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? Greater than 25 barrels.

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

Email and voicemail notification to Dylan Rose-Coss (NMOCD) on June 15, 2016 at 09:22 pm and follow up phone call on June 16, 2016 at 08:00 am and phone call to Jim Amos (NMOCD) on June 15, 2019 at 09:22 p.m.

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.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Signature:  Date: **June 24, 2019**

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

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

OCD Only

Received by: Dylan Rose-Coss Date: 06/28/2019

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Appendix B

OCD Communications

Rose-Coss, Dylan H, EMNRD

From: Rose-Coss, Dylan H, EMNRD
Sent: Friday, June 28, 2019 8:40 AM
To: 'DeLeon, Josepha'; James Amos
Cc: Faulkner, Rick; Sule, Abdul A; Barnhill, Amy D.
Subject: RE: C-141 - SD EA 2932 Federal Comp P11 #014H - Layflat Inline Pump Water Release

All,

The NMOCD tracking number for this release is **1RP-5583**.

Question: Was there any frac fluid released during this event? If so, the NMOCD will need a list of compounds within the fluid and those compounds will need to be sampled for during the characterization phase of the process.

Additionally, for this release and all subsequent notifications please submit calculations summarizing how the release volume was determined.

Thanks,

Dylan Rose-Coss

Environmental Scientist
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

(505) 476-3488

From: DeLeon, Josepha <JDXD@chevron.com>
Sent: Monday, June 24, 2019 3:15 PM
To: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>; James Amos <jamos@blm.gov>
Cc: Faulkner, Rick <Rick.Faulkner@chevron.com>; Sule, Abdul A <ASule@chevron.com>; Barnhill, Amy D. <ABarnhill@chevron.com>
Subject: [EXT] C-141 - SD EA 2932 Federal Comp P11 #014H - Layflat Inline Pump Water Release

Attached is the C-141 for the SD (Salado Draw) line rupture that occurred on June 15, 2019.

Josie DeLeon, HES Specialist –
Compliance Support – Environmental
Chevron - MCBU
(Carlsbad, Hobbs, Eunice, Vacuum, Buckeye Gas Plant)
1616 W. Bender Blvd.
Hobbs, NM 88240
575-263-0424
432-425-1528 - cell
jdxd@chevron.com

Appendix C

Laboratory Reports

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Location: None Given

Lab Order Number: 9G01006

NELAP/TCEQ # T104704516-18-9

Report Date: 07/15/19

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HA-12 @ (0'-1')	9G01006-01	Soil	06/28/19 12:21	07-01-2019 12:12
HA-12 @ (1'-2')	9G01006-02	Soil	06/28/19 12:21	07-01-2019 12:12
HA-1 @ (0'-1')	9G01006-03	Soil	06/28/19 12:33	07-01-2019 12:12
HA-1 @ (1'-2')	9G01006-04	Soil	06/28/19 12:37	07-01-2019 12:12
HA-2 @ (0'-1')	9G01006-05	Soil	06/28/19 12:41	07-01-2019 12:12
HA-2 @ (1'-2')	9G01006-06	Soil	06/28/19 12:51	07-01-2019 12:12
HA-13 @ (0'-1')	9G01006-07	Soil	06/28/19 12:57	07-01-2019 12:12
HA-13 @ (1'-2')	9G01006-08	Soil	06/28/19 12:59	07-01-2019 12:12
HA-4 @ (0'-1')	9G01006-09	Soil	06/28/19 13:04	07-01-2019 12:12
HA-4 @ (1'-2')	9G01006-10	Soil	06/28/19 13:09	07-01-2019 12:12
HA-3 @ (0'-1')	9G01006-11	Soil	06/28/19 13:14	07-01-2019 12:12
HA-3 @ (1'-2')	9G01006-12	Soil	06/28/19 13:17	07-01-2019 12:12
HA-5 @ (0'-1')	9G01006-13	Soil	06/28/19 13:33	07-01-2019 12:12
HA-5 @ (1'-2')	9G01006-14	Soil	06/28/19 13:14	07-01-2019 12:12
HA-6 @ (0'-1')	9G01006-15	Soil	06/28/19 13:39	07-01-2019 12:12
HA-6 @ (1'-2')	9G01006-16	Soil	06/28/19 13:42	07-01-2019 12:12
HA-7 @ (0'-1')	9G01006-17	Soil	06/28/19 13:47	07-01-2019 12:12
HA-7 @ (1'-2')	9G01006-18	Soil	06/28/19 13:49	07-01-2019 12:12
HA-8 @ (0'-1')	9G01006-19	Soil	06/28/19 13:53	07-01-2019 12:12
HA-8 @ (1'-2')	9G01006-20	Soil	06/28/19 13:55	07-01-2019 12:12
HA-9 @ (0'-1')	9G01006-21	Soil	06/28/19 14:01	07-01-2019 12:12
HA-9 @ (1'-2')	9G01006-22	Soil	06/28/19 14:03	07-01-2019 12:12
HA-10 @ (0'-1')	9G01006-23	Soil	06/28/19 14:06	07-01-2019 12:12
HA-10 @ (1'-2')	9G01006-24	Soil	06/28/19 14:09	07-01-2019 12:12
HA-11 @ (0'-1')	9G01006-25	Soil	06/28/19 14:13	07-01-2019 12:12
HA-11 @ (1'-2')	9G01006-26	Soil	06/28/19 14:16	07-01-2019 12:12

HA-12 @ (0'-1')

9G01006-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*114 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*94.9 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**58.3**	1.03	mg/kg dry	1	P9G0806	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*118 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/04/19	07/06/19	calc	

Larson & Associates, Inc.
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Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

HA-12 @ (1'-2')

9G01006-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*118 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*108 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3.37**	1.09	mg/kg dry	1	P9G0806	07/08/19	07/09/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.0 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*104 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	07/04/19	07/06/19	calc	

Larson & Associates, Inc.
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Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

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HA-1 @ (0'-1')

9G01006-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*112 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*92.9 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**228**	1.00	mg/kg dry	1	P9G0806	07/08/19	07/09/19	EPA 300.0	
% Moisture	ND	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.0	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.0	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.0	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*109 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*119 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.0	mg/kg dry	1	[CALC]	07/04/19	07/06/19	calc	

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Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

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HA-1 @ (1'-2')

9G01006-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*95.3 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*98.1 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**89.2**	1.03	mg/kg dry	1	P9G0806	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*103 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/04/19	07/06/19	calc	

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HA-2 @ (0'-1')

9G01006-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*104 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*97.2 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3000**	10.3	mg/kg dry	10	P9G0806	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*104 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*115 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/04/19	07/06/19	calc	

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HA-2 @ (1'-2')

9G01006-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*103 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*108 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**338**	1.02	mg/kg dry	1	P9G0806	07/08/19	07/09/19	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*103 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*112 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/04/19	07/06/19	calc	

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Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

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HA-13 @ (0'-1')

9G01006-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*96.1 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*107 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**6970**	25.8	mg/kg dry	25	P9G0806	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*110 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*118 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/04/19	07/06/19	calc	

Larson & Associates, Inc.
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HA-13 @ (1'-2')

9G01006-08 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*89.8 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*102 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**7720**	26.0	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9G0403	07/04/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*107 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*116 %*	*70-130*		*P9G0403*	*07/04/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	07/04/19	07/06/19	calc	

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HA-4 @ (0'-1')

9G01006-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*89.9 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*99.1 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**9.09**	1.02	mg/kg dry	1	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*122 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.
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Project: Chevron SD Pad 15
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HA-4 @ (1'-2')

9G01006-10 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*84.5 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*92.9 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**11.2**	1.10	mg/kg dry	1	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*99.3 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.
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Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

HA-3 @ (0'-1')

9G01006-11 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*99.8 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*102 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**6850**	25.8	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*114 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*124 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

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Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

HA-3 @ (1'-2')

9G01006-12 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*90.5 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*85.2 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**4910**	26.3	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*112 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*123 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

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Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

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HA-5 @ (0'-1')

9G01006-13 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*112 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*109 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**4890**	25.8	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*126 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*139 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-5 @ (1'-2')

9G01006-14 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*108 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*99.8 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**4350**	10.4	mg/kg dry	10	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*119 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*131 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

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Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

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HA-6 @ (0'-1')

9G01006-15 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*87.9 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*104 %*	*80-120*		*P9G0206*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**50.9**	1.03	mg/kg dry	1	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*120 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*134 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

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Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

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HA-6 @ (1'-2')

9G01006-16 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*94.8 %*	*80-120*		*P9G0208*	*07/02/19*	*07/02/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*94.4 %*	*80-120*		*P9G0208*	*07/02/19*	*07/02/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**9270**	51.5	mg/kg dry	50	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*110 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*122 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.
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Midland TX, 79710

Project: Chevron SD Pad 15
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Project Manager: Mark Larson

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HA-7 @ (0'-1')

9G01006-17 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*85.7 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*96.2 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**184**	1.03	mg/kg dry	1	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*135 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*151 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-7 @ (1'-2')

9G01006-18 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*95.0 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*90.2 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**25.4**	1.04	mg/kg dry	1	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*121 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*135 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.
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Project: Chevron SD Pad 15
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HA-8 @ (0'-1')

9G01006-19 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*89.4 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*95.3 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**6600**	25.8	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*128 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*142 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-8 @ (1'-2')

9G01006-20 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*92.9 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*105 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**8840**	26.0	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*117 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*129 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.
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Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

HA-9 @ (0'-1')

9G01006-21 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*89.8 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*112 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**7280**	26.0	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*128 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*142 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-9 @ (1'-2')

9G01006-22 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*83.2 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*104 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**7210**	26.0	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*119 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*133 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

HA-10 @ (0'-1')

9G01006-23 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*91.6 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*95.4 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**8220**	25.8	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*114 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*129 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.
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Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

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HA-10 @ (1'-2')

9G01006-24 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*89.7 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*103 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**7510**	26.0	mg/kg dry	25	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*123 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*138 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-11 @ (0'-1')

9G01006-25 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*81.9 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*96.7 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1740**	5.15	mg/kg dry	5	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*114 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*128 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.
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Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

HA-11 @ (1'-2')

9G01006-26 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0208	07/02/19	07/03/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*89.8 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*102 %*	*80-120*		*P9G0208*	*07/02/19*	*07/03/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**107**	1.04	mg/kg dry	1	P9G0807	07/08/19	07/09/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9G0301	07/03/19	07/03/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9G0503	07/05/19	07/06/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*119 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*135 %*	*70-130*		*P9G0503*	*07/05/19*	*07/06/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	07/05/19	07/06/19	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0206 - General Preparation (GC)										
Blank (P9G0206-BLK1)				Prepared & Analyzed: 07/02/19						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	*0.0679*		*"*	*0.0600*		*113*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0593*		*"*	*0.0600*		*98.8*	*80-120*			
LCS (P9G0206-BS1)				Prepared & Analyzed: 07/02/19						
Benzene	0.105	0.00100	mg/L	0.100		105	80-120			
Toluene	0.0901	0.00100	"	0.100		90.1	80-120			
Ethylbenzene	0.111	0.00100	"	0.100		111	80-120			
Xylene (p/m)	0.198	0.00200	"	0.200		98.9	80-120			
Xylene (o)	0.114	0.00100	"	0.100		114	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0497*		*"*	*0.0600*		*82.8*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0482*		*"*	*0.0600*		*80.3*	*80-120*			
LCS Dup (P9G0206-BSD1)				Prepared & Analyzed: 07/02/19						
Benzene	0.111	0.00100	mg/L	0.100		111	80-120	5.03	20	
Toluene	0.0971	0.00100	"	0.100		97.1	80-120	7.46	20	
Ethylbenzene	0.107	0.00100	"	0.100		107	80-120	3.59	20	
Xylene (p/m)	0.209	0.00200	"	0.200		104	80-120	5.28	20	
Xylene (o)	0.118	0.00100	"	0.100		118	80-120	3.70	20	
Surrogate: 4-Bromofluorobenzene	*0.0584*		*"*	*0.0600*		*97.3*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0532*		*"*	*0.0600*		*88.7*	*80-120*			
Calibration Blank (P9G0206-CCB1)				Prepared & Analyzed: 07/02/19						
Benzene	0.00		mg/L							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0545*		*"*	*0.0600*		*90.8*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0574*		*"*	*0.0600*		*95.6*	*80-120*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0206 - General Preparation (GC)										
Calibration Blank (P9G0206-CCB2)				Prepared & Analyzed: 07/02/19						
Benzene	0.00		mg/L							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0592*		*"*	*0.0600*		*98.6*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0582*		*"*	*0.0600*		*96.9*	*80-120*			
Calibration Check (P9G0206-CCV1)				Prepared & Analyzed: 07/02/19						
Benzene	0.104	0.00100	mg/L	0.100		104	80-120			
Toluene	0.0901	0.00100	"	0.100		90.1	80-120			
Ethylbenzene	0.0868	0.00100	"	0.100		86.8	80-120			
Xylene (p/m)	0.186	0.00200	"	0.200		92.9	80-120			
Xylene (o)	0.108	0.00100	"	0.100		108	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0607*		*"*	*0.0600*		*101*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0672*		*"*	*0.0600*		*112*	*80-120*			
Calibration Check (P9G0206-CCV2)				Prepared & Analyzed: 07/02/19						
Benzene	0.110	0.00100	mg/L	0.100		110	80-120			
Toluene	0.0951	0.00100	"	0.100		95.1	80-120			
Ethylbenzene	0.0868	0.00100	"	0.100		86.8	80-120			
Xylene (p/m)	0.192	0.00200	"	0.200		96.1	80-120			
Xylene (o)	0.109	0.00100	"	0.100		109	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0556*		*"*	*0.0600*		*92.6*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0644*		*"*	*0.0600*		*107*	*80-120*			
Calibration Check (P9G0206-CCV3)				Prepared & Analyzed: 07/02/19						
Benzene	0.119	0.00100	mg/L	0.100		119	80-120			
Toluene	0.102	0.00100	"	0.100		102	80-120			
Ethylbenzene	0.0890	0.00100	"	0.100		89.0	80-120			
Xylene (p/m)	0.199	0.00200	"	0.200		99.6	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0555*		*"*	*0.0600*		*92.5*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0695*		*"*	*0.0600*		*116*	*80-120*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0206 - General Preparation (GC)										
Matrix Spike (P9G0206-MS1)		**Source: 9F28010-03**		Prepared & Analyzed: 07/02/19						
Benzene	0.0912	0.00100	mg/L	0.100	ND	91.2	80-120			
Toluene	0.0708	0.00100	"	0.100	ND	70.8	80-120			QM-07
Ethylbenzene	0.0601	0.00100	"	0.100	ND	60.1	80-120			QM-07
Xylene (p/m)	0.144	0.00200	"	0.200	ND	72.1	80-120			QM-07
Xylene (o)	0.0840	0.00100	"	0.100	ND	84.0	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0574*		*"*	*0.0600*		*95.6*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0622*		*"*	*0.0600*		*104*	*80-120*			
Matrix Spike Dup (P9G0206-MSD1)		**Source: 9F28010-03**		Prepared & Analyzed: 07/02/19						
Benzene	0.103	0.00100	mg/L	0.100	ND	103	80-120	12.1	20	
Toluene	0.0825	0.00100	"	0.100	ND	82.5	80-120	15.3	20	
Ethylbenzene	0.0769	0.00100	"	0.100	ND	76.9	80-120	24.6	20	QM-07, R2
Xylene (p/m)	0.175	0.00200	"	0.200	ND	87.6	80-120	19.5	20	
Xylene (o)	0.103	0.00100	"	0.100	ND	103	80-120	20.8	20	R2
Surrogate: 4-Bromofluorobenzene	*0.0624*		*"*	*0.0600*		*104*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0701*		*"*	*0.0600*		*117*	*80-120*			
Batch P9G0208 - General Preparation (GC)										
Blank (P9G0208-BLK1)				Prepared & Analyzed: 07/02/19						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	*0.0477*		*"*	*0.0600*		*79.5*	*80-120*			*S-GC*
Surrogate: 1,4-Difluorobenzene	*0.0592*		*"*	*0.0600*		*98.6*	*80-120*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0208 - General Preparation (GC)										
LCS (P9G0208-BS1)				Prepared & Analyzed: 07/02/19						
Benzene	0.118	0.00100	mg/L	0.100		118	80-120			
Toluene	0.0959	0.00100	"	0.100		95.9	80-120			
Ethylbenzene	0.110	0.00100	"	0.100		110	80-120			
Xylene (p/m)	0.195	0.00200	"	0.200		97.3	80-120			
Xylene (o)	0.120	0.00100	"	0.100		120	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0513*		*"*	*0.0600*		*85.4*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0700*		*"*	*0.0600*		*117*	*80-120*			
LCS Dup (P9G0208-BSD1)				Prepared & Analyzed: 07/02/19						
Benzene	0.104	0.00100	mg/L	0.100		104	80-120	11.8	20	
Toluene	0.0835	0.00100	"	0.100		83.5	80-120	13.8	20	
Ethylbenzene	0.100	0.00100	"	0.100		100	80-120	9.58	20	
Xylene (p/m)	0.178	0.00200	"	0.200		88.9	80-120	9.04	20	
Xylene (o)	0.109	0.00100	"	0.100		109	80-120	8.88	20	
Surrogate: 4-Bromofluorobenzene	*0.0506*		*"*	*0.0600*		*84.3*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0577*		*"*	*0.0600*		*96.1*	*80-120*			
Calibration Blank (P9G0208-CCB1)				Prepared & Analyzed: 07/02/19						
Benzene	0.00		mg/L							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0664*		*"*	*0.0600*		*111*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0559*		*"*	*0.0600*		*93.2*	*80-120*			
Calibration Blank (P9G0208-CCB2)				Prepared: 07/02/19 Analyzed: 07/03/19						
Benzene	0.00		mg/L							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0585*		*"*	*0.0600*		*97.4*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0607*		*"*	*0.0600*		*101*	*80-120*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0208 - General Preparation (GC)										
Calibration Check (P9G0208-CCV1)				Prepared & Analyzed: 07/02/19						
Benzene	0.119	0.00100	mg/L	0.100		119	80-120			
Toluene	0.102	0.00100	"	0.100		102	80-120			
Ethylbenzene	0.0890	0.00100	"	0.100		89.0	80-120			
Xylene (p/m)	0.199	0.00200	"	0.200		99.6	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0555*		*"*	*0.0600*		*92.5*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0695*		*"*	*0.0600*		*116*	*80-120*			
Calibration Check (P9G0208-CCV2)				Prepared: 07/02/19 Analyzed: 07/03/19						
Benzene	0.112	0.00100	mg/L	0.100		112	80-120			
Toluene	0.0886	0.00100	"	0.100		88.6	80-120			
Ethylbenzene	0.0804	0.00100	"	0.100		80.4	80-120			
Xylene (p/m)	0.182	0.00200	"	0.200		90.8	80-120			
Xylene (o)	0.110	0.00100	"	0.100		110	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0485*		*"*	*0.0600*		*80.8*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0661*		*"*	*0.0600*		*110*	*80-120*			
Calibration Check (P9G0208-CCV3)				Prepared: 07/02/19 Analyzed: 07/03/19						
Benzene	0.115	0.00100	mg/L	0.100		115	80-120			
Toluene	0.0936	0.00100	"	0.100		93.6	80-120			
Ethylbenzene	0.0806	0.00100	"	0.100		80.6	80-120			
Xylene (p/m)	0.177	0.00200	"	0.200		88.3	80-120			
Xylene (o)	0.105	0.00100	"	0.100		105	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0512*		*"*	*0.0600*		*85.4*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0563*		*"*	*0.0600*		*93.9*	*80-120*			
Matrix Spike (P9G0208-MS1)		**Source: 9G01006-26**		Prepared: 07/02/19 Analyzed: 07/03/19						
Benzene	0.0893	0.00100	mg/L	0.100	ND	89.3	80-120			
Toluene	0.0852	0.00100	"	0.100	ND	85.2	80-120			
Ethylbenzene	0.109	0.00100	"	0.100	ND	109	80-120			
Xylene (p/m)	0.205	0.00200	"	0.200	ND	103	80-120			
Xylene (o)	0.0990	0.00100	"	0.100	ND	99.0	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0675*		*"*	*0.0600*		*112*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0689*		*"*	*0.0600*		*115*	*80-120*			

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Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0208 - General Preparation (GC)										
Matrix Spike Dup (P9G0208-MSD1)	**Source: 9G01006-26**			Prepared: 07/02/19 Analyzed: 07/03/19						
Benzene	0.107	0.00100	mg/L	0.100	ND	107	80-120	18.0	20	
Toluene	0.0830	0.00100	"	0.100	ND	83.0	80-120	2.58	20	
Ethylbenzene	0.0920	0.00100	"	0.100	ND	92.0	80-120	16.5	20	
Xylene (p/m)	0.164	0.00200	"	0.200	ND	82.0	80-120	22.3	20	R2
Xylene (o)	0.0942	0.00100	"	0.100	ND	94.2	80-120	4.92	20	
Surrogate: 4-Bromofluorobenzene	*0.0488*		*"*	*0.0600*		*81.4*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*0.0582*		*"*	*0.0600*		*97.0*	*80-120*			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0301 - * DEFAULT PREP *** **										
Blank (P9G0301-BLK1)				Prepared & Analyzed: 07/03/19						
% Moisture	ND	0.1	%							
Duplicate (P9G0301-DUP1)		**Source: 9G01002-26**		Prepared & Analyzed: 07/03/19						
% Moisture	13.0	0.1	%		13.0			0.00	20	
Duplicate (P9G0301-DUP2)		**Source: 9G01006-15**		Prepared & Analyzed: 07/03/19						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P9G0301-DUP3)		**Source: 9G01010-06**		Prepared & Analyzed: 07/03/19						
% Moisture	7.0	0.1	%		7.0			0.00	20	
Duplicate (P9G0301-DUP4)		**Source: 9G02006-02**		Prepared & Analyzed: 07/03/19						
% Moisture	5.0	0.1	%		4.0			22.2	20	
Duplicate (P9G0301-DUP5)		**Source: 9G02014-08**		Prepared & Analyzed: 07/03/19						
% Moisture	2.0	0.1	%		2.0			0.00	20	
Duplicate (P9G0301-DUP6)		**Source: 9G02018-04**		Prepared & Analyzed: 07/03/19						
% Moisture	11.0	0.1	%		11.0			0.00	20	
Duplicate (P9G0301-DUP7)		**Source: 9G02021-08**		Prepared & Analyzed: 07/03/19						
% Moisture	ND	0.1	%		1.0			200	20	
Batch P9G0806 - * DEFAULT PREP *** **										
Blank (P9G0806-BLK1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	ND	1.00	mg/kg wet							

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0806 - * DEFAULT PREP *** **										
LCS (P9G0806-BS1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	187	1.00	mg/kg wet	200		93.3	80-120			
LCS Dup (P9G0806-BSD1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	193	1.00	mg/kg wet	200		96.3	80-120	3.14	20	
Calibration Blank (P9G0806-CCB1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	0.00		mg/kg wet							
Calibration Blank (P9G0806-CCB2)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	0.00		mg/kg wet							
Calibration Check (P9G0806-CCV1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	9.97		mg/kg	10.0		99.7	0-200			
Calibration Check (P9G0806-CCV2)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	9.52		mg/kg	10.0		95.2	0-200			
Calibration Check (P9G0806-CCV3)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	10.0		mg/kg	10.0		100	0-200			
Matrix Spike (P9G0806-MS1)		**Source: 9G01002-26**		Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	3530	28.7	mg/kg dry	2870	574	103	80-120			
Matrix Spike (P9G0806-MS2)		**Source: 9G01002-36**		Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	3130	28.7	mg/kg dry	2870	345	96.9	80-120			
Matrix Spike Dup (P9G0806-MSD1)		**Source: 9G01002-26**		Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	3550	28.7	mg/kg dry	2870	574	104	80-120	0.609	20	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0806 - * DEFAULT PREP *** **										
Matrix Spike Dup (P9G0806-MSD2)	**Source: 9G01002-36**			Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	3310	28.7	mg/kg dry	2870	345	103	80-120	5.78	20	
Batch P9G0807 - * DEFAULT PREP *** **										
Blank (P9G0807-BLK1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	ND	1.00	mg/kg wet							
LCS (P9G0807-BS1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	193	1.00	mg/kg wet	200		96.6	80-120			
LCS Dup (P9G0807-BSD1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	192	1.00	mg/kg wet	200		96.1	80-120	0.555	20	
Calibration Blank (P9G0807-CCB1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	0.00		mg/kg wet							
Calibration Blank (P9G0807-CCB2)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	0.00		mg/kg wet							
Calibration Check (P9G0807-CCV1)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	10.0		mg/kg	10.0		100	0-200			
Calibration Check (P9G0807-CCV2)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	10.1		mg/kg	10.0		101	0-200			
Calibration Check (P9G0807-CCV3)				Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	9.69		mg/kg	10.0		96.9	0-200			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0807 - * DEFAULT PREP *** **										
Matrix Spike (P9G0807-MS1)		**Source: 9G01006-08**		Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	10100	26.0	mg/kg dry	2600	7720	92.7	80-120			
Matrix Spike (P9G0807-MS2)		**Source: 9G01006-18**		Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	520	1.04	mg/kg dry	521	25.4	95.0	80-120			
Matrix Spike Dup (P9G0807-MSD1)		**Source: 9G01006-08**		Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	10000	26.0	mg/kg dry	2600	7720	87.7	80-120	1.27	20	
Matrix Spike Dup (P9G0807-MSD2)		**Source: 9G01006-18**		Prepared: 07/08/19 Analyzed: 07/09/19						
Chloride	571	1.04	mg/kg dry	521	25.4	105	80-120	9.35	20	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0403 - TX 1005										
Blank (P9G0403-BLK1)				Prepared: 07/04/19 Analyzed: 07/06/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*98.3*		*"*	*100*		*98.3*	*70-130*			
Surrogate: o-Terphenyl	*52.5*		*"*	*50.0*		*105*	*70-130*			
LCS (P9G0403-BS1)				Prepared: 07/04/19 Analyzed: 07/06/19						
C6-C12	847	25.0	mg/kg wet	1000		84.7	75-125			
>C12-C28	895	25.0	"	1000		89.5	75-125			
Surrogate: 1-Chlorooctane	*119*		*"*	*100*		*119*	*70-130*			
Surrogate: o-Terphenyl	*47.9*		*"*	*50.0*		*95.7*	*70-130*			
LCS Dup (P9G0403-BSD1)				Prepared: 07/04/19 Analyzed: 07/06/19						
C6-C12	836	25.0	mg/kg wet	1000		83.6	75-125	1.38	20	
>C12-C28	894	25.0	"	1000		89.4	75-125	0.108	20	
Surrogate: 1-Chlorooctane	*119*		*"*	*100*		*119*	*70-130*			
Surrogate: o-Terphenyl	*47.2*		*"*	*50.0*		*94.4*	*70-130*			
Calibration Blank (P9G0403-CCB1)				Prepared: 07/04/19 Analyzed: 07/06/19						
C6-C12	9.20		mg/kg wet							
>C12-C28	6.20		"							
Surrogate: 1-Chlorooctane	*93.4*		*"*	*100*		*93.4*	*70-130*			
Surrogate: o-Terphenyl	*49.4*		*"*	*50.0*		*98.9*	*70-130*			
Calibration Blank (P9G0403-CCB2)				Prepared: 07/04/19 Analyzed: 07/06/19						
C6-C12	7.50		mg/kg wet							
>C12-C28	12.9		"							
Surrogate: 1-Chlorooctane	*96.8*		*"*	*100*		*96.8*	*70-130*			
Surrogate: o-Terphenyl	*52.0*		*"*	*50.0*		*104*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0403 - TX 1005										
Calibration Check (P9G0403-CCV1)				Prepared: 07/04/19 Analyzed: 07/06/19						
C6-C12	537	25.0	mg/kg wet	500		107	85-115			
>C12-C28	426	25.0	"	500		85.3	85-115			
Surrogate: 1-Chlorooctane	*97.3*		*"*	*100*		*97.3*	*70-130*			
Surrogate: o-Terphenyl	*44.3*		*"*	*50.0*		*88.5*	*70-130*			
Calibration Check (P9G0403-CCV2)				Prepared: 07/04/19 Analyzed: 07/06/19						
C6-C12	477	25.0	mg/kg wet	500		95.4	85-115			
>C12-C28	436	25.0	"	500		87.3	85-115			
Surrogate: 1-Chlorooctane	*100*		*"*	*100*		*100*	*70-130*			
Surrogate: o-Terphenyl	*46.5*		*"*	*50.0*		*93.0*	*70-130*			
Calibration Check (P9G0403-CCV3)				Prepared: 07/04/19 Analyzed: 07/06/19						
C6-C12	439	25.0	mg/kg wet	500		87.8	85-115			
>C12-C28	445	25.0	"	500		89.0	85-115			
Surrogate: 1-Chlorooctane	*92.4*		*"*	*100*		*92.4*	*70-130*			
Surrogate: o-Terphenyl	*42.1*		*"*	*50.0*		*84.2*	*70-130*			
Duplicate (P9G0403-DUP1)	**Source: 9G01006-08**			Prepared: 07/04/19 Analyzed: 07/06/19						
C6-C12	10.9	26.0	mg/kg dry		ND				20	
>C12-C28	ND	26.0	"		ND				20	
Surrogate: 1-Chlorooctane	*112*		*"*	*104*		*107*	*70-130*			
Surrogate: o-Terphenyl	*58.6*		*"*	*52.1*		*113*	*70-130*			
Batch P9G0503 - TX 1005										
Blank (P9G0503-BLK1)				Prepared: 07/05/19 Analyzed: 07/06/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*91.6*		*"*	*100*		*91.6*	*70-130*			
Surrogate: o-Terphenyl	*48.5*		*"*	*50.0*		*96.9*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0503 - TX 1005										
LCS (P9G0503-BS1)				Prepared: 07/05/19 Analyzed: 07/06/19						
C6-C12	842	25.0	mg/kg wet	1000		84.2	75-125			
>C12-C28	826	25.0	"	1000		82.6	75-125			
Surrogate: 1-Chlorooctane	*105*		*"*	*100*		*105*	*70-130*			
Surrogate: o-Terphenyl	*42.7*		*"*	*50.0*		*85.4*	*70-130*			
LCS Dup (P9G0503-BSD1)				Prepared: 07/05/19 Analyzed: 07/06/19						
C6-C12	885	25.0	mg/kg wet	1000		88.5	75-125	4.95	20	
>C12-C28	811	25.0	"	1000		81.1	75-125	1.87	20	
Surrogate: 1-Chlorooctane	*108*		*"*	*100*		*108*	*70-130*			
Surrogate: o-Terphenyl	*45.8*		*"*	*50.0*		*91.7*	*70-130*			
Calibration Blank (P9G0503-CCB1)				Prepared: 07/05/19 Analyzed: 07/06/19						
C6-C12	10.5		mg/kg wet							
>C12-C28	9.23		"							
Surrogate: 1-Chlorooctane	*87.0*		*"*	*100*		*87.0*	*70-130*			
Surrogate: o-Terphenyl	*45.4*		*"*	*50.0*		*90.7*	*70-130*			
Calibration Blank (P9G0503-CCB2)				Prepared: 07/05/19 Analyzed: 07/06/19						
C6-C12	8.54		mg/kg wet							
>C12-C28	10.0		"							
Surrogate: 1-Chlorooctane	*90.2*		*"*	*100*		*90.2*	*70-130*			
Surrogate: o-Terphenyl	*48.4*		*"*	*50.0*		*96.8*	*70-130*			
Calibration Check (P9G0503-CCV1)				Prepared: 07/05/19 Analyzed: 07/06/19						
C6-C12	439	25.0	mg/kg wet	500		87.8	85-115			
>C12-C28	445	25.0	"	500		89.0	85-115			
Surrogate: 1-Chlorooctane	*92.4*		*"*	*100*		*92.4*	*70-130*			
Surrogate: o-Terphenyl	*42.1*		*"*	*50.0*		*84.2*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9G0503 - TX 1005										
Calibration Check (P9G0503-CCV2)				Prepared: 07/05/19 Analyzed: 07/06/19						
C6-C12	468	25.0	mg/kg wet	500		93.5	85-115			
>C12-C28	509	25.0	"	500		102	85-115			
Surrogate: 1-Chlorooctane	*92.5*		*"*	*100*		*92.5*	*70-130*			
Surrogate: o-Terphenyl	*42.4*		*"*	*50.0*		*84.8*	*70-130*			
Calibration Check (P9G0503-CCV3)				Prepared: 07/05/19 Analyzed: 07/07/19						
C6-C12	431	25.0	mg/kg wet	500		86.1	85-115			
>C12-C28	450	25.0	"	500		90.0	85-115			
Surrogate: 1-Chlorooctane	*84.2*		*"*	*100*		*84.2*	*70-130*			
Surrogate: o-Terphenyl	*39.2*		*"*	*50.0*		*78.4*	*70-130*			
Duplicate (P9G0503-DUP1)		**Source: 9G01007-02**		Prepared: 07/05/19 Analyzed: 07/07/19						
C6-C12	11.7	27.8	mg/kg dry		11.4			2.21	20	
>C12-C28	ND	27.8	"		ND				20	
Surrogate: 1-Chlorooctane	*108*		*"*	*111*		*97.1*	*70-130*			
Surrogate: o-Terphenyl	*58.1*		*"*	*55.6*		*105*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
ROI	Received on Ice
R2	The RPD exceeded the acceptance limit.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 7/15/2019

Brent Barron, Laboratory Director/Technical Director

№ 0707

CHAIN-OF-CUSTOD

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 7/1/2019 PAGE 1 OF 2

PO#: LAB WORK ORDER#: 9G01006

PROJECT LOCATION OR NAME: Chevron SD pad 15

LAI PROJECT #: 19-0154-01 COLLECTOR: RD

TRRP report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

TIME ZONE: Time zone/State: MST

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESSERVED

ANALYSES: BTEX ☒ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☒ | DIESEL - MOD 8015 ☒ | OIL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TBLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐ | M300

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	BTEX ☒ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐	M300	FIELD NOTES
HA-12(0-1')	1	6/28/19	12:21	S	1				X		X			X	X	X													X			
HA-12(1-2')	2		12:25																													
HA-1 (0-1')	3		12:33																													
HA-1 (1-2')	4		12:37																													
HA-2 (0-1')	5		12:41																													
HA-2 (1-2')	6		12:51																													
HA-13 (0-1')	7		12:57																													
HA-13 (1-2')	8		12:59																													
HA-4 (0-1')	9		13:04																													
HA-4 (1-2')	10		13:09																													
HA-3 (0-1')	11		13:14																													
HA-3 (1-2')	12		13:17																													
HA-5 (0-1')	13		13:33																													
HA-5 (1-2')	14		13:35																													
HA-6 (0-1')	15		13:39																													
TOTAL			15																													

RELINQUISHED BY:(Signature) Rachel Owen DATE/TIME 7-1-19/ 12:12 RECEIVED BY:(Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: PBEL

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 4.2 THERM#: CF1
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # ☐ HAND DELIVERED

№ 0708

CHAIN-OF-CUSTOD

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

DATE: 7/1/2019 PAGE 2 OF 2

PO#: LAB WORK ORDER#: 9G01006

PROJECT LOCATION OR NAME: Chevron SD Pad 15

LAI PROJECT #: 19-0154-01 COLLECTOR: RD

Data Reported to:

TRRP report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

TIME ZONE: Time zone/State: MST

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐ M300	FIELD NOTES
HA-6 (1-2')	16	6/28/19	13:42	S	1				X		X		X	X	X														X	
HA-7 (0-1')	17		13:47																											
HA-7 (1-2')	18		13:49																											
HA-8 (0-1')	19		13:53																											
HA-8 (1-2')	20		13:55																											
HA-9 (0-1')	21		14:01																											
HA-9 (1-2')	22		14:03																											
HA-10 (0-1')	23		14:06																											
HA-10 (1-2')	24		14:09																											
HA-11 (0-1')	25		14:13																											
HA-11 (1-2')	26	"	14:16	"	"				"		"		"	"	"														"	
TOTAL			11																											

RELINQUISHED BY:(Signature) Rachel Owen DATE/TIME 7-1-19 / 12:12 RECEIVED BY: (Signature) Dyna Bledsoe

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: PBEL

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 4.5.2 THERM#: CF+1 L2
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Location:

Lab Order Number: 9H23004

NELAP/TCEQ # T104704516-18-9

Report Date: 09/09/19

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HA-3 @ 5'	9H23004-01	Soil	08/21/19 12:47	08-23-2019 08:50
HA-3 @ 10'	9H23004-02	Soil	08/21/19 13:04	08-23-2019 08:50
HA-10 @ 5'	9H23004-03	Soil	08/22/19 10:47	08-23-2019 08:50
HA-9 @ 5'	9H23004-04	Soil	08/22/19 11:52	08-23-2019 08:50
HA-8 @ 5'	9H23004-05	Soil	08/22/19 12:15	08-23-2019 08:50
HA-6 @ 5'	9H23004-06	Soil	08/22/19 12:33	08-23-2019 08:50
HA-5 @ 5'	9H23004-07	Soil	08/22/19 13:02	08-23-2019 08:50
HA-5 @ 10'	9H23004-08	Soil	08/22/19 13:10	08-23-2019 08:50
HA-13 @ 5'	9H23004-09	Soil	08/22/19 14:00	08-23-2019 08:50
HA-13 @ 10'	9H23004-10	Soil	08/22/19 14:06	08-23-2019 08:50

HA-3 @ 5'

9H23004-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**899**	1.06	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-3 @ 10'

9H23004-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**50.8**	1.08	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-10 @ 5'

9H23004-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**15.4**	1.15	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-9 @ 5'

9H23004-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**9.63**	1.10	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-8 @ 5'

9H23004-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**11.8**	1.15	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-6 @ 5'

9H23004-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**10.3**	1.12	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

HA-5 @ 5'

9H23004-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**9.86**	1.09	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-5 @ 10'

9H23004-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1.54**	1.11	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-13 @ 5'

9H23004-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.36**	1.01	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**1.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

Larson & Associates, Inc.	Project: Chevron SD Pad 15	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

HA-13 @ 10'

9H23004-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.76**	1.03	mg/kg dry	1	P9I0508	09/05/19	09/06/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9H2602	08/26/19	08/26/19	ASTM D2216	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9H2602 - * DEFAULT PREP *** **										
Blank (P9H2602-BLK1)				Prepared & Analyzed: 08/26/19						
% Moisture	ND	0.1	%							
Duplicate (P9H2602-DUP1)		**Source: 9H23005-01**		Prepared & Analyzed: 08/26/19						
% Moisture	1.0	0.1	%		1.0			0.00	20	
Duplicate (P9H2602-DUP2)		**Source: 9H23008-14**		Prepared & Analyzed: 08/26/19						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P9H2602-DUP3)		**Source: 9H23021-03**		Prepared & Analyzed: 08/26/19						
% Moisture	2.0	0.1	%		2.0			0.00	20	
Duplicate (P9H2602-DUP4)		**Source: 9H23024-07**		Prepared & Analyzed: 08/26/19						
% Moisture	6.0	0.1	%		6.0			0.00	20	
Duplicate (P9H2602-DUP5)		**Source: 9H23026-04**		Prepared & Analyzed: 08/26/19						
% Moisture	9.0	0.1	%		8.0			11.8	20	
Duplicate (P9H2602-DUP6)		**Source: 9H23029-03**		Prepared & Analyzed: 08/26/19						
% Moisture	5.0	0.1	%		5.0			0.00	20	
Batch P9I0508 - * DEFAULT PREP *** **										
Blank (P9I0508-BLK1)				Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	ND	1.00	mg/kg wet							
LCS (P9I0508-BS1)				Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	413	1.00	mg/kg wet	400		103	80-120			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9I0508 - * DEFAULT PREP *** **										
LCS Dup (P9I0508-BSD1)				Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	418	1.00	mg/kg wet	400		105	80-120	1.23	20	
Calibration Blank (P9I0508-CCB1)				Prepared & Analyzed: 09/05/19						
Chloride	0.00		mg/kg wet							
Calibration Blank (P9I0508-CCB2)				Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	0.0640		mg/kg wet							
Calibration Check (P9I0508-CCV1)				Prepared & Analyzed: 09/05/19						
Chloride	20.6		mg/kg	20.0		103	0-200			
Calibration Check (P9I0508-CCV2)				Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	20.6		mg/kg	20.0		103	0-200			
Calibration Check (P9I0508-CCV3)				Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	19.9		mg/kg	20.0		99.5	0-200			
Matrix Spike (P9I0508-MS1)		**Source: 9H23005-01**		Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	7020	25.3	mg/kg dry	2530	4570	96.9	80-120			
Matrix Spike (P9I0508-MS2)		**Source: 9H23008-01**		Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	14800	51.5	mg/kg dry	5150	9260	107	80-120			
Matrix Spike Dup (P9I0508-MSD1)		**Source: 9H23005-01**		Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	6650	25.3	mg/kg dry	2530	4570	82.3	80-120	5.37	20	
Matrix Spike Dup (P9I0508-MSD2)		**Source: 9H23008-01**		Prepared: 09/05/19 Analyzed: 09/06/19						
Chloride	14900	51.5	mg/kg dry	5150	9260	109	80-120	0.473	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Chevron SD Pad 15
Project Number: 19-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

ROI	Received on Ice
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 9/9/2019

Brent Barron, Laboratory Director/Technical Director

№ 0722

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

DATE: 8/23/2019 PAGE 1 OF 1

PO#: LAB WORK ORDER#: 9423004

PROJECT LOCATION OR NAME: Chevron SD Pad 15

LAI PROJECT #: 19-0154-01 COLLECTOR: RG/RN

Data Reported to:

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESSERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | OIL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TBLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐ | M300

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	M300	FIELD NOTES
HA-3 (5')	1	8/21/19	12:47	S	1				X		X	
HA-3 (10')	2	8/21/19	13:04									
HA-10 (5')	3	8/22/19	10:47									
HA-9 (5')	4	"	11:52									
HA-8 (5')	5	"	12:15									
HA-6 (5')	6	"	12:33									
HA-5 (5')	7	"	13:02									
HA-5 (10')	8	"	13:10									
HA-13 (5')	9	"	14:00									
HA-13 (10')	10	"	14:06									

TOTAL 10

RELINQUISHED BY:(Signature) DATE/TIME 8/23 8:50 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: PBEL

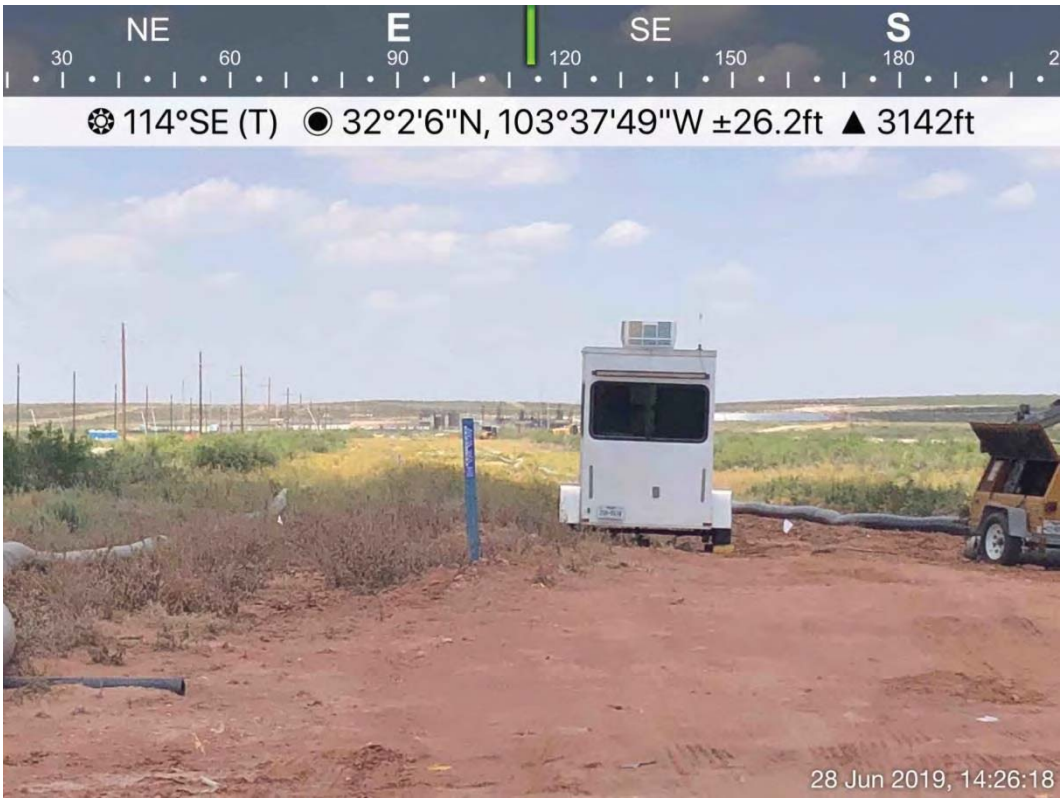
TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 23 THERM#: CF+1.2
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

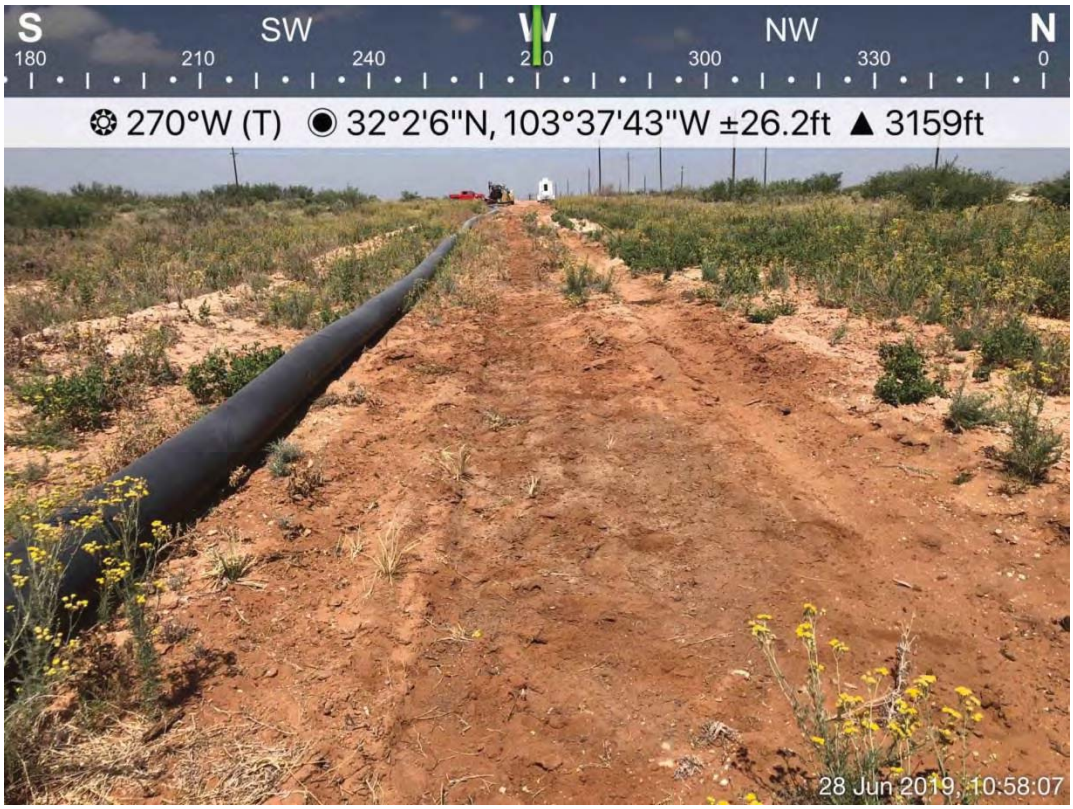
Appendix D

Photographs

Spill Area Viewing East, June 28, 2019



Spill Area Viewing Southeast, June 28, 2019



Spill Area Viewing West, June 28, 2019

Spill Area Viewing Southwest, June 28, 2019