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	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Legacy Reserves, L.P.	OGRID 240974
Contact Name Brian Cunningham	Contact Telephone 432-234-9450
Contact email bcunningham@legacylp.com	Incident # *(assigned by OCD)* 1RP-5394
Contact mailing address 303 West Wall Street, Suite 1300	

Location of Release Source

Latitude 32.57989° N Longitude -103.60529° W
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Hamon Federal Com A #2H	Site Type Well Head
Date Release Discovered 2/22/2018	API# *(if applicable)* 30-025-41630

Unit Letter	Section	Township	Range	County
D	18	20S	34E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* Kenneth Smith, Inc.)

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) 45 bbls total	Volume Recovered (bbls) 40 bbls total
☒ Produced Water	Volume Released (bbls) 45 bbls total	Volume Recovered (bbls) 40 bbls total
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
The release occurred due to a wellhead packing blowout.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? [X] Yes [ ] No	If YES, for what reason(s) does the responsible party consider this a major release? The release was greater than 25 bbls of liquid.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Larson and Associates personnel called Vanessa Fields on 2/22/2019 at 11:11 CST and left a voice mail.	

Initial Response

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

[X] The source of the release has been stopped.

[X] The impacted area has been secured to protect human health and the environment.

[X] Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

[X] All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name: Brian Cunningham Title: Production Foreman

Signature: Brian Cunningham Date: 10/18/2019

email: bcunningham@legacylp.com Telephone: 432-234-9450

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	110 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: Brian Cunningham Title: Production Foreman

Signature: Date: 10/18/2019

email: bcunningham@legacylp.com Telephone: 432-234-9450

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☒ Extents of contamination must be fully delineated.

☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Brian Cunningham Title: Production Foreman

Signature: [signature] Date: 10/18/2019

email: bcunningham@legacylp.com Telephone: 432-234-9450

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

1RP-5394
DELINEATION REPORT AND DEFERRAL REPORT
Hamon Federal Com A #2H
Crude Oil and Produced Water Spill
Lea County, New Mexico

Latitude: N 32.57989°
Longitude: W 103.60529°

LAI Project No. 19-0122-01

October 18, 2019

Prepared for:
Legacy Reserves Operating, LP
303 West Wall Street, Suite 1300
Midland, Texas 79701

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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Tables

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1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this delineation report and remediation plan on behalf of Legacy Reserves Operating, LP (Legacy) for submittal to the New Mexico Oil Conservation (OCD) District I for a crude oil and produced water spill at the Hamon Federal Com A #2H (Site) located in Unit D, Section 18, Township 20 South, Range 34 East in Lea County, New Mexico. The geodetic position is North 32.57989° and West 103.60529°. Based on the Lea County Tax Assessor and the BLM Surface Management Map, the surface owner is Kennith Smith, Inc. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The spill occurred on February 22, 2019, due to a wellhead packing blowout releasing approximately 45 barrels (bbls) of crude oil and produced water. Approximately 40 bbls of liquid was recovered. The spill was contained to the well pad and remained close to the pumping unit. The spill area measures approximately 1,547.23 ft^2. The spill is considered a major release due to the volume of released fluids greater than 25 bbls. LAI, on behalf of Legacy, called the spill into Vanessa Fields (NMOCD) the same day (2/22/19) at 11:11 CST and left a voicemail. The initial C-141 was submitted to OCD District 1 on March 1, 2019 and assigned remediation permit number 1RP-5394. Appendix A presents the initial C-141.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,616 feet above mean sea level (msl);
- The topography slopes gently towards the southwest;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as “Wink Fine Sand, 0 to 2 percent slopes”, consisting of 0 to 12 inches of fine sand underlain by 12 to 23 inches of sandy loam.
- The surface geology consists of Eolian and piedmont deposits (Holocene to middle Pleistocene);
- Average depth to groundwater occurs at approximately 110 feet below ground surface (bgs) based on New Mexico State Engineer records;
- The nearest fresh water well is located in Unit O (SW/4, SE/4), Section 7, Township 20 South, Range 34 East, approximately 0.49 miles or about 2,588 feet southeast 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

2.0 DELINEATION

On March 6 2019, LAI personnel used direct push technology (DPT) to collect six (6) soil samples inside of the spill area and outside of the spill in each cardinal direction (north, south, east and west) for horizontal delineation. Soil Samples were collected between 1 to 2 foot intervals to approximately 3 feet

bgs depending on subsurface conditions. The soil samples were delivered under chain of custody and preservation to Permian Basin Environmental Laboratory (PBEL) in Midland, Texas, and analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), 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 Method 300.

Benzene, BTEX, and TPH were reported below the OCD remediation action limit of 10 milligrams/kilogram (mg/Kg), 50 mg/Kg, and 2,500 mg/Kg, respectively, in the upper samples (0 to 1 foot bgs). Chloride was reported below the OCD delineation limit of 600 mg/Kg in the deepest samples. Table 1 presents the analytical data summary. Figure 2 presents the soil sample locations. Appendix C presents the laboratory report. Appendix D presents photographs.

3.0 DEFERRAL REQUEST

Legacy has delineated benzene, BTEX, TPH and chloride to the OCD remediation limits of 10 mg/Kg, 50 mg/Kg, 2,500 mg/Kg and 20,000 mg/Kg, respectively. Due to depth to groundwater greater than 100 feet bgs and chloride exceeding 600 mg/Kg in the shallow surface soil and in close proximity to production equipment, Legacy respectfully requests a deferral to complete surface restoration at the Hamon Federal Com A #2H until abandonment. Your approval of this request is appreciated.

Tables

Table 1
1RP-5394
Soil Sample Analytical Data Summary
Legacy Reserves, Hamon 2
Lea County, New Mexico
19-0122-01

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**
DP-1	0 - 1	5/6/2019	In-situ	<0.00104	<0.00624	<26.0	<26.0	<26.0	<26.0	1,330
	1 - 3	5/6/2019	In-situ	--	--	--	--	--	--	459.0
DP-2	0 - 1	5/6/2019	In-situ	<0.00102	<0.00612	<25.5	<25.5	<25.5	<25.5	27.0
DP-3	0 - 1	5/6/2019	In-situ	<0.00105	<0.00631	<26.3	49.2	<26.3	49.2	2,170
	1 - 3	5/6/2019	In-situ	--	--	--	--	--	--	63.0
DP-4	0 - 1	5/6/2019	In-situ	<0.00109	<0.00653	<27.2	<27.2	<27.2	<27.2	166
DP-6	0 - 1	5/6/2019	In-situ	<0.00112	<0.00673	<28.1	<28.1	<28.1	<28.1	20
DP-8	0 - 1	5/6/2019	In-situ	<0.00104	<0.00624	<26.0	<26.0	<26.0	<26.0	704
	1 - 3	5/6/2019	In-situ	--	--	--	--	--	--	130

Notes: Laboratory analysis performed by Permian Basin Environmental Lab, Midland, Texas by EPA 8021B (BTEX) Method 8015M (TPH) and 300 (chloride)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)

Figures

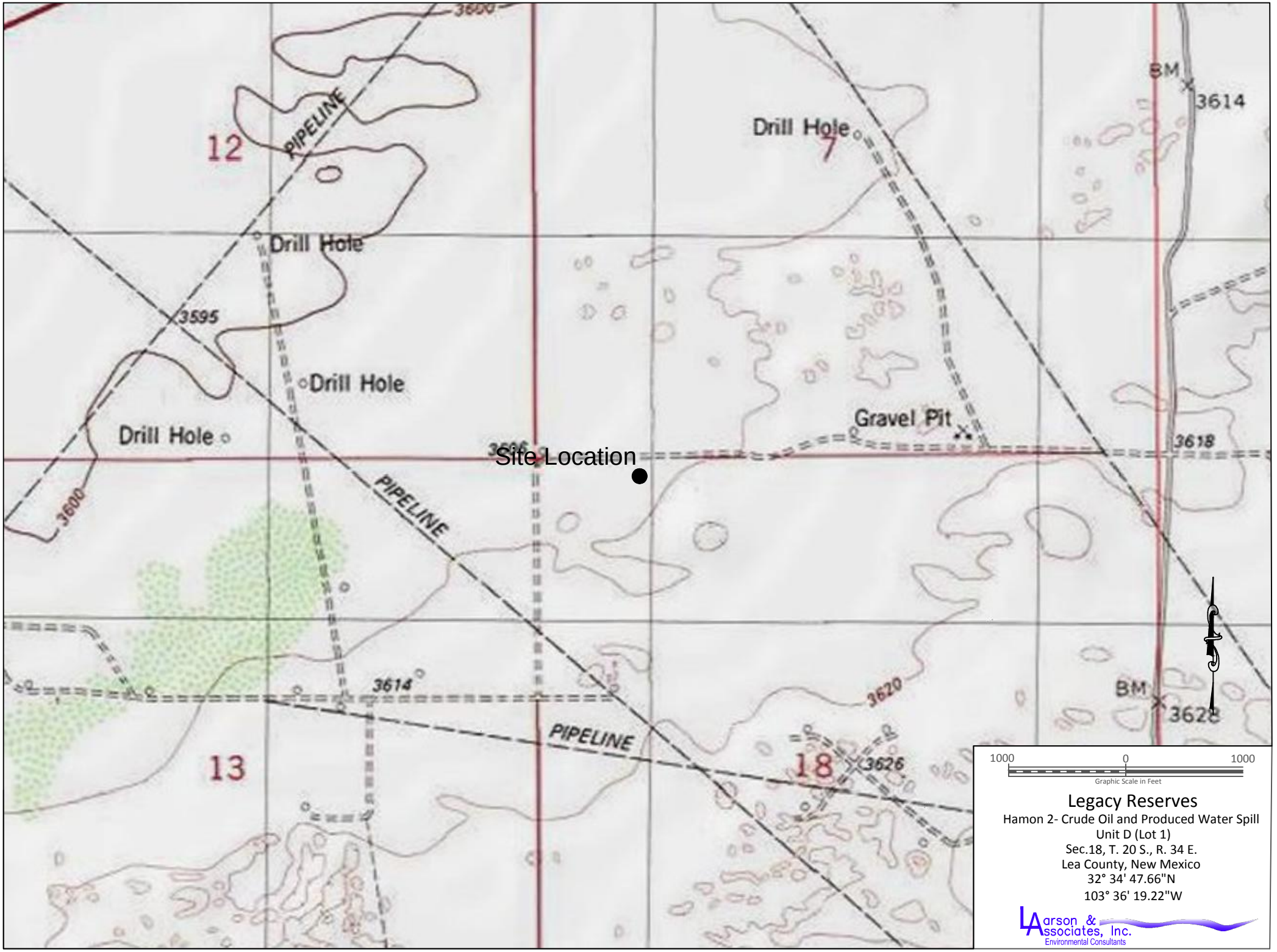

Figure 1 - Topographic Map

Figure 2 - Aerial Map Showing Soil Sample Location

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	NAB1907830479
District RP	1RP-5394
Facility ID	
Application ID	pAB1907830020

Release Notification

Responsible Party

Responsible Party Legacy Reserves, L.P.	OGRID 240974
Contact Name Brian Cunningham	Contact Telephone 432-234-9450
Contact email bcunningham@legacylp.com	Incident # *(assigned by OCD)* NAB1907830479
Contact mailing address 303 West Wall Street, Suite 1300	

Location of Release Source

Latitude 32.57989° N Longitude -103.60529° W
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Hamon Federal Com A #2H	Site Type Well Head
Date Release Discovered 2/22/19	API# *(if applicable)* 30-025-41630

Unit Letter	Section	Township	Range	County
D	18	20S	34E	Lea

According to location provided, Surface Owner appears as a "Federal" well. AB
Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* Kenneth Smith)

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) 45 bbls total	Volume Recovered (bbls) 40 bbls total
☒ Produced Water	Volume Released (bbls) 45 bbls total	Volume Recovered (bbls) 40 bbls total
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
The Release occurred due to a wellhead packing blowout.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1907830479
District RP	1RP-5394
Facility ID	
Application ID	pAB1907830020

Was this a major release as defined by 19.15.29.7(A) NMAC? [X] Yes [ ] No	If YES, for what reason(s) does the responsible party consider this a major release? The release was greater than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Larson & Associates, Inc. personnel called Vanessa Fields on 2/22/19 at 11:11 CST and left a voice mail.	

Initial Response

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

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

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

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

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

Printed Name: Brian Cunningham Title: Production Foreman

Signature: Brian Cunningham Date: 3/1/2019

email: bcunningham@legacylp.com Telephone: 432-234-9450

OCD Only

Received by: Jocelyn Harmonte Date: 3/19/2019

Appendix B

Laboratory Report

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: Legacy Hamon 2

Project Number: 19-0122-01

Location:

Lab Order Number: 9E09004

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704516-18-9

Report Date: 05/30/19

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

Project: Legacy Hamon 2
Project Number: 19-0122-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP-1 (0'-1')	9E09004-01	Soil	05/06/19 14:03	05-09-2019 08:39
DP-1 (1'-3')	9E09004-02	Soil	05/06/19 14:05	05-09-2019 08:39
DP-2 (0'-1')	9E09004-07	Soil	05/06/19 15:36	05-09-2019 08:39
DP-3 (0'-1')	9E09004-13	Soil	05/06/19 16:26	05-09-2019 08:39
DP-3 (1'-3')	9E09004-14	Soil	05/06/19 16:27	05-09-2019 08:39
DP-4 (0'-1')	9E09004-19	Soil	05/08/19 12:33	05-09-2019 08:39
DP-6 (0'-1')	9E09004-25	Soil	05/08/19 13:57	05-09-2019 08:39
DP-8 (0'-1')	9E09004-31	Soil	05/08/19 15:05	05-09-2019 08:39
DP-8 (1'-3')	9E09004-32	Soil	05/08/19 15:07	05-09-2019 08:39

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

Project: Legacy Hamon 2
Project Number: 19-0122-01
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-1 (0'-1')

9E09004-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P9E0906	05/09/19	05/10/19	EPA 8021B	
Toluene	ND	0.00104	mg/kg dry	1	P9E0906	05/09/19	05/10/19	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P9E0906	05/09/19	05/10/19	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P9E0906	05/09/19	05/10/19	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P9E0906	05/09/19	05/10/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*97.5 %*	*75-125*		*P9E0906*	*05/09/19*	*05/10/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*88.4 %*	*75-125*		*P9E0906*	*05/09/19*	*05/10/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1330**	5.21	mg/kg dry	5	P9E1307	05/13/19	05/14/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9E1002	05/10/19	05/10/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9E0907	05/09/19	05/09/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9E0907	05/09/19	05/09/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9E0907	05/09/19	05/09/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*118 %*	*70-130*		*P9E0907*	*05/09/19*	*05/09/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*130 %*	*70-130*		*P9E0907*	*05/09/19*	*05/09/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	05/09/19	05/09/19	calc	

Larson & Associates, Inc.	Project: Legacy Hamon 2	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0122-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP-1 (1'-3')

9E09004-02 (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	**459**	1.05	mg/kg dry	1	P9E1307	05/13/19	05/14/19	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P9E1002	05/10/19	05/10/19	ASTM D2216	

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

Project: Legacy Hamon 2
Project Number: 19-0122-01
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-2 (0'-1')

9E09004-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Toluene	ND	0.00102	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Ethylbenzene	ND	0.00102	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Xylene (p/m)	ND	0.00204	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Xylene (o)	ND	0.00102	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*87.2 %*	*75-125*		*P9E1004*	*05/10/19*	*05/11/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*119 %*	*75-125*		*P9E1004*	*05/10/19*	*05/11/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**27.0**	1.02	mg/kg dry	1	P9E1307	05/13/19	05/14/19	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P9E1002	05/10/19	05/10/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P9E0907	05/09/19	05/10/19	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P9E0907	05/09/19	05/10/19	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P9E0907	05/09/19	05/10/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*103 %*	*70-130*		*P9E0907*	*05/09/19*	*05/10/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*116 %*	*70-130*		*P9E0907*	*05/09/19*	*05/10/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	05/09/19	05/10/19	calc	

Larson & Associates, Inc.
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Midland TX, 79710

Project: Legacy Hamon 2
Project Number: 19-0122-01
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-3 (0'-1')

9E09004-13 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Toluene	ND	0.00105	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Ethylbenzene	ND	0.00105	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Xylene (o)	ND	0.00105	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*88.7 %*	*75-125*		*P9E1004*	*05/10/19*	*05/11/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*113 %*	*75-125*		*P9E1004*	*05/10/19*	*05/11/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2170**	10.5	mg/kg dry	10	P9E1307	05/13/19	05/14/19	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P9E1002	05/10/19	05/10/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P9E0907	05/09/19	05/10/19	TPH 8015M	
>C12-C28	**49.2**	26.3	mg/kg dry	1	P9E0907	05/09/19	05/10/19	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P9E0907	05/09/19	05/10/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*100 %*	*70-130*		*P9E0907*	*05/09/19*	*05/10/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P9E0907*	*05/09/19*	*05/10/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**49.2**	26.3	mg/kg dry	1	[CALC]	05/09/19	05/10/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

DP-3 (1'-3')

9E09004-14 (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	**63.0**	1.03	mg/kg dry	1	P9E1307	05/13/19	05/14/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9E1002	05/10/19	05/10/19	ASTM D2216	

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Project: Legacy Hamon 2
Project Number: 19-0122-01
Project Manager: Mark Larson

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DP-4 (0'-1')

9E09004-19 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Toluene	ND	0.00109	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P9E1004	05/10/19	05/11/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*87.4 %*	*75-125*		*P9E1004*	*05/10/19*	*05/11/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*99.7 %*	*75-125*		*P9E1004*	*05/10/19*	*05/11/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**166**	1.09	mg/kg dry	1	P9E1307	05/13/19	05/14/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9E1002	05/10/19	05/10/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P9E0907	05/09/19	05/10/19	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P9E0907	05/09/19	05/10/19	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P9E0907	05/09/19	05/10/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*123 %*	*70-130*		*P9E0907*	*05/09/19*	*05/10/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*139 %*	*70-130*		*P9E0907*	*05/09/19*	*05/10/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	05/09/19	05/10/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

DP-6 (0'-1')

9E09004-25 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00112	mg/kg dry	1	P9E1011	05/10/19	05/15/19	EPA 8021B	
Toluene	ND	0.00112	mg/kg dry	1	P9E1011	05/10/19	05/15/19	EPA 8021B	
Ethylbenzene	ND	0.00112	mg/kg dry	1	P9E1011	05/10/19	05/15/19	EPA 8021B	
Xylene (p/m)	ND	0.00225	mg/kg dry	1	P9E1011	05/10/19	05/15/19	EPA 8021B	
Xylene (o)	ND	0.00112	mg/kg dry	1	P9E1011	05/10/19	05/15/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*97.9 %*	*75-125*		*P9E1011*	*05/10/19*	*05/15/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*86.3 %*	*75-125*		*P9E1011*	*05/10/19*	*05/15/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**20.4**	1.12	mg/kg dry	1	P9E1307	05/13/19	05/14/19	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P9E1002	05/10/19	05/10/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.1	mg/kg dry	1	P9E0909	05/09/19	05/10/19	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P9E0909	05/09/19	05/10/19	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P9E0909	05/09/19	05/10/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		*P9E0909*	*05/09/19*	*05/10/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*112 %*	*70-130*		*P9E0909*	*05/09/19*	*05/10/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	05/09/19	05/10/19	calc	

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Midland TX, 79710

Project: Legacy Hamon 2
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DP-8 (0'-1')

9E09004-31 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P9E1011	05/10/19	05/18/19	EPA 8021B	
Toluene	ND	0.00104	mg/kg dry	1	P9E1011	05/10/19	05/18/19	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P9E1011	05/10/19	05/18/19	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P9E1011	05/10/19	05/18/19	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P9E1011	05/10/19	05/18/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P9E1011*	*05/10/19*	*05/18/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*112 %*	*75-125*		*P9E1011*	*05/10/19*	*05/18/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**704**	1.04	mg/kg dry	1	P9E1307	05/13/19	05/14/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9E1002	05/10/19	05/10/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9E0909	05/09/19	05/10/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9E0909	05/09/19	05/10/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9E0909	05/09/19	05/10/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.9 %*	*70-130*		*P9E0909*	*05/09/19*	*05/10/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*108 %*	*70-130*		*P9E0909*	*05/09/19*	*05/10/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	05/09/19	05/10/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

DP-8 (1'-3')

9E09004-32 (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	**130**	1.02	mg/kg dry	1	P9E1307	05/13/19	05/14/19	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P9E1002	05/10/19	05/10/19	ASTM D2216	

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 P9E0906 - General Preparation (GC)										
Blank (P9E0906-BLK1)				Prepared & Analyzed: 05/09/19						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	*0.0483*		*"*	*0.0600*		*80.5*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0523*		*"*	*0.0600*		*87.2*	*75-125*			
LCS (P9E0906-BS1)				Prepared & Analyzed: 05/09/19						
Benzene	0.118	0.00100	mg/kg wet	0.100		118	70-130			
Toluene	0.120	0.00100	"	0.100		120	70-130			
Ethylbenzene	0.117	0.00100	"	0.100		117	70-130			
Xylene (p/m)	0.203	0.00200	"	0.200		102	70-130			
Xylene (o)	0.118	0.00100	"	0.100		118	70-130			
Surrogate: 1,4-Difluorobenzene	*0.0732*		*"*	*0.0600*		*122*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0613*		*"*	*0.0600*		*102*	*75-125*			
LCS Dup (P9E0906-BSD1)				Prepared & Analyzed: 05/09/19						
Benzene	0.114	0.00100	mg/kg wet	0.100		114	70-130	2.98	20	
Toluene	0.113	0.00100	"	0.100		113	70-130	6.14	20	
Ethylbenzene	0.110	0.00100	"	0.100		110	70-130	6.05	20	
Xylene (p/m)	0.187	0.00200	"	0.200		93.5	70-130	8.35	20	
Xylene (o)	0.112	0.00100	"	0.100		112	70-130	5.20	20	
Surrogate: 1,4-Difluorobenzene	*0.0681*		*"*	*0.0600*		*113*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0595*		*"*	*0.0600*		*99.2*	*75-125*			
Calibration Blank (P9E0906-CCB1)				Prepared & Analyzed: 05/09/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0572*		*"*	*0.0600*		*95.3*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0484*		*"*	*0.0600*		*80.6*	*75-125*			

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 P9E0906 - General Preparation (GC)										
Calibration Blank (P9E0906-CCB2)				Prepared: 05/09/19 Analyzed: 05/10/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0649*		*"*	*0.0600*		*108*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0481*		*"*	*0.0600*		*80.1*	*75-125*			
Calibration Blank (P9E0906-CCB3)				Prepared: 05/09/19 Analyzed: 05/10/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0470*		*"*	*0.0600*		*78.4*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0533*		*"*	*0.0600*		*88.9*	*75-125*			
Calibration Check (P9E0906-CCV1)				Prepared & Analyzed: 05/09/19						
Benzene	0.117	0.00100	mg/kg wet	0.100		117	80-120			
Toluene	0.116	0.00100	"	0.100		116	80-120			
Ethylbenzene	0.113	0.00100	"	0.100		113	80-120			
Xylene (p/m)	0.191	0.00200	"	0.200		95.5	80-120			
Xylene (o)	0.113	0.00100	"	0.100		113	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0642*		*"*	*0.0600*		*107*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0611*		*"*	*0.0600*		*102*	*75-125*			
Calibration Check (P9E0906-CCV2)				Prepared: 05/09/19 Analyzed: 05/10/19						
Benzene	0.116	0.00100	mg/kg wet	0.100		116	80-120			
Toluene	0.116	0.00100	"	0.100		116	80-120			
Ethylbenzene	0.115	0.00100	"	0.100		115	80-120			
Xylene (p/m)	0.186	0.00200	"	0.200		92.8	80-120			
Xylene (o)	0.115	0.00100	"	0.100		115	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0626*		*"*	*0.0600*		*104*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0618*		*"*	*0.0600*		*103*	*75-125*			

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 P9E0906 - General Preparation (GC)										
Calibration Check (P9E0906-CCV3)				Prepared: 05/09/19 Analyzed: 05/10/19						
Benzene	0.118	0.00100	mg/kg wet	0.100		118	80-120			
Toluene	0.116	0.00100	"	0.100		116	80-120			
Ethylbenzene	0.114	0.00100	"	0.100		114	80-120			
Xylene (p/m)	0.189	0.00200	"	0.200		94.7	80-120			
Xylene (o)	0.115	0.00100	"	0.100		115	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0653*		*"*	*0.0600*		*109*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0790*		*"*	*0.0600*		*132*	*75-125*			*S-GC*
Matrix Spike (P9E0906-MS1)		**Source: 9E09003-18**		Prepared: 05/09/19 Analyzed: 05/10/19						
Benzene	0.0866	0.00103	mg/kg dry	0.103	ND	84.0	80-120			
Toluene	0.0905	0.00103	"	0.103	ND	87.8	80-120			
Ethylbenzene	0.102	0.00103	"	0.103	ND	98.6	80-120			
Xylene (p/m)	0.150	0.00206	"	0.206	ND	72.9	80-120			QM-07
Xylene (o)	0.0807	0.00103	"	0.103	ND	78.3	80-120			QM-07
Surrogate: 1,4-Difluorobenzene	*0.0718*		*"*	*0.0619*		*116*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0714*		*"*	*0.0619*		*115*	*75-125*			
Matrix Spike Dup (P9E0906-MSD1)		**Source: 9E09003-18**		Prepared: 05/09/19 Analyzed: 05/10/19						
Benzene	0.0807	0.00103	mg/kg dry	0.103	ND	78.3	80-120	7.05	20	QM-07
Toluene	0.0811	0.00103	"	0.103	ND	78.6	80-120	11.0	20	QM-07
Ethylbenzene	0.0882	0.00103	"	0.103	ND	85.5	80-120	14.3	20	
Xylene (p/m)	0.127	0.00206	"	0.206	ND	61.7	80-120	16.6	20	QM-07
Xylene (o)	0.0647	0.00103	"	0.103	ND	62.8	80-120	22.0	20	QM-07, S-GC
Surrogate: 4-Bromofluorobenzene	*0.0705*		*"*	*0.0619*		*114*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0820*		*"*	*0.0619*		*133*	*75-125*			*S-GC*
Batch P9E1004 - General Preparation (GC)										
Blank (P9E1004-BLK1)				Prepared & Analyzed: 05/10/19						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	*0.0491*		*"*	*0.0600*		*81.8*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0621*		*"*	*0.0600*		*103*	*75-125*			

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 P9E1004 - General Preparation (GC)										
LCS (P9E1004-BS1)				Prepared & Analyzed: 05/10/19						
Benzene	0.116	0.00100	mg/kg wet	0.100		116	70-130			
Toluene	0.115	0.00100	"	0.100		115	70-130			
Ethylbenzene	0.105	0.00100	"	0.100		105	70-130			
Xylene (p/m)	0.185	0.00200	"	0.200		92.3	70-130			
Xylene (o)	0.116	0.00100	"	0.100		116	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0597*		*"*	*0.0600*		*99.5*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0637*		*"*	*0.0600*		*106*	*75-125*			
LCS Dup (P9E1004-BSD1)				Prepared & Analyzed: 05/10/19						
Benzene	0.111	0.00100	mg/kg wet	0.100		111	70-130	3.84	20	
Toluene	0.110	0.00100	"	0.100		110	70-130	4.67	20	
Ethylbenzene	0.109	0.00100	"	0.100		109	70-130	3.56	20	
Xylene (p/m)	0.178	0.00200	"	0.200		88.8	70-130	3.89	20	
Xylene (o)	0.111	0.00100	"	0.100		111	70-130	4.49	20	
Surrogate: 1,4-Difluorobenzene	*0.0660*		*"*	*0.0600*		*110*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0641*		*"*	*0.0600*		*107*	*75-125*			
Calibration Blank (P9E1004-CCB2)				Prepared: 05/10/19 Analyzed: 05/11/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	*0.0496*		*"*	*0.0600*		*82.6*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0577*		*"*	*0.0600*		*96.1*	*75-125*			
Calibration Check (P9E1004-CCV2)				Prepared: 05/10/19 Analyzed: 05/11/19						
Benzene	0.115	0.00100	mg/kg wet	0.100		115	80-120			
Toluene	0.119	0.00100	"	0.100		119	80-120			
Ethylbenzene	0.117	0.00100	"	0.100		117	80-120			
Xylene (p/m)	0.201	0.00200	"	0.200		100	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0593*		*"*	*0.0600*		*98.8*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0646*		*"*	*0.0600*		*108*	*75-125*			

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 P9E1004 - General Preparation (GC)										
Calibration Check (P9E1004-CCV3)				Prepared: 05/10/19 Analyzed: 05/11/19						
Benzene	0.106	0.00100	mg/kg wet	0.100		106	80-120			
Toluene	0.111	0.00100	"	0.100		111	80-120			
Ethylbenzene	0.110	0.00100	"	0.100		110	80-120			
Xylene (p/m)	0.194	0.00200	"	0.200		97.1	80-120			
Xylene (o)	0.111	0.00100	"	0.100		111	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0537*		*"*	*0.0600*		*89.4*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0567*		*"*	*0.0600*		*94.5*	*75-125*			
Batch P9E1011 - General Preparation (GC)										
Blank (P9E1011-BLK1)				Prepared: 05/10/19 Analyzed: 05/15/19						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	*0.0525*		*"*	*0.0600*		*87.5*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0602*		*"*	*0.0600*		*100*	*75-125*			
LCS (P9E1011-BS1)				Prepared: 05/10/19 Analyzed: 05/15/19						
Benzene	0.113	0.00100	mg/kg wet	0.100		113	70-130			
Toluene	0.114	0.00100	"	0.100		114	70-130			
Ethylbenzene	0.118	0.00100	"	0.100		118	70-130			
Xylene (p/m)	0.193	0.00200	"	0.200		96.4	70-130			
Xylene (o)	0.109	0.00100	"	0.100		109	70-130			
Surrogate: 1,4-Difluorobenzene	*0.0599*		*"*	*0.0600*		*99.9*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0567*		*"*	*0.0600*		*94.5*	*75-125*			

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 P9E1011 - General Preparation (GC)										
LCS Dup (P9E1011-BSD1)				Prepared: 05/10/19 Analyzed: 05/15/19						
Benzene	0.117	0.00100	mg/kg wet	0.100		117	70-130	2.90	20	
Toluene	0.118	0.00100	"	0.100		118	70-130	3.14	20	
Ethylbenzene	0.118	0.00100	"	0.100		118	70-130	0.492	20	
Xylene (p/m)	0.197	0.00200	"	0.200		98.3	70-130	1.92	20	
Xylene (o)	0.112	0.00100	"	0.100		112	70-130	2.37	20	
Surrogate: 1,4-Difluorobenzene	*0.0632*		*"*	*0.0600*		*105*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0579*		*"*	*0.0600*		*96.5*	*75-125*			
Calibration Blank (P9E1011-CCB2)				Prepared: 05/10/19 Analyzed: 05/18/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	*0.0525*		*"*	*0.0600*		*87.4*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0439*		*"*	*0.0600*		*73.2*	*75-125*			*S-GC*
Calibration Blank (P9E1011-CCB3)				Prepared: 05/10/19 Analyzed: 05/18/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0528*		*"*	*0.0600*		*87.9*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0591*		*"*	*0.0600*		*98.5*	*75-125*			
Calibration Check (P9E1011-CCV1)				Prepared: 05/10/19 Analyzed: 05/15/19						
Benzene	0.112	0.00100	mg/kg wet	0.100		112	80-120			
Toluene	0.117	0.00100	"	0.100		117	80-120			
Ethylbenzene	0.115	0.00100	"	0.100		115	80-120			
Xylene (p/m)	0.199	0.00200	"	0.200		99.5	80-120			
Xylene (o)	0.114	0.00100	"	0.100		114	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0634*		*"*	*0.0600*		*106*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0770*		*"*	*0.0600*		*128*	*75-125*			*S-GC*

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Project Number: 19-0122-01
Project Manager: Mark Larson

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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 P9E1011 - General Preparation (GC)										
Calibration Check (P9E1011-CCV2)				Prepared: 05/10/19 Analyzed: 05/18/19						
Benzene	0.0970	0.00100	mg/kg wet	0.100		97.0	80-120			
Toluene	0.107	0.00100	"	0.100		107	80-120			
Ethylbenzene	0.106	0.00100	"	0.100		106	80-120			
Xylene (p/m)	0.207	0.00200	"	0.200		103	80-120			
Xylene (o)	0.0994	0.00100	"	0.100		99.4	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0477*		*"*	*0.0600*		*79.4*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0426*		*"*	*0.0600*		*71.0*	*75-125*			*S-GC*
Calibration Check (P9E1011-CCV3)				Prepared: 05/10/19 Analyzed: 05/18/19						
Benzene	0.0953	0.00100	mg/kg wet	0.100		95.3	80-120			
Toluene	0.0936	0.00100	"	0.100		93.6	80-120			
Ethylbenzene	0.0943	0.00100	"	0.100		94.3	80-120			
Xylene (p/m)	0.162	0.00200	"	0.200		81.2	80-120			
Xylene (o)	0.0904	0.00100	"	0.100		90.4	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0709*		*"*	*0.0600*		*118*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0530*		*"*	*0.0600*		*88.3*	*75-125*			
Matrix Spike (P9E1011-MS1)	**Source: 9E09019-01**			Prepared: 05/10/19 Analyzed: 05/18/19						
Benzene	0.0691	0.00104	mg/kg dry	0.104	ND	66.3	80-120			QM-07
Toluene	0.0383	0.00104	"	0.104	ND	36.8	80-120			QM-07
Ethylbenzene	0.0375	0.00104	"	0.104	ND	36.0	80-120			QM-07
Xylene (p/m)	0.0449	0.00208	"	0.208	ND	21.5	80-120			QM-07
Xylene (o)	0.0605	0.00104	"	0.104	ND	58.1	80-120			QM-07
Surrogate: 1,4-Difluorobenzene	*0.0688*		*"*	*0.0625*		*110*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0529*		*"*	*0.0625*		*84.6*	*75-125*			
Matrix Spike Dup (P9E1011-MSD1)	**Source: 9E09019-01**			Prepared: 05/10/19 Analyzed: 05/18/19						
Benzene	0.0741	0.00104	mg/kg dry	0.104	ND	71.2	80-120	7.10	20	QM-07
Toluene	0.0372	0.00104	"	0.104	ND	35.7	80-120	2.98	20	QM-07
Ethylbenzene	0.0398	0.00104	"	0.104	ND	38.2	80-120	5.93	20	QM-07
Xylene (p/m)	0.0501	0.00208	"	0.208	ND	24.0	80-120	11.0	20	QM-07
Xylene (o)	0.0653	0.00104	"	0.104	ND	62.7	80-120	7.65	20	QM-07
Surrogate: 4-Bromofluorobenzene	*0.0525*		*"*	*0.0625*		*84.0*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0737*		*"*	*0.0625*		*118*	*75-125*			

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 P9E1002 - * DEFAULT PREP *** **										
Blank (P9E1002-BLK2)				Prepared & Analyzed: 05/10/19						
% Moisture	ND	0.1	%							
Duplicate (P9E1002-DUP1)		**Source: 9E09004-08**		Prepared & Analyzed: 05/10/19						
% Moisture	4.0	0.1	%		4.0			0.00	20	
Duplicate (P9E1002-DUP2)		**Source: 9E09004-35**		Prepared & Analyzed: 05/10/19						
% Moisture	14.0	0.1	%		15.0			6.90	20	
Duplicate (P9E1002-DUP3)		**Source: 9E09016-01**		Prepared & Analyzed: 05/10/19						
% Moisture	17.0	0.1	%		9.0			61.5	20	
Duplicate (P9E1002-DUP4)		**Source: 9E09024-09**		Prepared & Analyzed: 05/10/19						
% Moisture	12.0	0.1	%		13.0			8.00	20	
Batch P9E1307 - * DEFAULT PREP *** **										
LCS (P9E1307-BS1)				Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	408	1.00	mg/kg wet	400		102	80-120			
LCS Dup (P9E1307-BSD1)				Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	400	1.00	mg/kg wet	400		100	80-120	2.05	20	
Calibration Blank (P9E1307-CCB2)				Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	0.00		mg/kg wet							
Calibration Check (P9E1307-CCV1)				Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	20.0		mg/kg	20.0		100	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 P9E1307 - * DEFAULT PREP *** **										
Calibration Check (P9E1307-CCV2)				Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	20.7		mg/kg	20.0		103	0-200			
Calibration Check (P9E1307-CCV3)				Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	20.5		mg/kg	20.0		102	0-200			
Matrix Spike (P9E1307-MS1)		**Source: 9E08012-10**		Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	2030	5.38	mg/kg dry	538	1560	86.7	80-120			
Matrix Spike (P9E1307-MS2)		**Source: 9E09004-14**		Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	600	1.03	mg/kg dry	515	63.0	104	80-120			
Matrix Spike Dup (P9E1307-MSD1)		**Source: 9E08012-10**		Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	2070	5.38	mg/kg dry	538	1560	94.6	80-120	2.07	20	
Matrix Spike Dup (P9E1307-MSD2)		**Source: 9E09004-14**		Prepared: 05/13/19 Analyzed: 05/14/19						
Chloride	572	1.03	mg/kg dry	515	63.0	98.8	80-120	4.73	20	

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Project: Legacy Hamon 2
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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 P9E0907 - TX 1005										
Blank (P9E0907-BLK1)				Prepared & Analyzed: 05/09/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*108*		*"*	*100*		*108*	*70-130*			
Surrogate: o-Terphenyl	*57.8*		*"*	*50.0*		*116*	*70-130*			
LCS (P9E0907-BS1)				Prepared & Analyzed: 05/09/19						
C6-C12	1070	25.0	mg/kg wet	1000		107	75-125			
>C12-C28	1120	25.0	"	1000		112	75-125			
Surrogate: 1-Chlorooctane	*117*		*"*	*100*		*117*	*70-130*			
Surrogate: o-Terphenyl	*55.9*		*"*	*50.0*		*112*	*70-130*			
LCS Dup (P9E0907-BSD1)				Prepared & Analyzed: 05/09/19						
C6-C12	1070	25.0	mg/kg wet	1000		107	75-125	0.301	20	
>C12-C28	1110	25.0	"	1000		111	75-125	0.203	20	
Surrogate: 1-Chlorooctane	*115*		*"*	*100*		*115*	*70-130*			
Surrogate: o-Terphenyl	*54.6*		*"*	*50.0*		*109*	*70-130*			
Calibration Blank (P9E0907-CCB1)				Prepared & Analyzed: 05/09/19						
C6-C12	7.12		mg/kg wet							
>C12-C28	6.27		"							
Surrogate: 1-Chlorooctane	*105*		*"*	*100*		*105*	*70-130*			
Surrogate: o-Terphenyl	*56.7*		*"*	*50.0*		*113*	*70-130*			
Calibration Blank (P9E0907-CCB2)				Prepared: 05/09/19 Analyzed: 05/10/19						
C6-C12	9.72		mg/kg wet							
>C12-C28	8.79		"							
Surrogate: 1-Chlorooctane	*101*		*"*	*100*		*101*	*70-130*			
Surrogate: o-Terphenyl	*54.5*		*"*	*50.0*		*109*	*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 P9E0907 - TX 1005										
Calibration Check (P9E0907-CCV1)				Prepared & Analyzed: 05/09/19						
C6-C12	573	25.0	mg/kg wet	500		115	85-115			
>C12-C28	545	25.0	"	500		109	85-115			
Surrogate: 1-Chlorooctane	*114*		*"*	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*56.8*		*"*	*50.0*		*114*	*70-130*			
Calibration Check (P9E0907-CCV2)				Prepared: 05/09/19 Analyzed: 05/10/19						
C6-C12	533	25.0	mg/kg wet	500		107	85-115			
>C12-C28	569	25.0	"	500		114	85-115			
Surrogate: 1-Chlorooctane	*115*		*"*	*100*		*115*	*70-130*			
Surrogate: o-Terphenyl	*57.0*		*"*	*50.0*		*114*	*70-130*			
Calibration Check (P9E0907-CCV3)				Prepared: 05/09/19 Analyzed: 05/10/19						
C6-C12	555	25.0	mg/kg wet	500		111	85-115			
>C12-C28	569	25.0	"	500		114	85-115			
Surrogate: 1-Chlorooctane	*111*		*"*	*100*		*111*	*70-130*			
Surrogate: o-Terphenyl	*55.5*		*"*	*50.0*		*111*	*70-130*			
Duplicate (P9E0907-DUP1)	**Source: 9E09004-19**			Prepared: 05/09/19 Analyzed: 05/10/19						
C6-C12	ND	27.2	mg/kg dry		ND				20	
>C12-C28	19.4	27.2	"		14.7			27.6	20	
Surrogate: 1-Chlorooctane	*129*		*"*	*109*		*119*	*70-130*			
Surrogate: o-Terphenyl	*72.7*		*"*	*54.3*		*134*	*70-130*			*S-GC*
Batch P9E0909 - TX 1005										
Blank (P9E0909-BLK1)				Prepared & Analyzed: 05/09/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*97.6*		*"*	*100*		*97.6*	*70-130*			
Surrogate: o-Terphenyl	*51.6*		*"*	*50.0*		*103*	*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 P9E0909 - TX 1005										
LCS (P9E0909-BS1)				Prepared & Analyzed: 05/09/19						
C6-C12	1180	25.0	mg/kg wet	1000		118	75-125			
>C12-C28	1130	25.0	"	1000		113	75-125			
Surrogate: 1-Chlorooctane	*106*		*"*	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*49.0*		*"*	*50.0*		*98.0*	*70-130*			
LCS Dup (P9E0909-BSD1)				Prepared & Analyzed: 05/09/19						
C6-C12	1130	25.0	mg/kg wet	1000		113	75-125	4.52	20	
>C12-C28	1130	25.0	"	1000		113	75-125	0.194	20	
Surrogate: 1-Chlorooctane	*111*		*"*	*100*		*111*	*70-130*			
Surrogate: o-Terphenyl	*48.3*		*"*	*50.0*		*96.6*	*70-130*			
Calibration Blank (P9E0909-CCB1)				Prepared & Analyzed: 05/09/19						
C6-C12	7.99		mg/kg wet							
>C12-C28	9.03		"							
Surrogate: 1-Chlorooctane	*94.8*		*"*	*100*		*94.8*	*70-130*			
Surrogate: o-Terphenyl	*49.8*		*"*	*50.0*		*99.6*	*70-130*			
Calibration Blank (P9E0909-CCB2)				Prepared: 05/09/19 Analyzed: 05/10/19						
C6-C12	8.24		mg/kg wet							
>C12-C28	9.83		"							
Surrogate: 1-Chlorooctane	*91.6*		*"*	*100*		*91.6*	*70-130*			
Surrogate: o-Terphenyl	*48.5*		*"*	*50.0*		*97.0*	*70-130*			
Calibration Check (P9E0909-CCV1)				Prepared & Analyzed: 05/09/19						
C6-C12	527	25.0	mg/kg wet	500		105	85-115			
>C12-C28	505	25.0	"	500		101	85-115			
Surrogate: 1-Chlorooctane	*111*		*"*	*100*		*111*	*70-130*			
Surrogate: o-Terphenyl	*49.3*		*"*	*50.0*		*98.6*	*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 P9E0909 - TX 1005										
Calibration Check (P9E0909-CCV2)				Prepared: 05/09/19 Analyzed: 05/10/19						
C6-C12	555	25.0	mg/kg wet	500		111	85-115			
>C12-C28	517	25.0	"	500		103	85-115			
Surrogate: 1-Chlorooctane	*106*		*"*	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*47.7*		*"*	*50.0*		*95.4*	*70-130*			
Calibration Check (P9E0909-CCV3)				Prepared: 05/09/19 Analyzed: 05/10/19						
C6-C12	541	25.0	mg/kg wet	500		108	85-115			
>C12-C28	538	25.0	"	500		108	85-115			
Surrogate: 1-Chlorooctane	*114*		*"*	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*49.7*		*"*	*50.0*		*99.4*	*70-130*			
Duplicate (P9E0909-DUP1)	**Source: 9E09010-01**			Prepared: 05/09/19 Analyzed: 05/10/19						
C6-C12	ND	25.3	mg/kg dry		9.64				20	
>C12-C28	102	25.3	"		91.9			9.99	20	
Surrogate: 1-Chlorooctane	*91.9*		*"*	*101*		*91.0*	*70-130*			
Surrogate: o-Terphenyl	*46.1*		*"*	*50.5*		*91.2*	*70-130*			

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

Project: Legacy Hamon 2
Project Number: 19-0122-01
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
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: 5/30/2019

Brent Barron, Laboratory Director/Technical Director

Nº 0668

CHAIN-OF-CUSTOD

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

DATE: 5/9/19 PAGE 1 OF 3

PO#: LAB WORK ORDER#: 9E09004

PROJECT LOCATION OR NAME: Legacy Haman 2

LAI PROJECT #: 19-0122-01 COLLECTOR: KG/TO

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 ☐ HOLD PAH ☐ | 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 ☐ HOLD PAH ☐	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
DP-1 (0'-1')	1	5/6/19	14:03	S	1				X		X		X	X	X													X		Test until
DP-1 (1'-3')	2	"	14:05	"	"				"		"		"	"	"													"		Detection
DP-1 (3'-5')	3	"	14:22	"	"				"		"		"	"	"													"		Limit is
DP-1 (5'-6')	4	"	14:41	"	"				"		"		"	"	"													"		reached
DP-1 (6'-8')	5	"	14:52	"	"				"		"		"	"	"													"		
DP-1 (8'-10')	6	"	15:02	"	"				"		"		"	"	"													"		
DP-2 (0'-1')	7	"	15:36	"	"				"		"		"	"	"													"		
DP-2 (1'-3')	8	"	15:38	"	"				"		"		"	"	"													"		
DP-2 (3'-5')	9	"	15:40	"	"				"		"		"	"	"													"		
DP-2 (5'-6')	10	"	16:05	"	"				"		"		"	"	"													"		
DP-2 (6'-8')	11	"	16:06	"	"				"		"		"	"	"													"		
DP-2 (8'-10')	12	"	16:08	"	"				"		"		"	"	"													"		
DP-3 (0'-1')	13	"	16:26	"	"				"		"		"	"	"													"		
DP-3 (1'-3')	14	"	16:27	"	"				"		"		"	"	"													"		
DP-3 (3'-5')	15	"	16:29	"	"				"		"		"	"	"													"		
TOTAL																															

RELINQUISHED BY:(Signature) DATE/TIME 5/9/19 - 8:39 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 5/9/19 - 8:39 RECEIVED BY: (Signature) Alexa Bledsoe

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

LABORATORY: PBEL

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

LABORATORY USE ONLY:
RECEIVING TEMP: -7.5 -6.5 CF+1 LD THERM#:
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Nº 0669

CHAIN-OF-CUSTODY

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

DATE: 5/9/19 PAGE 2 OF 3

PO#: LAB WORK ORDER#: 9E09004

PROJECT LOCATION OR NAME: Legacy Hobson 2

LAI PROJECT #: 19-0122-01 COLLECTOR: KO/TO

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 ☐ | CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐ | m 300

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 ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐	m 300	FIELD NOTES
DP-3 (5'-6')	16	5/6/19	16:36	S	1				X		X		X	X	X													X				Test until
DP-3 (6'-8')	17	5/6/19	16:38	↓	↓				↓		↓		↓	↓	↓													↓				Delineation
DP-3 (8'-10')	18	5/6/19	16:39	↓	↓				↓		↓		↓	↓	↓													↓				limit is
DP-4 (0'-1')	19	5/8/19	12:33	S	↓				↓		↓		↓	↓	↓													↓				reached
DP-4 (1'-3')	20	↓	12:35	↓	↓				↓		↓		↓	↓	↓													↓				
DP-4 (3'-5')	21	↓	12:37	↓	↓				↓		↓		↓	↓	↓													↓				
DP-4 (5'-6')	22	↓	12:39	↓	↓				↓		↓		↓	↓	↓													↓				
DP-4 (6'-8')	23	↓	12:41	↓	↓				↓		↓		↓	↓	↓													↓				
DP-4 (8'-10')	24	↓	12:43	↓	↓				↓		↓		↓	↓	↓													↓				
DP-6 (0'-1')	25	5/8/19	13:57	↓	↓				↓		↓		↓	↓	↓													↓				
DP-6 (1'-3')	26	↓	13:59	↓	↓				↓		↓		↓	↓	↓													↓				
DP-6 (3'-5')	27	↓	14:01	↓	↓				↓		↓		↓	↓	↓													↓				
DP-6 (5'-6')	28	↓	14:03	↓	↓				↓		↓		↓	↓	↓													↓				
DP-6 (6'-8')	29	↓	14:05	↓	↓				↓		↓		↓	↓	↓													↓				
DP-6 (8'-10')	30	↓	14:07	↓	↓				↓		↓		↓	↓	↓													↓				
TOTAL																																

RELINQUISHED BY:(Signature) [signature] DATE/TIME 5/9/19 — 8:39 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 5/9/19-8:39 RECEIVED BY: (Signature) Teresa Bledsoe

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

LABORATORY: PBEL

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

LABORATORY USE ONLY:
RECEIVING TEMP: -1.5 -0.5 THERM#: CF+1 LP
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # ☐ HAND DELIVERED

Nº 0670

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 5/9/19 PAGE 3 OF 3

PO#: _____ LAB WORK ORDER#: 9E09004

PROJECT LOCATION OR NAME: Legacy Haman 2

LAI PROJECT #: 19-0132-01 COLLECTOR: KO

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 ☐ | CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐ | m 300

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 ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐	m 300	FIELD NOTES
DP-8 (0'-1')	31	5/8/19	15:05	S	1				X		X		X		X	X	X													X				Test until delineation limit is reached.
DP-8 (1'-3')	32	↓	15:07	↓	↓				↓		↓		↓		↓	↓	↓													↓				
DP-8 (3'-5')	33		15:09																															
DP-8 (5'-6')	34		15:11																															
DP-8 (6'-8')	35		15:13																															
DP-8 (8'-10')	36	↓	15:15	↓	↓				↓		↓		↓		↓	↓	↓													↓				
TOTAL																																		

RELINQUISHED BY:(Signature) DATE/TIME 5/9/19 – 8:39 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 5/9/19-8:39 RECEIVED BY: (Signature) Jessa Bledsoe

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

LABORATORY: PBEL

TURN AROUND TIME

NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:

RECEIVING TEMP: -1.5 -0.5 THERM#: CF#1 L2

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED

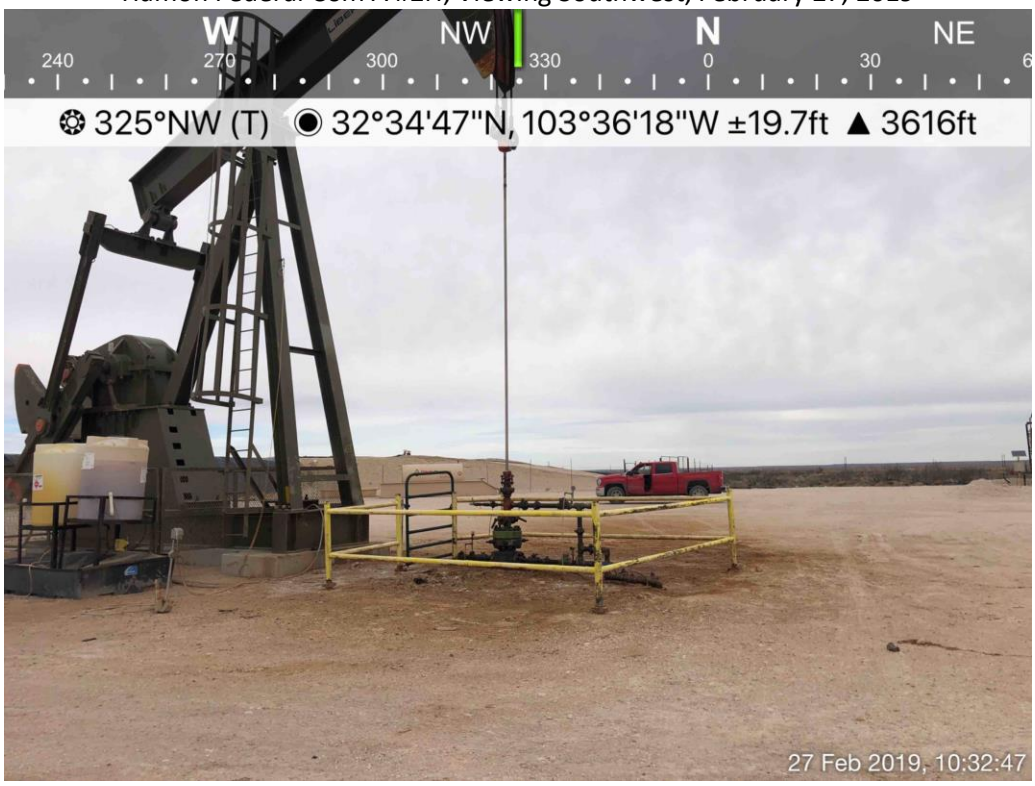
☐ CARRIER BILL # _____

☐ HAND DELIVERED

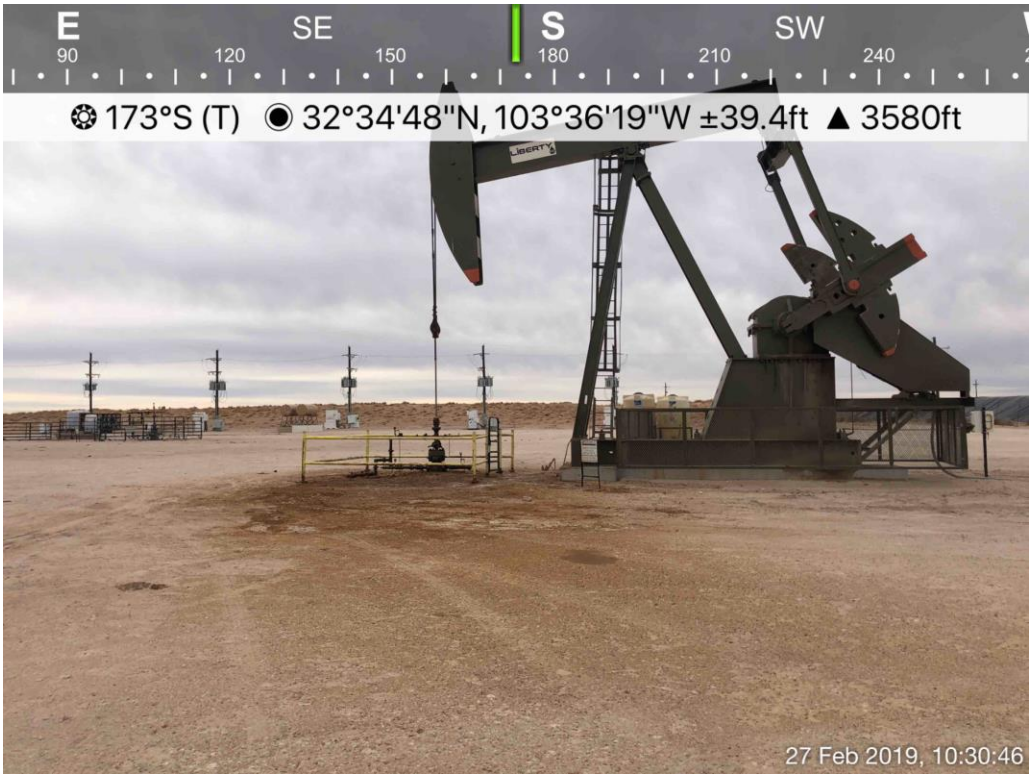
Appendix C

Photographs

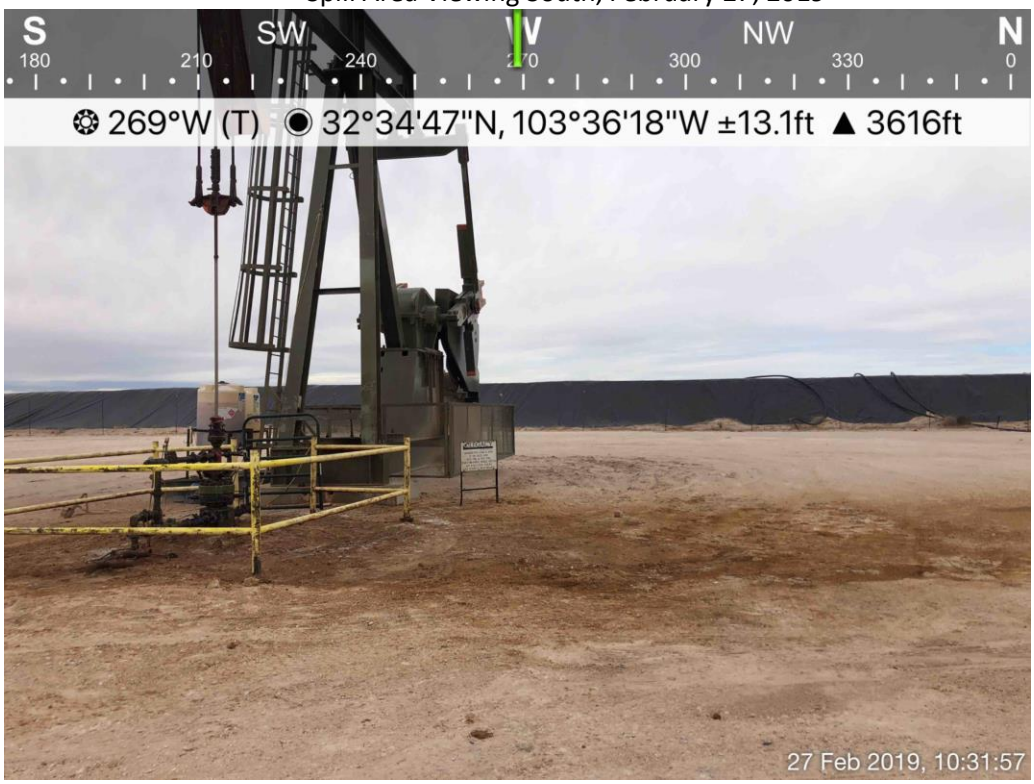
Hamon Federal Com A #2H, Viewing Southwest, February 27, 2019



Spill Area Viewing Northwest, February 27, 2019



Spill Area Viewing South, February 27, 2019



Spill Area Viewing West, February 27, 2019