

Incident ID	
District RP	
Facility ID	
Application ID	

UI7UE-200311-C-1410

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?	> 50 Ft. (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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

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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: Clyde Wilhoit Title: Maintenance Foreman
 Signature: *Clyde Wilhoit* Date: 3-5-2020
 email: cwilhoit@legacyreserves.com Telephone: 432-425-4137

OCD Only

Received by: _____ Date: _____

Incident ID	
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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: Clyde Wilhoit Title: Maintenance Foreman
 Signature: *Clyde Wilhoit* Date: 3-5-2020
 email: cwilhoit@legacyreserves.com Telephone: 432-425-4137

OCD Only

Received by: _____ Date: _____

- Approved Approved with Attached Conditions of Approval Denied Deferral Approved

Signature: _____ Date: _____

Site Assessment Report and Proposed Remediation Workplan

UI7UE-200311-C-1410

Legacy Reserves Operating, LP Hamon Fed Com A #3H

Lea County, New Mexico
Unit Letter O, Section 6, Township 20 South, Range 34 East
Latitude 32.596216 North, Longitude 103.597601 West
NMOCD Reference No. 1RP-pending

Prepared By:

Etech Environmental & Safety Solutions, Inc.
3100 Plains Highway
Lovington, New Mexico 88260



Daniel Dominguez



Joel W. Lowry



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1.0 PROJECT INFORMATION

Etech Environmental & Safety Solutions, Inc. (Etech), on behalf of Legacy Reserves Operating, LP, has prepared this Report for the Release Site known as the Hamon Fed Com A #3H. Details of the release are summarized below:

Location of Release Source			
Latitude: <u>32.596216</u>		Longitude: <u>-103.597601</u>	
Provided GPS are in WGS84 format.			
Site Name: <u>Hamon Fed Com A #3H</u>		Site Type: <u>Well Head</u>	
Date Release Discovered: <u>11/22/2019</u>		API # (if applicable): <u>30-025-41305</u>	
Unit Letter	Section	Township	Range
O	6	20S	34E
Surface Owner: <input type="checkbox"/> State <input type="checkbox"/> Federal <input type="checkbox"/> Tribal <input checked="" type="checkbox"/> Private		(Name <u>Kenneth Smith Inc.</u>)	
Nature and Volume of Release			
<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls)	36	Volume Recovered (bbls) 20
<input type="checkbox"/> Produced Water	Volume Released (bbls)		Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water > 10,000 mg/L?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
<input type="checkbox"/> Condensate	Volume Released (bbls)		Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)		Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released		Volume/Weight Recovered
Cause of Release: The release was attributed to the failure of the stuffing box on the pumping unit.			
Initial Response			
<input checked="" type="checkbox"/> The source of the release has been stopped.			
<input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.			
<input checked="" type="checkbox"/> Release materials have been contained via the use of berms or dikes, absorbent pad, or other containment devices			
<input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.			

2.0 SITE CHARACTERIZATION

A search of groundwater databases maintained by the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey (USGS) was conducted in an effort to determine the horizontal distance to known water sources within a half mile radius of the Release Site. Probable groundwater depth was determined using data generated by numeric models based on available water well data and published information. Depth to groundwater information is provided as Appendix A.

What is the shallowest depth to groundwater beneath the area affected by the release?	>50 Ft.	
Did the release impact groundwater or surface water?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
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Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production or storage site?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

NMOCD Siting Criteria data was gathered from available resources including Bureau of Land Management (BLM) shapefiles; topographic maps; NMOSE and USGS databases; and aerial imagery. The results are depicted on Figures 1 & 2.

3.0 CLOSURE CRITERIA FOR SOILS IMPACTED BY A RELEASE

Based on the volume and nature of the release, inferred depth to groundwater and NMOCD Siting Criteria, the NMOCD Closure Criteria for the Site is as follows:

Closure Criteria for Soil Impacted by a Release			
Probable Depth to Groundwater	Constituent	Method	Limit
>50 Ft.	Chloride	EPA 300.0 or SM4500 Cl B	10000 mg/kg
	TPH (GRO + DRO + MRO)	EPA SW-846 Method 8015M Ext	2500 mg/kg
	DRO + GRO	EPA SW-846 Method 8015M	1000 mg/kg
	BTEX	EPA SW-846 Methods 8021b or 8260b	50 mg/kg
	Benzene	EPA SW-846 Methods 8021b or 8260b	10 mg/kg

4.0 INITIAL SITE ASSESSMENT

On **December 11, 2019**, Etech conducted an initial site assessment. During the initial site assessment, a series of hand-augered soil bores (SP1 through SP5) were advanced within the release margins in an effort to determine the vertical extent of soil impacts. In addition, hand-augered soil bores (NH1, NH2, EH1, SH1, SH2, WH1 and WH2) were advanced at the inferred edges of the affected area in an effort to determine the horizontal extent of soil impacts. During the advancement of the hand-augered soil bores, field soil samples were collected and field-screened for the presence of Volatile Organic Compounds utilizing a Photoionization Detector (PID) and/or concentrations of chloride utilizing a Hach Quantab® chloride test kit. A "Site & Sample Location Map" is provided as Figure 3. Field data and soil profile logs, if applicable, are provided as Appendix

Based on field observations and field test data, nineteen (19) delineation soil samples (SP1 @ 1', SP2 @ 1', SP3 @ 1', SP4 @ 1', SP5 @ 1', NH1 @ Surf., NH1 @ 1', NH2 @ Surf., NH2 @ 1', EH1 @ Surf., EH1 @ 1', SH1 @ Surf., SH1 @ 1', SH2 @ Surf., SH2 @ 1', WH1 @ Surf., WH1 @ 1', WH2 @ Surf. and WH2 @ 1') were submitted to the laboratory for analysis of BTEX, TPH and chloride. Laboratory analytical results indicated BTEX, TPH and chloride concentrations were below the NMOCD Closure Criteria in each of the submitted soil samples. A "Soil Chemistry Table" is provided as Table 1. Laboratory Analytical Reports are provided in Appendix C.

On **December 26, 2020**, Etech revisited the release site in an effort to further characterize soil impacts. During the site visit, Etech collected six (6) additional soil samples (SP1 @ Surf., SP2 @ Surf., SP3 @ Surf., SP4 @ Surf., SP5 @ Surf. and WH2b @ Surf.) and submitted them to the laboratory for analysis of TPH and/or chloride concentrations. Laboratory analytical results indicated TPH and chloride concentrations ranged from less than the laboratory reporting limit in soil sample SP3 @ Surf. to 11,000 mg/kg in soil sample SP4 @ Surf. Analytical results indicated chloride concentrations ranged from 545 mg/kg in soil sample SP4 @ Surf. to 5,060 mg/kg in soil sample SP1 @ Surf.

On **March 3, 2020**, Etech revisited the release site in an effort to further characterize soil impacts. During the site visit, Etech collected three (3) additional soil samples (WH2b @ 1', WH2c @ Surf. and WH2c @ 1') and submitted them to the laboratory for analysis of BTEX, TPH and chloride. Laboratory analytical results indicated BTEX, TPH and chloride concentrations were below the NMOCD Closure Criteria in each of the submitted soil samples.

5.0 PROPOSED REMEDIATION PLAN

Based on laboratory analytical results, site characteristics and field observations made during the initial site assessment, Legacy Reserves Operating, LP proposes the following remediation activities designed to advance the Site toward an approved closure:

- Utilizing mechanical equipment, excavate impacted soil affected above the NMOCD Closure Criteria within the release margins in the areas characterized by sample points SP1 through SP5. The floor and sidewalls of the excavated area will be advanced until laboratory analytical results from confirmation soil samples indicates concentrations of BTEX, TPH and chloride are below the NMOCD Closure Criteria.
- Excavated soil will be temporarily stockpiled on-site, atop an impermeable liner, pending final disposition at an NMOCD-permitted surface waste facility.
- Upon receiving laboratory analytical results from excavation confirmation soil samples, backfill the excavated area with locally sourced, non-impacted "like" material.
- Upon completion of remediation activities, a Remediation Summary and Soil Closure Request will be prepared detailing field activities and laboratory analytical results from confirmation soil samples.

6.0 SAMPLING PLAN

Upon completion of excavation activities, representative five-point composite excavation confirmation soil samples will be collected from the excavation sidewalls in each cardinal direction, representing no more than 50 linear ft. A minimum of **one (1)** representative five-point composite excavation confirmation soil sample will be collected from the base of the excavated area representing every **400 square feet**. Additional, discrete grab samples will be collected from wet or visibly stained areas inferred to have been affected by the release, as necessary.

7.0 TIMELINE AND ESTIMATED VOLUME OF SOIL TO BE REMEDIATED

Remediation activities are expected to be completed **within 90 days** of receiving necessary approval(s) of the Site Assessment Summary and Proposed Remediation Plan. Based on laboratory analytical results, site characteristics and field observations made during the initial site assessment it is estimated that approximately **800 cubic yards** is in need of removal.

8.0 RESTORATION, RECLAMATION AND RE-VEGETATION PLAN

Areas affected by remediation and closure activities will be substantially restored to the condition that existed prior to the release, to the extent practicable. Excavated areas will be backfilled with locally sourced, non-impacted "like" material placed at or near original relative positions. The affected area will be graded to meet the needs of the well pad and compacted to achieve erosion control, stability and preservation of surface water flow to the extent practicable. The affected area is limited to an active well pad therefore reseeding will not be necessary.

9.0 LIMITATIONS

Etech Environmental & Safety Solutions, Inc., has prepared this Site Assessment Report and Proposed Remediation Plan to the best of its ability. No other warranty, expressed or implied, is made or intended. Etech has examined and relied upon documents reference in the report and on oral statements made by certain individuals. Basis has not conducted an independent examination of the facts contained in referenced materials and statements. Etech has presumed the genuineness of these documents and statements and that the information provided therein is true and accurate. Etech has prepared the report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. Etech notes that the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of Legacy Reserves Operating, LP. Use of the information contained in this report is prohibited within the consent of Etech and/or Legacy Reserves Operating, LP.

10.0 DISTRIBUTION

Legacy Reserves Operating, LP

303 W. Wall St.

Midland, TX 79701

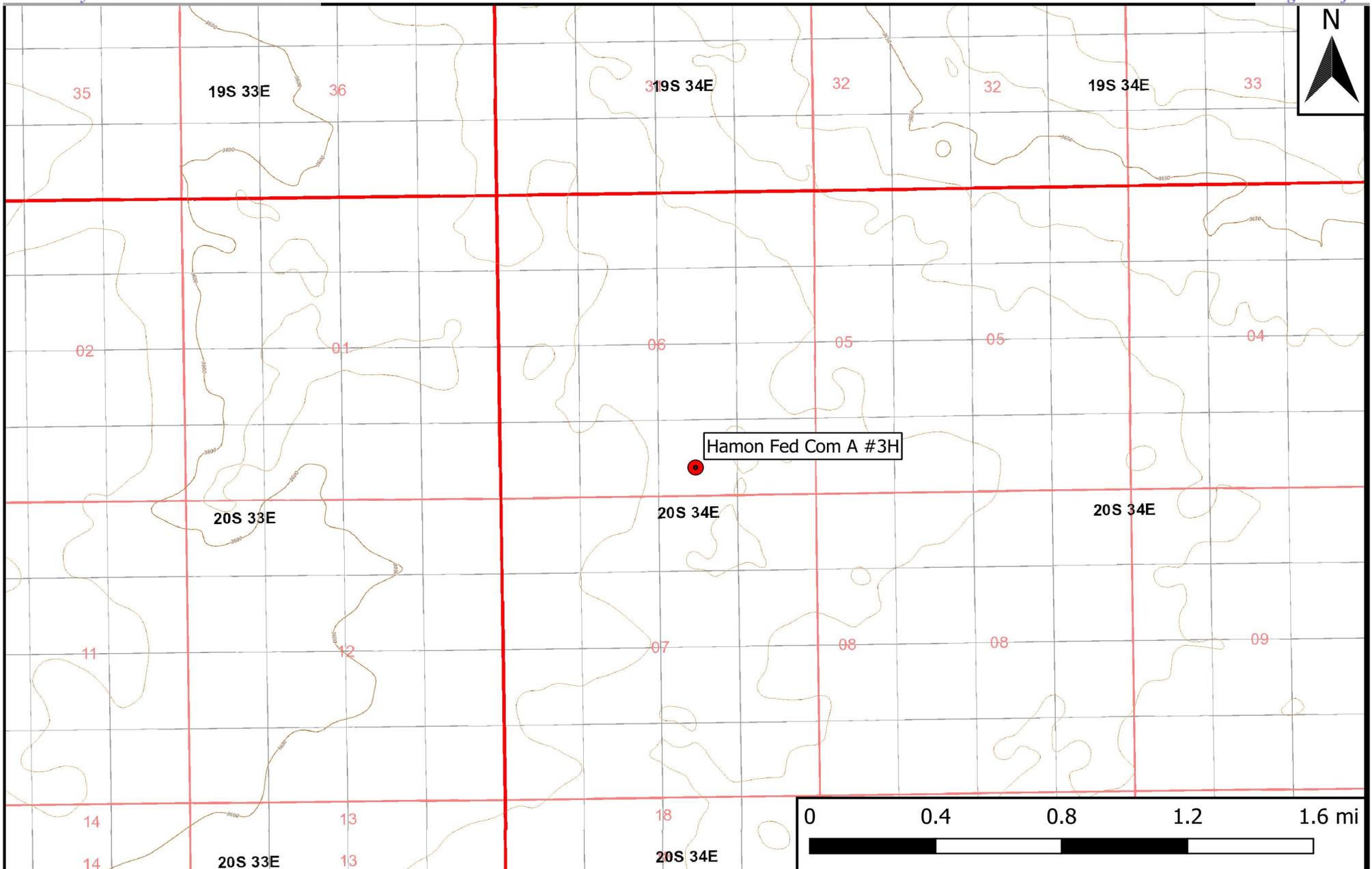
New Mexico Energy, Minerals and Natural Resources Department

Oil Conservation Division, District 1

1220 South St. Francis Drive

Santa Fe, NM 87505

Figure 1 Topographic Map



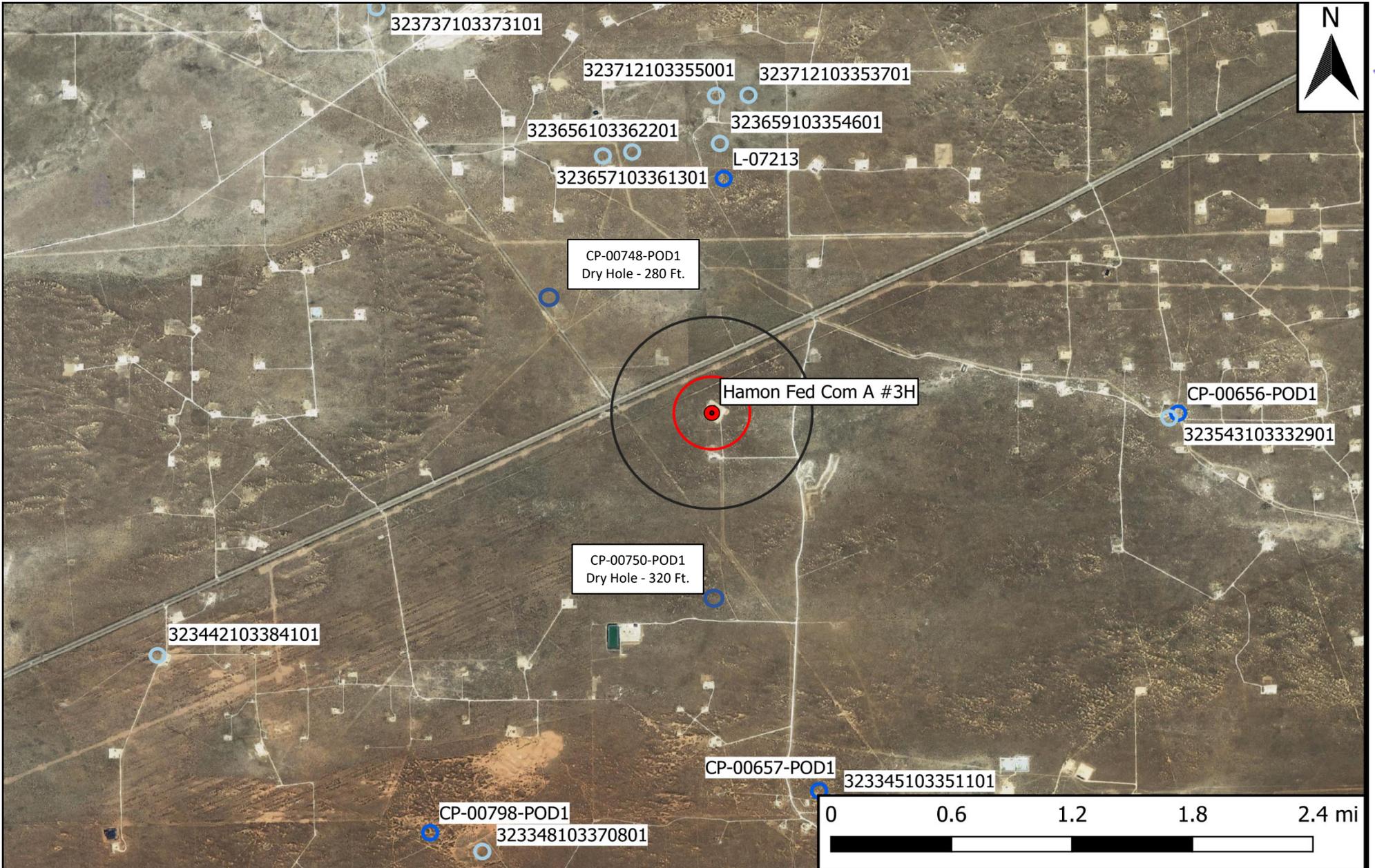
Legend
● Site Location

Figure 1
Topographic Map
Legacy Reserves Operating, LP
Hamon Fed Com A #3H
GPS: 32.596216, -103.597601
Lea County



Figure 2

Aerial Proximity Map



- Legend**
- Site Location
 - 0.5 Mi Radius
 - 1000 Ft Radius
 - 1% Annual Flood Chance
 - Surface Water
 - Well - USGS
 - Well - NMOSE
 - High Karst
 - Medium Karst
 - Potash Mine Workings

Figure 2
 Aerial Map
 Legacy Reserves Operating, LP
 Hamon Fed Com A #3H
 GPS: 32.596216, -103.597601
 Lea County



Drafted: mag Checked: jwl Date: 1/6/20

Figure 3
Site and Sample Location Map



Figure 3

Site and Sample Location Map
 Legacy Reserves Operating, LP
 Hamon Fed Com A #3H
 GPS: 32.596216, -103.597601



Drafted:

Checked: jwl

Date:

3/2/20

Table 1
Concentrations of BTEX, TPH, and/or Chloride in Soil

TABLE 1
CONCENTRATIONS OF BENZENE, BTEX TPH AND CHLORIDE IN SOIL
Legacy Reserves Operating, LP
Hamon Fed Com A #3H
NMOCD Ref. #:

Sample ID	Date	Depth	Soil Status	SW 846 8021B		SW 846 8015M Ext.					4500 Cl
				Benzene (mg/kg)	BTEX (mg/kg)	GRO C ₆ -C ₁₀ (mg/kg)	DRO C ₁₀ -C ₂₈ (mg/kg)	GRO + DRO C ₆ -C ₂₈ (mg/kg)	ORO C ₂₈ -C ₃₆ (mg/kg)	TPH C ₆ -C ₃₆ (mg/kg)	Chloride (mg/kg)
SP1 @ Surf.	12/26/2019	0'	In-Situ	-	-	<249	2,290	2,290	253	2,543	5,060
SP1 @ 1'	12/11/2019	1'	In-Situ	<0.00200	0.0155	<50.0	274	274	<50.0	274	434
SP2 @ Surf.	12/26/2019	0'	In-Situ	-	-	<50.0	83.6	<50.0	83.6	83.6	1,510
SP2 @ 1'	12/11/2019	1'	In-Situ	<0.00199	0.00669	<50.0	457	457	<50.0	457	269
SP3 @ Surf.	12/26/2019	0'	In-Situ	-	-	<50.0	<50.0	<50.0	<50.0	<50.0	834
SP3 @ 1'	12/11/2019	1'	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	353
SP4 @ Surf.	12/26/2019	0'	In-Situ	-	-	2,260	8,110	10,370	697	11,000	545
SP4 @ 1'	12/11/2019	1'	In-Situ	<0.00200	0.00296	<49.9	259	259	<49.9	259	279
SP5 @ Surf.	12/26/2019	0'	In-Situ	-	-	<250	3,860	3,860	431	4,290	1,020
SP5 @ 1'	12/11/2019	1'	In-Situ	<0.00199	<0.00199	<50.0	422	422	50.7	473	461
NH1 @ Surf	12/11/2019	0'	In-Situ	<0.00202	<0.00202	<49.8	73.1	73.1	<49.8	73.1	143
NH1 @ 1'	12/11/2019	1'	In-Situ	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	131
NH2 @ Surf	12/11/2019	0'	In-Situ	<0.00199	<0.00199	<50.0	151	151	<50.0	151	1,460
NH2 @ 1'	12/11/2019	1'	In-Situ	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	244
EH1 @ Surf	12/11/2019	0'	In-Situ	<0.00200	<0.00200	<50.0	51.1	51.1	<50.0	51.1	3,500
EH1 @ 1'	12/11/2019	1'	In-Situ	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	520
SH1 @ Surf	12/11/2019	0'	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	343
SH1 @ 1'	12/11/2019	1'	In-Situ	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	51.0
SH2 @ Surf	12/11/2019	0'	In-Situ	<0.00200	<0.00200	<49.9	521	521	100	621	2,160
SH2 @ 1'	12/11/2019	1'	In-Situ	<0.00198	<0.00198	<50.0	99.3	99.3	<50.0	99.3	2,840
WH1 @ Surf	12/11/2019	0'	In-Situ	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	23.8
WH1 @ 1'	12/11/2019	1'	In-Situ	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	12.3
WH2 @ Surf	12/11/2019	0'	In-Situ	<0.00198	<0.00198	<49.9	1,000	1,000	196	1,200	592
WH2 @ 1'	12/11/2019	1'	In-Situ	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	449
WH2b @ Surf.	1/26/2019	0'	In-Situ	-	-	<49.8	1,880	1,880	253	2,130	-
WH2b @ 1'	3/3/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0
WH2c @ Surf.	3/3/2020	0'	In-Situ	<0.050	<0.300	<10.0	188	188	59.2	247.2	768
WH2c @ 1'	3/3/2020	1'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,150
Closure Criteria				10	50	-	-	1,000	-	2,500	10,000

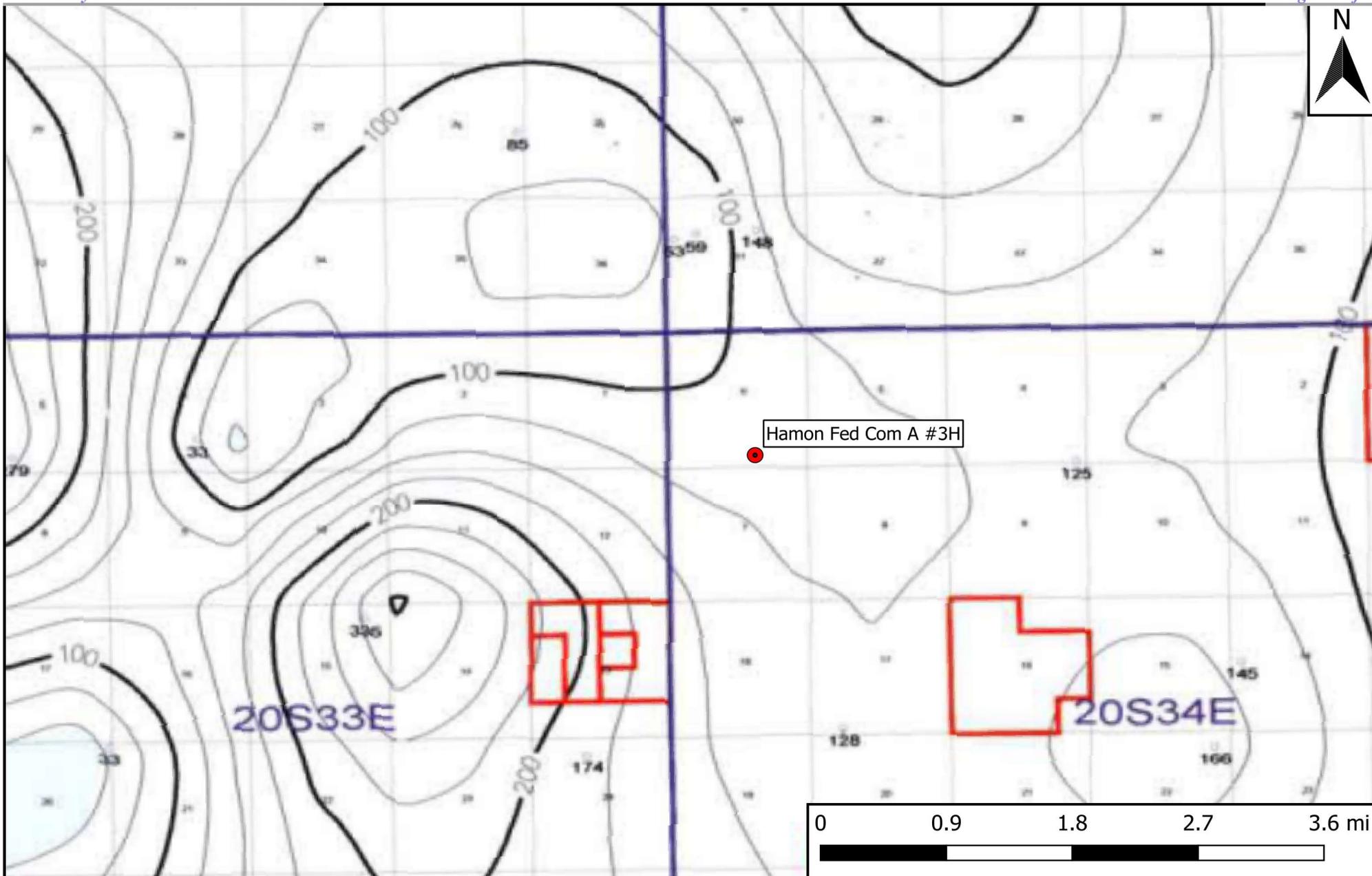
NOTES:

- =

Bold text denotes a concentration that exceeds the NMOCD Closure Criteria

Appendix A

Depth to Groundwater Information



Legend

- Site Location

Figure 4
 Inferred Depth to Groundwater Trend Map
 Legacy Reserves Operating, LP
 Hamon Fed Com A #3H
 GPS: 32.596216, -103.597601
 Lea County





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

No records found.

UTMNA83 Radius Search (in meters):

Easting (X): 631605.3

Northing (Y): 3607392.63

Radius: 804.67

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

12/2/19 11:57 AM

WATER COLUMN/ AVERAGE
DEPTH TO WATER



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
CP 00750 POD1	CP	LE		3	4	07	20S	34E		631639	3605834*	1558	320		

Average Depth to Water: --
 Minimum Depth: --
 Maximum Depth: --

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 631605.3 **Northing (Y):** 3607392.63 **Radius:** 1610

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

12/2/19 11:58 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER



New Mexico Office of the State Engineer

Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	CP 00750 POD1	3	4	07	20S	34E		631639	3605834*

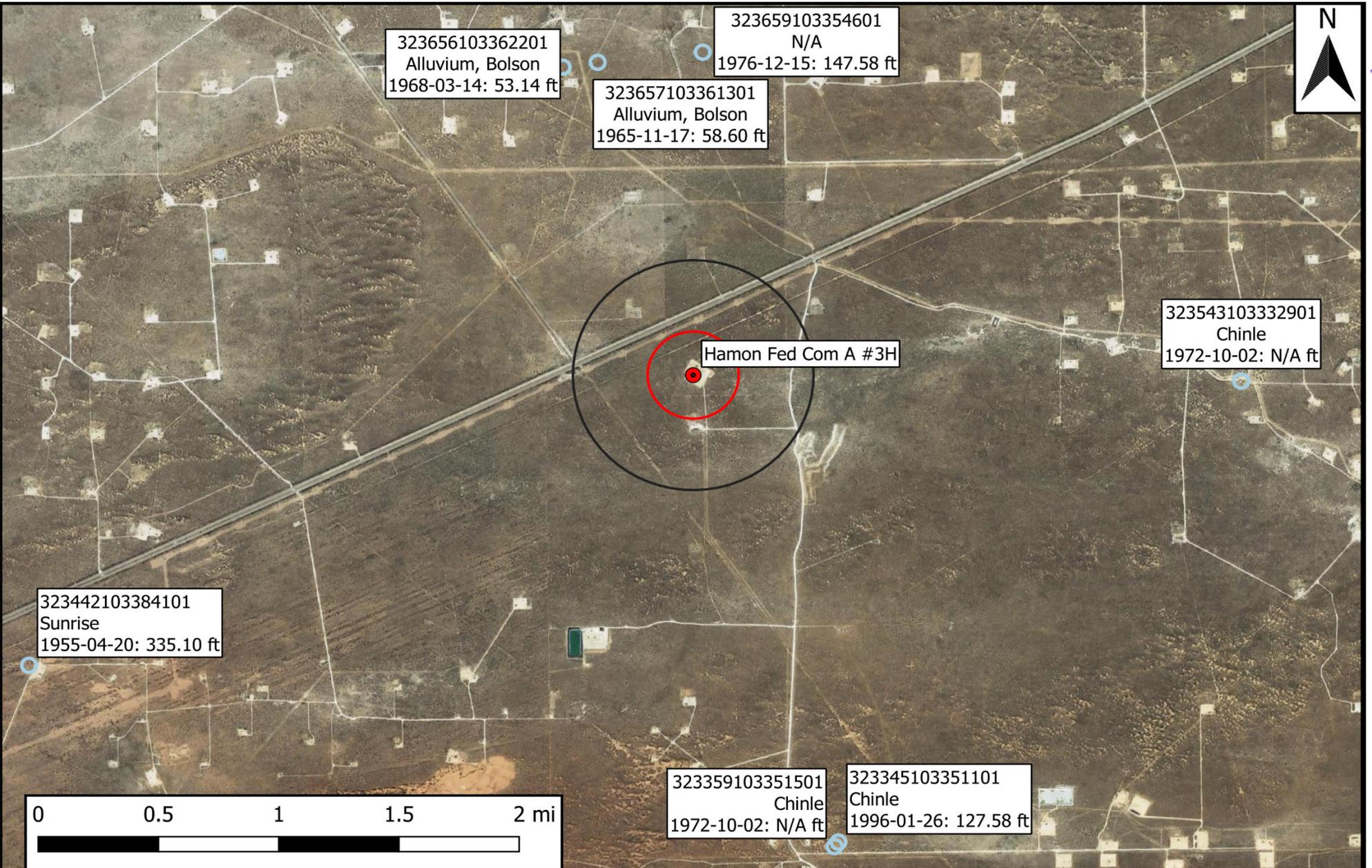
Driller License: 421	Driller Company: GLENN'S WATER WELL SERVICE			
Driller Name: GLENN, CLARK A."CORKY" (LD)				
Drill Start Date: 06/20/1990	Drill Finish Date: 06/20/1990	Plug Date:		
Log File Date: 07/26/1990	PCW Rcv Date:	Source:		
Pump Type:	Pipe Discharge Size:	Estimated Yield:		
Casing Size:	Depth Well: 320 feet	Depth Water:		

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

12/2/19 11:58 AM

POINT OF DIVERSION SUMMARY



- Legend
- Site Location
 - Well - USGS
 - 0.5 Mi Radius
 - 1000 Ft Radius

Figure 5
 USGS Well Proximity Map
 Legacy Reserves Operating, LP
 Hamon Fed Com A #3H
 GPS: 32.596216, -103.597601
 Lea County



STATE ENGINEER OFFICE
WELL RECORD

475940

Section 1. GENERAL INFORMATION

(A) Owner of well Grace Drilling Co. Owner's Well No. _____
Street or Post Office Address P.O. Box 13480
City and State Odessa, TX 79768 '91 .III 5 AM 10 47

Well was drilled under Permit No. CP 748 and is located in the STATE ENGINEER OFFICE
a. NE ¼ ¼ ¼ ¼ of Section 1 Township 20 Range 33E N.M.P.M. SANTA FE NEW MEXICO
b. Tract No. _____ of Map No. _____ of the _____
c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.
d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
the _____ Grant.

(B) Drilling Contractor West Texas Water Well Service License No. WK 1184
Address 3432 W. University Odessa, TX 79764

Drilling Began 6-1-90 Completed 6-2-90 Type tools Air rotary Size of hole 8 3/4 in.
Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.
Completed well is shallow artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To
NO CASING								

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor West Texas Water Well Service
Address _____
Plugging Method Pumped grout - neat cement
Date Well Plugged 6-2-90
Plugging approved by: _____

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

State Engineer Representative

FOR USE OF STATE ENGINEER ONLY

Date Received June 19, 1991

Quad _____ FWL _____ FSL _____

File No. CP-748 Use OWD Location No. 20.33.1.24144

Revised June 1972

STATE ENGINEER OFFICE
WELL RECORD

475954

Section 1. GENERAL INFORMATION

(A) Owner of well TXO Prod. Owner's Well No. _____
Street or Post Office Address c/o Glenn's Water Well Service,
City and State P.O. Box 692 Tatum, N.M. 88267

Well was drilled under Permit No. CP-750 and is located in the:

- a. 1/4 1/4 SW 1/4 SE 1/4 of Section 7 Township 20-S. Range 34-E. N.M.P.M.
- b. Tract No. _____ of Map No. _____ of the _____
- c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.
- d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service, Inc. License No. WD 421

Address P.O. Box 692 Tatum, N.M. 88267

Drilling Began 6/20/90 Completed 6/20/90 Type tools rotary Size of hole 7 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 320 ft.

Completed well is shallow artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
			dry hole	26
				AM 8 29

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
30 SEP 7 AM 10 06

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

STATE ENGINEER OFFICE
SANTA FE NEW MEXICO
30 SEP 7 AM 10 06

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method well was plugged with dirt

Date Well Plugged _____

Plugging approved by: _____

State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received July 26, 1990

Quad _____ FWL _____ FSL _____

File No. CP-750 Use OWD Location No. 20-34-7-4300

Section 6. LOG OF HOLE

Depth in Feet		Thickness in Feet	Color and Type of Material Encountered
From	To		
0	6	6	sand
6	16	10	caleche
16	20	4	sand
20	22	2	rock (soft)
22	32	10	sand
32	65	33	sandy clay
65	102	37	red clay
102	107	5	blue sand rock
107	118	11	brown shale
118	127	9	blue sand rock
127	130	3	brown shale
130	154	24	blue sand rock
154	159	5	limestone hard
159	178	19	red clay
178	191	13	brown shale
191	210	19	red clay
210	235	25	brown shale
235	278	43	brown shale (some light blue)
278	295	17	purple shale (some light blue)
295	306	11	yellow and blue clay
306	320	14	red clay

STATE ENGINEER'S OFFICE
 DIVISION OF WATER CONTROL
 301 F. & 933 OC

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Cory Johnson
 Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a record, only Section 1(a) and Section 5 need be completed.



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USGS Water Resources

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Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs
 site_no list =
 • 323656103362201

Minimum number of levels = 1

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USGS 323656103362201 19S.34E.31.13100

Available data for this site

Lea County, New Mexico

Hydrologic Unit Code 13060011

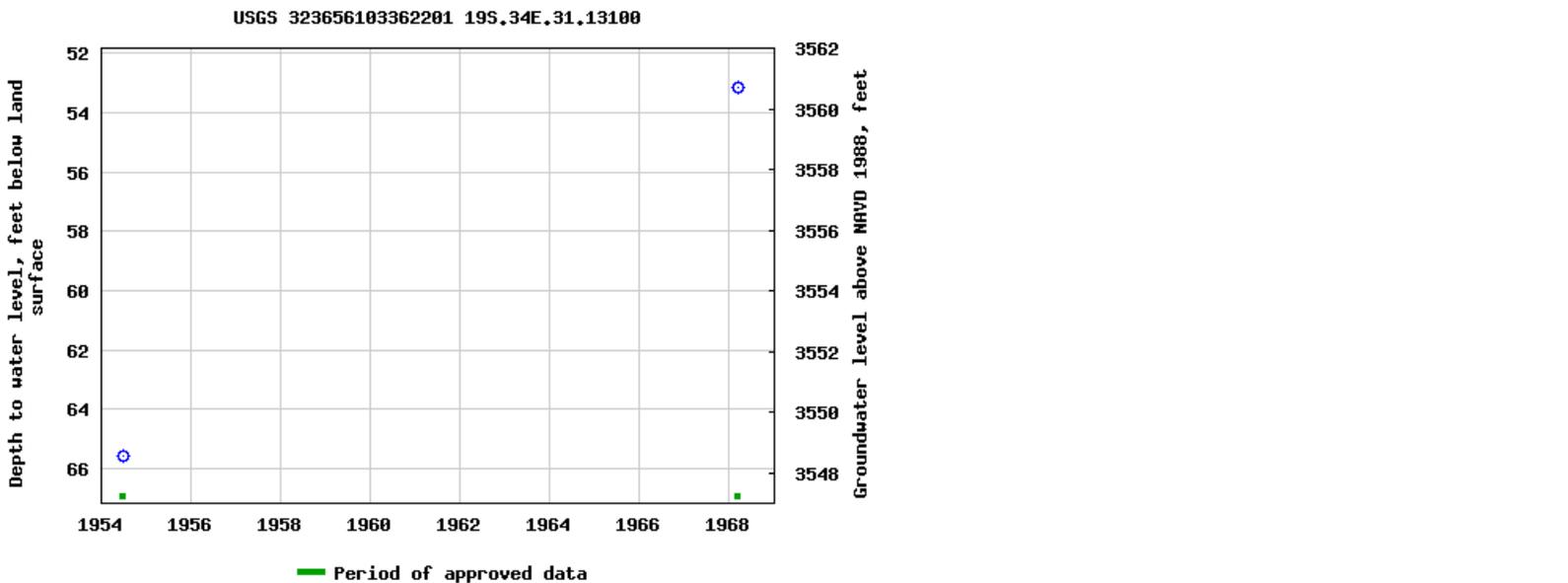
Latitude 32°36'56", Longitude 103°36'22" NAD27

Land-surface elevation 3,614 feet above NAVD88

This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.

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Title: Groundwater for USA: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>



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0.58 0.52 nadww01



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 site_no list =
 • 323657103361301

Minimum number of levels = 1

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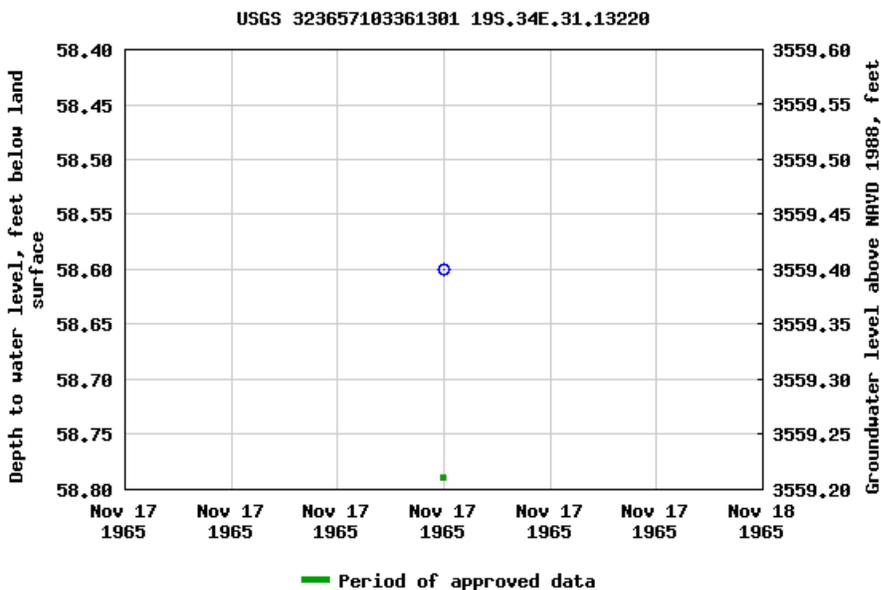
USGS 323657103361301 19S.34E.31.13220

Available data for this site

Lea County, New Mexico
 Hydrologic Unit Code 13060011
 Latitude 32°36'57", Longitude 103°36'13" NAD27
 Land-surface elevation 3,618 feet above NAVD88
 The depth of the well is 66 feet below land surface.
 This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



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URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>



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0.52 0.46 nadww01



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Search Results -- 1 sites found

Agency code = usgs
 site_no list =
 • 323659103354601

Minimum number of levels = 1

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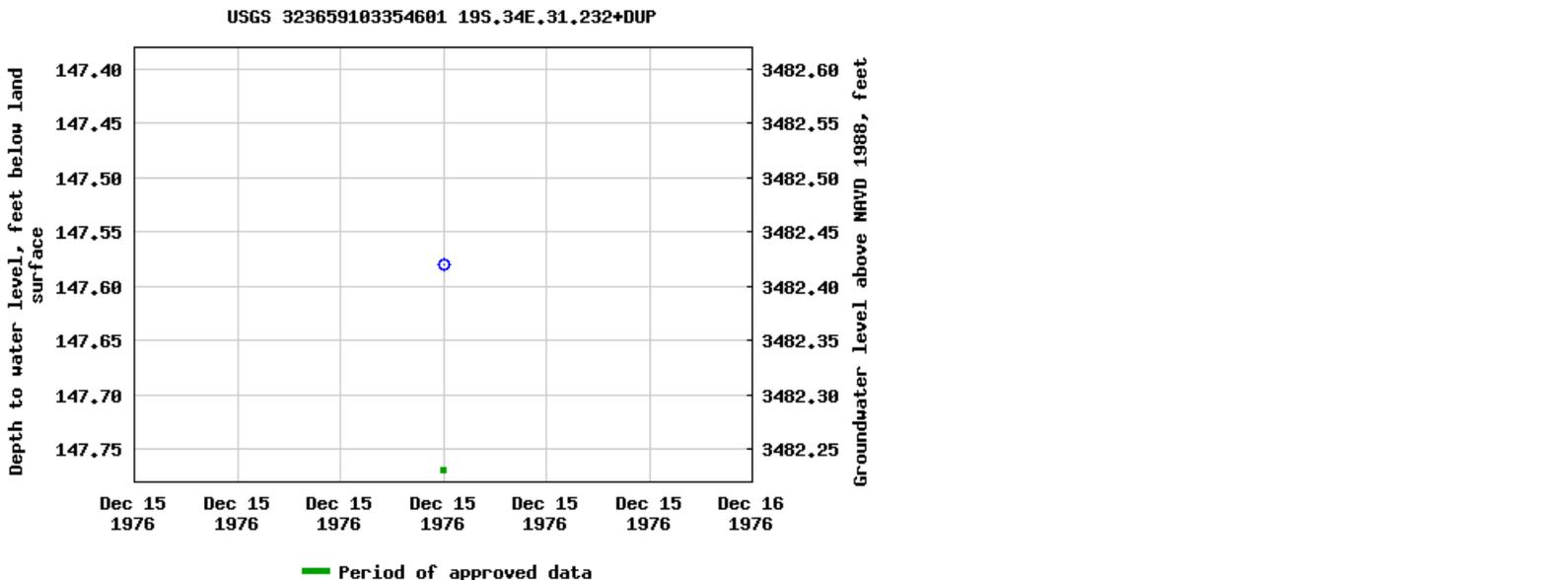
USGS 323659103354601 19S.34E.31.232+DUP

Available data for this site

Lea County, New Mexico
 Hydrologic Unit Code 13060011
 Latitude 32°36'59", Longitude 103°35'46" NAD27
 Land-surface elevation 3,630 feet above NAVD88

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



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 site_no list =
 • 323345103351101

Minimum number of levels = 1

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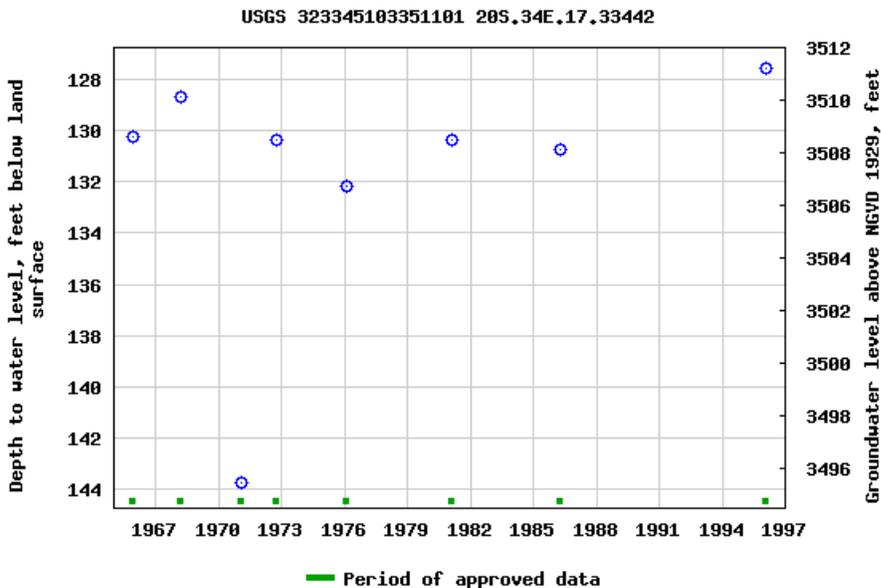
USGS 323345103351101 20S.34E.17.33442

Available data for this site

Lea County, New Mexico
 Hydrologic Unit Code 13060011
 Latitude 32°34'00", Longitude 103°35'14" NAD27
 Land-surface elevation 3,639.00 feet above NGVD29
 The depth of the well is 160 feet below land surface.
 This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



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 site_no list =

- 323442103384101

Minimum number of levels = 1

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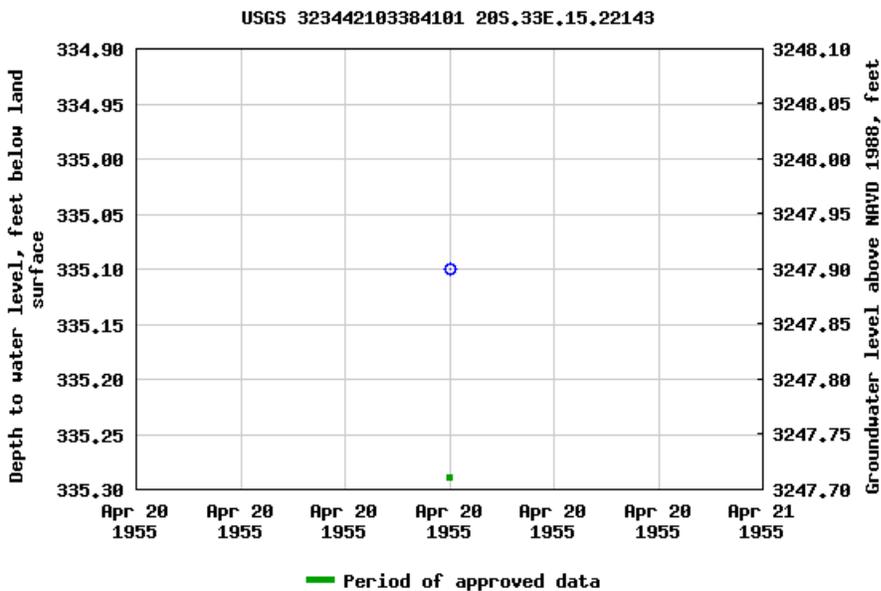
USGS 323442103384101 20S.33E.15.22143

Available data for this site

Lea County, New Mexico
 Hydrologic Unit Code 13060011
 Latitude 32°34'42", Longitude 103°38'41" NAD27
 Land-surface elevation 3,583 feet above NAVD88
 This well is completed in the Sunrise Formation (231SNRS) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



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Appendix B

Field Data and Soil Profile Logs



Soil Profile

Date: 12/11/2019

Project: Hamon Fed Com A #3H

Project Number: 11552 Latitude: 32.596216 Longitude: -103.597601

Depth (ft. bgs)	Description
1	0-8" Imported Fill / Caliche
2	Tan Sand
3	
4	
5	
6	
7	
8	
9	
10	
11	
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40	

TD



Sample Log

Date: 12/11/2019

Project: Hamon Fed Com A #3H

Project Number: 11552 Latitude: 32.596216 Longitude: -103.597601

Sample ID	PID/Odor	Chloride Conc.	GPS
NH 1 @ surface	NONE	348	32.59654, -103.59763
NH 1 @ 1'	NONE	280	" "
NH 2 @ surface	NONE	916	32.59661, -103.59731
NH 2 @ 1'	NONE	464	
EH 1 @ surface	NONE	2504	32.59670, -103.59719
EH 1 @ 1'	NONE	628 664	
EH 2 @ surface	NONE	2156	32.59616, -103.59719
EH 2 @ 1'	NONE	1628	" "
SH 1 @ surface	NONE	312	32.59602, -103.59761
SH 1 @ 1'	NONE	248	" "
SH 2 @ surface	NONE	1872	32.59606, -103.59743
SH 2 @ 1'	NONE	508	" "
WH 1 @ surface	NONE	196	32.59612, -103.59771
WH 1 @ 1'	NONE	7124	" "
WH 2 @ surface	NONE	720	32.59634, -103.59777
WH 2 @ 1'	NONE	312	" "
SP 1 @ 1'	NONE	508	32.59605, -103.59755
SP 2 @ 1' light	NONE	312	32.59620, -103.59746
SP 3 @ 1'	NONE	508	32.59671, -103.59724
SP 4 @ 1'	NONE	424	32.596327, -103.597304
SP 5 @ 1'	NONE	464	32.596350, -103.59763
WH 2 b @ surface	NONE	248	
WH 2 b @ 1'	NONE	464	
NH 2 b @ surface	NONE	1520	
NH 2 b @ 1'	NONE	608	
NH 2 c @ surface	NONE	2504	
NH 2 c @ 1'	NONE	2504	
EH 2 b @ surface	NONE	< 2514	
EH 2 b @ 1'	NONE	2156	
EH 1 b @ surface	NONE	1628	
EH 1 b @ 1'	NONE	312	
SH 2 b @ surface	NONE	248	
SH 2 b @ 1'	NONE	2124	
WH 2 b @ surface			
WH 2 b @ 1'			

Sample Point = SP #1 @ ## etc

Floor = FL #1 etc

Sidewall = SW #1 etc

Test Trench = TT #1 @ ##

Refusal = SP #1 @ 4'-R

Soil Intended to be Deferred = SP #1 @ 4' In-Situ

Resamples = SP #1 @ 5b or SW #1b

Stockpile = Stockpile #1

GPS Sample Points, Center of Comp Areas

Appendix C

Laboratory Analytical Reports

Analytical Report 646599
for
Etech Environmental & Safety Solution, Inc

Project Manager: Joel Lowry

Hamon Fed Com #3H

11552

23-DEC-19

Collected By: Client



1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



23-DEC-19

Project Manager: **Joel Lowry**
Etech Environmental & Safety Solution, Inc
P.O. Box 8469
Midland, TX 79708

Reference: XENCO Report No(s): **646599**
Hamon Fed Com #3H
Project Address: Rural Lea

Joel Lowry:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 646599. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 646599 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer
Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 646599

Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP1 @ 1'	S	12-11-19 00:00	1 ft	646599-001
SP2 @ 1'	S	12-11-19 00:00	1 ft	646599-002
SP3 @ 1'	S	12-11-19 00:00	1 ft	646599-003
SP4 @ 1'	S	12-11-19 00:00	1 ft	646599-004
SP5 @ 1'	S	12-11-19 00:00	1 ft	646599-005
NH1 @ Surf	S	12-11-19 00:00		646599-006
NH1 @ 1'	S	12-11-19 00:00	1 ft	646599-007
NH2 @ Surf	S	12-11-19 00:00		646599-008
NH2 @ 1'	S	12-11-19 00:00	1 ft	646599-009
EH1 @ Surf	S	12-11-19 00:00		646599-010
EH1 @ 1'	S	12-11-19 00:00	1 ft	646599-011
SH1 @ Surf	S	12-11-19 00:00		646599-012
SH1 @ 1'	S	12-11-19 00:00	1 ft	646599-013
SH2 @ Surf	S	12-11-19 00:00		646599-014
SH2 @ 1'	S	12-11-19 00:00	1 ft	646599-015
WH1 @ Surf	S	12-11-19 00:00		646599-016
WH1 @ 1'	S	12-11-19 00:00	1 ft	646599-017
WH2 @ Surf	S	12-11-19 00:00		646599-018
WH2 @ 1'	S	12-11-19 00:00	1 ft	646599-019

**CASE NARRATIVE***Client Name: Etech Environmental & Safety Solution, Inc**Project Name: Hamon Fed Com #3H*Project ID: 11552
Work Order Number(s): 646599Report Date: 23-DEC-19
Date Received: 12/17/2019**Sample receipt non conformances and comments:**

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3111044 Chloride by EPA 300

Lab Sample ID 646599-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 646599-001, -002, -003, -004, -005, -006, -007, -008, -009, -010.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3111086 Chloride by EPA 300

Lab Sample ID 646620-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 646599-011, -012, -013, -014, -015, -016, -017, -018, -019.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3111382 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Lab Sample ID 646599-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). m,p-Xylenes recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 646599-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019.

The Laboratory Control Sample for m,p-Xylenes is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analysis Summary 646599

Etech Environmental & Safety Solution, Inc, Midland, TX

Project Name: Hamon Fed Com #3H

Project Id: 11552
Contact: Joel Lowry
Project Location: Rural Lea

Date Received in Lab: Tue Dec-17-19 12:45 pm
Report Date: 23-DEC-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	646599-001		646599-002		646599-003		646599-004		646599-005		646599-006	
	<i>Field Id:</i>	SP1 @ 1'		SP2 @ 1'		SP3 @ 1'		SP4 @ 1'		SP5 @ 1'		NH1 @ Surf	
	<i>Depth:</i>	1- ft											
	<i>Matrix:</i>	SOIL											
	<i>Sampled:</i>	Dec-11-19 00:00											
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-19-19 14:00											
	<i>Analyzed:</i>	Dec-21-19 16:15		Dec-21-19 16:35		Dec-21-19 16:56		Dec-21-19 17:16		Dec-21-19 17:36		Dec-21-19 17:57	
	<i>Units/RL:</i>	mg/kg RL											
Benzene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00202	0.00202
Toluene		0.00305	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00202	0.00202
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00202	0.00202
m,p-Xylenes		0.00407	0.00400	<0.00398	0.00398	<0.00400	0.00400	<0.00401	0.00401	<0.00398	0.00398	<0.00403	0.00403
o-Xylene		0.00838	0.00200	0.00669	0.00199	<0.00200	0.00200	0.00296	0.00200	<0.00199	0.00199	<0.00202	0.00202
Total Xylenes		0.0125	0.00200	0.00669	0.00199	<0.00200	0.00200	0.00296	0.00200	<0.00199	0.00199	<0.00202	0.00202
Total BTEX		0.0155	0.00200	0.00669	0.00199	<0.00200	0.00200	0.00296	0.00200	<0.00199	0.00199	<0.00202	0.00202
Chloride by EPA 300	<i>Extracted:</i>	Dec-18-19 13:20											
	<i>Analyzed:</i>	Dec-18-19 19:04		Dec-18-19 19:24		Dec-18-19 19:31		Dec-18-19 19:51		Dec-18-19 19:58		Dec-18-19 20:04	
	<i>Units/RL:</i>	mg/kg RL											
Chloride		434	4.99	269	5.03	353	4.98	279	5.00	461	5.01	143	4.97
TPH By SW8015 Mod	<i>Extracted:</i>	Dec-18-19 08:00											
	<i>Analyzed:</i>	Dec-18-19 19:57		Dec-18-19 21:01		Dec-18-19 21:22		Dec-18-19 21:43		Dec-18-19 22:03		Dec-18-19 22:24	
	<i>Units/RL:</i>	mg/kg RL											
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.8	49.8
Diesel Range Organics (DRO)		274	50.0	457	50.0	<49.9	49.9	259	49.9	422	50.0	73.1	49.8
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<50.0	50.0	<49.9	49.9	<49.9	49.9	50.7	50.0	<49.8	49.8
Total TPH		274	50.0	457	50.0	<49.9	49.9	259	49.9	473	50.0	73.1	49.8

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 646599

Etech Environmental & Safety Solution, Inc, Midland, TX

Project Name: Hamon Fed Com #3H

Project Id: 11552
Contact: Joel Lowry
Project Location: Rural Lea

Date Received in Lab: Tue Dec-17-19 12:45 pm
Report Date: 23-DEC-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	646599-007	646599-008	646599-009	646599-010	646599-011	646599-012
	<i>Field Id:</i>	NH1 @ 1'	NH2 @ Surf	NH2 @ 1'	EH1 @ Surf	EH1 @ 1'	SH1 @ Surf
	<i>Depth:</i>	1- ft		1- ft		1- ft	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-11-19 00:00					
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-19-19 14:00					
	<i>Analyzed:</i>	Dec-21-19 18:17	Dec-21-19 18:38	Dec-21-19 18:58	Dec-21-19 19:19	Dec-21-19 20:58	Dec-21-19 21:18
	<i>Units/RL:</i>	mg/kg RL					
Benzene		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Toluene		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Ethylbenzene		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
m,p-Xylenes		<0.00403 0.00403	<0.00398 0.00398	<0.00402 0.00402	<0.00399 0.00399	<0.00398 0.00398	<0.00399 0.00399
o-Xylene		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total Xylenes		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total BTEX		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	Dec-18-19 13:20	Dec-18-19 13:20	Dec-18-19 13:20	Dec-18-19 13:20	Dec-18-19 16:30	Dec-18-19 16:30
	<i>Analyzed:</i>	Dec-18-19 20:11	Dec-18-19 20:17	Dec-18-19 20:24	Dec-18-19 20:31	Dec-18-19 18:01	Dec-18-19 18:17
	<i>Units/RL:</i>	mg/kg RL					
Chloride		131 5.00	1460 5.02	244 4.96	3500 25.0	520 4.96	343 4.99
TPH By SW8015 Mod	<i>Extracted:</i>	Dec-18-19 08:00					
	<i>Analyzed:</i>	Dec-18-19 22:45	Dec-18-19 23:06	Dec-18-19 23:27	Dec-18-19 23:48	Dec-19-19 00:30	Dec-19-19 00:51
	<i>Units/RL:</i>	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.8 49.8	<49.9 49.9
Diesel Range Organics (DRO)		<49.9 49.9	151 50.0	<49.9 49.9	51.1 50.0	<49.8 49.8	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.8 49.8	<49.9 49.9
Total TPH		<49.9 49.9	151 50.0	<49.9 49.9	51.1 50.0	<49.8 49.8	<49.9 49.9

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 646599

Etech Environmental & Safety Solution, Inc, Midland, TX

Project Name: Hamon Fed Com #3H

Project Id: 11552
Contact: Joel Lowry
Project Location: Rural Lea

Date Received in Lab: Tue Dec-17-19 12:45 pm
Report Date: 23-DEC-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	646599-013		646599-014		646599-015		646599-016		646599-017		646599-018	
	<i>Field Id:</i>	SH1 @ 1'		SH2 @ Surf		SH2 @ 1'		WH1 @ Surf		WH1 @ 1'		WH2 @ Surf	
	<i>Depth:</i>	1- ft				1- ft				1- ft			
	<i>Matrix:</i>	SOIL											
	<i>Sampled:</i>	Dec-11-19 00:00											
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-19-19 14:00											
	<i>Analyzed:</i>	Dec-21-19 21:39		Dec-21-19 21:59		Dec-21-19 22:20		Dec-21-19 22:40		Dec-21-19 23:00		Dec-21-19 23:21	
	<i>Units/RL:</i>	mg/kg	RL										
Benzene		<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00198	0.00198
Toluene		<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00198	0.00198
Ethylbenzene		<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00198	0.00198
m,p-Xylenes		<0.00403	0.00403	<0.00401	0.00401	<0.00396	0.00396	<0.00398	0.00398	<0.00400	0.00400	<0.00397	0.00397
o-Xylene		<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00198	0.00198
Total Xylenes		<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00198	0.00198
Total BTEX		<0.00202	0.00202	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00200	0.00200	<0.00198	0.00198
Chloride by EPA 300	<i>Extracted:</i>	Dec-18-19 16:30											
	<i>Analyzed:</i>	Dec-18-19 18:22		Dec-18-19 18:27		Dec-19-19 12:09		Dec-18-19 19:35		Dec-18-19 19:40		Dec-18-19 19:45	
	<i>Units/RL:</i>	mg/kg	RL										
Chloride		51.0	4.98	2160	25.2	2840	25.2	23.8	4.96	12.3	5.03	592	5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Dec-18-19 08:00											
	<i>Analyzed:</i>	Dec-19-19 01:12		Dec-19-19 01:33		Dec-19-19 01:54		Dec-19-19 02:15		Dec-19-19 02:36		Dec-19-19 02:58	
	<i>Units/RL:</i>	mg/kg	RL										
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<49.9	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0	<49.9	49.9
Diesel Range Organics (DRO)		<50.0	50.0	521	49.9	99.3	50.0	<49.9	49.9	<50.0	50.0	1000	49.9
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	100	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0	196	49.9
Total TPH		<50.0	50.0	621	49.9	99.3	50.0	<49.9	49.9	<50.0	50.0	1200	49.9

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 646599

Etech Environmental & Safety Solution, Inc, Midland, TX

Project Name: Hamon Fed Com #3H

Project Id: 11552
Contact: Joel Lowry
Project Location: Rural Lea

Date Received in Lab: Tue Dec-17-19 12:45 pm
Report Date: 23-DEC-19
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	646599-019				
	Field Id:	WH2 @ 1'				
	Depth:	1- ft				
	Matrix:	SOIL				
	Sampled:	Dec-11-19 00:00				
BTEX by EPA 8021B	Extracted:	Dec-19-19 14:00				
	Analyzed:	Dec-21-19 23:41				
	Units/RL:	mg/kg RL				
Benzene		<0.00201 0.00201				
Toluene		<0.00201 0.00201				
Ethylbenzene		<0.00201 0.00201				
m,p-Xylenes		<0.00402 0.00402				
o-Xylene		<0.00201 0.00201				
Total Xylenes		<0.00201 0.00201				
Total BTEX		<0.00201 0.00201				
Chloride by EPA 300	Extracted:	Dec-18-19 16:30				
	Analyzed:	Dec-18-19 19:50				
	Units/RL:	mg/kg RL				
Chloride		449 4.98				
TPH By SW8015 Mod	Extracted:	Dec-18-19 08:00				
	Analyzed:	Dec-19-19 03:19				
	Units/RL:	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0				
Diesel Range Organics (DRO)		<50.0 50.0				
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0				
Total TPH		<50.0 50.0				

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analytical Results 646599

Etech Environmental & Safety Solution, Inc, Midland, TX Hamon Fed Com #3H

Sample Id: SP1 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-001	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: CHE		% Moisture:
Analyst: CHE	Date Prep: 12.18.19 13.20	Basis: Wet Weight
Seq Number: 3111044		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	434	4.99	mg/kg	12.18.19 19.04		1

Analytical Method: TPH By SW8015 Mod		Prep Method: SW8015P
Tech: DVM		% Moisture:
Analyst: ARM	Date Prep: 12.18.19 08.00	Basis: Wet Weight
Seq Number: 3111076		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	12.18.19 19.57	U	1
Diesel Range Organics (DRO)	C10C28DRO	274	50.0	mg/kg	12.18.19 19.57		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.18.19 19.57	U	1
Total TPH	PHC635	274	50.0	mg/kg	12.18.19 19.57		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	12.18.19 19.57	
o-Terphenyl	84-15-1	110	%	70-135	12.18.19 19.57	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: SP1 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-001	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.19 16.15	U	1
Toluene	108-88-3	0.00305	0.00200	mg/kg	12.21.19 16.15		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.19 16.15	U	1
m,p-Xylenes	179601-23-1	0.00407	0.00400	mg/kg	12.21.19 16.15		1
o-Xylene	95-47-6	0.00838	0.00200	mg/kg	12.21.19 16.15		1
Total Xylenes	1330-20-7	0.0125	0.00200	mg/kg	12.21.19 16.15		1
Total BTEX		0.0155	0.00200	mg/kg	12.21.19 16.15		1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	119	%	70-130	12.21.19 16.15		
4-Bromofluorobenzene	460-00-4	103	%	70-130	12.21.19 16.15		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **SP2 @ 1'** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-002 Date Collected: 12.11.19 00.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 12.18.19 13.20 Basis: Wet Weight
 Seq Number: 3111044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	269	5.03	mg/kg	12.18.19 19.24		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	12.18.19 21.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	457	50.0	mg/kg	12.18.19 21.01		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.18.19 21.01	U	1
Total TPH	PHC635	457	50.0	mg/kg	12.18.19 21.01		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	12.18.19 21.01	
o-Terphenyl	84-15-1	116	%	70-135	12.18.19 21.01	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: SP2 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-002	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.21.19 16.35	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.21.19 16.35	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.21.19 16.35	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.21.19 16.35	U	1
o-Xylene	95-47-6	0.00669	0.00199	mg/kg	12.21.19 16.35		1
Total Xylenes	1330-20-7	0.00669	0.00199	mg/kg	12.21.19 16.35		1
Total BTEX		0.00669	0.00199	mg/kg	12.21.19 16.35		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	12.21.19 16.35		
4-Bromofluorobenzene	460-00-4	107	%	70-130	12.21.19 16.35		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: SP3 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-003	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: CHE		% Moisture:
Analyst: CHE	Date Prep: 12.18.19 13.20	Basis: Wet Weight
Seq Number: 3111044		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	353	4.98	mg/kg	12.18.19 19.31		1

Analytical Method: TPH By SW8015 Mod		Prep Method: SW8015P
Tech: DVM		% Moisture:
Analyst: ARM	Date Prep: 12.18.19 08.00	Basis: Wet Weight
Seq Number: 3111076		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	12.18.19 21.22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.18.19 21.22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.18.19 21.22	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.18.19 21.22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	12.18.19 21.22	
o-Terphenyl	84-15-1	105	%	70-135	12.18.19 21.22	



Certificate of Analytical Results 646599

Etech Environmental & Safety Solution, Inc, Midland, TX Hamon Fed Com #3H

Sample Id: SP3 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-003	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.19 16.56	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.19 16.56	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.19 16.56	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	12.21.19 16.56	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.21.19 16.56	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.21.19 16.56	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.21.19 16.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	12.21.19 16.56		
4-Bromofluorobenzene	460-00-4	100	%	70-130	12.21.19 16.56		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **SP4 @ 1'** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-004 Date Collected: 12.11.19 00.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 12.18.19 13.20 Basis: Wet Weight
 Seq Number: 3111044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	279	5.00	mg/kg	12.18.19 19.51		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	12.18.19 21.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	259	49.9	mg/kg	12.18.19 21.43		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.18.19 21.43	U	1
Total TPH	PHC635	259	49.9	mg/kg	12.18.19 21.43		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	12.18.19 21.43	
o-Terphenyl	84-15-1	109	%	70-135	12.18.19 21.43	



Certificate of Analytical Results 646599

Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: SP4 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-004	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.19 17.16	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.19 17.16	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.19 17.16	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.21.19 17.16	U	1
o-Xylene	95-47-6	0.00296	0.00200	mg/kg	12.21.19 17.16		1
Total Xylenes	1330-20-7	0.00296	0.00200	mg/kg	12.21.19 17.16		1
Total BTEX		0.00296	0.00200	mg/kg	12.21.19 17.16		1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	12.21.19 17.16		
1,4-Difluorobenzene	540-36-3	109	%	70-130	12.21.19 17.16		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: SP5 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-005	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: CHE		% Moisture:
Analyst: CHE	Date Prep: 12.18.19 13.20	Basis: Wet Weight
Seq Number: 3111044		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	461	5.01	mg/kg	12.18.19 19.58		1

Analytical Method: TPH By SW8015 Mod		Prep Method: SW8015P
Tech: DVM		% Moisture:
Analyst: ARM	Date Prep: 12.18.19 08.00	Basis: Wet Weight
Seq Number: 3111076		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	12.18.19 22.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	422	50.0	mg/kg	12.18.19 22.03		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	50.7	50.0	mg/kg	12.18.19 22.03		1
Total TPH	PHC635	473	50.0	mg/kg	12.18.19 22.03		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	12.18.19 22.03	
o-Terphenyl	84-15-1	106	%	70-135	12.18.19 22.03	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: SP5 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-005	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.21.19 17.36	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.21.19 17.36	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.21.19 17.36	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.21.19 17.36	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.21.19 17.36	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.21.19 17.36	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.21.19 17.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	12.21.19 17.36		
1,4-Difluorobenzene	540-36-3	111	%	70-130	12.21.19 17.36		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **NH1 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-006 Date Collected: 12.11.19 00.00
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 12.18.19 13.20 Basis: Wet Weight
 Seq Number: 3111044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	143	4.97	mg/kg	12.18.19 20.04		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	12.18.19 22.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	73.1	49.8	mg/kg	12.18.19 22.24		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	12.18.19 22.24	U	1
Total TPH	PHC635	73.1	49.8	mg/kg	12.18.19 22.24		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	12.18.19 22.24	
o-Terphenyl	84-15-1	103	%	70-135	12.18.19 22.24	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **NH1 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-006 Date Collected: 12.11.19 00.00
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
 Tech: KTL % Moisture:
 Analyst: KTL Date Prep: 12.19.19 14.00 Basis: Wet Weight
 Seq Number: 3111382

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.21.19 17.57	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.21.19 17.57	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.21.19 17.57	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.21.19 17.57	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.21.19 17.57	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.21.19 17.57	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.21.19 17.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	12.21.19 17.57		
1,4-Difluorobenzene	540-36-3	113	%	70-130	12.21.19 17.57		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX Hamon Fed Com #3H

Sample Id: **NH1 @ 1'** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-007 Date Collected: 12.11.19 00.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 12.18.19 13.20 Basis: Wet Weight
 Seq Number: 3111044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	131	5.00	mg/kg	12.18.19 20.11		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	12.18.19 22.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.18.19 22.45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.18.19 22.45	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.18.19 22.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	12.18.19 22.45	
o-Terphenyl	84-15-1	100	%	70-135	12.18.19 22.45	



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Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: NH1 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-007	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.21.19 18.17	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.21.19 18.17	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.21.19 18.17	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.21.19 18.17	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.21.19 18.17	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.21.19 18.17	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.21.19 18.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	12.21.19 18.17		
1,4-Difluorobenzene	540-36-3	92	%	70-130	12.21.19 18.17		



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Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **NH2 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-008 Date Collected: 12.11.19 00.00
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 12.18.19 13.20 Basis: Wet Weight
 Seq Number: 3111044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1460	5.02	mg/kg	12.18.19 20.17		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	12.18.19 23.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	151	50.0	mg/kg	12.18.19 23.06		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.18.19 23.06	U	1
Total TPH	PHC635	151	50.0	mg/kg	12.18.19 23.06		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	12.18.19 23.06	
o-Terphenyl	84-15-1	105	%	70-135	12.18.19 23.06	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **NH2 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-008 Date Collected: 12.11.19 00.00
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
 Tech: KTL % Moisture:
 Analyst: KTL Date Prep: 12.19.19 14.00 Basis: Wet Weight
 Seq Number: 3111382

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.21.19 18.38	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.21.19 18.38	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.21.19 18.38	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.21.19 18.38	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.21.19 18.38	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.21.19 18.38	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.21.19 18.38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	12.21.19 18.38		
1,4-Difluorobenzene	540-36-3	111	%	70-130	12.21.19 18.38		



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Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **NH2 @ 1'** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-009 Date Collected: 12.11.19 00.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 12.18.19 13.20 Basis: Wet Weight
 Seq Number: 3111044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	244	4.96	mg/kg	12.18.19 20.24		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	12.18.19 23.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.18.19 23.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.18.19 23.27	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.18.19 23.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	12.18.19 23.27	
o-Terphenyl	84-15-1	105	%	70-135	12.18.19 23.27	



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Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: NH2 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-009	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	12.21.19 18.58	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	12.21.19 18.58	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	12.21.19 18.58	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	12.21.19 18.58	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	12.21.19 18.58	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	12.21.19 18.58	U	1
Total BTEX		<0.00201	0.00201	mg/kg	12.21.19 18.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	12.21.19 18.58		
4-Bromofluorobenzene	460-00-4	96	%	70-130	12.21.19 18.58		



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Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **EH1 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-010 Date Collected: 12.11.19 00.00
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 12.18.19 13.20 Basis: Wet Weight
 Seq Number: 3111044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3500	25.0	mg/kg	12.18.19 20.31		5

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	12.18.19 23.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	51.1	50.0	mg/kg	12.18.19 23.48		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.18.19 23.48	U	1
Total TPH	PHC635	51.1	50.0	mg/kg	12.18.19 23.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	12.18.19 23.48	
o-Terphenyl	84-15-1	108	%	70-135	12.18.19 23.48	



Certificate of Analytical Results 646599

Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **EH1 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-010 Date Collected: 12.11.19 00.00
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
 Tech: KTL % Moisture:
 Analyst: KTL Date Prep: 12.19.19 14.00 Basis: Wet Weight
 Seq Number: 3111382

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.19 19.19	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.19 19.19	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.19 19.19	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.21.19 19.19	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.21.19 19.19	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.21.19 19.19	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.21.19 19.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	12.21.19 19.19		
1,4-Difluorobenzene	540-36-3	111	%	70-130	12.21.19 19.19		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **EH1 @ 1'** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-011 Date Collected: 12.11.19 00.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 12.18.19 16.30 Basis: Wet Weight
 Seq Number: 3111086

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	520	4.96	mg/kg	12.18.19 18.01		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	12.19.19 00.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	12.19.19 00.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	12.19.19 00.30	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	12.19.19 00.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	12.19.19 00.30	
o-Terphenyl	84-15-1	101	%	70-135	12.19.19 00.30	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: EH1 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-011	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.21.19 20.58	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.21.19 20.58	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.21.19 20.58	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.21.19 20.58	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.21.19 20.58	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.21.19 20.58	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.21.19 20.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	12.21.19 20.58		
4-Bromofluorobenzene	460-00-4	88	%	70-130	12.21.19 20.58		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **SH1 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-012 Date Collected: 12.11.19 00.00
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 12.18.19 16.30 Basis: Wet Weight
 Seq Number: 3111086

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	343	4.99	mg/kg	12.18.19 18.17		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	12.19.19 00.51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.19.19 00.51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.19.19 00.51	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.19.19 00.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	12.19.19 00.51	
o-Terphenyl	84-15-1	108	%	70-135	12.19.19 00.51	



Certificate of Analytical Results 646599

Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **SH1 @ Surf**

Matrix: Soil

Date Received: 12.17.19 12.45

Lab Sample Id: 646599-012

Date Collected: 12.11.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 12.19.19 14.00

Basis: Wet Weight

Seq Number: 3111382

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.19 21.18	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.19 21.18	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.19 21.18	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.21.19 21.18	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.21.19 21.18	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.21.19 21.18	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.21.19 21.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	92	%	70-130	12.21.19 21.18		
1,4-Difluorobenzene	540-36-3	110	%	70-130	12.21.19 21.18		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX Hamon Fed Com #3H

Sample Id: **SH1 @ 1'** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-013 Date Collected: 12.11.19 00.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 12.18.19 16.30 Basis: Wet Weight
 Seq Number: 3111086

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	51.0	4.98	mg/kg	12.18.19 18.22		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	12.19.19 01.12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.19.19 01.12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.19.19 01.12	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.19.19 01.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	12.19.19 01.12	
o-Terphenyl	84-15-1	101	%	70-135	12.19.19 01.12	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: SH1 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-013	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.21.19 21.39	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.21.19 21.39	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.21.19 21.39	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.21.19 21.39	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.21.19 21.39	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.21.19 21.39	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.21.19 21.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	12.21.19 21.39		
4-Bromofluorobenzene	460-00-4	101	%	70-130	12.21.19 21.39		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **SH2 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-014 Date Collected: 12.11.19 00.00
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 12.18.19 16.30 Basis: Wet Weight
 Seq Number: 3111086

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2160	25.2	mg/kg	12.18.19 18.27		5

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	12.19.19 01.33	U	1
Diesel Range Organics (DRO)	C10C28DRO	521	49.9	mg/kg	12.19.19 01.33		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	100	49.9	mg/kg	12.19.19 01.33		1
Total TPH	PHC635	621	49.9	mg/kg	12.19.19 01.33		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	12.19.19 01.33	
o-Terphenyl	84-15-1	111	%	70-135	12.19.19 01.33	



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Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **SH2 @ Surf**

Matrix: Soil

Date Received: 12.17.19 12.45

Lab Sample Id: 646599-014

Date Collected: 12.11.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 12.19.19 14.00

Basis: Wet Weight

Seq Number: 3111382

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.19 21.59	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.19 21.59	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.19 21.59	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.21.19 21.59	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.21.19 21.59	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.21.19 21.59	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.21.19 21.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	113	%	70-130	12.21.19 21.59		
4-Bromofluorobenzene	460-00-4	96	%	70-130	12.21.19 21.59		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **SH2 @ 1'** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-015 Date Collected: 12.11.19 00.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 12.18.19 16.30 Basis: Wet Weight
 Seq Number: 3111086

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2840	25.2	mg/kg	12.19.19 12.09		5

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	12.19.19 01.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	99.3	50.0	mg/kg	12.19.19 01.54		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.19.19 01.54	U	1
Total TPH	PHC635	99.3	50.0	mg/kg	12.19.19 01.54		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	12.19.19 01.54	
o-Terphenyl	84-15-1	102	%	70-135	12.19.19 01.54	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: SH2 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-015	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.21.19 22.20	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.21.19 22.20	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.21.19 22.20	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	12.21.19 22.20	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.21.19 22.20	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.21.19 22.20	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.21.19 22.20	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	12.21.19 22.20		
1,4-Difluorobenzene	540-36-3	110	%	70-130	12.21.19 22.20		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **WH1 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-016 Date Collected: 12.11.19 00.00
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 12.18.19 16.30 Basis: Wet Weight
 Seq Number: 3111086

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.8	4.96	mg/kg	12.18.19 19.35		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	12.19.19 02.15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	12.19.19 02.15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	12.19.19 02.15	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	12.19.19 02.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	12.19.19 02.15	
o-Terphenyl	84-15-1	106	%	70-135	12.19.19 02.15	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **WH1 @ Surf**

Matrix: Soil

Date Received: 12.17.19 12.45

Lab Sample Id: 646599-016

Date Collected: 12.11.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 12.19.19 14.00

Basis: Wet Weight

Seq Number: 3111382

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.21.19 22.40	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.21.19 22.40	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.21.19 22.40	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.21.19 22.40	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.21.19 22.40	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.21.19 22.40	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.21.19 22.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	12.21.19 22.40		
4-Bromofluorobenzene	460-00-4	101	%	70-130	12.21.19 22.40		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **WH1 @ 1'** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-017 Date Collected: 12.11.19 00.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 12.18.19 16.30 Basis: Wet Weight
 Seq Number: 3111086

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.3	5.03	mg/kg	12.18.19 19.40		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	12.19.19 02.36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.19.19 02.36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.19.19 02.36	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.19.19 02.36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	12.19.19 02.36	
o-Terphenyl	84-15-1	105	%	70-135	12.19.19 02.36	



Certificate of Analytical Results 646599

Etech Environmental & Safety Solution, Inc, Midland, TX Hamon Fed Com #3H

Sample Id: WH1 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-017	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.19 23.00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.19 23.00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.19 23.00	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	12.21.19 23.00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.21.19 23.00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.21.19 23.00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.21.19 23.00	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	113		%	70-130	12.21.19 23.00	
4-Bromofluorobenzene	460-00-4	100		%	70-130	12.21.19 23.00	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **WH2 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-018 Date Collected: 12.11.19 00.00
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 12.18.19 16.30 Basis: Wet Weight
 Seq Number: 3111086

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	592	5.00	mg/kg	12.18.19 19.45		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	12.19.19 02.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	1000	49.9	mg/kg	12.19.19 02.58		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	196	49.9	mg/kg	12.19.19 02.58		1
Total TPH	PHC635	1200	49.9	mg/kg	12.19.19 02.58		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	12.19.19 02.58	
o-Terphenyl	84-15-1	107	%	70-135	12.19.19 02.58	



Certificate of Analytical Results 646599

Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **WH2 @ Surf** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-018 Date Collected: 12.11.19 00.00
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
 Tech: KTL % Moisture:
 Analyst: KTL Date Prep: 12.19.19 14.00 Basis: Wet Weight
 Seq Number: 3111382

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	12.21.19 23.21	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	12.21.19 23.21	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	12.21.19 23.21	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	12.21.19 23.21	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	12.21.19 23.21	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	12.21.19 23.21	U	1
Total BTEX		<0.00198	0.00198	mg/kg	12.21.19 23.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	12.21.19 23.21		
4-Bromofluorobenzene	460-00-4	100	%	70-130	12.21.19 23.21		



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: **WH2 @ 1'** Matrix: Soil Date Received: 12.17.19 12.45
 Lab Sample Id: 646599-019 Date Collected: 12.11.19 00.00 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 12.18.19 16.30 Basis: Wet Weight
 Seq Number: 3111086

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	449	4.98	mg/kg	12.18.19 19.50		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 12.18.19 08.00 Basis: Wet Weight
 Seq Number: 3111076

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	12.19.19 03.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	12.19.19 03.19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	12.19.19 03.19	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	12.19.19 03.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	12.19.19 03.19	
o-Terphenyl	84-15-1	118	%	70-135	12.19.19 03.19	



Certificate of Analytical Results 646599



Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Fed Com #3H

Sample Id: WH2 @ 1'	Matrix: Soil	Date Received: 12.17.19 12.45
Lab Sample Id: 646599-019	Date Collected: 12.11.19 00.00	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: KTL		% Moisture:
Analyst: KTL	Date Prep: 12.19.19 14.00	Basis: Wet Weight
Seq Number: 3111382		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	12.21.19 23.41	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	12.21.19 23.41	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	12.21.19 23.41	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	12.21.19 23.41	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	12.21.19 23.41	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	12.21.19 23.41	U	1
Total BTEX		<0.00201	0.00201	mg/kg	12.21.19 23.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	12.21.19 23.41		
4-Bromofluorobenzene	460-00-4	92	%	70-130	12.21.19 23.41		



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **SQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



Etech Environmental & Safety Solution, Inc
Hamon Fed Com #3H

Analytical Method: Chloride by EPA 300

Seq Number: 3111044

MB Sample Id: 7692766-1-BLK

Matrix: Solid

LCS Sample Id: 7692766-1-BKS

Prep Method: E300P

Date Prep: 12.18.19

LCSD Sample Id: 7692766-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	251	100	254	102	90-110	1	20	mg/kg	12.18.19 17:18	

Analytical Method: Chloride by EPA 300

Seq Number: 3111086

MB Sample Id: 7692783-1-BLK

Matrix: Solid

LCS Sample Id: 7692783-1-BKS

Prep Method: E300P

Date Prep: 12.18.19

LCSD Sample Id: 7692783-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	261	104	252	101	90-110	4	20	mg/kg	12.18.19 17:51	

Analytical Method: Chloride by EPA 300

Seq Number: 3111044

Parent Sample Id: 646598-001

Matrix: Soil

MS Sample Id: 646598-001 S

Prep Method: E300P

Date Prep: 12.18.19

MSD Sample Id: 646598-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.03	252	262	104	261	104	90-110	0	20	mg/kg	12.18.19 17:38	

Analytical Method: Chloride by EPA 300

Seq Number: 3111044

Parent Sample Id: 646599-001

Matrix: Soil

MS Sample Id: 646599-001 S

Prep Method: E300P

Date Prep: 12.18.19

MSD Sample Id: 646599-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	434	250	661	91	645	84	90-110	2	20	mg/kg	12.19.19 08:16	X

Analytical Method: Chloride by EPA 300

Seq Number: 3111086

Parent Sample Id: 646599-011

Matrix: Soil

MS Sample Id: 646599-011 S

Prep Method: E300P

Date Prep: 12.18.19

MSD Sample Id: 646599-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	520	248	724	82	727	83	90-110	0	20	mg/kg	12.18.19 18:07	X

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* |(C-E) / (C+E)|
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
B = Spike Added
C = MS/LCS Result
D = MSD/LCSD Result
MS = Matrix Spike
E = MSD/LCSD % Rec



Etech Environmental & Safety Solution, Inc
Hamon Fed Com #3H

Analytical Method: Chloride by EPA 300

Seq Number: 3111086

Parent Sample Id: 646620-002

Matrix: Soil

MS Sample Id: 646620-002 S

Prep Method: E300P

Date Prep: 12.18.19

MSD Sample Id: 646620-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	44.1	251	280	94	274	92	90-110	2	20	mg/kg	12.18.19 20:06	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3111076

MB Sample Id: 7692691-1-BLK

Matrix: Solid

LCS Sample Id: 7692691-1-BKS

Prep Method: SW8015P

Date Prep: 12.18.19

LCSD Sample Id: 7692691-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	998	100	996	100	70-135	0	20	mg/kg	12.18.19 19:15	
Diesel Range Organics (DRO)	<15.0	1000	1050	105	1040	104	70-135	1	20	mg/kg	12.18.19 19:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		106		106		70-135	%	12.18.19 19:15
o-Terphenyl	106		104		103		70-135	%	12.18.19 19:15

Analytical Method: TPH By SW8015 Mod

Seq Number: 3111076

Matrix: Solid
MB Sample Id: 7692691-1-BLK

Prep Method: SW8015P

Date Prep: 12.18.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	12.18.19 18:54	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3111076

Parent Sample Id: 646599-001

Matrix: Soil

MS Sample Id: 646599-001 S

Prep Method: SW8015P

Date Prep: 12.18.19

MSD Sample Id: 646599-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	41.2	998	1070	103	1030	99	70-135	4	20	mg/kg	12.18.19 20:18	
Diesel Range Organics (DRO)	274	998	1230	96	1210	94	70-135	2	20	mg/kg	12.18.19 20:18	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		109		70-135	%	12.18.19 20:18
o-Terphenyl	111		116		70-135	%	12.18.19 20:18

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* |(C-E) / (C+E)|
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result
MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Etech Environmental & Safety Solution, Inc
Hamon Fed Com #3H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3111382

MB Sample Id: 7692867-1-BLK

Matrix: Solid

LCS Sample Id: 7692867-1-BKS

Prep Method: SW5030B

Date Prep: 12.19.19

LCSD Sample Id: 7692867-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.107	107	0.0987	99	70-130	8	35	mg/kg	12.21.19 14:04	
Toluene	<0.00200	0.100	0.101	101	0.0949	95	70-130	6	35	mg/kg	12.21.19 14:04	
Ethylbenzene	<0.00200	0.100	0.105	105	0.0986	99	70-130	6	35	mg/kg	12.21.19 14:04	
m,p-Xylenes	<0.00400	0.200	0.214	107	0.202	101	70-130	6	35	mg/kg	12.21.19 14:04	
o-Xylene	<0.00200	0.100	0.106	106	0.101	101	70-130	5	35	mg/kg	12.21.19 14:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		110		111		70-130	%	12.21.19 14:04
4-Bromofluorobenzene	100		99		106		70-130	%	12.21.19 14:04

Analytical Method: BTEX by EPA 8021B

Seq Number: 3111382

Parent Sample Id: 646599-001

Matrix: Soil

MS Sample Id: 646599-001 S

Prep Method: SW5030B

Date Prep: 12.19.19

MSD Sample Id: 646599-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.00157	0.101	0.0941	92	0.0964	96	70-130	2	35	mg/kg	12.21.19 14:45	
Toluene	0.00305	0.101	0.0819	78	0.0828	80	70-130	1	35	mg/kg	12.21.19 14:45	
Ethylbenzene	0.00102	0.101	0.0828	81	0.0787	78	70-130	5	35	mg/kg	12.21.19 14:45	
m,p-Xylenes	0.00407	0.202	0.144	69	0.122	60	70-130	17	35	mg/kg	12.21.19 14:45	X
o-Xylene	0.00838	0.101	0.0872	78	0.0852	77	70-130	2	35	mg/kg	12.21.19 14:45	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	113		114		70-130	%	12.21.19 14:45
4-Bromofluorobenzene	109		109		70-130	%	12.21.19 14:45

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* |(C-E) / (C+E)|
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300, San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440, El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
 Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199, Phoenix, AZ (480) 355-0900
 Tampa, FL (813) 620-2000, Tallahassee, FL (850) 756-0747, Delray Beach, FL (561) 689-6701
 Atlanta, GA (770) 449-8800

Work Order No:

10110599

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Project Manager:	Joel Lowry	Bill to: (if different)	Legacy C/O Clyde Willhoit
Company Name:	Etech Environmental	Company Name:	Legacy Reserves
Address:	3100 Plains HWY	Address:	303 West Wall, Ste 1400
City, State ZIP:	Lovington, NM, 88260	City, State ZIP:	Midland, TX 79701
Phone:	432-466-4450	Email:	Email Invoice to: <u>clwillhoit@legacyreserves.com</u>

Project Name:	Hamm Fed Com #3H	Turn Around	<input type="checkbox"/>
Project Number:	11552	Routine:	<input type="checkbox"/>
Project Location:	Rural Lea	Rush:	<input type="checkbox"/>
Sampler's Name:	Miguel Ramirez	Due Date:	
PO #:			

Temperature (°C):	0.5	Temp Blank:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wet Ice:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Received In tact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Thermometer ID:	0.5		
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:			
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Total Containers:			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code
SP1 @ 1'	S	12/1/2019	1'	1	X X X
SP2 @ 1'	S	12/1/2019	1'	1	X X X
SP3 @ 1'	S	12/1/2019	1'	1	X X X
SP4 @ 1'	S	12/1/2019	1'	1	X X X
SP5 @ 1'	S	12/1/2019	1'	1	X X X
NH1 @ Surf.	S	12/1/2019	0	1	X X X
NH1 @ 1'	S	12/1/2019	1'	1	X X X
NH2 @ Surf.	S	12/1/2019	0	1	X X X
NH2 @ 1'	S	12/1/2019	1'	1	X X X
EH1 @ Surf.	S	12/1/2019	0	1	X X X

ANALYSIS REQUEST	BTX	TPH 8015 M Ext	Chloride
Preservative Codes	HNO3: HN	H2SO4: H2	HCL: HL
	None: NO	NaOH: Na	MeOH: Me
	Zn Acetate+ NaOH: Zn	TAT starts the day received by the lab, if received by 4:30pm	
Sample Comments			

Total 200.7 / 6010		200.8 / 6020:		8RCRA 13PPM Texas 11		Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SIO2 Na Sr Ti Sn U V Zn	
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010: 8RCRA		Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag TI U		1631 / 245.1 / 7470 / 7471 : Hg	

Notes: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	12/16/14 2:55	<i>[Signature]</i>	<i>[Signature]</i>	12/11/17
					12/15



Chain of Custody

Work Order No: W16599

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300, San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440, El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
 Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199, Phoenix, AZ (480) 355-0900
 Tampa, FL (813) 620-2000, Tallahassee, FL (850) 756-0747, Delray Beach, FL (561) 689-6701
 Atlanta, GA (770) 449-8800

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Project Manager: Joel Lowry Bill to: (if different) Legacy C/O Clyde Willhott
 Company Name: Elect Environmental Company Name: Legacy Reserves
 Address: 3100 Plains HWY Address: 303 West Wall, Ste 1400
 City, State ZIP: Lovington, NM, 88260 City, State ZIP: Midland, TX 79701
 Phone: 432-466-4450 Email: Email Invoice to

Project Name: Hamon Fed Com #3H Turn Around:
 Project Number: 11552 Routine:
 Project Location: Rural Lea Rush:
 Sampler's Name: Miguel Ramirez Due Date:
 PO #:
 Turn Around:
 Routine:
 Rush:
 Due Date:

SAMPLE RECEIPT Temp Blank: Yes Wet Ice: Yes No
 Temperature (°C): 0.5 Thermometer ID: DS
 Received Infract: Yes No
 Cooler Custody Seals: Yes No Correction Factor:
 Sample Custody Seals: Yes No Total Containers:

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code			Sample Comments
					BTEX	TPH 8015 M Ext	Chloride	
EH1 @ 1'	S	12/11/2019	1	1	X	X	X	
SH1 @ Surf.	S	12/11/2019	0	1	X	X	X	
SH1 @ 1'	S	12/11/2019	1	1	X	X	X	
SH2 @ Surf.	S	12/11/2019	0	1	X	X	X	
SH2 @ 1'	S	12/11/2019	1	1	X	X	X	
WH1 @ Surf.	S	12/11/2019	0	1	X	X	X	
WH1 @ 1'	S	12/11/2019	1	1	X	X	X	
WH2 @ Surf.	S	12/11/2019	0	1	X	X	X	
WH2 @ 1'	S	12/11/2019	1	1	X	X	X	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SIO2 Na Sr TI Sn U V Zn
 Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag TI U 1631 / 245.1 / 7470 / 17471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date/Time <u>12/16/19 2:55</u>	Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date/Time <u>12/17/19</u>

Analytical Report 647634
for
Etech Environmental & Safety Solution, Inc

Project Manager: Joel Lowry

Hamon Federal

03-JAN-20

Collected By: Client



1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



03-JAN-20

Project Manager: **Joel Lowry**
Etech Environmental & Safety Solution, Inc
P.O. Box 8469
Midland, TX 79708

Reference: XENCO Report No(s): **647634**
Hamon Federal
Project Address: Rural Lea NM

Joel Lowry:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 647634. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 647634 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Holly Taylor
Project Manager

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Sample Cross Reference 647634

Etech Environmental & Safety Solution, Inc, Midland, TX

Hamon Federal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP1 @ Surf.	S	12-26-19 14:50	0	647634-001
SP2 @ Surf.	S	12-26-19 14:40	0	647634-002
SP3 @ Surf.	S	12-26-19 14:30	0	647634-003
SP4 @ Surf.	S	12-26-19 14:20	0	647634-004
SP5 @ Surf.	S	12-26-19 14:15	0	647634-005
WH2B @ Surf.	S	12-26-19 14:00	0	647634-006



CASE NARRATIVE

Client Name: Etech Environmental & Safety Solution, Inc

Project Name: Hamon Federal

Project ID:
Work Order Number(s): 647634

Report Date: 03-JAN-20
Date Received: 12/30/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3112082 Chloride by EPA 300

Lab Sample ID 647634-004 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 647634-002, -003, -004, -005.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3112135 TPH By SW8015 Mod

Surrogate 1-Chlorooctane recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 647634-002 S,647634-004.

Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 647634-004,647634-005,647634-001.



Certificate of Analytical Results

647634



Etech Environmental & Safety Solution, Inc, Midland, TX
Hamon Federal

Sample Id: SP1 @ Surf.	Matrix: Soil	Sample Depth: 0
Lab Sample Id: 647634-001	Date Collected: 12.26.19 14.50	Date Received: 12.30.19 11.07
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Analyst: SPC	% Moist:	Tech: SPC
Seq Number: 3112072	Date Prep: 12.30.19 12.45	
	Prep seq: 7693498	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	5060	24.8	4.25	mg/kg	12.30.19 16:22		5

Analytical Method: TPH By SW8015 Mod	Prep Method: 8015
Analyst: DVM	% Moist: Tech: DVM
Seq Number: 3112135	Date Prep: 12.30.19 15.00
	Prep seq: 7693537

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<249	249	74.7	mg/kg	12.30.19 19:36	U	5
Diesel Range Organics (DRO)	C10C28DRO	2290	249	74.7	mg/kg	12.30.19 19:36		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	253	249	74.7	mg/kg	12.30.19 19:36		5
Total TPH	PHC635	2540		74.7	mg/kg	12.30.19 19:36		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	133	70 - 135	%		
o-Terphenyl	177	70 - 135	%		**



Certificate of Analytical Results

647634



Etech Environmental & Safety Solution, Inc, Midland, TX
Hamon Federal

Sample Id: SP2 @ Surf.	Matrix: Soil	Sample Depth: 0
Lab Sample Id: 647634-002	Date Collected: 12.26.19 14.40	Date Received: 12.30.19 11.07
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Analyst: SPC	% Moist:	Tech: SPC
Seq Number: 3112082	Date Prep: 12.30.19 16.57	
	Prep seq: 7693541	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	1510	24.8	4.25	mg/kg	12.30.19 18:12		5

Analytical Method: TPH By SW8015 Mod	Prep Method: 8015
Analyst: DVM	% Moist: Tech: DVM
Seq Number: 3112135	Date Prep: 12.30.19 15.00
	Prep seq: 7693537

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	15.0	mg/kg	12.30.19 18:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	83.6	50.0	15.0	mg/kg	12.30.19 18:33		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	15.0	mg/kg	12.30.19 18:33	U	1
Total TPH	PHC635	83.6		15.0	mg/kg	12.30.19 18:33		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	105	70 - 135	%		
o-Terphenyl	107	70 - 135	%		



Certificate of Analytical Results

647634



Etech Environmental & Safety Solution, Inc, Midland, TX
 Hamon Federal

Sample Id: SP3 @ Surf.	Matrix: Soil	Sample Depth: 0
Lab Sample Id: 647634-003	Date Collected: 12.26.19 14.30	Date Received: 12.30.19 11.07
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Analyst: SPC	% Moist:	Tech: SPC
Seq Number: 3112082	Date Prep: 12.30.19 16.57	
	Prep seq: 7693541	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	834	4.97	0.853	mg/kg	12.30.19 18:18		1

Analytical Method: TPH By SW8015 Mod	Prep Method: 8015
Analyst: DVM	% Moist: Tech: DVM
Seq Number: 3112135	Date Prep: 12.30.19 15.00
	Prep seq: 7693537

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	15.0	mg/kg	12.30.19 19:57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	15.0	mg/kg	12.30.19 19:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	15.0	mg/kg	12.30.19 19:57	U	1
Total TPH	PHC635	<50.0		15.0	mg/kg	12.30.19 19:57	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	116	70 - 135	%		
o-Terphenyl	116	70 - 135	%		



Certificate of Analytical Results

647634

Etech Environmental & Safety Solution, Inc, Midland, TX
 Hamon Federal

Sample Id: SP4 @ Surf.	Matrix: Soil	Sample Depth: 0
Lab Sample Id: 647634-004	Date Collected: 12.26.19 14.20	Date Received: 12.30.19 11.07
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Analyst: SPC	% Moist:	Tech: SPC
Seq Number: 3112082	Date Prep: 12.30.19 16.57	
	Prep seq: 7693541	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	545	5.01	0.860	mg/kg	12.30.19 17:52		1

Analytical Method: TPH By SW8015 Mod	Prep Method: 8015
Analyst: DVM	% Moist: Tech: DVM
Seq Number: 3112135	Date Prep: 12.30.19 15.00
	Prep seq: 7693537

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	2230	249	74.8	mg/kg	12.30.19 20:19		5
Diesel Range Organics (DRO)	C10C28DRO	8110	249	74.8	mg/kg	12.30.19 20:19		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	697	249	74.8	mg/kg	12.30.19 20:19		5
Total TPH	PHC635	11000		74.8	mg/kg	12.30.19 20:19		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	215	70 - 135	%		**
o-Terphenyl	257	70 - 135	%		**



Certificate of Analytical Results

647634

Etech Environmental & Safety Solution, Inc, Midland, TX Hamon Federal

Sample Id: SP5 @ Surf.	Matrix: Soil	Sample Depth: 0
Lab Sample Id: 647634-005	Date Collected: 12.26.19 14.15	Date Received: 12.30.19 11.07
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Analyst: SPC	% Moist:	Tech: SPC
Seq Number: 3112082	Date Prep: 12.30.19 16.57	
	Prep seq: 7693541	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	1020	4.95	0.850	mg/kg	12.30.19 18:25		1

Analytical Method: TPH By SW8015 Mod	Prep Method: 8015
Analyst: DVM	% Moist: Tech: DVM
Seq Number: 3112135	Date Prep: 12.30.19 15.00
	Prep seq: 7693537

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<250	250	74.9	mg/kg	12.30.19 20:40	U	5
Diesel Range Organics (DRO)	C10C28DRO	3860	250	74.9	mg/kg	12.30.19 20:40		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	431	250	74.9	mg/kg	12.30.19 20:40		5
Total TPH	PHC635	4290		74.9	mg/kg	12.30.19 20:40		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	121	70 - 135	%		
o-Terphenyl	178	70 - 135	%		**

Sample Id: WH2B @ Surf.	Matrix: Soil	Sample Depth: 0
Lab Sample Id: 647634-006	Date Collected: 12.26.19 14.00	Date Received: 12.30.19 11.07
Analytical Method: TPH By SW8015 Mod		Prep Method: 8015
Analyst: DVM	% Moist:	Tech: DVM
Seq Number: 3112135	Date Prep: 12.30.19 15.00	
	Prep seq: 7693537	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	14.9	mg/kg	12.30.19 21:01	U	1
Diesel Range Organics (DRO)	C10C28DRO	1880	49.8	14.9	mg/kg	12.30.19 21:01		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	253	49.8	14.9	mg/kg	12.30.19 21:01		1
Total TPH	PHC635	2130		14.9	mg/kg	12.30.19 21:01		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	121	70 - 135	%		
o-Terphenyl	126	70 - 135	%		



Certificate of Analytical Results

647634



Etech Environmental & Safety Solution, Inc, Midland, TX
Hamon Federal

Sample Id: 7693498-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 7693498-1-BLK	Date Collected:	Date Received:
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Analyst: SPC	% Moist:	Tech: SPC
Seq Number: 3112072	Date Prep: 12.30.19 12.45	
	Prep seq: 7693498	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<5.00	5.00	0.858	mg/kg	12.30.19 12:57	U	1

Sample Id: 7693537-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 7693537-1-BLK	Date Collected:	Date Received:
Analytical Method: TPH By SW8015 Mod		Prep Method: 8015
Analyst: DVM	% Moist:	Tech: DVM
Seq Number: 3112135	Date Prep: 12.30.19 15.00	
	Prep seq: 7693537	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	15.0	mg/kg	12.30.19 17:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	15.0	mg/kg	12.30.19 17:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	15.0	mg/kg	12.30.19 17:29	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	114	70 - 135	%		
o-Terphenyl	116	70 - 135	%		

Sample Id: 7693541-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 7693541-1-BLK	Date Collected:	Date Received:
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Analyst: SPC	% Moist:	Tech: SPC
Seq Number: 3112082	Date Prep: 12.30.19 16.57	
	Prep seq: 7693541	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<5.00	5.00	0.858	mg/kg	12.30.19 17:32	U	1



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **SQL** Sample Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: **Hamon Federal**

Work Orders : 647634,

Project ID:

Lab Batch #: 3112135

Sample: 7693537-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/30/19 17:29

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	58.2	50.0	116	70-135	

Lab Batch #: 3112135

Sample: 7693537-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/30/19 17:51

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	100	117	70-135	
o-Terphenyl	56.4	50.0	113	70-135	

Lab Batch #: 3112135

Sample: 7693537-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/30/19 18:12

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	100	116	70-135	
o-Terphenyl	50.2	50.0	100	70-135	

Lab Batch #: 3112135

Sample: 647634-002 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/30/19 18:53

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	137	99.7	137	70-135	**
o-Terphenyl	61.0	49.9	122	70-135	

Lab Batch #: 3112135

Sample: 647634-002 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/30/19 19:15

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	99.8	127	70-135	
o-Terphenyl	61.3	49.9	123	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries



Project Name: Hamon Federal

Work Order #: 647634

Project ID:

Analyst: SPC

Date Prepared: 12/30/2019

Date Analyzed: 12/30/2019

Lab Batch ID: 3112072

Sample: 7693498-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.858	250	258	103	250	258	103	0	90-110	20	

Analyst: SPC

Date Prepared: 12/30/2019

Date Analyzed: 12/30/2019

Lab Batch ID: 3112082

Sample: 7693541-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.858	250	270	108	250	269	108	0	90-110	20	

Analyst: DVM

Date Prepared: 12/30/2019

Date Analyzed: 12/30/2019

Lab Batch ID: 3112135

Sample: 7693537-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	975	98	1000	958	96	2	70-135	20	
Diesel Range Organics (DRO)	<15.0	1000	1010	101	1000	977	98	3	70-135	20	

Relative Percent Difference RPD = 200*(C-F)/(C+F)

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Hamon Federal

Work Order # : 647634

Project ID:

Lab Batch ID: 3112072

QC- Sample ID: 647613-014 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 12/30/2019

Date Prepared: 12/30/2019

Analyst: SPC

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	168	250	430	105	250	420	101	2	90-110	20	

Lab Batch ID: 3112072

QC- Sample ID: 647628-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 12/30/2019

Date Prepared: 12/30/2019

Analyst: SPC

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	317	249	535	88	249	546	92	2	90-110	20	X

Lab Batch ID: 3112082

QC- Sample ID: 647634-004 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 12/30/2019

Date Prepared: 12/30/2019

Analyst: SPC

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	545	251	809	105	251	836	116	3	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Hamon Federal

Work Order # : 647634

Project ID:

Lab Batch ID: 3112135

QC- Sample ID: 647634-002 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 12/30/2019

Date Prepared: 12/30/2019

Analyst: DVM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	928	93	998	941	94	1	70-135	20	
Diesel Range Organics (DRO)	83.6	997	993	91	998	1020	94	3	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
 Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Client: Etech Environmental & Safety Solution, I

Date/ Time Received: 12/30/2019 11:07:00 AM

Work Order #: 647634

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.6
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6*Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel
Brianna Teel

Date: 12/30/2019

Checklist reviewed by:

Jessica Kramer
Jessica Kramer

Date: 12/31/2019



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

March 04, 2020

LANCE CRENSHAW

Etech Environmental & Safety Solutions

P.O. Box 301

Lovington, NM 88260

RE: HAMON FED COM A #3H

Enclosed are the results of analyses for samples received by the laboratory on 03/03/20 16:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Etech Environmental & Safety Solutions
 LANCE CRENSHAW
 P.O. Box 301
 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	03/03/2020	Sampling Date:	03/03/2020
Reported:	03/04/2020	Sampling Type:	Soil
Project Name:	HAMON FED COM A #3H	Sampling Condition:	Cool & Intact
Project Number:	11552	Sample Received By:	Tamara Oldaker
Project Location:	LEGACY RESERVES OPERATING, LP - LE/		

Sample ID: WH2B @ 1' (H000693-01)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/04/2020	ND	2.00	100	2.00	20.7	
Toluene*	<0.050	0.050	03/04/2020	ND	2.02	101	2.00	21.0	
Ethylbenzene*	<0.050	0.050	03/04/2020	ND	2.03	102	2.00	21.0	
Total Xylenes*	<0.150	0.150	03/04/2020	ND	5.94	99.1	6.00	21.4	
Total BTEX	<0.300	0.300	03/04/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	03/04/2020	ND	416	104	400	10.9	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	03/04/2020	ND	171	85.7	200	3.17	
DRO >C10-C28*	<10.0	10.0	03/04/2020	ND	182	90.8	200	3.96	
EXT DRO >C28-C36	<10.0	10.0	03/04/2020	ND					

Surrogate: 1-Chlorooctane 84.2 % 44.3-144

Surrogate: 1-Chlorooctadecane 95.9 % 42.2-156

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Etech Environmental & Safety Solutions
 LANCE CRENSHAW
 P.O. Box 301
 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	03/03/2020	Sampling Date:	03/03/2020
Reported:	03/04/2020	Sampling Type:	Soil
Project Name:	HAMON FED COM A #3H	Sampling Condition:	Cool & Intact
Project Number:	11552	Sample Received By:	Tamara Oldaker
Project Location:	LEGACY RESERVES OPERATING, LP - LE/		

Sample ID: WH2C @ SURF. (H000693-02)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/04/2020	ND	2.00	100	2.00	20.7	
Toluene*	<0.050	0.050	03/04/2020	ND	2.02	101	2.00	21.0	
Ethylbenzene*	<0.050	0.050	03/04/2020	ND	2.03	102	2.00	21.0	
Total Xylenes*	<0.150	0.150	03/04/2020	ND	5.94	99.1	6.00	21.4	
Total BTEX	<0.300	0.300	03/04/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.4 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	768	16.0	03/04/2020	ND	416	104	400	10.9	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	03/04/2020	ND	171	85.7	200	3.17	
DRO >C10-C28*	188	10.0	03/04/2020	ND	182	90.8	200	3.96	
EXT DRO >C28-C36	59.2	10.0	03/04/2020	ND					

Surrogate: 1-Chlorooctane 74.8 % 44.3-144

Surrogate: 1-Chlorooctadecane 90.2 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Etech Environmental & Safety Solutions
 LANCE CRENSHAW
 P.O. Box 301
 Lovington NM, 88260
 Fax To: (575) 396-1429

Received:	03/03/2020	Sampling Date:	03/03/2020
Reported:	03/04/2020	Sampling Type:	Soil
Project Name:	HAMON FED COM A #3H	Sampling Condition:	Cool & Intact
Project Number:	11552	Sample Received By:	Tamara Oldaker
Project Location:	LEGACY RESERVES OPERATING, LP - LE/		

Sample ID: WH2C @ 1' (H000693-03)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/04/2020	ND	2.00	100	2.00	20.7	
Toluene*	<0.050	0.050	03/04/2020	ND	2.02	101	2.00	21.0	
Ethylbenzene*	<0.050	0.050	03/04/2020	ND	2.03	102	2.00	21.0	
Total Xylenes*	<0.150	0.150	03/04/2020	ND	5.94	99.1	6.00	21.4	
Total BTEX	<0.300	0.300	03/04/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1150	16.0	03/04/2020	ND	416	104	400	10.9	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	03/04/2020	ND	171	85.7	200	3.17	
DRO >C10-C28*	<10.0	10.0	03/04/2020	ND	182	90.8	200	3.96	
EXT DRO >C28-C36	<10.0	10.0	03/04/2020	ND					

Surrogate: 1-Chlorooctane 78.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 85.9 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
ND Analyte NOT DETECTED at or above the reporting limit
RPD Relative Percent Difference
** Samples not received at proper temperature of 6°C or below.
*** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on an as received basis (wet) unless otherwise noted on report

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*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Appendix D

Photographic Log

Photographic Log

Photo Number: 1
Photo Direction: Northeast
Photo Description: View of the initial release.



Photo Number: 2
Photo Direction: North
Photo Description: View of the initial release.



Photographic Log

Photo Number: 3	 <p>3/3/20, 8:16 AM +32.596003,-103.597614</p>
Photo Direction: North	
Photo Description: View of surface staining after initial response activities.	

Photo Number: 4	 <p>3/3/20, 8:17 AM +32.596130,-103.597409</p>
Photo Direction: West	
Photo Description: View of surface staining after initial response activities.	