ENSOLUM

CLOSURE REPORT

Property:

Nailed It, Lateral Pipeline (Station 252+00)
S36, T26S, R29E
32.004861 N, -103.943759 W
Eddy County, New Mexico

December 13, 2019
Ensolum Project No. 03B1511003

Prepared for:

Salt Creek Midstream, LLC
20320 State Hwy 249 4th Floor
Houston, Texas 77070

Attn: Mr. Mike Poffinbarger

Prepared by:

Beaux Jennings
Senior Project Manager

Elizabeth Scaggs

Elizabeth Scaggs, PG
Principal Geoscientist

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CLOSURE REPORT

Nailed It, Lateral Pipeline (Station 252+00)
S36, T26S, R29E
32.004861 N, -103.943759 W
Eddy County, New Mexico

1.0 INTRODUCTION

1.1 Site Description & Background

Operator:	Salt Creek Midstream, LLC (Salt Creek)
Site Name:	Nailed It, Lateral Pipeline (Station 252+00)
Location:	32.004861 N, -103.943759 W Section 36, Township 26 South, Range 29 East Eddy County, New Mexico
Property:	State of New Mexico
Regulatory:	New Mexico Energy, Minerals and Natural Resources Department (EMNRD) Oil Conservation Division (OCD)

On December 6, 2019, a third-party contractor for Salt Creek struck a buried produced water line, operated by Mewbourne Oil Company, with a backhoe while trenching a new pipeline right-of-way (ROW). Approximately 2,500 barrels (bbls) of produced water were released onto the ground surface and flowed approximately 270 feet west, contained within the new pipeline ROW trench. Subsequent to the discovery of the release, Salt Creek informed Lighthouse Environmental Services, Inc. (Lighthouse) and dispatched a vacuum truck to recover standing produced water that was released onto the pipeline ROW trench. Approximately 100 bbls of produced water were recovered with the vacuum truck.

The **Topographic Map** depicting the location of the Site is included as **Figure 1**, and the **Site Vicinity Map** is included as **Figure 2** in **Appendix A**.

1.2 Project Objective

The primary objective of the closure activities was to reduce constituent of concern (COC) concentrations in the on-Site soils to below the applicable New Mexico EMNRD OCD closure criteria concentrations.

2.0 CLOSURE CRITERIA

The Site is subject to regulatory oversight by the New Mexico EMNRD OCD. In order to address activities related to exempt oil and gas releases, the New Mexico EMNRD OCD references New Mexico Administrative Code (NMAC) 19.15.29 *Releases,* which establishes investigation and abatement action requirements for sites subject to reporting and/or corrective action. Ensolum, LLC (Ensolum) utilized information provided by Salt Creek Midstream, the general site characteristics, and information available from the New Mexico Office of the State Engineer (OSE) and the New Mexico EMNRD OCD Imaging database to determine the appropriate closure criteria for the Site. Supporting documentation and figures associated with the following bullets are provided in **Appendix B**.

The closest water well (C-02038) was identified approximately 0.48 miles northeast of the Site on the OSE Water Rights Reporting System (WRRS) database with an unlisted depth to water, screened from 100 to 140 feet below ground surface (bgs). Based on the available data from the OSE WRRS, depth to groundwater is assumed to be greater than 100 feet bgs. However, in an effort to be more conservative, cleanup goals for soils remaining in place at the Site will be compared to the 50-100 feet bgs Closure Criteria listed below.

- The Site is not located within 300 feet of a New Mexico ENMRD OCD-defined continuously flowing watercourse or significant watercourse.
- The Site is not located within 200 feet of a lakebed, sinkhole or playa lake.
- The Site is not located within 300 feet from a permanent residence, school, hospital, institution or church.
- According to the OSE WRSS database there are no private, domestic freshwater wells used by less than five (5) households for domestic or stock water purposes identified within 500 feet of the Site.
- According to the OSE WRSS database there are no freshwater wells identified within 1,000 feet of the Site as declared in the previous bullet.
- The Site is not located within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3.
- The National Wetlands Inventory (NWI) was utilized to determine if the Site is located within 300 feet of a wetland. The NWI Mapper shows that the Site intersects 1.41 acres of Riverine habitat and is classified as a R4SBJ. As stated in the description of the Riverine habitat, "*Some areas exhibiting this Water Regime do not fall within our definition of wetland because they do not have hydric soils or support hydrophytes. This Water Regime is generally limited to the arid West*." Based on its location and description of Riverine habitat, the Site is not located within 300 feet of a wetland.
- Based on information identified on the New Mexico Mining and Minerals Division's GIS, Maps and Mine Data database, the Site is not located within an area overlying a subsurface mine.
- The Site is not located within an unstable area.
- The Site is not located within a 100-year floodplain.

Based on the identified siting criteria, cleanup goals for soils remaining in place at the Site include:

Closure Criteria for Soils Impacted by a Release			
Minimum depth below any point within horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Method	Limit
50-100'	Chloride	EPA 300.0 or SM4500 Cl B	10,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015M	2,500 mg/kg
	TPH (GRO+DRO)	EPA SW-846 Method 8015M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg

3.0 SOIL REMEDIATION ACTIVITIES

On December 6, 2019, a third-party contractor for Salt Creek struck a buried produced water line, operated by Mewbourne Oil Company, with a backhoe while trenching a new pipeline ROW. Approximately 2,500 bbls of produced water were released onto the ground surface and flowed approximately 270 feet west, contained within the new pipeline ROW trench. Subsequent to the discovery of the release, Salt Creek informed Lighthouse and dispatched a vacuum truck to recover standing produced water that was released onto the pipeline ROW trench. Approximately 100 bbls of produced water were recovered with the vacuum truck. During remediation activities, Lighthouse utilized a backhoe and track hoe during soil remediation activities, beginning near the point of release near the produced water line and flow path. Remediation activities were conducted by Lighthouse, with oversight by Ensolum, on December 7, 2019 through December 9, 2019.

The flow path area measured approximately 220 square feet. The maximum depth of COC impacts measured approximately four (4) to six (6) feet bgs.

The lithology encountered during the completion of closure activities consisted primarily of silty sand, underlain by a competent gypsum rock layer.

A total of approximately 300 cubic yards (cy) of produced water affected soils were transported off-site for disposal at Petro Waste Environmental LP Orla Landfill outside Orla, Texas. The excavation will be backfilled to the approximate ROW trench grade of four (4) feet bgs with imported clean fill.

Figure 3 is a map that identifies approximate soil sample locations and depicts the approximate dimensions of the excavation (**Appendix A**). Photographic documentation of the field activities is included in **Appendix C**.

4.0 SOIL SAMPLING PROGRAM

Ensolum's soil sampling program included the collection of three (3) confirmation soil samples (CS-1 through CS-3) from the impacted area for laboratory analysis. The location and depth of the three (3) confirmation soil samples were taken within the flow path to horizontally and vertically delineate the produced water released from the struck poly line.

The soil samples were collected and placed in laboratory prepared glassware, labeled/sealed using laboratory supplied labels and custody seals, and stored on ice in a cooler. The samples were relinquished to Xenco Laboratories in Midland, Texas, under proper chain-of-custody procedures.

5.0 SOIL LABORATORY ANALYTICAL METHODS

The confirmation soil samples and stockpile soil sample were analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) using Environmental Protection Agency (EPA) SW-846 Method #8021B, total petroleum hydrocarbon (TPH) gasoline range organics (GRO), diesel range organics (DRO), and motor oil/lube oil range organics (MRO) using EPA SW-846 Method #8015M, and chloride using EPA Method #300.0.

Laboratory analytical results are summarized in **Table 1** in **Appendix D**. The executed chain-of-custody and laboratory documentation are provided in **Appendix E**.

6.0 DATA EVALUATION

Ensolum compared the BTEX, TPH GRO/DRO/MRO, and chloride concentrations associated with the confirmation soil samples (CS-1 through CS-3) remaining in place to the New Mexico EMNRD OCD closure criteria.

- Laboratory analytical results indicate benzene concentrations for soils remaining in place do not exceed the laboratory sample detection limits (SDLs) or the New Mexico EMNRD OCD closure criteria of 10 milligrams per kilogram (mg/kg).
- Laboratory analytical results indicate that total BTEX concentrations for soils remaining in place do not exceed the laboratory SDLs or the New Mexico EMNRD OCD closure criteria of 50 mg/kg.
- Laboratory analytical results indicate combined TPH GRO/DRO/MRO concentrations for soils remaining in place do not exceed the laboratory SDLs or the New Mexico EMNRD OCD closure criteria of 100 mg/kg.
- Laboratory analytical results indicate chloride concentrations for soils remaining in place do not exceed the New Mexico EMNRD OCD closure criteria of 10,000 mg/kg.

Laboratory analytical results are summarized in **Table 1** in **Appendix D.**

7.0 RECLAMATION AND RE-VEGETATION

The excavation will be backfilled to the approximate ROW trench grade of four (4) feet bgs with imported clean fill.

8.0 FINDINGS AND RECOMMENDATION

- The primary objective of the closure activities was to reduce COC concentrations in the on-Site soils to below the applicable New Mexico EMNRD OCD closure criteria using the New Mexico EMNRD OCD's NMAC 19.15.29 *Releases* as guidance.

- During remediation activities, Lighthouse utilized a backhoe and track hoe during soil remediation activities, beginning near the point of release near the produced water line and flow path. Remediation activities were conducted by Lighthouse, with oversight by Ensolum, on December 7, 2019 through December 9, 2019.

- A total of three (3) confirmation soil samples were collected from the impacted area. Based on laboratory analytical results, soils remaining in place do not exhibit COC concentrations above the applicable New Mexico EMNRD OCD closure criteria.

- The location and depth of the three (3) confirmation soil samples taken within the flow path are adequate to effectively horizontally and vertically delineate the produced water released from the struck poly line.

- A total of approximately 300 cy of produced water affected soils were transported off-site for disposal at Petro Waste Environmental LP Orla Landfill outside Orla, Texas. The excavation will be backfilled to the approximate ROW trench grade of four (4) feet bgs with imported clean fill.

Based on field observations and laboratory analytical results, no additional investigation or corrective action appears warranted at this time.

9.0 STANDARDS OF CARE, LIMITATIONS, AND RELIANCE

9.1 Standard of Care

Ensolum's services were performed in accordance with standards customarily provided by a firm rendering the same or similar services in the area during the same time period. Ensolum makes no warranties, express or implied, as to the services performed hereunder. Additionally, Ensolum does not warrant the work of third parties supplying information used in the report (e.g. laboratories, regulatory agencies, or other third parties). This scope of services was performed in accordance with the scope of work agreed with the client, as detailed in our proposal.

9.2 Limitations

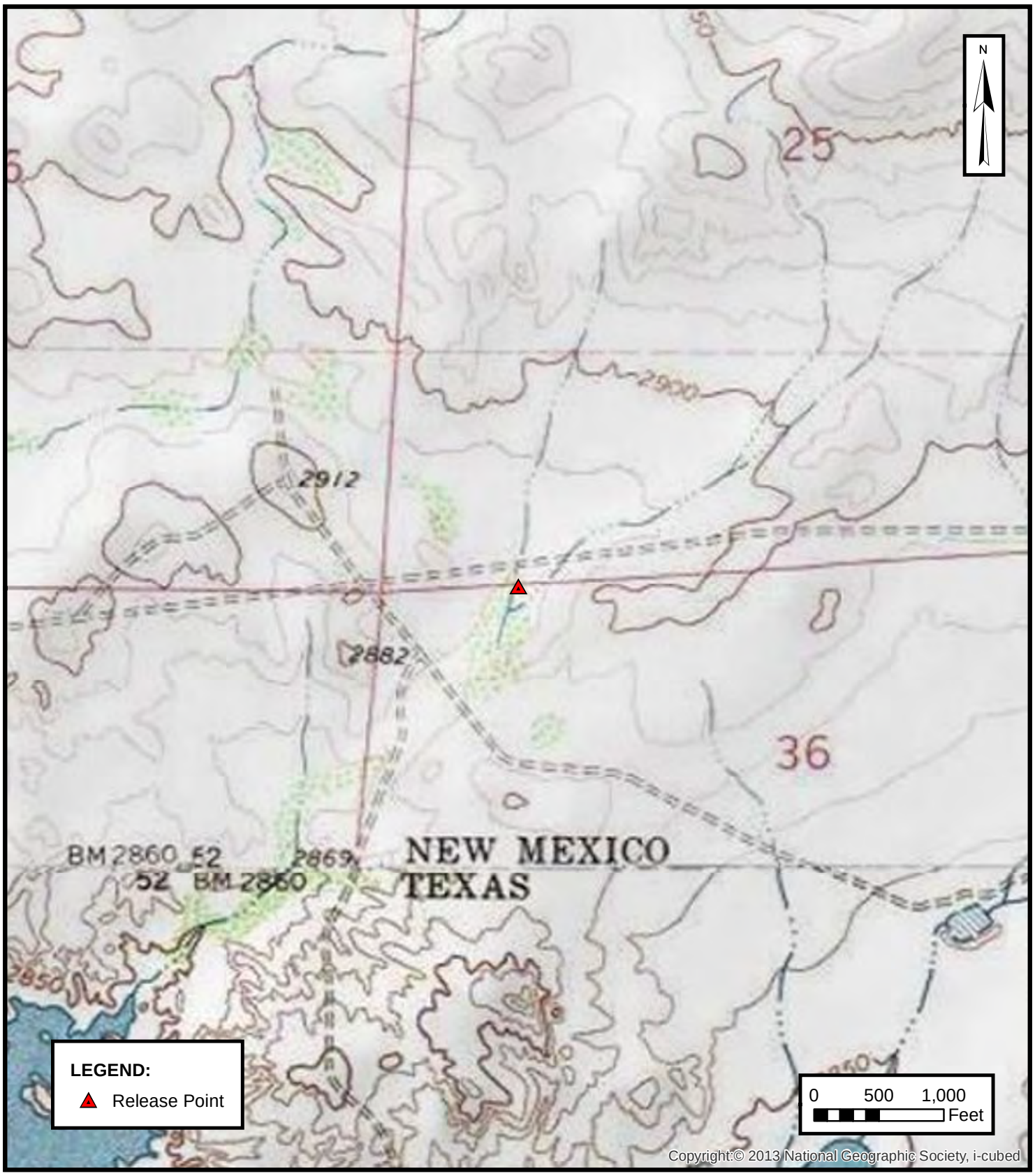
Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work and it should be noted that this information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, or not present during these services, and Ensolum cannot represent that the Site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during the investigation. Environmental conditions at other areas or portions of the Site may vary from those encountered at actual sample locations. Ensolum's findings, and recommendations are based solely upon data available to Ensolum at the time of these services.

9.3 Reliance

This report has been prepared for the exclusive use of Salt Creek Midstream, LLC, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the Site) is prohibited without the express written authorization Salt Creek Midstream, LLC and Ensolum. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the Closure Report.

APPENDIX A

Figures



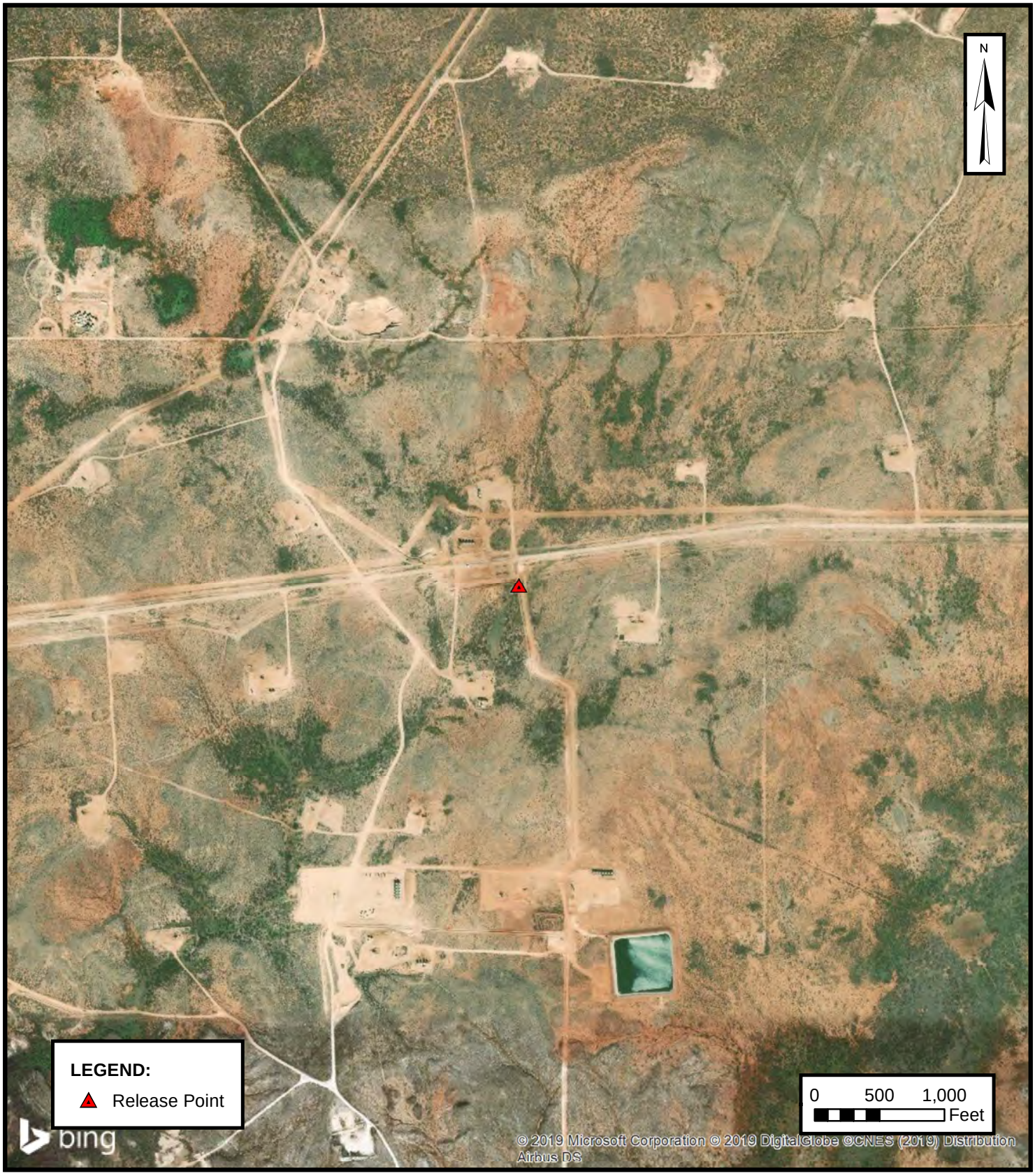
ENSOLUM
Environmental & Hydrogeologic Consultants

TOPOGRAPHIC MAP

SALT CREEK MIDSTREAM, LLC
Nailed It, Lateral Pipeline (Station 252+00)
Eddy County, New Mexico
32.004861° N, 103.943759° W

PROJECT NUMBER: 03B1511003

FIGURE
1



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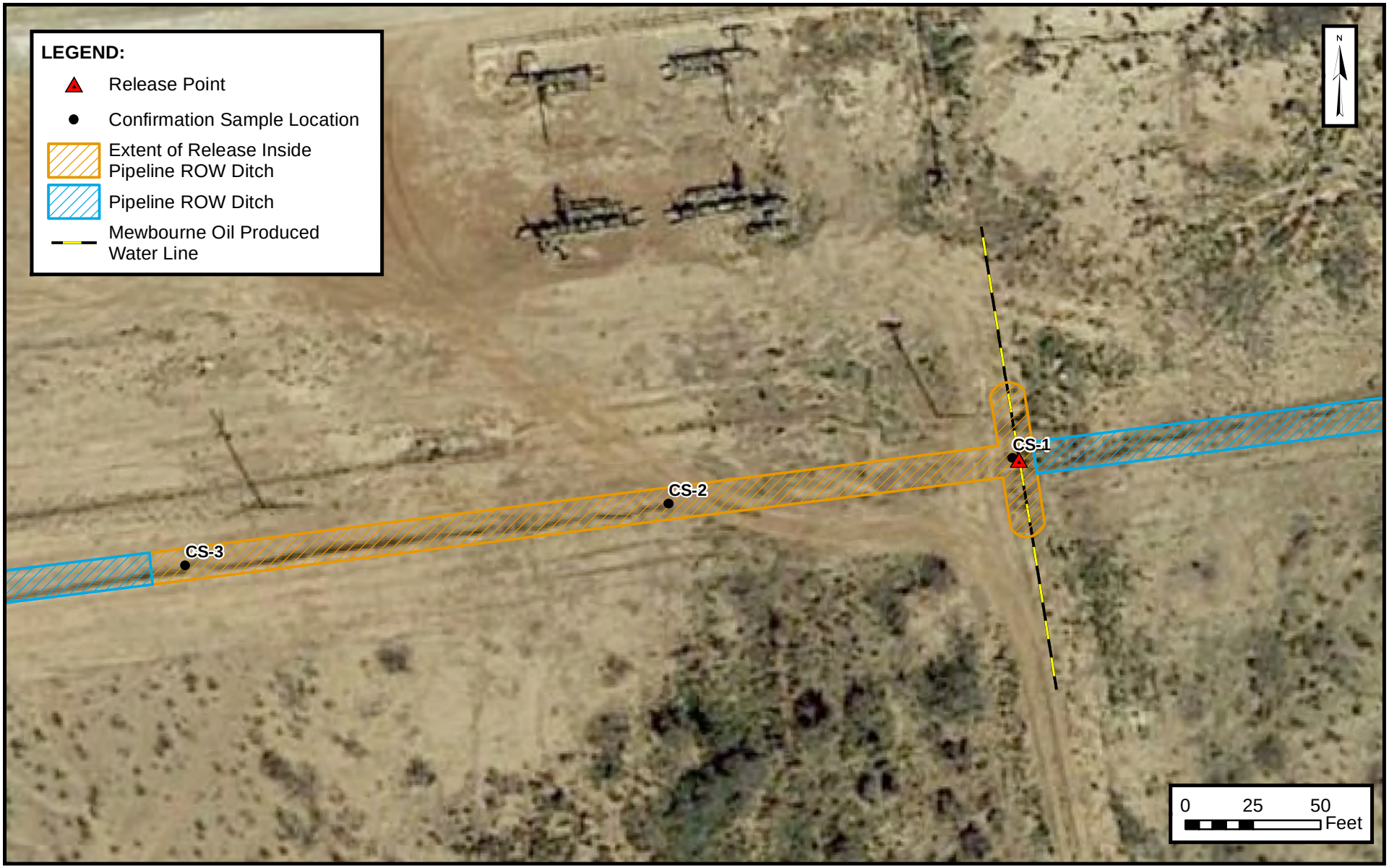
Environmental & Hydrogeologic Consultants

SITE VICINITY MAP

SALT CREEK MIDSTREAM, LLC
Nailed It, Lateral Pipeline (Station 252+00)
Eddy County, New Mexico
32.004861° N, 103.943759° W

PROJECT NUMBER: 03B1511003

FIGURE
2



ENSOLUM
Environmental & Hydrogeologic Consultants

SITE MAP

SALT CREEK MIDSTREAM, LLC
Nailed It, Lateral Pipeline (Station 252+00)
Eddy County, New Mexico
32.004861° N, 103.943759° W

PROJECT NUMBER: 03B1511003

FIGURE
3

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APPENDIX B

Supporting Figures & Documentation

OSE POD Locations

Points of Diversion visible at 1:19,000 with 1,000 features per view

Water Rights Look Up

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

+197923

4653602

Section 1. GENERAL INFORMATION

(A) Owner of well J.C. Williamson 86 JAN 7 A10:34 Owner's Well No.

Street or Post Office Address

City and State Midland, Texas

STATE ENGINEER OFFICE
SANTA FE NEW MEXICO

Well was drilled under Permit No. C-2038 and is located in the

a. ¼ ¼ ~~SE~~ NE ¼ SE ¼ of Section 26 Township 26S Range 29E 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 License No. WD 421

Address Box 692 Tatum, N.M. ** 88267

Drilling Began Sept. 1, 82 Completed Sept. 2, 82 Type tools rotary Size of hole 8" in.

Elevation of land surface or at well is ft. Total depth of well 200' ft.

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

Section 2. PRINCIPAL WATER-BEARING STRATA

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

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8 PVC			1	140	140		100	140

Section 4. RECORD OF MUDDING AND CEMENTING

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

Section 5. PLUGGING RECORD

Plugging Contractor

Address

Plugging Method

Date Well Plugged

Plugging approved by:

State Engineer Representative

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

FOR USE OF STATE ENGINEER ONLY

Date Received September 16, 1982

Quad FWL FSL

File No. C-2038 Use Domestic & Stock Location No. 26.29.26.42324 OFF SE CORNER & SOUTH LINE

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	5	5	fill
5	46	41	sand & gravel
46	52	6	red sand
52	59	7	red clay
59	69	10	white lime
69	71	2	red clay sand & gravel
71	78	7	white lime
78	80	2	sand & gravel
80	98	18	white lime
98	128	30	cavaran
128	135	7	red & gray clay
135	178	43	limestone
178	200	12	red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

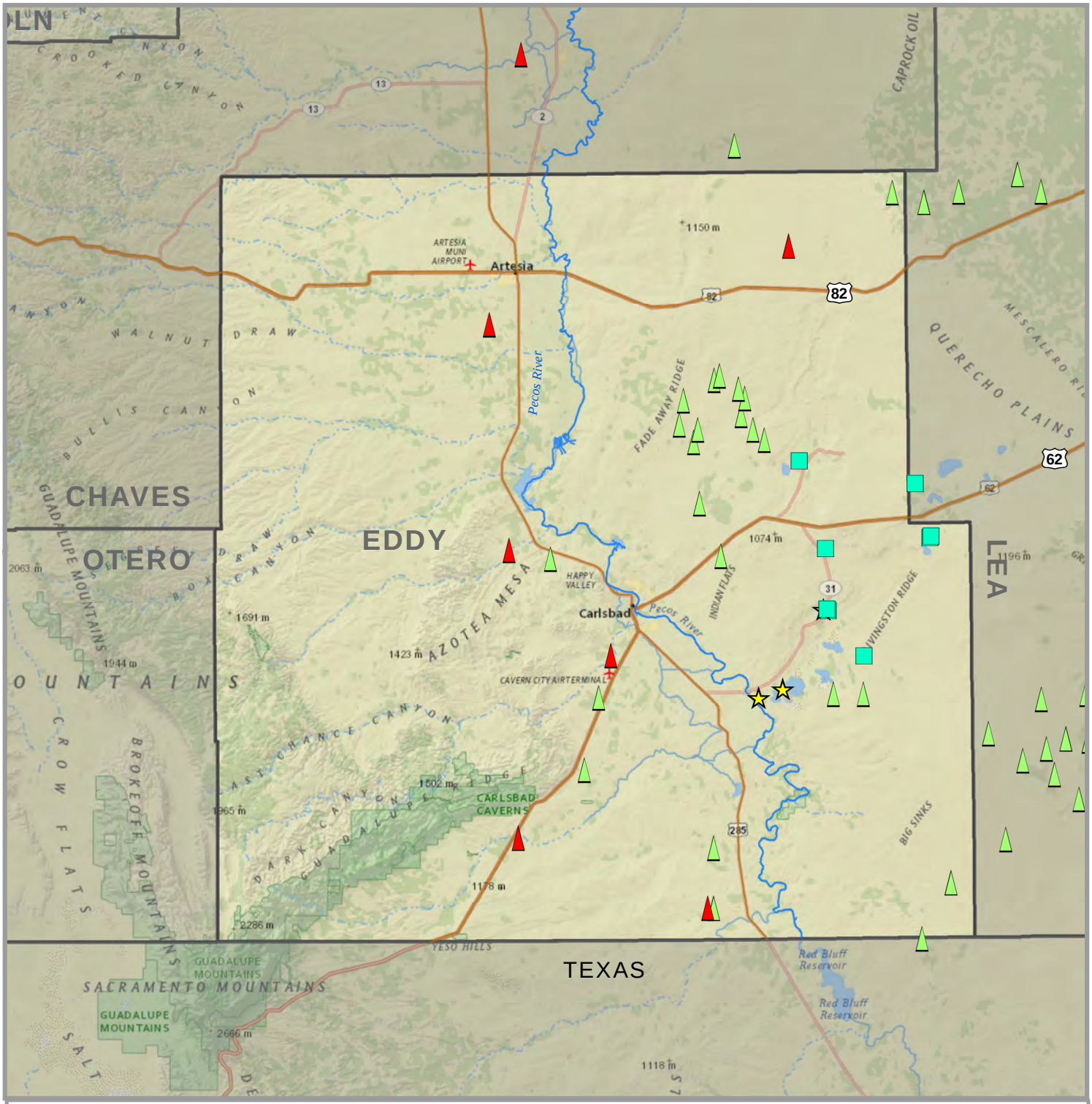
STATE ENGINEER ROSWELL, NM
SEP 16 8 39 AM '82

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.

Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections ex[redacted]ction 5, shall be answered as completely [redacted]curately as possible when any well is drilled, repaired or deepened. Whe[redacted] used as a plugging record, only Section 1([redacted] Section 5 need be completed.

Active Mines in Eddy County, New Mexico, December 2017



Metals

Coal
Potash
Copper / Molybdenum
Gold & Silver
Iron
Uranium

Industrial Minerals

Calcite
Gemstone
Gypsum
Humate
Perlite
Pumice
Salt
Silica / Flux / Silver
Zeolites

Aggregate & Stone

Aggregate
Caliche
Clay & Shale
Dimension & Flagstone
Limestone
Red Dog
Scoria
Travertine

NAD 83 UTM NM Zone13

N
W E
S

0 5 10 20
Miles

Data: November 2018 database query, Mining & Minerals Division, Mine Registration, Reporting & Safeguarding Program.
Basemap: Esri National Geographic. Map: Linda S. DeLay, GISP

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands Map

December 12, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

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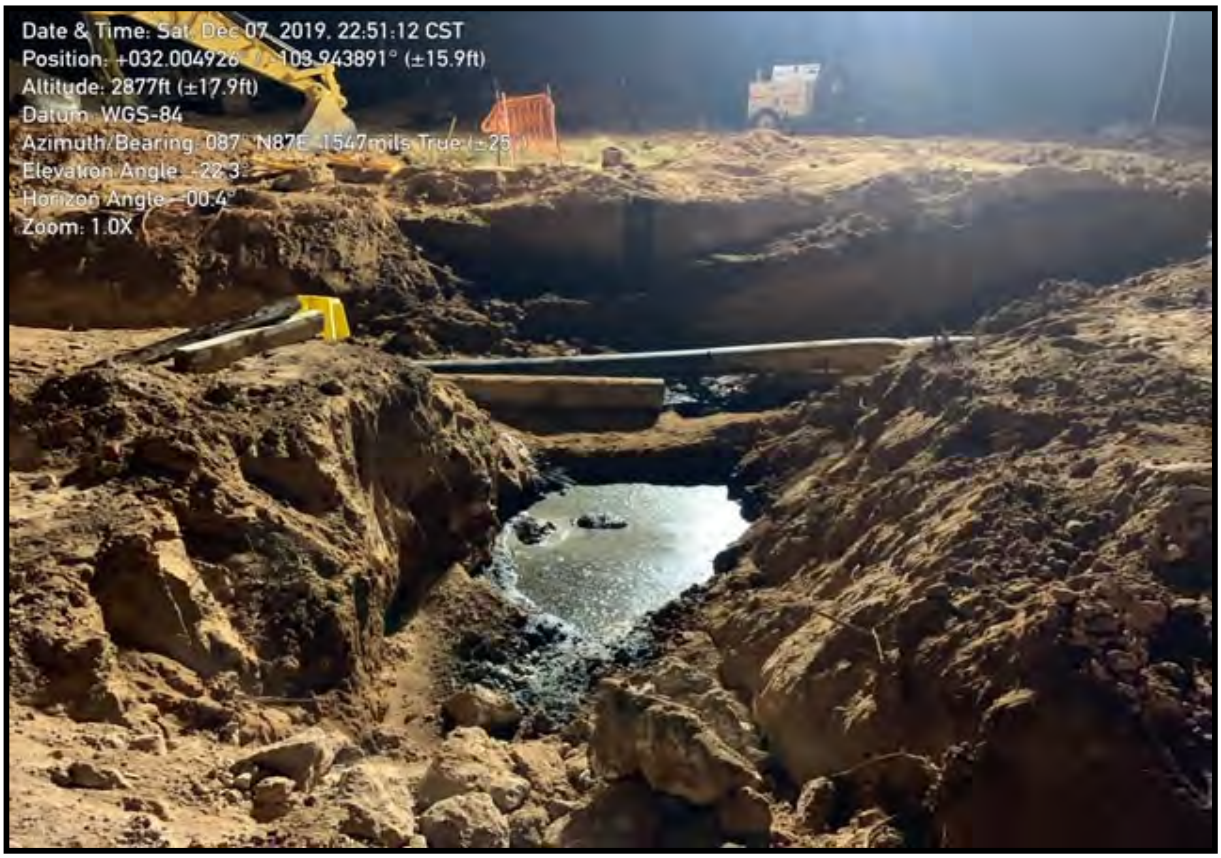
APPENDIX C

Photographic Documentation



View of the release area prior to remediation activities, facing east.

View of the release area prior to remediation activities, facing southeast.

View of the release area during remediation activities, facing east.

View of flow path during remediation activities, facing east.

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APPENDIX D

Table 1 – Soil Analytical Summary

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Salt Creek Midstream, LLC - Nailed It, Lateral Pipeline (Station 252+00)
Eddy County, New Mexico

Ensolum Project No. 03B1511003

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total TPH (GRO+DRO+MRO) (mg/kg)	Chloride (mg/kg)
New Mexico Oil Conservation Division Closure Criteria for Soils Impacted by a Release (51 feet - 100 feet)			**10**	**NE**	**NE**	**NE**	**50**	**1,000**		**NE**	**2,500**	**10,000**
Confirmation Soil Sample Analytical Results												
CS-1	12/9/2019	6	<0.000383	**0.000626 J**	<0.000561	**0.00342**	**0.00405**	<15.0	**44.2 J**	<15.0	**44.2 J**	**729**
CS-2	12/9/2019	6	**0.00121 J**	**0.00229**	<0.000564	**0.00374**	**0.00724**	<15.0	<15.0	<15.0	<15.0	**8,600**
CS-3	12/9/2019	6	<0.000387	**0.000523 J**	<0.000568	<0.000346	**0.000523 J**	<15.0	<15.0	<15.0	<15.0	**2,060**

bgs: below ground surface

J: The target analyte was positively identified below the quantitation limit and above the detection limit.

mg/kg: milligrams per kilogram

NE: Not Established

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

MRO: Motor Oil/Lube Oil Range Organics

TPH: Total Petroleum Hydrocarbon

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APPENDIX E

Laboratory Analytical Reports & Chain-of-Custody Documentation

Analytical Report 645655

for

Ensolum

Project Manager: Beaux Jennings

BLM Brine Polyline

03B1511003

10-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)

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10-DEC-19

Project Manager: **Beaux Jennings**
Ensolum
2351 W Northwest Highway
Suite 1203
Dallas, TX 75220

Reference: XENCO Report No(s): **645655**
BLM Brine Polyline
Project Address:

Beaux Jennings:

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) 645655. 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. 645655 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

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 645655

Ensolum, Dallas, TX

BLM Brine Polyline

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CS-1	S	12-09-19 16:40	6 ft	645655-001
CS-2	S	12-09-19 16:42	6 ft	645655-002
CS-3	S	12-09-19 16:45	6 ft	645655-003

CASE NARRATIVE SUMMARY

Client Name: **Ensolum**

Project Name: **BLM Brine Polyline**

Project ID:	*03B1511003*	*Report Date:*	*10-DEC-19*
Work Order Number:	*645655*	*Date Received:*	*10-DEC-19*

Jessica Kramer

Jessica Kramer
Project Assistant

Certificate of Analytical Results
645655
Ensolum, Dallas, TX
BLM Brine Polyline

Sample Id: **CS-1** Matrix: Soil Sample Depth: 6 ft

Lab Sample Id: 645655-001 Date Collected: 12.09.19 16.40 Date Received: 12.10.19 08.20

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3109983 Date Prep: 12.10.19 09.35

Prep seq: 7692055

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**729**	24.8	4.26	mg/kg	12.10.19 10:44		5

Analytical Method: TPH by SW8015 Mod Prep Method: 8015

Analyst: ARM % Moist: Tech: DVM

Seq Number: 3109957 Date Prep: 12.10.19 09.00

Prep seq: 7692069

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	50.0	15.0	mg/kg	12.10.19 10:32	U	1
Diesel Range Organics (DRO)	C10C28DRO	**44.2**	50.0	15.0	mg/kg	12.10.19 10:32	J	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	50.0	15.0	mg/kg	12.10.19 10:32	U	1
Total TPH	PHC635	**44.2**		15.0	mg/kg	12.10.19 10:32	J	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	108	70 - 135	%		
o-Terphenyl	108	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3109981 Date Prep: 12.10.19 10.30

Prep seq: 7692054

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000383	0.00199	0.000383	mg/kg	12.10.19 12:30	U	1
Toluene	108-88-3	**0.000626**	0.00199	0.000453	mg/kg	12.10.19 12:30	J	1
Ethylbenzene	100-41-4	<0.000561	0.00199	0.000561	mg/kg	12.10.19 12:30	U	1
m,p-Xylenes	179601-23-1	**0.00231**	0.00398	0.00101	mg/kg	12.10.19 12:30	J	1
o-Xylene	95-47-6	**0.00111**	0.00199	0.000342	mg/kg	12.10.19 12:30	J	1
Total Xylenes	1330-20-7	**0.00342**		0.000342	mg/kg	12.10.19 12:30		
Total BTEX		**0.00405**		0.000342	mg/kg	12.10.19 12:30		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	91	70 - 130	%		
4-Bromofluorobenzene	109	70 - 130	%		

Certificate of Analytical Results
645655
Ensolum, Dallas, TX
BLM Brine Polyline

Sample Id: **CS-2** Matrix: Soil Sample Depth: 6 ft

Lab Sample Id: 645655-002 Date Collected: 12.09.19 16.42 Date Received: 12.10.19 08.20

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3109983 Date Prep: 12.10.19 09.35

Prep seq: 7692055

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**8600**	50.0	8.58	mg/kg	12.10.19 10:50		10

Analytical Method: TPH by SW8015 Mod Prep Method: 8015

Analyst: ARM % Moist: Tech: DVM

Seq Number: 3109957 Date Prep: 12.10.19 09.00

Prep seq: 7692069

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	49.9	15.0	mg/kg	12.10.19 11:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	49.9	15.0	mg/kg	12.10.19 11:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	49.9	15.0	mg/kg	12.10.19 11:29	U	1
Total TPH	PHC635	<15.0		15.0	mg/kg	12.10.19 11:29	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	102	70 - 135	%		
o-Terphenyl	101	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3109981 Date Prep: 12.10.19 10.30

Prep seq: 7692054

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	**0.00121**	0.00200	0.000384	mg/kg	12.10.19 12:51	J	1
Toluene	108-88-3	**0.00229**	0.00200	0.000455	mg/kg	12.10.19 12:51		1
Ethylbenzene	100-41-4	<0.000564	0.00200	0.000564	mg/kg	12.10.19 12:51	U	1
m,p-Xylenes	179601-23-1	**0.00287**	0.00399	0.00101	mg/kg	12.10.19 12:51	J	1
o-Xylene	95-47-6	**0.000868**	0.00200	0.000344	mg/kg	12.10.19 12:51	J	1
Total Xylenes	1330-20-7	**0.00374**		0.000344	mg/kg	12.10.19 12:51		
Total BTEX		**0.00724**		0.000344	mg/kg	12.10.19 12:51		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	100	70 - 130	%		
4-Bromofluorobenzene	103	70 - 130	%		

Certificate of Analytical Results
645655
Ensolum, Dallas, TX
BLM Brine Polyline

Sample Id: **CS-3** Matrix: Soil Sample Depth: 6 ft

Lab Sample Id: 645655-003 Date Collected: 12.09.19 16.45 Date Received: 12.10.19 08.20

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3109983 Date Prep: 12.10.19 09.35

Prep seq: 7692055

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**2060**	50.0	8.58	mg/kg	12.10.19 10:57		10

Analytical Method: TPH by SW8015 Mod Prep Method: 8015

Analyst: ARM % Moist: Tech: DVM

Seq Number: 3109957 Date Prep: 12.10.19 09.00

Prep seq: 7692069

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	49.9	15.0	mg/kg	12.10.19 11:47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	49.9	15.0	mg/kg	12.10.19 11:47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	49.9	15.0	mg/kg	12.10.19 11:47	U	1
Total TPH	PHC635	<15.0		15.0	mg/kg	12.10.19 11:47	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	123	70 - 135	%		
o-Terphenyl	121	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3109981 Date Prep: 12.10.19 10.30

Prep seq: 7692054

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000387	0.00201	0.000387	mg/kg	12.10.19 13:11	U	1
Toluene	108-88-3	**0.000523**	0.00201	0.000458	mg/kg	12.10.19 13:11	J	1
Ethylbenzene	100-41-4	<0.000568	0.00201	0.000568	mg/kg	12.10.19 13:11	U	1
m,p-Xylenes	179601-23-1	<0.00102	0.00402	0.00102	mg/kg	12.10.19 13:11	U	1
o-Xylene	95-47-6	<0.000346	0.00201	0.000346	mg/kg	12.10.19 13:11	U	1
Total Xylenes	1330-20-7	<0.000346		0.000346	mg/kg	12.10.19 13:11	U	
Total BTEX		**0.000523**		0.000346	mg/kg	12.10.19 13:11	J	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	100	70 - 130	%		
4-Bromofluorobenzene	100	70 - 130	%		

Certificate of Analytical Results
645655
Ensolum, Dallas, TX
BLM Brine Polyline

Sample Id: **7692054-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7692054-1-BLK Date Collected: Date Received:

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3109981 Date Prep: 12.10.19 10.30

Prep seq: 7692054

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000385	0.00200	0.000385	mg/kg	12.10.19 12:10	U	1
Toluene	108-88-3	<0.000456	0.00200	0.000456	mg/kg	12.10.19 12:10	U	1
Ethylbenzene	100-41-4	<0.000565	0.00200	0.000565	mg/kg	12.10.19 12:10	U	1
m,p-Xylenes	179601-23-1	<0.00101	0.00400	0.00101	mg/kg	12.10.19 12:10	U	1
o-Xylene	95-47-6	<0.000344	0.00200	0.000344	mg/kg	12.10.19 12:10	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	95	70 - 130	%		
4-Bromofluorobenzene	95	70 - 130	%		

Sample Id: **7692055-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7692055-1-BLK Date Collected: Date Received:

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3109983 Date Prep: 12.10.19 09.35

Prep seq: 7692055

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<0.858	5.00	0.858	mg/kg	12.10.19 09:46	U	1

Certificate of Analytical Results
645655

Ensolum, Dallas, TX
BLM Brine Polyline

Sample Id: **7692069-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7692069-1-BLK Date Collected: Date Received:

Analytical Method: TPH by SW8015 Mod Prep Method: 8015

Analyst: ARM % Moist: Tech: DVM

Seq Number: 3109957 Date Prep: 12.10.19 09.00

Prep seq: 7692069

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	50.0	15.0	mg/kg	12.10.19 09:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	50.0	15.0	mg/kg	12.10.19 09:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	50.0	15.0	mg/kg	12.10.19 09:35	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	93	70 - 135	%		
o-Terphenyl	94	70 - 135	%		

CHRONOLOGY OF HOLDING TIMES

Analytical Method : Chloride by EPA 300
Work Order #: **645655**
Date Received: 12/10/19

Client : Ensolum
Project ID: 03B1511003

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CS-1	645655-001	12/09/19				12/10/19	28	1	
CS-2	645655-002	12/09/19				12/10/19	28	1	
CS-3	645655-003	12/09/19				12/10/19	28	1	

CHRONOLOGY OF HOLDING TIMES

Analytical Method : TPH by SW8015 Mod
Work Order #: **645655**
Date Received: 12/10/19

Client : Ensolum
Project ID: 03B1511003

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CS-1	645655-001	12/09/19	12/10/19	14	1	12/10/19	14	0	
CS-2	645655-002	12/09/19	12/10/19	14	1	12/10/19	14	0	
CS-3	645655-003	12/09/19	12/10/19	14	1	12/10/19	14	0	

CHRONOLOGY OF HOLDING TIMES

Analytical Method : BTEX by EPA 8021B

Work Order #: **645655**

Date Received: 12/10/19

Client : Ensolum

Project ID: 03B1511003

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CS-1	645655-001	12/09/19				12/10/19	14	1	
CS-2	645655-002	12/09/19				12/10/19	14	1	
CS-3	645655-003	12/09/19				12/10/19	14	1	

F = These samples were analyzed outside the recommended holding time.

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 **MQL** 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

Analytical Log

Analytical Method:	TPH by SW8015 Mod	Batch #:	3109957
Project Name:	BLM Brine Polyline	Project ID:	03B1511003
Client Name:	Ensolum	WO Number:	645655

Client Sample Id	Lab Sample Id	QC Types
CS-1	645655-001	SMP
CS-2	645655-002	SMP
CS-3	645655-003	SMP
	645655-001 S	MS
	645655-001 SD	MSD
	7692069-1-BKS	BKS
	7692069-1-BLK	BLK
	7692069-1-BSD	BSD

Analytical Log

Analytical Method:	BTEX by EPA 8021B	Batch #:	3109981
Project Name:	BLM Brine Polyline	Project ID:	03B1511003
Client Name:	Ensolum	WO Number:	645655

Client Sample Id	Lab Sample Id	QC Types
CS-1	645655-001	SMP
CS-2	645655-002	SMP
CS-3	645655-003	SMP
	645655-001 S	MS
	645655-001 SD	MSD
	7692054-1-BKS	BKS
	7692054-1-BLK	BLK
	7692054-1-BSD	BSD

Analytical Log

Analytical Method:	Chloride by EPA 300	Batch #:	3109983
Project Name:	BLM Brine Polyline	Project ID:	03B1511003
Client Name:	Ensolum	WO Number:	645655

Client Sample Id	Lab Sample Id	QC Types
CS-1	645655-001	SMP
CS-2	645655-002	SMP
CS-3	645655-003	SMP
	645620-007 S	MS
	645620-007 SD	MSD
	7692055-1-BKS	BKS
	7692055-1-BLK	BLK
	7692055-1-BSD	BSD

Version: 1.002

Form 2 - Surrogate Recoveries

Project Name: BLM Brine Polyline

Work Orders : 645655, **Project ID:** 03B1511003

Lab Batch #: 3109981 **Sample:** 7692054-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/10/19 10:29

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	70-130	
4-Bromofluorobenzene	0.0298	0.0300	99	70-130	

Lab Batch #: 3109981 **Sample:** 7692054-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/10/19 10:50

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	70-130	
4-Bromofluorobenzene	0.0340	0.0300	113	70-130	

Lab Batch #: 3109981 **Sample:** 645655-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/10/19 11:10

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	70-130	
4-Bromofluorobenzene	0.0342	0.0300	114	70-130	

Lab Batch #: 3109981 **Sample:** 645655-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/10/19 11:30

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	70-130	
4-Bromofluorobenzene	0.0327	0.0300	109	70-130	

Lab Batch #: 3109981 **Sample:** 7692054-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/10/19 12:10

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	70-130	
4-Bromofluorobenzene	0.0285	0.0300	95	70-130	

* 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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: BLM Brine Polyline

Work Orders : 645655, **Project ID:** 03B1511003

Lab Batch #: 3109957 **Sample:** 7692069-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/10/19 09:35

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.4	100	93	70-135	
o-Terphenyl	47.2	50.0	94	70-135	

Lab Batch #: 3109957 **Sample:** 7692069-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/10/19 09:53

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	130	100	130	70-135	
o-Terphenyl	59.0	50.0	118	70-135	

Lab Batch #: 3109957 **Sample:** 7692069-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/10/19 10:12

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	128	100	128	70-135	
o-Terphenyl	64.5	50.0	129	70-135	

Lab Batch #: 3109957 **Sample:** 645655-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/10/19 10:50

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	129	99.7	129	70-135	
o-Terphenyl	62.2	49.9	125	70-135	

Lab Batch #: 3109957 **Sample:** 645655-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/10/19 11:09

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	99.9	124	70-135	
o-Terphenyl	64.3	50.0	129	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.

Version: 1.%

BS / BSD Recoveries

Project Name: BLM Brine Polyline

Work Order #: 645655 **Project ID:** 03B1511003

Analyst: KTL **Date Prepared:** 12/10/2019 **Date Analyzed:** 12/10/2019

Lab Batch ID: 3109981 **Sample:** 7692054-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	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
Benzene	<0.000385	0.100	0.102	102	0.100	0.105	105	3	70-130	35	
Toluene	<0.000456	0.100	0.0985	99	0.100	0.102	102	3	70-130	35	
Ethylbenzene	<0.000565	0.100	0.0958	96	0.100	0.100	100	4	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.195	98	0.200	0.206	103	5	70-130	35	
o-Xylene	<0.000344	0.100	0.0951	95	0.100	0.102	102	7	70-130	35	

Analyst: CHE **Date Prepared:** 12/10/2019 **Date Analyzed:** 12/10/2019

Lab Batch ID: 3109983 **Sample:** 7692055-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	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
Chloride	<0.858	250	245	98	250	244	98	0	90-110	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

Version: 1.%

BS / BSD Recoveries

Project Name: BLM Brine Polyline

Work Order #: 645655 **Project ID:** 03B1511003

Analyst: ARM **Date Prepared:** 12/10/2019 **Date Analyzed:** 12/10/2019

Lab Batch ID: 3109957 **Sample:** 7692069-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	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
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	974	97	1000	1110	111	13	70-135	20	
Diesel Range Organics (DRO)	<15.0	1000	1020	102	1000	1180	118	15	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

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: BLM Brine Polyline

Work Order # : 645655 **Project ID:** 03B1511003

Lab Batch ID: 3109981 **QC- Sample ID:** 645655-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/10/2019 **Date Prepared:** 12/10/2019 **Analyst:** KTL

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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
Benzene	<0.000383	0.0996	0.100	100	0.0990	0.0890	90	12	70-130	35	
Toluene	0.000626	0.0996	0.0962	96	0.0990	0.0866	87	11	70-130	35	
Ethylbenzene	<0.000563	0.0996	0.0905	91	0.0990	0.0815	82	10	70-130	35	
m,p-Xylenes	0.00231	0.199	0.185	92	0.198	0.165	82	11	70-130	35	
o-Xylene	0.00111	0.0996	0.0901	89	0.0990	0.0807	80	11	70-130	35	

Lab Batch ID: 3109983 **QC- Sample ID:** 645620-007 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/10/2019 **Date Prepared:** 12/10/2019 **Analyst:** CHE

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	137	253	380	96	253	385	98	1	90-110	20	

Lab Batch ID: 3109957 **QC- Sample ID:** 645655-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/10/2019 **Date Prepared:** 12/10/2019 **Analyst:** ARM

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	1230	123	999	1240	124	1	70-135	20	
Diesel Range Organics (DRO)	44.2	997	1260	122	999	1270	123	1	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.

Attachment A Laboratory Data Package Cover Page

Project Name: **BLM Brine Polyline** Laboratory Number: **645655**

This Data package consists of : Laboratory Batch No(s) **7692054, 7692055, 7692069**

This signature page, the laboratory review checklist, and the following reportable data:

[X] R1 Field chain-of-custody documentation;

[X] R2 Sample identification cross-reference;

[X] R3 Test reports (analytical data sheets) for each environmental sample that includes:
- a) Items consistent with NELAC 5
- b) dilution factors,
- c) preparation methods,
- d) cleanup methods, and
- e) if required for the project, tentatively identified compounds (TICs).

[X] R4 Surrogate Recovery data including:
- a) Calculated recovery (%R), and
- b) The laboratory's surrogate QC limits.

[X] R5 Test reports/summary forms for blank samples;

[X] R6 Test reports/summary forms for laboratory control samples (LCSs) including:
- a) LCS spiking amounts,
- b) Calculated %R for each analyte, and
- c) The laboratory's LCS QC limits.

[X] R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %Rs and relative percent differences (RPDs) and
- e) The laboratory's MS/MSD QC limits

[X] R8 Laboratory anaytical duplicate (if applicable) recovery and precision:
- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for analytical duplicates.

[X] R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;

[X] R10 Other problems or anomalies.

[X] Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies, observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC 25.6 and was last inspection by [ ] TCEQ or [ ] _____ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The offical signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Jessica Kramer	Jessica Kramer	**Project Assistant**	**10-DEC-19**
Name (Printed)	Signature	Official Title (printed)	Date

A1

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	XENCO LABORATORIES	LRC Date :	10-DEC-19
Project Name:	BLM Brine Polyline	Laboratory Job Number :	645655
Reviewer Name:	JKR	Batch Number(s) :	7692054, 7692055, 7692069

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (COC)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	**Sample and Quality Control (QC) Identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results <MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?		X			1
		If required for the project, were TICs reported?	X				
R4	O	**Surrogate Recovery Data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency ?	X				
		Were method blanks taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures ?	X				
		Were Blank Concentrations <MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within the QC limits?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within the laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method Quantitation Limits (MQLs)**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	XENCO LABORATORIES	LRC Date :	10-DEC-19
Project Name:	BLM Brine Polyline	Laboratory Job Number :	645655
Reviewer Name:	JKR	Batch Number(s) :	7692054, 7692055, 7692069

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and the highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing Calibration Verification (ICCV and CCV) and continuing calibration blank (**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	X				
S3	O	**Mass Spectral Tuning**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standard (IS)**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		Did dual column confirmation results meet the method-required QC?	X				
S7	O	**Tentatively Identified Compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	X				
S8	I	**Interference Check Sample (ICS) Results**					
		Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestions Spikes, and Method of Standard Additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods (NELAC Chapter 5)**					
		Are all methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted to the TCEQ-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report Identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Attachment A (cont'd): Laboratory Review Checklist: Exception Reports

Laboratory Name:	XENCO LABORATORIES	LRC Date:	10-DEC-19
Project Name:	BLM Brine Polyline	Laboratory Job Number:	645655
Reviewer Name:	JKR	Batch Number(s) :	7692054, 7692055, 7692069

ER# [1]	DESCRIPTION
1	Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

1 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No is checked on the LRC).

A4

DCS Summary 645655

Ensolum, Dallas, TX

BLM Brine Polyline

Analytical Method: **BTEX by EPA 8021B** Matrix: **Soil**

Prep Method: **SW5030B** Laboratory: **Xenco - Midland**

Parameter	SDL	MQL	Spike Amount	Actual Amount	Units
Benzene	0.000385	0.00200	0.00100	0.000891	mg/kg
Toluene	0.000456	0.00200	0.00100	0.00121	mg/kg
Ethylbenzene	0.000565	0.00200	0.00100	0.00104	mg/kg
m,p-Xylenes	0.00101	0.00400	0.00200	0.00214	mg/kg
o-Xylene	0.000344	0.00200	0.00100	0.000883	mg/kg

Analytical Method: **Chloride by EPA 300** Matrix: **Soil**

Prep Method: **E300P** Laboratory: **Xenco - Midland**

Parameter	SDL	MQL	Spike Amount	Actual Amount	Units
Chloride	0.858	5.00	5.00	1.59	mg/kg

XENCO LABORATORIES

Chain of Custody

Work Order No: 1045655

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) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

www.xenco.com Page 1 of 1

Project Manager:	Beaux Jennings	Bill to: (if different)	
Company Name:	Ensolum	Company Name:	
Address:	705 W. Wadley Ave, Ste. 210	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	210-219-8858	Email:	bjennings@ensolum.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	BLM Brine Polyline	Turn Around	
Project Number:	03B1511003	Routine ☐	
P.O. Number:	03B1511003	Rush: Same Day	
Sampler's Name:	Beaux Jennings	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	0.5	Thermometer ID	IR5
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	0
Sample Custody Seals:	Yes No (N/A)	Total Containers:	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	BTEX SW-846 #8021B	TPH SW-846 #8015M	Chloride EPA 300.0
CS-1	S	12/9/19	1640	6'	1	X	X	X
CS-2	S	12/9/19	1642	6'	1	X	X	X
CS-3	S	12/9/19	1645	6'	1	X	X	X

NEE 12/9/19 IR5

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

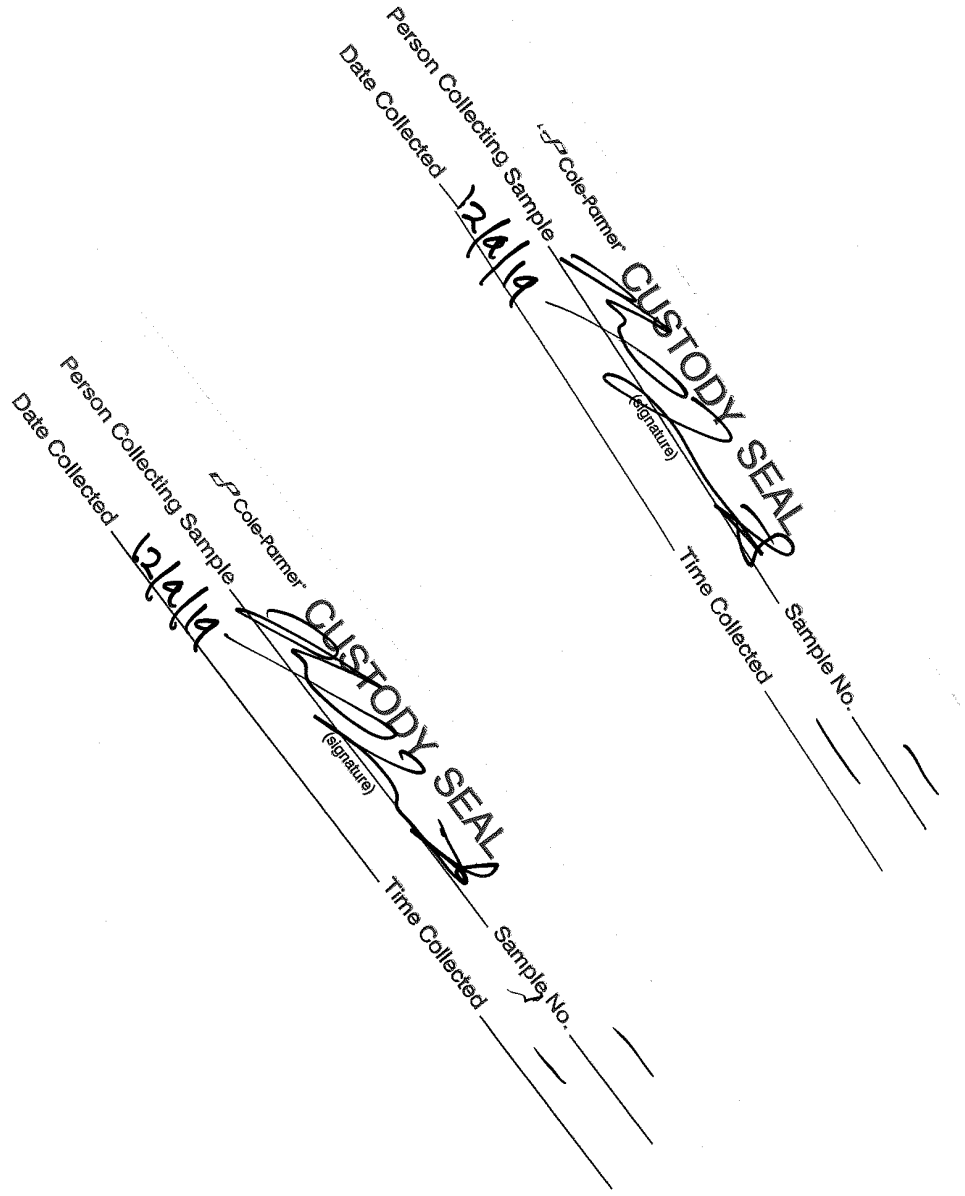
Sample Comments

- Same Day Rush
- NM Samples

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 Tl 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 Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		12/10/19 0820	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1.


Person Collecting Sample
Date Collected
12/4/19
Cole-Parmer
CUSTODY SEAL
(signature)
Time Collected
Sample No.
Person Collecting Sample
Date Collected
12/4/19
Cole-Parmer
CUSTODY SEAL
(signature)
Time Collected
Sample No.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Ensolum

Date/ Time Received: 12/10/2019 08:20:00 AM

Work Order #: 645655

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)?	.5
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**Yes**
#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 Date: 12/10/2019

Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 12/10/2019

Jessica Kramer

ENSOLUM

APPENDIX F

C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Salt Creek Midstream, LLC	OGRID 373554
Contact Name Mike Poffinbarger	Contact Telephone 832-998-1113
Contact email Michael.poffinbarger@armenergy.com	Incident # *(assigned by OCD)*
Contact mailing address 20329 State Hwy 249 4th Floor, Houston, TX 77070	

Location of Release Source

Latitude 32.004861 Longitude -103.943759
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Nailed It Lateral Pipeline (station 252+00)	Site Type Pipeline ROW, under construction
Date Release Discovered 12/6/2019	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
D	36	26S	29E	Eddy

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (*Name: State of New Mexico)*

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) <2,500	Volume Recovered (bbls) 100
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: At approximately 4:30pm on Friday, December 6th, 2019, while engaged in the construction of Salt Creek Midstream's Nailed it Lateral gas pipeline, Lonestar Pipeline Contractors (a contractor of SCM, LLC.), ruptured a buried produced water line operated by Mewbourne Oil. The backhoe operator struck the visible water line with the tip of the hammer ram while hammering rock around the marked line with the spotters watching. Location Station#252+71. Water was subsequently diverted into SCM's pipeline ditch to contain the spread of the spill.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Unauthorized release >25 bbls of fluid
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? On Dec 7th, Joan Harris, Director of Compliance Salt Creek Midstream, called the OCD emergency number to notify the agency regarding the spill. She spoke with Gilbert Cordero who advised her to email Victoria Venegas and Robert Hamlet. On Dec 7, 2019 Joan Harris emailed Victoria Venegas and Robert Hamlet to notify the agency regarding the spill.	

Initial Response

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

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

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

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

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

Printed Name: Matthew Veltri Title: Environmental Inspector

Signature: Matthew T. Veltri Date: 12/7/2019

email: mvelt4201@yahoo.com Telephone: 724-914-1229

OCD Only

Received by: Date:

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: Coral Richline Title: Sr EHS Coordinator

Signature: Coral Richline Date: 12/16/2019

email: coral.richline@armenergy.com Telephone: 832 657 6344

OCD Only

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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.

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Printed Name: CORAL RICHLINE Title: SR EHS Coordinator

Signature: Coral Richline Date: 12/16/2019

email: coral.richline@armenergy.com Telephone: 832 657 6344

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

Signature: _____ Date: _____

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State of New Mexico
Oil Conservation Division

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Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: CORAL RICHLINE Title: SR EHS Coordinator

Signature: Coral Richline Date: 12/16/2019

email: coral.richline@anmenergy.com Telephone: 832 657 6344

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Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____