ENSOLUM

October 23, 2023

New Mexico Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Closure Request
Mesa 8105 JVP #3H Produced Water Line
Incident Number NRM2016045357
Lea County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of BTA Oil Producers, LLC (BTA), has prepared this *Closure Request* to document assessment, excavation, and soil sampling activities performed at the Mesa 8105 JVP #3H Produced Water Line (Site). The purpose of the Site assessment, excavation, and soil sampling activities was to address impacts to soil resulting from a historical produced water release at the Site. Based on field observations, excavation activities, and soil sample laboratory analytical results, BTA is submitting this *Closure Request*, requesting no further action for Incident Number NRM2016045357.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit M, Section 1, Township 26 South, Range 32 East, in Lea County, New Mexico (32.06583°, -103.63670°) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM).

On May 21, 2020, a check valve on a water flow line located outside of containment failed. Approximately 16 barrels (bbls) of produced water were released into the pasture area west of the containment. No fluids were recovered; however, the saturated surface soil was excavated during initial spill response activities. BTA reported the release to the New Mexico Oil Conservation Division (NMOCD) and submitted a Release Notification Form C-141 (Form C-141) on June 5, 2020. The release was assigned Incident Number NRM2016045357.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized to assess the applicability of Table I, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC). Results from the characterization desktop review are presented on page 3 of the Form C-141, Site Assessment/Characterization. Potential Site receptors are identified on Figure 1.

Depth to groundwater at the Site is greater than 55 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to groundwater data is New Mexico Office of the State Engineer (NMOSE) well C-04485-POD1, located approximately 0.3 miles southeast of the Site. The well was drilled during October 2020 to a total depth of 55 feet bgs, and no groundwater was encountered. The borehole was properly abandoned using hydrated bentonite chips.

All wells used for depth to groundwater determination are presented on Figure 1. The associated well records are included in Appendix A.

The closest continuously flowing or significant watercourse is greater than 300 feet from the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (medium potential karst designation area). Site receptors are identified on Figure 1.

Based on the results of the Site Characterization, the following NMOCD Table I Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg
- TPH: 2,500 mg/kg
- Chloride: 10,000 mg/kg

A reclamation requirement of 600 mg/kg chloride and 100 mg/kg TPH applies to the top 4 feet of the pasture area that was impacted by the release, per NMAC 19.15.29.13.D (1) for the top 4 feet of areas that will be reclaimed following remediation.

SITE ASSESSMENT ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On May 10, 2023, Ensolum personnel were at the Site to evaluate the release extent based on information provided on the Form C-141, the documented release extent, and visual observations. No visible indications of the historical release were observed. Nine assessment soil samples (SS01 through SS09) were collected within and around the documented release extent at a depth of approximately 0.5 feet bgs, to assess for the presence or absence of impacted soil. The soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. The soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation was completed during the Site visit and a photographic log is included as Appendix B.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Cardinal Laboratories (Cardinal) in Hobbs, New Mexico, for analysis of the following chemicals of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH- GRO, TPH- DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following Standard Method SM4500.

Laboratory analytical results for assessment soil samples SS01, SS04, and SS05, collected within the release extent, and SS06 through SS09, collected around the release extent, indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria. Laboratory analytical results for assessment soil samples SS02 and SS03, collected within the release extent, indicated chloride concentrations exceeded the reclamation requirement. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Appendix D. Based on laboratory analytical results, vertical delineation activities and excavation of impacted soil were warranted.

DELINEATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On June 20, 2023, Ensolum personnel returned to the Site to complete vertical delineation activities to further assess for impacted soil within the historical release area. Boreholes were advanced via hydrovac at the location of assessment samples SS01, SS04, and SS05. The boreholes were advanced to a depth of 3 feet bgs. Soil from the boreholes was field screened for VOCs and chloride. Field screening results and observations from the boreholes were logged on lithologic/soil sampling logs, which are included in Appendix C. Based on the absence of elevated field screening results, discrete delineation soil samples (SS01A, SS04A, and SS05A) were collected from the boreholes at a depth of 3 feet bgs for laboratory analysis. The delineation soil samples were collected, handled, and analyzed following the same procedures previously described. The delineation soil sample locations were mapped utilizing a handheld GPS unit and are depicted on Figure 2. Photographic documentation was completed during the Site visit and a photographic log is included in Appendix B.

Laboratory analytical results for delineation soil samples SS01A, SS04A, and SS05A indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria and further confirmed the absence of impacted soil in the areas around boreholes SS01, SS04, and SS05. Based on laboratory analytical results, excavation activities were warranted in the areas around assessment soil samples SS02 and SS03. Laboratory analytical results are summarized in Table 1 and the complete analytical reports are included as Appendix D.

EXCAVATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On June 20, 2023 and June 21, 2023, Ensolum personnel oversaw excavation of impacted soil from the release area as indicated by laboratory analytical results for assessment samples SS02 and SS03. Excavation activities were performed via hand shoveling, backhoe, and skidsteer to depths ranging from 1-foot to 1.5 feet bgs. To direct excavation activities, soil was field screened for VOCs and chloride as previously described. Photographic documentation is included in Appendix B.

Following removal of impacted soil, 5-point composite soil samples were collected every 200 square feet from the floor and sidewalls of the excavation. The 5-point composite soil samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples FS01 through FS03 were collected from the floor of the excavation at depths ranging from 1-foot to 1.5 feet bgs. Due to the shallow depth of the excavation, soil from the excavation sidewalls was included in the floor samples. The soil samples were handled and analyzed as previously described. The excavation extent and excavation soil sample locations were mapped utilizing a handheld GPS unit and are depicted on Figure 3.

Laboratory analytical results for excavation floor samples FS01 through FS03 indicated all COC concentrations were compliant with the Site Closure Criteria and reclamation requirement. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Appendix D.

The aerial footprint of the excavation measured approximately 526 square feet. A total of approximately 30 cubic yards of soil were removed during excavation activities. The impacted soil was transported and properly disposed of at the R360 Disposal Facility in Hobbs, New Mexico.

CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address the impacted soil resulting from the May 21, 2020, release of produced water. Laboratory analytical results for the excavation soil samples indicated all COC concentrations were compliant with the Site Closure Criteria and reclamation requirements. Additionally, laboratory analytical results for the assessment soil samples

provided lateral and vertical delineation to the most stringent Table I Closure Criteria. Based on the laboratory analytical results, impacted soil was excavated and no further remediation is required.

Initial response efforts, excavation of impacted soil, and natural attenuation have mitigated impacts at this Site. Depth to groundwater was determined to be greater than 55 feet bgs within 0.5 miles of the Site and no other sensitive receptors were identified near the release extent. BTA believes the remedial actions completed are protective of human health, the environment, and groundwater. As such, BTA respectfully requests closure for Incident Number NRM2016045357. Notifications submitted to the NMOCD are included in Appendix E and the final Form C-141 is included in Appendix F.

If you have any questions or comments, please contact Ms. Tacoma Morrissey at (337) 257-8307 or tmorrissey@ensolum.com.

Sincerely,
Ensolum, LLC

Ronni Hayes
Assistant Geologist

Aimee Cole
Senior Managing Scientist

cc: Kelton Beaird, BTA
Bureau of Land Management

Appendices:

Figure 1	Site Receptor Map
Figure 2	Delineation Soil Sample Locations
Figure 3	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Referenced Well Records
Appendix B	Photographic Log
Appendix C	Lithologic/Soil Sampling Logs
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix E	NMOCD Notifications
Appendix F	Final C-141

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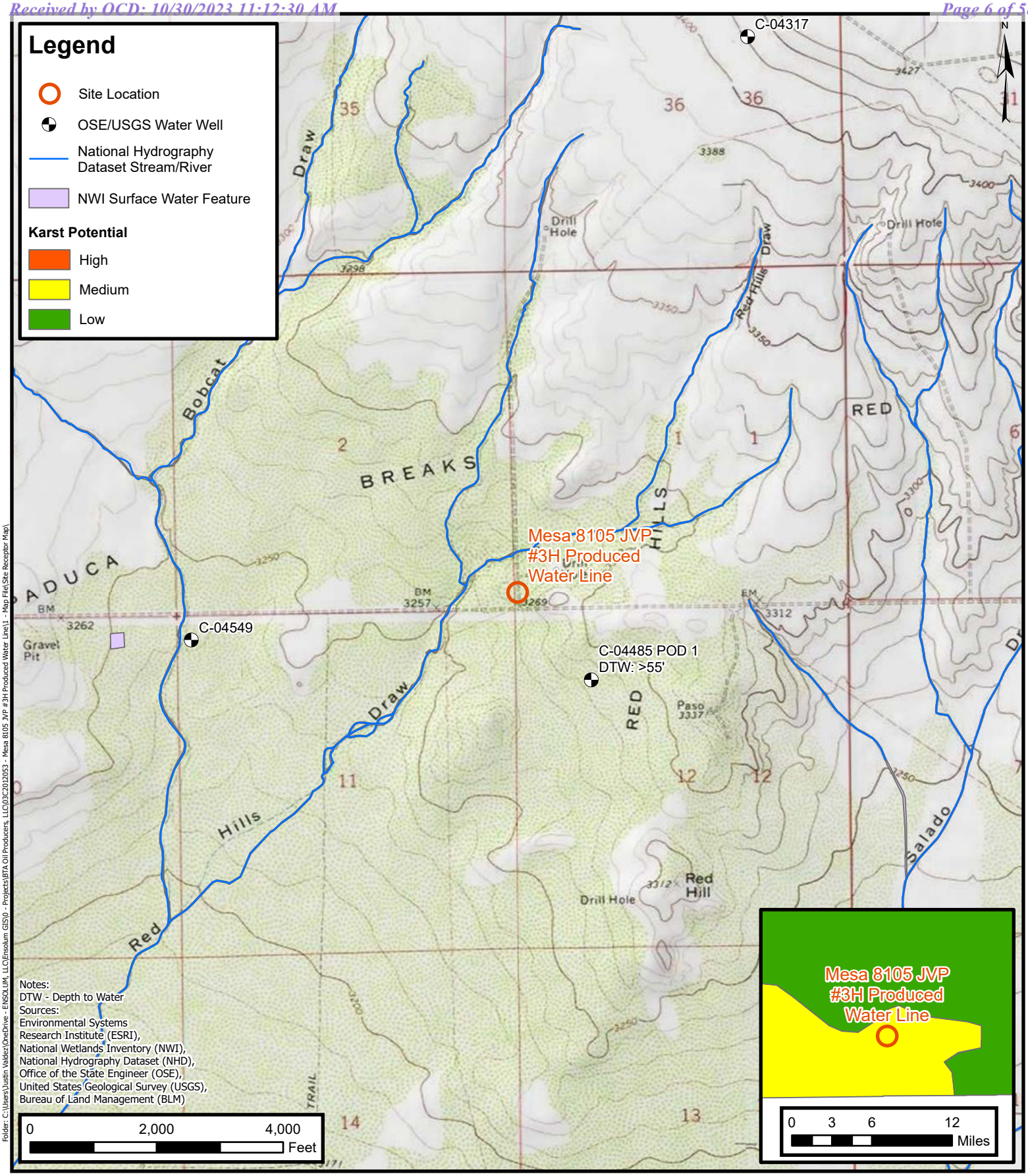
FIGURES



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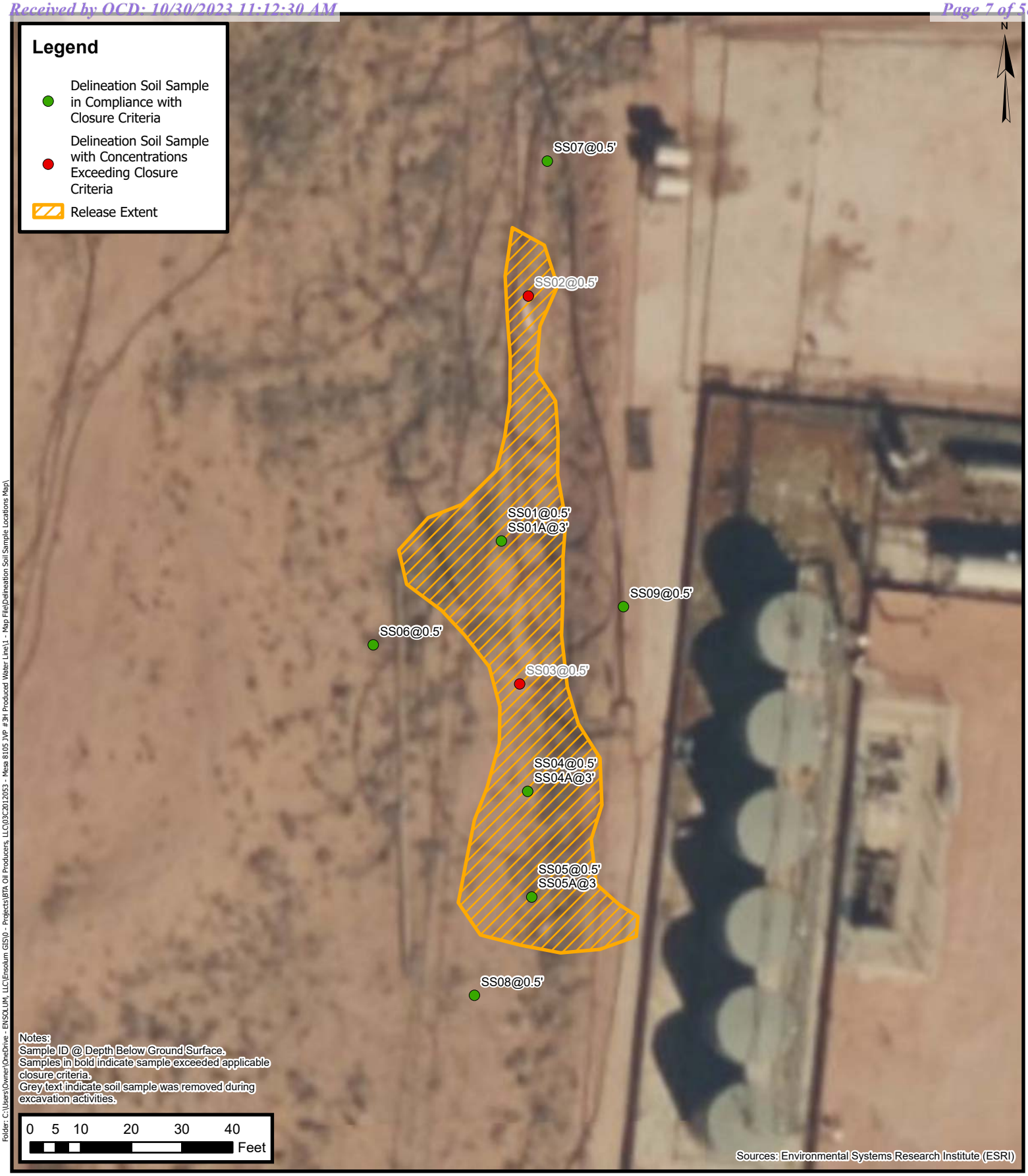
Site Receptor Map

BTA Oil Producers, LLC
Mesa 8105 JVP #3H Produced Water Line
Incident Number: NRM2016045357
Unit M, Sec 1, T26S, R32E
Lea County, New Mexico

FIGURE 1



Folder: C:\Users\Owner\OneDrive - ENSOLUM, LLC\Ensolum GIS\0 - Projects\BTA Oil Producers, LLC\03C2012053 - Mesa 8105 JVP #3H Produced Water Line\1 - Map File\Delineation Soil Sample Locations Map\

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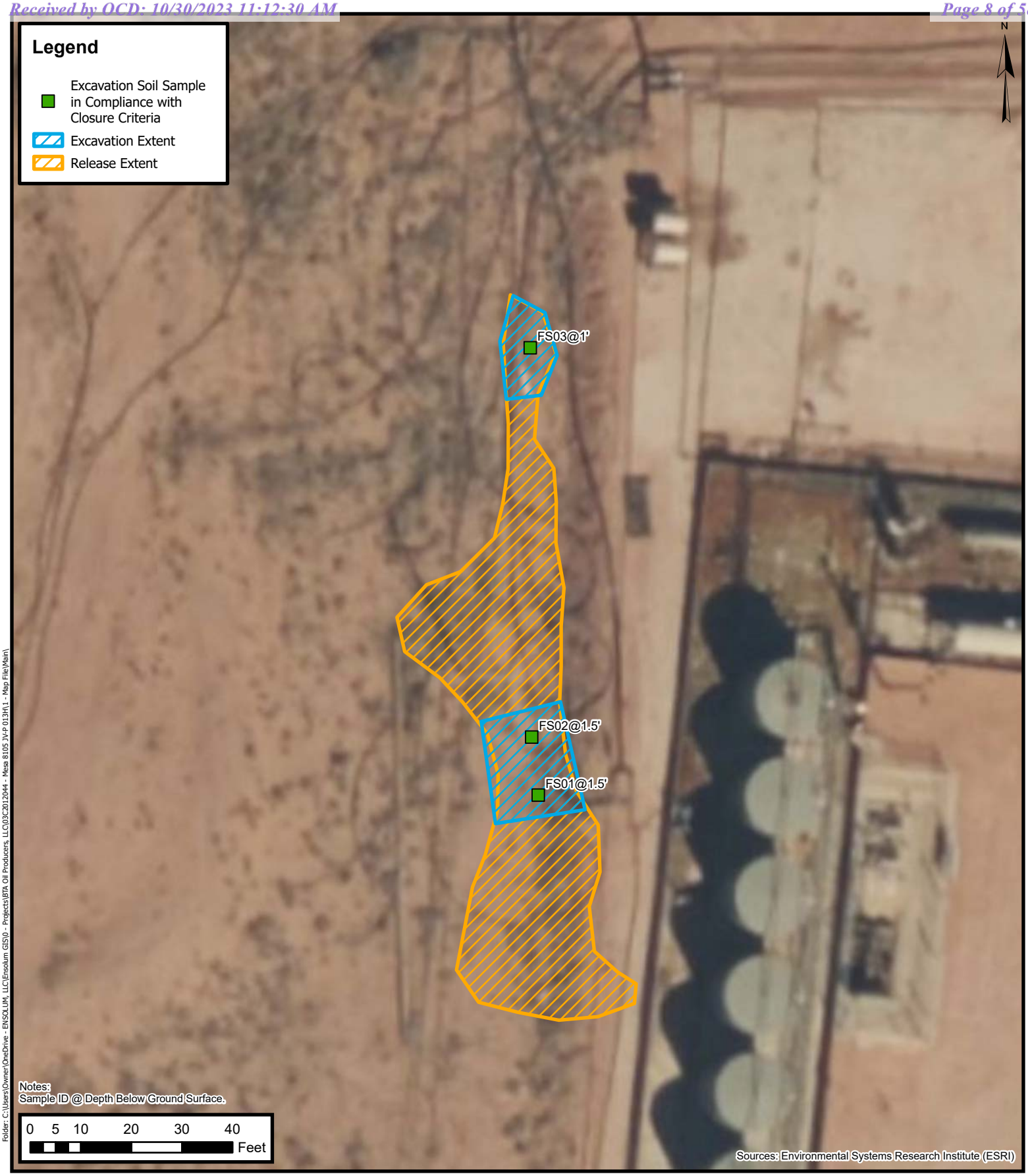
Delineation Soil Sample Locations

BTA Oil Producers, LLC
Mesa 8105 JVP #3H Produced Water Line
Incident Number: NRM2016045357
Unit M, Sec 1, T26S, R32E
Lea County, New Mexico

FIGURE 2



Folder: C:\Users\Owner\OneDrive - ENSOLUM, LLC\Ensolum GIS\0 - Projects\BTA Oil Producers, LLC\03C2012044 - Mesa 8105 JV-P 013H\1 - Map File\Main\

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Excavation Soil Sample Locations

BTA Oil Producers, LLC
Mesa 8105 JVP #3H Produced Water Line
Incident Number: NRM2016045357
Unit M, Sec 1, T26S, R32E
Lea County, New Mexico

FIGURE 3

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TABLES

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Mesa 8105 JVP #3H Produced Water Line
BTA Oil Producers, LLC
Lea County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			**10**	**50**	**NE**	**NE**	**NE**	**1,000**	**2,500**	**10,000**
Assessment Soil Samples										
SS01*	05/10/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	192
SS01A*	06/20/2023	3	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS02*	05/10/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	**736**
SS03*	05/10/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	**1,200**
SS04*	05/10/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	544
SS04A*	06/20/2023	3	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS05*	05/10/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0
SS05A*	06/20/2023	3	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS06*	05/10/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SS07*	05/10/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
SS08*	05/10/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	64.0
SS09*	05/10/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
Confirmation Soil Samples										
FS01*	06/21/2023	1.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	304
FS02*	06/21/2023	1.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
FS03*	06/21/2023	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

NMAC: New Mexico Administrative Code

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

Concentrations in **bold** exceed the NMOCD Table I Closure Criteria or reclamation standard where applicable.

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

Gray text indicates sample area excavated

* indicates sample was collected in area to be reclaimed after remediation is complete; reclamation standard for chloride in the top 4 feet is 600 mg/kg

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APPENDIX A

Referenced Well Records

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.): C-04485 OWL 362	WELL TAG ID NO.: NA	OSE FILE NO(S).: C-04485	
WELL OWNER NAME(S): KJ ENVIRONMENTAL		PHONE (OPTIONAL): 214-287-5875	
WELL OWNER MAILING ADDRESS: 500 MOSSELEY ROAD		CITY: CROSS ROADS	STATE: TX ZIP: 76227

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS		
	LATITUDE	3548560			N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND
	LONGITUDE	629271			W	* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHJIP, RANGE) WHERE AVAILABLE

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER			NAME OF WELL DRILLING COMPANY
WD 1186	RODNEY HAMMER			ENVIRO-DRILL, INC.
DRILLING STARTED: 10/05/2020	DRILLING ENDED: 10/06/2020	DEPTH OF COMPLETED WELL (FT): 55'	BORE HOLE DEPTH (FT): 55'	DEPTH WATER FIRST ENCOUNTERED (FT): None (Dry)

COMPLETED WELL IS: ☐ ARTESIAN ☒ DRY HOLE ☐ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT):

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☒ OTHER – SPECIFY: HSA

DEPTH (feet bgl) FROM	TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
55	45	8"	Screen	FJT	2"	2"	.010
45	0	8"	Blank	"	"	"	

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
55	43	8"	Sand 10/20	10	tremie
43	41	8"	Hole Plug	1	
41	0	8"	Grout	100 gal.	↓

OSE STATE ENGINEER OFFICE ~~2021 APR 1~~ 2020 NOV 20

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/17)

FILE NO. C-2599	POD NO.	TRN NO. 693367
LOCATION 2-2-4 2N-33E-10	WELL TAG ID NO.	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	10		Sand + gravel	Y (N)	
10	25		gravel + Caliche	Y (N)	
25	45		Caliche	Y (N)	
45	55		Sandstone	Y (N)	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

2020 NOV 19 2021 APR 6 PM 12:46

NEW MEXICO OFFICE OF THE STATE ENGINEER

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Rodney Hammer — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

10-14-20 — DATE

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/30/2017)

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 2 OF 2

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 320449103360101

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 320449103360101 25S.33E.31.44424

Lea County, New Mexico
Latitude 32°04'49", Longitude 103°36'01" NAD27
Land-surface elevation 3,383 feet above NAVD88
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats

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

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source measur
1981-03-25		D	62610		3189.23	NGVD29	P	Z		
1981-03-25		D	62611		3190.85	NAVD88	P	Z		
1981-03-25		D	72019	192.15			P	Z		
1986-03-18		D	62610		3191.59	NGVD29	1	Z		
1986-03-18		D	62611		3193.21	NAVD88	1	Z		
1986-03-18		D	72019	189.79			1	Z		

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static

Section	Code	Description
Status	P	Pumping
Method of measurement	Z	Other.
Measuring agency		Not determined
Source of measurement		Not determined
Water-level approval status	A	Approved for publication -- Processing and review completed.

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey
Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2023-05-19 14:18:07 EDT
0.28 0.24 nadww02

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APPENDIX B

Photographic Log

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Photographic Log

Client Name: BTA Oil Producers, LLC

Site Name: Mesa 8105 JVP #3H Produced Water Line

Incident#: NRM2016045357

Photograph: 1 Date: 5/10/2023
Description: Historical release area
View: Northeast

Photograph: 2 Date: 6/21/2023
Description: Completed excavation
View: Northwest

Photograph: 3 Date: 6/21/2023
Description: Completed excavation
View: West

Photograph: 4 Date: 6/21/2023
Description: Completed excavation
View: West

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APPENDIX C

Lithologic/Soil Sampling Logs

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	Sample Name: SS01	Date: 06/20/2023
	Site Name: Mesa 8105 JVP #3H Produced Water Line	
	Incident Number: NRM2016045357	
	Job Number: 03C201253	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: M. Roberts	Method: HVAC
Coordinates: (32.066017, -103.636905)	Hole Diameter: 6"	Total Depth: 3'

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 40% correction factor included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
Dry	168	0.0	N	SS01	1	1	SM-GM	(1') SAND: fine to medium grained, trace amounts of gravel, poorly graded, medium brown.
Dry	<168	0.0	N	-	-	2	SM-GM	(2') SAND: SAA
Dry	<168	0.0	N	SS01A	3	3	SM-GM	(3') SAND: SAA

TD @ 3' bgs

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	Sample Name: SS04	Date: 06/20/2023
	Site Name: Mesa 8105 JVP #3H Produced Water Line	
	Incident Number: NRM2016045357	
	Job Number: 03C201253	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: M. Roberts	Method: HVAC
Coordinates: (32.06588, -103.636890)	Hole Diameter: 6"	Total Depth: 3'

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 40% correction factor included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
Dry	168	0.0	N	SS01	1	1	SM-GM	(1') SAND: fine to medium grained, trace amounts of gravel, poorly graded, medium brown, no odor.
Dry	<168	0.0	N	-	-	2	SM-GM	(2') SAND: SAA
Dry	<168	0.0	N	SS01A	3	3	SM-GM	(3') SAND: fine to medium grained, trace amounts of gravel, poorly graded, dark brown, no odor.

TD @ 3' bgs

ENSOLUM

	Sample Name: SS05	Date: 06/20/2023
	Site Name: Mesa 8105 JVP #3H Produced Water Line	
	Incident Number: NRM2016045357	
	Job Number: 03C201253	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: M. Roberts	Method: HVAC
Coordinates: (32.065823, -103.636888)	Hole Diameter: 6"	Total Depth: 3'

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 40% correction factor included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
Dry	168	0.0	N	SS01	1	1	SM-GM	(1') SAND: fine to medium grained, trace amounts of gravel, poorly graded, medium brown, no odor.
Dry	<168	0.0	N	-	-	2	SM-GM	(2') SAND: SAA
Dry	<168	0.0	N	SS01A	3	3	SM-GM	(3') SAND: fine to medium grained, trace amounts of gravel, poorly graded, dark brown, no odor.

TD @ 3' bgs

ENSOLUM

APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation

CARDINAL Laboratories

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

May 17, 2023

HADLIE GREEN

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: MESA 8105 JVP #3H

Enclosed are the results of analyses for samples received by the laboratory on 05/12/23 14:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. 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 accreditated 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,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	05/12/2023	Sampling Date:	05/10/2023
Reported:	05/17/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H	Sampling Condition:	Cool & Intact
Project Number:	03C2012053	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.06583,-103.63670		

Sample ID: SS 01 0.5' (H232400-01)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/15/2023	ND	2.32	116	2.00	6.49	
Toluene*	<0.050	0.050	05/15/2023	ND	2.31	115	2.00	5.99	
Ethylbenzene*	<0.050	0.050	05/15/2023	ND	2.27	114	2.00	6.05	
Total Xylenes*	<0.150	0.150	05/15/2023	ND	6.91	115	6.00	6.96	
Total BTEX	<0.300	0.300	05/15/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	05/15/2023	ND	432	108	400	0.00	

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	05/15/2023	ND	205	103	200	4.83	
DRO >C10-C28*	<10.0	10.0	05/15/2023	ND	180	89.8	200	2.91	
EXT DRO >C28-C36	<10.0	10.0	05/15/2023	ND					

Surrogate: 1-Chlorooctane *103 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *115 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	05/12/2023	Sampling Date:	05/10/2023
Reported:	05/17/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H	Sampling Condition:	Cool & Intact
Project Number:	03C2012053	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.06583,-103.63670		

Sample ID: SS 02 0.5' (H232400-02)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/15/2023	ND	2.32	116	2.00	6.49	
Toluene*	<0.050	0.050	05/15/2023	ND	2.31	115	2.00	5.99	
Ethylbenzene*	<0.050	0.050	05/15/2023	ND	2.27	114	2.00	6.05	
Total Xylenes*	<0.150	0.150	05/15/2023	ND	6.91	115	6.00	6.96	
Total BTEX	<0.300	0.300	05/15/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**736**	16.0	05/15/2023	ND	432	108	400	0.00	

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	05/15/2023	ND	205	103	200	4.83	
DRO >C10-C28*	<10.0	10.0	05/15/2023	ND	180	89.8	200	2.91	
EXT DRO >C28-C36	<10.0	10.0	05/15/2023	ND					

Surrogate: 1-Chlorooctane *104 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *116 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	05/12/2023	Sampling Date:	05/10/2023
Reported:	05/17/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H	Sampling Condition:	Cool & Intact
Project Number:	03C2012053	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.06583,-103.63670		

Sample ID: SS 03 0.5' (H232400-03)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/15/2023	ND	2.32	116	2.00	6.49	
Toluene*	<0.050	0.050	05/15/2023	ND	2.31	115	2.00	5.99	
Ethylbenzene*	<0.050	0.050	05/15/2023	ND	2.27	114	2.00	6.05	
Total Xylenes*	<0.150	0.150	05/15/2023	ND	6.91	115	6.00	6.96	
Total BTEX	<0.300	0.300	05/15/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1200**	16.0	05/15/2023	ND	432	108	400	0.00	

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	05/15/2023	ND	205	103	200	4.83	
DRO >C10-C28*	<10.0	10.0	05/15/2023	ND	180	89.8	200	2.91	
EXT DRO >C28-C36	<10.0	10.0	05/15/2023	ND					

Surrogate: 1-Chlorooctane *101 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *113 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	05/12/2023	Sampling Date:	05/10/2023
Reported:	05/17/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H	Sampling Condition:	Cool & Intact
Project Number:	03C2012053	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.06583,-103.63670		

Sample ID: SS 04 0.5' (H232400-04)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/15/2023	ND	2.32	116	2.00	6.49	
Toluene*	<0.050	0.050	05/15/2023	ND	2.31	115	2.00	5.99	
Ethylbenzene*	<0.050	0.050	05/15/2023	ND	2.27	114	2.00	6.05	
Total Xylenes*	<0.150	0.150	05/15/2023	ND	6.91	115	6.00	6.96	
Total BTEX	<0.300	0.300	05/15/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**544**	16.0	05/15/2023	ND	432	108	400	0.00	

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	05/15/2023	ND	205	103	200	4.83	
DRO >C10-C28*	<10.0	10.0	05/15/2023	ND	180	89.8	200	2.91	
EXT DRO >C28-C36	<10.0	10.0	05/15/2023	ND					

Surrogate: 1-Chlorooctane *97.7 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *107 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	05/12/2023	Sampling Date:	05/10/2023
Reported:	05/17/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H	Sampling Condition:	Cool & Intact
Project Number:	03C2012053	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.06583,-103.63670		

Sample ID: SS 05 0.5' (H232400-05)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/15/2023	ND	2.32	116	2.00	6.49	
Toluene*	<0.050	0.050	05/15/2023	ND	2.31	115	2.00	5.99	
Ethylbenzene*	<0.050	0.050	05/15/2023	ND	2.27	114	2.00	6.05	
Total Xylenes*	<0.150	0.150	05/15/2023	ND	6.91	115	6.00	6.96	
Total BTEX	<0.300	0.300	05/15/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *71.5-134*

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	05/15/2023	ND	432	108	400	0.00	

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	05/15/2023	ND	205	103	200	4.83	
DRO >C10-C28*	<10.0	10.0	05/15/2023	ND	180	89.8	200	2.91	
EXT DRO >C28-C36	<10.0	10.0	05/15/2023	ND					

Surrogate: 1-Chlorooctane *105 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *116 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	05/12/2023	Sampling Date:	05/10/2023
Reported:	05/17/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H	Sampling Condition:	Cool & Intact
Project Number:	03C2012053	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.06583,-103.63670		

Sample ID: SS 06 0.5' (H232400-06)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/16/2023	ND	2.23	112	2.00	4.60	
Toluene*	<0.050	0.050	05/16/2023	ND	2.22	111	2.00	4.51	
Ethylbenzene*	<0.050	0.050	05/16/2023	ND	2.20	110	2.00	5.22	
Total Xylenes*	<0.150	0.150	05/16/2023	ND	6.69	112	6.00	5.03	
Total BTEX	<0.300	0.300	05/16/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	05/15/2023	ND	432	108	400	0.00	

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	05/15/2023	ND	205	103	200	4.83	
DRO >C10-C28*	<10.0	10.0	05/15/2023	ND	180	89.8	200	2.91	
EXT DRO >C28-C36	<10.0	10.0	05/15/2023	ND					

Surrogate: 1-Chlorooctane *108 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *119 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	05/12/2023	Sampling Date:	05/10/2023
Reported:	05/17/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H	Sampling Condition:	Cool & Intact
Project Number:	03C2012053	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.06583,-103.63670		

Sample ID: SS 07 0.5' (H232400-07)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/16/2023	ND	2.23	112	2.00	4.60	
Toluene*	<0.050	0.050	05/16/2023	ND	2.22	111	2.00	4.51	
Ethylbenzene*	<0.050	0.050	05/16/2023	ND	2.20	110	2.00	5.22	
Total Xylenes*	<0.150	0.150	05/16/2023	ND	6.69	112	6.00	5.03	
Total BTEX	<0.300	0.300	05/16/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	05/15/2023	ND	432	108	400	0.00	

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	05/15/2023	ND	205	103	200	4.83	
DRO >C10-C28*	<10.0	10.0	05/15/2023	ND	180	89.8	200	2.91	
EXT DRO >C28-C36	<10.0	10.0	05/15/2023	ND					

Surrogate: 1-Chlorooctane *97.1 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *107 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	05/12/2023	Sampling Date:	05/10/2023
Reported:	05/17/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H	Sampling Condition:	Cool & Intact
Project Number:	03C2012053	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.06583,-103.63670		

Sample ID: SS 08 0.5' (H232400-08)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/16/2023	ND	2.23	112	2.00	4.60	
Toluene*	<0.050	0.050	05/16/2023	ND	2.22	111	2.00	4.51	
Ethylbenzene*	<0.050	0.050	05/16/2023	ND	2.20	110	2.00	5.22	
Total Xylenes*	<0.150	0.150	05/16/2023	ND	6.69	112	6.00	5.03	
Total BTEX	<0.300	0.300	05/16/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	05/15/2023	ND	432	108	400	0.00	

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	05/15/2023	ND	205	103	200	4.83	
DRO >C10-C28*	<10.0	10.0	05/15/2023	ND	180	89.8	200	2.91	
EXT DRO >C28-C36	<10.0	10.0	05/15/2023	ND					

Surrogate: 1-Chlorooctane *92.1 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *102 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	05/12/2023	Sampling Date:	05/10/2023
Reported:	05/17/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H	Sampling Condition:	Cool & Intact
Project Number:	03C2012053	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.06583,-103.63670		

Sample ID: SS 09 0.5' (H232400-09)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/16/2023	ND	2.23	112	2.00	4.60	
Toluene*	<0.050	0.050	05/16/2023	ND	2.22	111	2.00	4.51	
Ethylbenzene*	<0.050	0.050	05/16/2023	ND	2.20	110	2.00	5.22	
Total Xylenes*	<0.150	0.150	05/16/2023	ND	6.69	112	6.00	5.03	
Total BTEX	<0.300	0.300	05/16/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	05/15/2023	ND	432	108	400	0.00	

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	05/15/2023	ND	205	103	200	4.83	
DRO >C10-C28*	<10.0	10.0	05/15/2023	ND	180	89.8	200	2.91	
EXT DRO >C28-C36	<10.0	10.0	05/15/2023	ND					

Surrogate: 1-Chlorooctane *92.7 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *101 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC	**BILL TO**
Project Manager: Hadlie Green	P.O. #:
Address: 3122 National Parks Hwy	Company: BTA Oil
City: Carlsbad State: NM Zip: 88220	Attn: Kevin Jones
Phone #: 432-557-8895 Fax #:	Address: 104 S Pecos St
Project #: 03C2012053 Project Owner: BTA Oil Producers	City: Midland
Project Name: Mesa 8105 JVP #3H	State: TX Zip: 79701
Project Location: 32.06583, -103.63670	Phone #: 432-312-2203
Sampler Name: Ronni Hayes	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING DATE	SAMPLING TIME	ANALYSIS REQUEST: BTEX	TPH	Cl-
H232400																		
1	SS01	0.5'	G	1			X					X		5/10/23	1235	X	X	X
2	SS02														1240			
3	SS03														1245			
4	SS04														1250			
5	SS05														1255			
6	SS06														1300			
7	SS07														1305			
8	SS08														1310			
9	SS09														1315			
																	MH	5/10/23

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Ronni Hayes	Date: 5-12-23 Time: 1435	Received By: Tamara Oldaker	Verbal Result: ☐ Yes ☐ No Add'l Phone #: All Results are emailed. Please provide Email address:
Relinquished By:	Date: Time:	Received By:	REMARKS:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C 4.4 Corrected Temp. °C 3.8	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) JC

Turnaround Time: Standard ☒ Rush ☐ Thermometer ID #113 Correction Factor -0.5°C

Bacteria (only) Sample Condition: Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No Observed Temp. °C Corrected Temp. °C

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

FORM-006 R 3.2 10/07/21

CARDINAL Laboratories

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

June 27, 2023

HADLIE GREEN

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: MESA 8105 JVP #3H PRODUCTION WATER LINE

Enclosed are the results of analyses for samples received by the laboratory on 06/23/23 9:29.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. 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 accreditated 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,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/27/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H PRODUCTION WAT	Sampling Condition:	Cool & Intact
Project Number:	03C2012	Sample Received By:	Shalyn Rodriguez
Project Location:	32.06583,-103.63670		

Sample ID: FS 01 1.5' (H233253-01)

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	06/24/2023	ND	2.32	116	2.00	9.06	
Toluene*	<0.050	0.050	06/24/2023	ND	2.25	113	2.00	8.28	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.19	109	2.00	7.07	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.59	110	6.00	6.62	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**304**	16.0	06/23/2023	ND	400	100	400	7.69	

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	06/23/2023	ND	173	86.4	200	0.328	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	163	81.6	200	0.0809	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *108 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *107 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/27/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H PRODUCTION WAT	Sampling Condition:	Cool & Intact
Project Number:	03C2012	Sample Received By:	Shalyn Rodriguez
Project Location:	32.06583,-103.63670		

Sample ID: FS 02 1.5' (H233253-02)

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	06/24/2023	ND	2.32	116	2.00	9.06	
Toluene*	<0.050	0.050	06/24/2023	ND	2.25	113	2.00	8.28	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.19	109	2.00	7.07	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.59	110	6.00	6.62	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/23/2023	ND	400	100	400	7.69	

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	06/23/2023	ND	173	86.4	200	0.328	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	163	81.6	200	0.0809	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *111 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *111 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
HADLIE GREEN
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	06/23/2023	Sampling Date:	06/21/2023
Reported:	06/27/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H PRODUCTION WAT	Sampling Condition:	Cool & Intact
Project Number:	03C2012	Sample Received By:	Shalyn Rodriguez
Project Location:	32.06583,-103.63670		

Sample ID: FS 03 1' (H233253-03)

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	06/24/2023	ND	2.32	116	2.00	9.06	
Toluene*	<0.050	0.050	06/24/2023	ND	2.25	113	2.00	8.28	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.19	109	2.00	7.07	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.59	110	6.00	6.62	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/23/2023	ND	400	100	400	7.69	

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	06/23/2023	ND	173	86.4	200	0.328	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	163	81.6	200	0.0809	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *117 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *114 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC	BILL TO
Project Manager: Hadlie Green	P.O. #:
Address: 3122 Nat'l Parks Hwy	Company: BTA Oil
City: Carlsbad State: NM Zip: 88220	Attn: Kelton Beaird
Phone #: 432-557-8895 Fax #:	Address: 104 S. Pecos St
Project #: 03C2012 Project Owner:	City: Midland
Project Name: ~~Mesa #1GH Flowline~~ MESA PRODUCTION WATER LINE 8103 JVP #3H	State: TX Zip: 79701
Project Location: 32.06583 -103.63670	Phone #:
Sampler Name: Meredith Roberts	Fax #:

FOR LAB USE ONLY					MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST			
Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX	Chlorides	TPH	
H233253																			
1	FS01	1.5'	G	1			X					X		6/21/23	0810	X	X	X	
2	FS02	1.5'	↓	↓			↓					↓		↓	0815	↓	↓	↓	
3	FS03	1'	↓	↓			↓					↓		↓	1020	↓	↓	↓	

MR

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Meredith	Date: 6.23.23 Time: 0929	Received By: S Rodriguez	Verbal Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	All Results are emailed. Please provide Email address: tmorrissey@ensolum.com mroberts@ensolum.com hgreen@ensolum.com
			REMARKS: Incident #: nrm2016045357
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C 0.4 Corrected Temp. °C -0.2	Sample Condition Cool Intact ☐ Yes ☑ Yes ☐ No ☐ No	CHECKED BY: (Initials) SR
Turnaround Time: Standard ☑ Rush ☐ Thermometer ID #113 Correction Factor -0.5°C	Bacteria (only) Sample Condition Cool Intact ☐ Yes ☐ Yes ☐ No ☐ No	Observed Temp. °C Corrected Temp. °C	

FORM-006 R 3.2 10/07/21

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

CARDINAL Laboratories

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

June 27, 2023

HADLIE GREEN

ENSOLUM, LLC

705 W WADLEY AVE.

MIDLAND, TX 79705

RE: MESA 8105 JVP #3H PRODUCED WATERLINE

Enclosed are the results of analyses for samples received by the laboratory on 06/23/23 9:29.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. 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 accreditated 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,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC
HADLIE GREEN
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received:	06/23/2023	Sampling Date:	06/20/2023
Reported:	06/27/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H PRODUCED WATER	Sampling Condition:	Cool & Intact
Project Number:	03C201203	Sample Received By:	Shalyn Rodriguez
Project Location:	32.06583,-103.63670		

Sample ID: SS 01 A 3 FT (H233254-01)

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	06/24/2023	ND	2.32	116	2.00	9.06	
Toluene*	<0.050	0.050	06/24/2023	ND	2.25	113	2.00	8.28	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.19	109	2.00	7.07	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.59	110	6.00	6.62	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	06/23/2023	ND	400	100	400	7.69	

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	06/23/2023	ND	173	86.4	200	0.328	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	163	81.6	200	0.0809	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *125 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *126 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC
HADLIE GREEN
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received:	06/23/2023	Sampling Date:	06/20/2023
Reported:	06/27/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H PRODUCED WATER	Sampling Condition:	Cool & Intact
Project Number:	03C201203	Sample Received By:	Shalyn Rodriguez
Project Location:	32.06583,-103.63670		

Sample ID: SS 04 A 3 FT (H233254-02)

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	06/24/2023	ND	2.32	116	2.00	9.06	
Toluene*	<0.050	0.050	06/24/2023	ND	2.25	113	2.00	8.28	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.19	109	2.00	7.07	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.59	110	6.00	6.62	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/23/2023	ND	400	100	400	7.69	

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	06/23/2023	ND	173	86.4	200	0.328	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	163	81.6	200	0.0809	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *132 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *132 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC
HADLIE GREEN
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received:	06/23/2023	Sampling Date:	06/20/2023
Reported:	06/27/2023	Sampling Type:	Soil
Project Name:	MESA 8105 JVP #3H PRODUCED WATER	Sampling Condition:	Cool & Intact
Project Number:	03C201203	Sample Received By:	Shalyn Rodriguez
Project Location:	32.06583,-103.63670		

Sample ID: SS 05 A 3 FT (H233254-03)

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	06/24/2023	ND	2.32	116	2.00	9.06	
Toluene*	<0.050	0.050	06/24/2023	ND	2.25	113	2.00	8.28	
Ethylbenzene*	<0.050	0.050	06/24/2023	ND	2.19	109	2.00	7.07	
Total Xylenes*	<0.150	0.150	06/24/2023	ND	6.59	110	6.00	6.62	
Total BTEX	<0.300	0.300	06/24/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/23/2023	ND	400	100	400	7.69	

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	06/23/2023	ND	173	86.4	200	0.328	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	163	81.6	200	0.0809	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane *115 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *114 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Ensolum, LLC	**BILL TO**
Project Manager: Haydlie Green	P.O. #:
Address: 601 North Marienfield	Company: BTA oil
City: Midland State: TX Zip: 79701	Attn: Kelton Beaird
Phone #: 432-557-8895 Fax #:	Address: 1045 pecos st.
Project #: 03C201203 Project Owner: BTA	City: Midland
Project Name: Mesa 8105 JUP #3H Produced water line	State: TX Zip: 79701
Project Location: 32.06583, -103.63670	Phone #:
Sampler Name: CD	Fax #:

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	TPH 8015	BTEX 8021	Chloride 300-4500 T: 6/23/23
H233254																		
1	SS01A	3 ft	G	1			X					X		6/20/23	0954	X	X	X
2	SS04A	3 ft	G	1			X					X		6/20/23	1030	X	X	X
3	SS05A	3ft	G	1			X					X		6/20/23	1051	X	X	X

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Cason Dillon	Date: 6/20/23 Time: 1558	Received By: Meaks	Verbal Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By: Meaks	Date: 6-23-23 Time: 0929	Received By: Rodriguez	All Results are emailed. Please provide Email address: ngreen@ensolum.com mroberts@ensolum.com tmorrissey@ensolum.com
			REMARKS:

Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C 0.4 Corrected Temp. °C -0.2	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) SR	Turnaround Time: Standard ☑ Rush ☐ Thermometer ID #113 Correction Factor -0.5°C	Bacteria (only) Sample Condition Cool: ☐ Yes ☐ No Intact: ☐ Yes ☐ No Observed Temp. °C Corrected Temp. °C

FORM-006 R 3.2 10/07/21

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

ENSOLUM

APPENDIX E

NMOCD Notifications

From: Enviro, OCD, EMNRD
To: Hadlie Green; Bratcher, Michael, EMNRD
Cc: Bratcher, Michael, EMNRD; Velez, Nelson, EMNRD
Subject: RE: [EXTERNAL] BTA - Sampling Notification - Week of 06/19/2023
Date: Friday, June 16, 2023 2:39:46 PM
Attachments: image005.jpg
image006.png
image007.png
image008.png
image009.png

[**EXTERNAL EMAIL**]

Hadlie,

Please be aware that notification requirements are **two business days**, per rule. You may proceed on your schedule. This, and all correspondence, should be included in the closure report to ensure inclusion in the project file.

JH

Jocelyn Harimon ● Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov
http:// **www.emnrd.nm.gov**

From: Hadlie Green <hgreen@ensolum.com>
Sent: Friday, June 16, 2023 10:54 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: Tacoma Morrissey <tmorrissey@ensolum.com>; Kelton Beaird <KBeaird@btaoil.com>
Subject: [EXTERNAL] BTA - Sampling Notification - Week of 06/19/2023

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

All,

BTA anticipates collecting confirmation samples at the following locations the week of June 19, 2023.

- Mesa 30 31 Tank Battery / nAPP2106930621

    - Sampling Date: 6/19/2023 @ 9:00 AM MST
- Mesa 8105 JVP #3 Produced Water Line / nRM2016045357
    - Sampling Date: 6/19-20/2023 @ 9:00 AM MST
- Mesa #16H Flowline / nAPP2123156473
    - Sampling Date: 6/21-22/2023 @ 9:00 AM MST
- Harroun Ranch #005 / nAPP2200455573
    - Sampling Date: 6/21/2023 @ 9:00 AM MST

Thank you,

Hadlie Green
Project Geologist
432-557-8895
hgreen@ensolum.com
Ensolum, LLC

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APPENDIX F

Final 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	NRM2016045357
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: BTA Oil Producers, LLC	OGRID: 260297
Contact Name: Bob Hall	Contact Telephone: 432-682-3753
Contact email: bhall@btaoil.com	Incident # *(assigned by OCD)*
Contact mailing address: 104 S. Pecos St., Midland, TX 79701	

Location of Release Source

Latitude: 32.06583° Longitude: -103.63670°
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Mesa 8105 JVP #3H Produced Water Line	Site Type: Flowline
Date Release Discovered: 5/21/2020	API# *(if applicable)* Nearest well: Mesa #3H API #30-025-41290

Unit Letter	Section	Township	Range	County
M	1	26S	32E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 16 BBL	Volume Recovered (bbls) 0 BBL
	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
The body of a check valve failed on the water flow line. This check valve was outside of secondary containment. As a result, 16 BBL of produced water was released from the raised location and down into a gully. Except in the area of the busted check valve, the produced water ran across the surface of the ground and soaked in. No water was recovered. Removal of the soil impacted by the produced water is nearly complete on the date of this filing. The produced water soaked into the soil about 6 inches deep.

The reported volume was determined by measuring the area of the "wetted" area from a drone picture. Then, using the field finding of an average 6 inches penetration, a calculated volume of the release was estimated to be 16 BBL of unrecovered produced water.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NRM2016045357
District RP	
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Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

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

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

Remediation of the area by removal of the produced water impacted soil is nearly complete as of the date of this filing (6/5/2020).

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: Bob Hall Title: Environmental Manager

Signature: Bob Hall Date: 6/5/2020

email: bhall@btaoil.com Telephone: 432-682-3753

OCD Only

Received by: Ramona Marcus Date: 6/8/2020

Mesa #003H
May 21, 2020

NRM2016045357

Location Mesa B #003H
API # 30-025-41290
Spill Date 5/21/2020

Spill Dimensions

ENTER - Length of Spill	35	**feet**
ENTER - Width of Spill	35	**feet**
ENTER - Saturation Depth of Spill	6	**inches**
ENTER - Porosity Factor	0.15	**decimal**

Oil Cut - Well Test / Vessel Throughput or Contents

Oil	0.5
Water	99.5
Calculated Oil Cut	0.005

Volume Recovered in Truck / Containment

ENTER - Recovered Oil	0	**BBL**
ENTER - Recovered Water	0	**BBL**

Calculated Values	*calculated*	
Release of Oil in Soil - Unrecovered	0	***BBL***
Release of Water in Soil - Unrecovered	16	***BBL***
Unrecovered Total Release	16	***BBL***

Calculated Values	*calculated*	
Total Release of Oil	0	***BBL***
Total Release of Water	16	***BBL***
Total Release	16	***BBL***

Types of Soil	Porosity Factor
Gravel	0.25
Sand	0.20
Clay/silt/sand Mix	0.15
Clay	0.05
Caliche	0.03
Unknown	0.25

(Length X Width X Depth X 1 ft/12 in) X Porosity / **5.615 ft^3 / BBL** **X** **Oil Cut (or Water Cut)**

State of New Mexico
Oil Conservation Division

Incident ID	NRM20160445357
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?	51-100 (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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Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NRM20160445357
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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: Kelton Beaird Title: Environmental Manager

Signature: Date: 10/23/2023

email: KBeaird@btaoil Telephone: 432-312-2203

OCD Only

Received by: Shelly Wells Date: 10/30/2023

State of New Mexico
Oil Conservation Division

Incident ID	NRM20160445357
District RP	
Facility ID	
Application ID	

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: Kelton Beaird Title: Environmental Manager

Signature: Date: 10/23/2023

email: KBeaird@btaoil Telephone: 432-312-2203

OCD Only

Received by: Shelly Wells Date: 10/30/2023

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: _____

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 280874

CONDITIONS

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 280874
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	2/15/2024