



September 28, 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
Chiso 14 State 8711 Flowline
Incident Number NRM2034960665
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, delineation, excavation, and soil sampling activities performed at the Chiso 14 State 8711 Flowline (Site). The purpose of the Site activities was to assess for the presence or absence of impacts to soil resulting from a historical release of produced water and crude oil at the Site. Based on field observations, field screening activities, and soil sample laboratory analytical results, BTA is submitting this *Closure Report*, describing Site assessment, delineation, and excavation activities that have occurred and requesting closure for Incident Number NRM2034960665.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit P, Section 14, Township 22 South, Range 34 East, in Lea County, New Mexico (32.38511°, -103.43559°) and is associated with oil and gas exploration and production operations on private land owned by Merchant Livestock Company.

On November 28, 2020, a leaking flowline resulted in the release of approximately 7 barrels (bbls) of crude oil and 12 bbls of produced water onto the well pad. Free-standing fluid was not recovered; however, saturated soil in the vicinity of the flowline was removed and stockpiled on pad to address soil impacts while the flowline was replaced. BTA reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form C-141 (Form C-141) on December 14, 2020. The release was assigned Incident Number NRM2034960665.

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 estimated to be less than 50 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 CP-01682, located approximately 527 feet south of the Site. The groundwater well has a reported depth to groundwater of 31 feet bgs and

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a total depth of 294 feet bgs. All wells used for depth to groundwater determination are depicted on Figure 1 and the associated well records are included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a riverine, located approximately 315 feet east of 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 less than 1,000 feet to a freshwater well or spring. The Site is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low 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): 100 mg/kg
- Chloride: 600 mg/kg

SITE ASSESSMENT ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On May 24 and May 30, 2023, Ensolum personnel visited the Site to evaluate the release extent based on information provided on the Form C-141 and visual observations. Six assessment soil samples (SS01 through SS06) were collected within and around the release extent at a depth of approximately 0.25 feet bgs to assess for the presence or absence of impacted soil resulting from the release. 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-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method SM4500.

Laboratory analytical results for assessment soil sample SS01, collected within the release area, indicated a chloride concentration at the ground surface exceeding the Closure Criteria. Laboratory analytical results for assessment soil sample SS02, collected within the release area, indicated all COC concentrations were complaint with the Site Closure Criteria. Laboratory analytical results for assessment samples SS04 through SS06, collected outside of the release extent, were complaint with the Site Closure Criteria and successfully defined the lateral extent of the release. Vertical delineation activities and excavation were warranted to determine the depth of impacts and to address the elevated chloride concentration.

DELINEATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On June 1, 2023, Ensolum personnel returned to the Site to complete vertical delineation activities to determine the depth of impacts identified during the initial Site assessment. Potholes were advanced via hydro-vacuum at the location of assessment samples SS01 and SS02. The potholes were advanced to a depth of 4 feet bgs. Soil from the boreholes was field screened for VOCs and chloride. Field screening

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results and observations were logged on lithologic/soil sampling logs, which are included in Appendix C. Based on field screening results, discrete delineation soil samples SS01A, SS01B, SS02A, and SS02B were collected from the potholes at depths of 1-foot and 4 feet bgs, respectively. 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 SS01A, SS02A, and SS02B indicated all COC concentrations were compliant with the Site Closure Criteria. Laboratory analytical results for SS01B, collected at a depth of 4 feet bgs, indicated the chloride concentration exceeded the Closure Criteria. Due to the elevated chloride concentrations in the vicinity of SS01, excavation activities were warranted to address the impacted soil.

EXCAVATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On June 14, 2023, Ensolum personnel were at the Site to oversee excavation activities based on laboratory analytical results for soil sample SS01. Excavation activities were performed utilizing a hydrovac and back-hoe. To direct excavation activities, soil was screened for VOCs and chloride. The excavation was completed to a depth of 4.5 feet bgs. Photographic documentation of the excavation activities 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 sidewall of the excavation extent. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Confirmation soil samples FS01 and FS02 were collected from the floor of the excavation at a depth of 4.5 feet bgs. Confirmation soil samples SW01 and SW02 were collected from the sidewalls of the excavation at depths ranging from the ground surface to 4.5 feet bgs. The excavation soil samples were collected, handled, and analyzed following the same procedures as described above.

Laboratory analytical results for excavation soil samples FS01, FS02, SW01, and SW02 indicated all COC concentrations were compliant with the Site Closure Criteria. The excavation extent and excavation soil sample locations are presented on Figure 3. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included as Appendix D.

The excavation area measured approximately 390 square feet. A total of approximately 65 cubic yards of impacted soil were removed during the excavation activities. The impacted soil was transported and properly disposed of at the OWL Landfill Services, LLC in Jal, New Mexico.

CLOSURE REQUEST

Site assessment and delineation activities were conducted at the Site to assess for the presence or absence of impacted soil resulting from the November 28, 2020, release of produced water and crude oil. Laboratory analytical results for the delineation soil samples indicated that elevated chloride concentrations were present within the release extent and the release was laterally and vertically delineated to the most stringent Table 1 Closure Criteria. All excavation soil samples collected from the final excavation extent indicated all COC concentrations were compliant with the Site Closure Criteria. Based on the soil sample analytical results, no further remediation was required.

Excavation of impacted soil has mitigated impacts at this Site. BTA believes the remedial actions completed are protective of human health, the environment, and groundwater. As such, BTA respectfully

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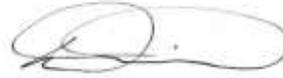
requests closure for Incident Number NRM2034960665. Notifications submitted to the NMOCD are included in Appendix E and the final Form C-141 is included in Appendix F.

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

Sincerely,
Ensolum, LLC



Meredith Roberts
Staff Geologist



Daniel R. Moir, PG
Senior Managing Geologist

cc: Kelton Beard, BTA
Merchant Livestock Company

Appendices:

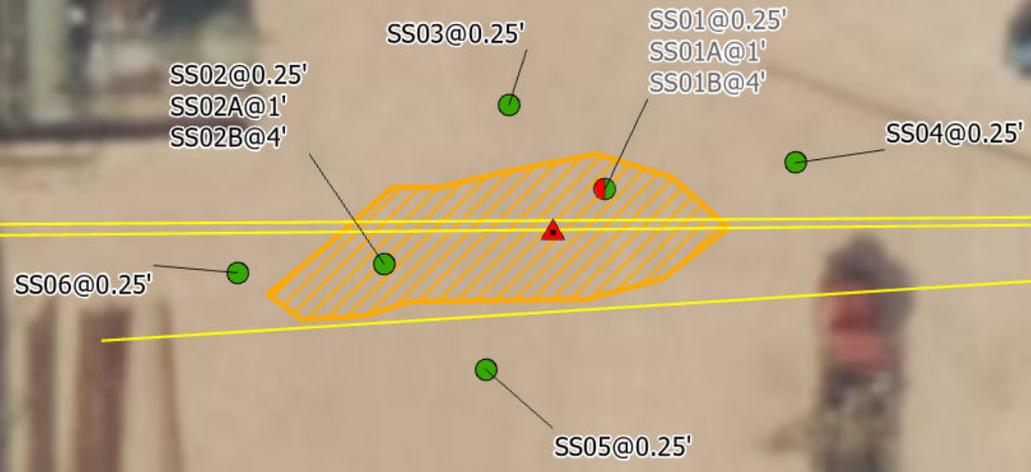
Figure 1	Site Receptor Map
Figure 2	Assessment Soil Sample Locations
Figure 3	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Referenced Well Records
Appendix B	Photographic Log
Appendix C	Lithologic/Soil Sampling Logs
Appendix D	Laboratory Analytical Reports & Chain-of-Custody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



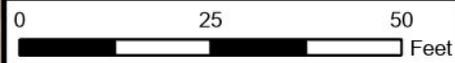
FIGURES

Legend

- ▲ Point of Release (POR)
- Oil and Gas Utility Line
- Release Extent
- Assessment Soil Sample in Compliance with Closure Criteria
- Assessment Soil Sample with Concentrations Previously Exceeding Closure Criteria



Notes:
 Sample ID @ Depth Below Ground/Surface.
 Samples in grey indicate samples were removed during excavation activities.



Sources: Environmental Systems Research Institute (ESRI)



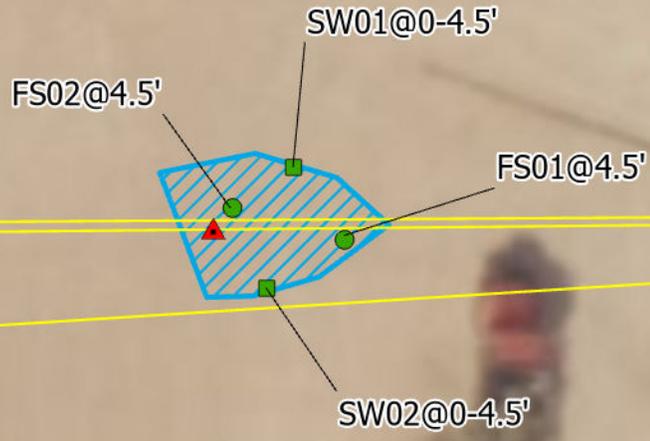
Assessment Soil Sample Locations

BTA Oil Producers, LLC
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 Unit P, Sec 14, T22S, R34E
 Lea County, New Mexico

FIGURE
2

Legend

- ▲ Point of Release
- Oil and Gas Utility Line
- Excavation Extent
- Excavation Sidewall
- Sample in Compliance with Closure Criteria
- Excavation Floor Sample in Compliance with Closure Criteria
- Excavation Floor Sample in Compliance with Closure Criteria



Notes:
Sample ID @ Depth Below Ground Surface.



Sources: Environmental Systems Research Institute (ESRI)



Excavation Soil Sample Locations

BTA Oil Producers, LLC
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 Unit P, Sec 14, T22S, R34E
 Lea County, New Mexico

FIGURE
3



TABLES



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
 Chiso 14 State 8711 Flowline
 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	NE	100	600
Assessment Soil Samples										
SS01	05/24/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	3,400
SS01A	06/01/2023	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	64.0
SS01B	06/01/2023	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	688
SS02	05/24/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	432
SS02A	06/01/2023	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	64.0
SS02B	06/01/2023	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	96.0
SS03	05/30/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
SS04	05/30/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SS05	05/30/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0
SS06	05/30/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
Excavation Soil Samples										
FS01	06/14/2023	4.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	160
FS02	06/14/2023	4.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	272
SW01	06/14/2023	0 - 4.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	128
SW02	06/14/2023	0 - 4.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	160

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

NMAC: New Mexico Administrative Cod

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



APPENDIX A

Referenced Well Records



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

2019 SEP 10 10:51 AM
 STATE ENGINEER
 RECORDS

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) CP-1682-POD1 South 2		WELL TAG ID NO. 2062A		OSE FILE NO(S) CP-1682	
	WELL OWNER NAME(S) Merchant Livestock Company/Glenn's Water Well Service, Inc.				PHONE (OPTIONAL) 575-398-2424	
	WELL OWNER MAILING ADDRESS PO Box 692				CITY Tatum	STATE ZIP NM 88267
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 22	SECONDS 59.66	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84
LONGITUDE -103 26 7.87 W DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE NW1/4 NE1/4 NE1/4 Section 23, Township 22 South, Range 34 East on Merchant Livestock Company Land						

2. DRILLING & CASING INFORMATION	LICENSE NO. WD 421		NAME OF LICENSED DRILLER Corky Glenn			NAME OF WELL DRILLING COMPANY Glenn's Water Well Service, Inc.		
	DRILLING STARTED 09/10/19	DRILLING ENDED 09/13/19	DEPTH OF COMPLETED WELL (FT) 294	BORE HOLE DEPTH (FT) 294	DEPTH WATER FIRST ENCOUNTERED (FT) 42			
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input type="checkbox"/> DRY HOLE <input checked="" type="checkbox"/> SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) 31		
	DRILLING FLUID: <input type="checkbox"/> AIR <input checked="" type="checkbox"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:							
	DEPTH (feet bgl)		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)
	FROM	TO						
	0	22.5'	20"	Steel 12 3/4" OD	Plain End	12.25	.25	--
	0	294'	20"	Steel Casing 8 5/8" / 8.625" OD	Plain End	8.125	.25	1/8"
				Bottom 252 Perforated				

3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
	FROM	TO				
	0	22.5'	20"	Cemented Redi Mix	Fill to Top	Top Pour
	0	294'	20"	3/8" Veilmore Gravel	18.52 CY	Top Pour

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/30/17)

FILE NO. CP-1682	POD NO. 1	TRN NO. 632044
LOCATION 212 Sec 23 T22S R 34E	WELL TAG ID NO. 2062A	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL	DEPTH (feet bgl)		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)
	FROM	TO				
	0	6	6	Soil	Y ✓ N	
	6	9	3	Soil & Sand	Y ✓ N	
	9	16	7	Caliche	Y ✓ N	
	16	20	4	Clay & Sand	Y ✓ N	
	20	42	22	Red Clay	Y ✓ N	
	42	56	14	Brown Sandrock	✓ Y N	5.00
	56	63	7	Red Clay	Y ✓ N	
	63	68	5	White & Green Clay	Y ✓ N	
	68	92	24	Brown Sandrock	✓ Y N	9.00
	92	122	30	Red Clay	Y ✓ N	
	122	128	6	Brown Shale	Y ✓ N	
	128	165	37	Red Clay with Stringers of Brown Sandrock	Y ✓ N	
	165	187	22	Brown Shale	Y ✓ N	
	187	225	38	Red Clay & Red Shale	Y ✓ N	
	225	242	17	Brown Shale	Y ✓ N	
	242	274	32	Blue Sandrock & Shale	✓ Y N	1.00
	274	294	20	Red Shale	Y ✓ N	
					Y N	
					Y N	
					Y N	
					Y N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: <input checked="" type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input type="checkbox"/> OTHER - SPECIFY:					TOTAL ESTIMATED WELL YIELD (gpm): 15.00	

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: Travis Glenn License # 1719 (Glenn's Water Well Service, Inc.)		

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 30 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 _____ SIGNATURE OF DRILLER / PRINT SIGNEE NAME	Corky Glenn _____ DATE

FOR OSE INTERNAL USE

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

FILE NO. CP-1682	POD NO. 1	TRN NO. 632044	
LOCATION 212 Sec 23 T22S R34E	WELL TAG ID NO. 2062A	PAGE 2 OF 2	



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Groundwater

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Groundwater levels for New Mexico

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 Important: [Next Generation Monitoring Location Page](#)

Search Results -- 1 sites found

Agency code = usgs

site_no list =

- 322231103262601

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 322231103262601 22S.34E.23.23131

Lea County, New Mexico

Latitude 32°22'47.6", Longitude 103°26'25.3" NAD83

Land-surface elevation 3,452 feet above NAVD88

The depth of the well is 60 feet below land surface.

This well is completed in the Other aquifers (N9999OTHER) national aquifer.

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

Output formats

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

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum
1968-06-10		D	62610		3425.15
1968-06-10		D	62611		3426.75
1968-06-10		D	72019	25.25	
1971-09-08		D	62610		3423.42
1971-09-08		D	62611		3425.02
1971-09-08		D	72019	26.98	
1976-12-16		D	62610		3426.10
1976-12-16		D	62611		3427.70
1976-12-16		D	72019	24.30	
1981-03-18		D	62610		3427.03
1981-03-18		D	62611		3428.63
1981-03-18		D	72019	23.37	
1986-04-10		D	62610		3427.57

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum
1986-04-10		D	62611		3429.17
1986-04-10		D	72019	22.83	
1991-05-03		D	62610		3427.87
1991-05-03		D	62611		3429.47
1991-05-03		D	72019	22.53	
1996-02-21		D	62610		3428.27
1996-02-21		D	62611		3429.87
1996-02-21		D	72019	22.13	
2015-12-18	21:30 UTC	m	62610		3433.01
2015-12-18	21:30 UTC	m	62611		3434.61
2015-12-18	21:30 UTC	m	72019	17.39	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level date-time accuracy	m	Date is accurate to the Minute
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

Section	Code	Description
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Status	P	Pumping
Method of measurement	S	Steel-tape measurement.
Method of measurement	Z	Other.
Measuring agency		Not determined
Measuring agency	USGS	U.S. Geological Survey
Source of measurement		Not determined
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

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Title: Groundwater for New Mexico: Water Levels

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



Page Contact Information: [New Mexico Water Data Maintainer](#)

Page Last Modified: 2023-08-02 14:12:21 EDT

0.37 0.33 nadww02



APPENDIX B

Photographic Log



Photographic Log
BTA Oil Producers, LLC
Chiso 14 State 8711 Flowline
Incident Number NRM2034960665



Photograph: 1 Date: 5/24/2023
Description: Initial assessment activities
View: East

Photograph: 2 Date: 6/1/2023
Description: Delineation activities
View: West



Photograph: 3 Date: 6/14/2023
Description: Excavation activities
View: Southeast

Photograph: 4 Date: 6/14/2023
Description: Excavation activities
View: Southeast



APPENDIX C

Lithologic Soil Sampling Logs

								Sample Name: SS01	Date: 6/1/2023
								Site Name: Chiso 14 State 8711 Flowline	
								Incident Number: nRM2034960665	
								Job Number: 03C2012058	
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: MR	Method: Hydrovac
Coordinates: 32.385143, -103.435551								Hole Diameter: NA	Total Depth: 4'
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. A 40% error factor is included in all chloride screenings.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions	
						0	SP-SM	0-4' SAND with silt, medium brown, med to fine grained, poorly sorted, no stain, no odor, moist.	
M	<173.6	0.0	N	SS01A	1	1			
M	<173.6	0.0	N			2			
M	<173.6	0.0	N			3			
M	<173.6	0.2	N	SS01A	4	4		Total Depth @ 4'	
						TD			

								Sample Name: SS02		Date: 6/1/2023	
								Site Name: Chiso 14 State 8711 Flowline			
								Incident Number: nRM2034960665			
								Job Number: 03C2012058			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: MR		Method: Hydrovac	
Coordinates: 32.385118, -103.435645						Hole Diameter: NA		Total Depth: 4'			
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. A 40% error factor is included in all chloride screenings.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
						0	SP-SM	0-4' SAND with silt, medium brown, med to fine grained, poorly sorted, no stain, no odor, moist.			
M	<173.6	0.2	N	SS02A	1	1					
M	<173.6	0.1	N			2					
M	<173.6	0.3	N			3					
M	<173.6	0	N	SS02B	4	4					
						TD		Total Depth @ 4'			



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation



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

June 01, 2023

HADLIE GREEN

ENSOLUM, LLC

705 W WADLEY AVE.

MIDLAND, TX 79705

RE: CHISO 14 STATE 8711 FLOWLINE

Enclosed are the results of analyses for samples received by the laboratory on 05/26/23 12:05.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	05/26/2023	Sampling Date:	05/24/2023
Reported:	06/01/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.38511,-103.43559		

Sample ID: SS 01 0.25' (H232705-01)

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	05/27/2023	ND	2.01	101	2.00	0.179	
Toluene*	<0.050	0.050	05/27/2023	ND	2.06	103	2.00	0.733	
Ethylbenzene*	<0.050	0.050	05/27/2023	ND	2.03	101	2.00	0.0765	
Total Xylenes*	<0.150	0.150	05/27/2023	ND	6.30	105	6.00	1.20	
Total BTEX	<0.300	0.300	05/27/2023	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3400	16.0	05/30/2023	ND	416	104	400	7.41	

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	05/30/2023	ND	199	99.5	200	3.39	
DRO >C10-C28*	<10.0	10.0	05/30/2023	ND	181	90.6	200	22.0	
EXT DRO >C28-C36	<10.0	10.0	05/30/2023	ND					

Surrogate: 1-Chlorooctane 94.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 103 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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:	05/26/2023	Sampling Date:	05/24/2023
Reported:	06/01/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.38511,-103.43559		

Sample ID: SS 02 0.25' (H232705-02)

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	05/27/2023	ND	2.01	101	2.00	0.179	
Toluene*	<0.050	0.050	05/27/2023	ND	2.06	103	2.00	0.733	
Ethylbenzene*	<0.050	0.050	05/27/2023	ND	2.03	101	2.00	0.0765	
Total Xylenes*	<0.150	0.150	05/27/2023	ND	6.30	105	6.00	1.20	
Total BTEX	<0.300	0.300	05/27/2023	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	05/30/2023	ND	416	104	400	7.41	

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	05/30/2023	ND	199	99.5	200	3.39	
DRO >C10-C28*	<10.0	10.0	05/30/2023	ND	181	90.6	200	22.0	
EXT DRO >C28-C36	<10.0	10.0	05/30/2023	ND					

Surrogate: 1-Chlorooctane 91.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 99.2 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-04 The RPD for the BS/BSD was outside of historical limits.
ND Analyte NOT DETECTED at or above the reporting limit
RPD Relative Percent Difference
** Samples not received at proper temperature of 6°C or below.
*** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on an as received basis (wet) unless otherwise noted on report

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*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC Project Manager: Hadlie Green Address: 601 N. Marientfield St. STE 400 City: Midland State: TX Zip: 79701 Phone #: 432-557-8895 Fax #: Project #: 03C2012058 Project Owner: Project Name: Chiso 14 State 8711 Flowline Project Location: 32.38511, -103.43559 Sampler Name: Dmitry Nikanorov		BILL TO P.O. #: Company: BTA Oil Attn: Kevin Jones Address: 104 S Peccos St City: Midland, State: TX Zip: 79701 Phone #: 432-312-2203 Fax #:		ANALYSIS REQUEST	
FOR LAB USE ONLY Lab I.D.: H2327105 Sample I.D.: 1 S S O 1 2 S S O 2 Sample Depth (feet): 0.25' 0.25'		(G)RAB OR (C)OMP. # CONTAINERS G 1 G 1		MATRIX GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER : ACID/BASE: ICE / COOL OTHER :	
DATE: 5/24/23 TIME: 0725 RECEIVED BY: [Signature]		DATE: 5/24/23 TIME: 1510 RECEIVED BY: [Signature]		DATE: 5/24/23 TIME: 1520	
Relinquished By: [Signature] Relinquished By: [Signature]		Received By: [Signature]		TPH BTEX CHLORIDES	
Delivered By: (Circle One) UPS - Bus - Other:		Observed Temp. °C: 6.4 Corrected Temp. °C: 5.8		Turnaround Time: Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/> Thermometer ID #113 Correction Factor -0.1°C	
Sample Condition: Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Sample Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		CHECKED BY: [Signature] (Initials)		Bacteria (only) Sample Condition: Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No Observed Temp. °C Corrected Temp. °C	
REMARKS: Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Phone #:		All Results are emailed. Please provide Email address: hgreen@ensolum.com dnikanorov@ensolum.com		Add'l Phone #:	

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



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

June 02, 2023

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

RE: CHISO 14 STATE 8711 FLOWLINE

Enclosed are the results of analyses for samples received by the laboratory on 05/31/23 13:00.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene
Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	05/31/2023	Sampling Date:	05/30/2023
Reported:	06/02/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Shalyn Rodriguez
Project Location:	BTA 32.38511,-103.43559		

Sample ID: SS 03 0.25' (H232761-01)

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	06/01/2023	ND	2.04	102	2.00	8.36	
Toluene*	<0.050	0.050	06/01/2023	ND	2.10	105	2.00	8.54	
Ethylbenzene*	<0.050	0.050	06/01/2023	ND	2.03	102	2.00	8.51	
Total Xylenes*	<0.150	0.150	06/01/2023	ND	6.33	105	6.00	6.80	
Total BTEX	<0.300	0.300	06/01/2023	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	48.0	16.0	06/01/2023	ND	384	96.0	400	4.08	

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	05/31/2023	ND	215	107	200	2.74	
DRO >C10-C28*	<10.0	10.0	05/31/2023	ND	216	108	200	4.55	
EXT DRO >C28-C36	<10.0	10.0	05/31/2023	ND					

Surrogate: 1-Chlorooctane 101 % 48.2-134

Surrogate: 1-Chlorooctadecane 107 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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:	05/31/2023	Sampling Date:	05/30/2023
Reported:	06/02/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Shalyn Rodriguez
Project Location:	BTA 32.38511,-103.43559		

Sample ID: SS 04 0.25' (H232761-02)

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	06/01/2023	ND	2.04	102	2.00	8.36		
Toluene*	<0.050	0.050	06/01/2023	ND	2.10	105	2.00	8.54		
Ethylbenzene*	<0.050	0.050	06/01/2023	ND	2.03	102	2.00	8.51		
Total Xylenes*	<0.150	0.150	06/01/2023	ND	6.33	105	6.00	6.80		
Total BTEX	<0.300	0.300	06/01/2023	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	32.0	16.0	06/01/2023	ND	416	104	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	06/01/2023	ND	215	107	200	2.74		
DRO >C10-C28*	<10.0	10.0	06/01/2023	ND	216	108	200	4.55		
EXT DRO >C28-C36	<10.0	10.0	06/01/2023	ND						

Surrogate: 1-Chlorooctane 84.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 83.8 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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:	05/31/2023	Sampling Date:	05/30/2023
Reported:	06/02/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Shalyn Rodriguez
Project Location:	BTA 32.38511,-103.43559		

Sample ID: SS 05 0.25' (H232761-03)

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	06/01/2023	ND	2.04	102	2.00	8.36		
Toluene*	<0.050	0.050	06/01/2023	ND	2.10	105	2.00	8.54		
Ethylbenzene*	<0.050	0.050	06/01/2023	ND	2.03	102	2.00	8.51		
Total Xylenes*	<0.150	0.150	06/01/2023	ND	6.33	105	6.00	6.80		
Total BTEX	<0.300	0.300	06/01/2023	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	80.0	16.0	06/01/2023	ND	416	104	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	06/01/2023	ND	215	107	200	2.74		
DRO >C10-C28*	<10.0	10.0	06/01/2023	ND	216	108	200	4.55		
EXT DRO >C28-C36	<10.0	10.0	06/01/2023	ND						

Surrogate: 1-Chlorooctane 110 % 48.2-134

Surrogate: 1-Chlorooctadecane 109 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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:	05/31/2023	Sampling Date:	05/30/2023
Reported:	06/02/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Shalyn Rodriguez
Project Location:	BTA 32.38511,-103.43559		

Sample ID: SS 06 0.25' (H232761-04)

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	06/01/2023	ND	2.04	102	2.00	8.36	
Toluene*	<0.050	0.050	06/01/2023	ND	2.10	105	2.00	8.54	
Ethylbenzene*	<0.050	0.050	06/01/2023	ND	2.03	102	2.00	8.51	
Total Xylenes*	<0.150	0.150	06/01/2023	ND	6.33	105	6.00	6.80	
Total BTEX	<0.300	0.300	06/01/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	06/01/2023	ND	416	104	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	06/01/2023	ND	215	107	200	2.74	
DRO >C10-C28*	<10.0	10.0	06/01/2023	ND	216	108	200	4.55	
EXT DRO >C28-C36	<10.0	10.0	06/01/2023	ND					

Surrogate: 1-Chlorooctane 113 % 48.2-134

Surrogate: 1-Chlorooctadecane 112 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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

June 05, 2023

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

RE: CHISO 14 STATE 8711 FLOWLINE

Enclosed are the results of analyses for samples received by the laboratory on 06/02/23 12:35.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Mike Snyder". The signature is fluid and cursive, with the first name "Mike" and last name "Snyder" clearly distinguishable.

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



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:	06/02/2023	Sampling Date:	06/01/2023
Reported:	06/05/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Shalyn Rodriguez
Project Location:	BTA 32.38511,-103.43559		

Sample ID: SS 01A 1' (H232802-01)

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	06/02/2023	ND	2.02	101	2.00	5.90	
Toluene*	<0.050	0.050	06/02/2023	ND	2.00	99.8	2.00	5.94	
Ethylbenzene*	<0.050	0.050	06/02/2023	ND	2.06	103	2.00	6.20	
Total Xylenes*	<0.150	0.150	06/02/2023	ND	6.15	102	6.00	6.41	
Total BTEX	<0.300	0.300	06/02/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 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	06/05/2023	ND	448	112	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	06/02/2023	ND	188	93.8	200	4.34	
DRO >C10-C28*	<10.0	10.0	06/02/2023	ND	160	80.0	200	1.25	
EXT DRO >C28-C36	<10.0	10.0	06/02/2023	ND					

Surrogate: 1-Chlorooctane 81.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 83.0 % 49.1-148

Cardinal Laboratories

* = Accredited Analyte

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



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:	06/02/2023	Sampling Date:	06/01/2023
Reported:	06/05/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Shalyn Rodriguez
Project Location:	BTA 32.38511,-103.43559		

Sample ID: SS 01B 4' (H232802-02)

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	06/02/2023	ND	2.02	101	2.00	5.90	
Toluene*	<0.050	0.050	06/02/2023	ND	2.00	99.8	2.00	5.94	
Ethylbenzene*	<0.050	0.050	06/02/2023	ND	2.06	103	2.00	6.20	
Total Xylenes*	<0.150	0.150	06/02/2023	ND	6.15	102	6.00	6.41	
Total BTEX	<0.300	0.300	06/02/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 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	688	16.0	06/05/2023	ND	448	112	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	06/02/2023	ND	188	93.8	200	4.34	
DRO >C10-C28*	<10.0	10.0	06/02/2023	ND	160	80.0	200	1.25	
EXT DRO >C28-C36	<10.0	10.0	06/02/2023	ND					

Surrogate: 1-Chlorooctane 86.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 88.7 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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



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: 06/02/2023
 Reported: 06/05/2023
 Project Name: CHISO 14 STATE 8711 FLOWLINE
 Project Number: 03C2012058
 Project Location: BTA 32.38511,-103.43559

Sampling Date: 06/01/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 02A 1' (H232802-03)

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	06/02/2023	ND	2.02	101	2.00	5.90	
Toluene*	<0.050	0.050	06/02/2023	ND	2.00	99.8	2.00	5.94	
Ethylbenzene*	<0.050	0.050	06/02/2023	ND	2.06	103	2.00	6.20	
Total Xylenes*	<0.150	0.150	06/02/2023	ND	6.15	102	6.00	6.41	
Total BTEX	<0.300	0.300	06/02/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 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	06/05/2023	ND	448	112	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	06/02/2023	ND	188	93.8	200	4.34	
DRO >C10-C28*	<10.0	10.0	06/02/2023	ND	160	80.0	200	1.25	
EXT DRO >C28-C36	<10.0	10.0	06/02/2023	ND					

Surrogate: 1-Chlorooctane 84.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 86.1 % 49.1-148

Cardinal Laboratories

* = Accredited Analyte

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



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:	06/02/2023	Sampling Date:	06/01/2023
Reported:	06/05/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Shalyn Rodriguez
Project Location:	BTA 32.38511,-103.43559		

Sample ID: SS 02B 4' (H232802-04)

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	06/02/2023	ND	2.02	101	2.00	5.90	
Toluene*	<0.050	0.050	06/02/2023	ND	2.00	99.8	2.00	5.94	
Ethylbenzene*	<0.050	0.050	06/02/2023	ND	2.06	103	2.00	6.20	
Total Xylenes*	<0.150	0.150	06/02/2023	ND	6.15	102	6.00	6.41	
Total BTEX	<0.300	0.300	06/02/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	06/05/2023	ND	448	112	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	06/02/2023	ND	188	93.8	200	4.34	
DRO >C10-C28*	<10.0	10.0	06/02/2023	ND	160	80.0	200	1.25	
EXT DRO >C28-C36	<10.0	10.0	06/02/2023	ND					

Surrogate: 1-Chlorooctane 90.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 92.5 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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



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

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Handwritten signature of Mike Snyder

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



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

June 20, 2023

HADLIE GREEN

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: CHISO 14 STATE 8711 FLOWLINE

Enclosed are the results of analyses for samples received by the laboratory on 06/16/23 9:05.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	06/16/2023	Sampling Date:	06/14/2023
Reported:	06/20/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.38496,-103.43480		

Sample ID: FS 01 4.5' (H233122-01)

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	06/20/2023	ND	2.09	105	2.00	10.8	
Toluene*	<0.050	0.050	06/20/2023	ND	1.99	99.3	2.00	7.16	
Ethylbenzene*	<0.050	0.050	06/20/2023	ND	1.95	97.6	2.00	4.22	
Total Xylenes*	<0.150	0.150	06/20/2023	ND	5.93	98.8	6.00	4.28	
Total BTEX	<0.300	0.300	06/20/2023	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	160	16.0	06/19/2023	ND	432	108	400	3.64	

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	06/19/2023	ND	170	85.2	200	3.46	
DRO >C10-C28*	<10.0	10.0	06/19/2023	ND	180	89.8	200	3.28	
EXT DRO >C28-C36	<10.0	10.0	06/19/2023	ND					

Surrogate: 1-Chlorooctane 119 % 48.2-134

Surrogate: 1-Chlorooctadecane 122 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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:	06/16/2023	Sampling Date:	06/14/2023
Reported:	06/20/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.38496,-103.43480		

Sample ID: FS 02 4.5' (H233122-02)

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	06/20/2023	ND	2.19	110	2.00	2.44	
Toluene*	<0.050	0.050	06/20/2023	ND	2.17	109	2.00	0.770	
Ethylbenzene*	<0.050	0.050	06/20/2023	ND	2.17	109	2.00	0.449	
Total Xylenes*	<0.150	0.150	06/20/2023	ND	6.34	106	6.00	0.438	
Total BTEX	<0.300	0.300	06/20/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	06/19/2023	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	06/19/2023	ND	170	85.2	200	3.46	
DRO >C10-C28*	<10.0	10.0	06/19/2023	ND	180	89.8	200	3.28	
EXT DRO >C28-C36	<10.0	10.0	06/19/2023	ND					

Surrogate: 1-Chlorooctane 115 % 48.2-134

Surrogate: 1-Chlorooctadecane 117 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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:	06/16/2023	Sampling Date:	06/14/2023
Reported:	06/20/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.38496,-103.43480		

Sample ID: SW 01 0-4.5' (H233122-03)

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	06/20/2023	ND	2.19	110	2.00	2.44	
Toluene*	<0.050	0.050	06/20/2023	ND	2.17	109	2.00	0.770	
Ethylbenzene*	<0.050	0.050	06/20/2023	ND	2.17	109	2.00	0.449	
Total Xylenes*	<0.150	0.150	06/20/2023	ND	6.34	106	6.00	0.438	
Total BTEX	<0.300	0.300	06/20/2023	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	128	16.0	06/19/2023	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	06/19/2023	ND	170	85.2	200	3.46	
DRO >C10-C28*	<10.0	10.0	06/19/2023	ND	180	89.8	200	3.28	
EXT DRO >C28-C36	<10.0	10.0	06/19/2023	ND					

Surrogate: 1-Chlorooctane 112 % 48.2-134

Surrogate: 1-Chlorooctadecane 114 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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:	06/16/2023	Sampling Date:	06/14/2023
Reported:	06/20/2023	Sampling Type:	Soil
Project Name:	CHISO 14 STATE 8711 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	03C2012058	Sample Received By:	Tamara Oldaker
Project Location:	BTA 32.38496,-103.43480		

Sample ID: SW 02 0-4.5' (H233122-04)

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	06/20/2023	ND	2.19	110	2.00	2.44	
Toluene*	<0.050	0.050	06/20/2023	ND	2.17	109	2.00	0.770	
Ethylbenzene*	<0.050	0.050	06/20/2023	ND	2.17	109	2.00	0.449	
Total Xylenes*	<0.150	0.150	06/20/2023	ND	6.34	106	6.00	0.438	
Total BTEX	<0.300	0.300	06/20/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	06/19/2023	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	06/19/2023	ND	170	85.2	200	3.46	
DRO >C10-C28*	<10.0	10.0	06/19/2023	ND	180	89.8	200	3.28	
EXT DRO >C28-C36	<10.0	10.0	06/19/2023	ND					

Surrogate: 1-Chlorooctane 125 % 48.2-134

Surrogate: 1-Chlorooctadecane 128 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

ANALYSIS REQUEST

BILL TO

P.O. #: _____

Company: BTA Oil

Attn: Keaton Baird

Address: 104 S. Peuss St

City: Midland

State: TX Zip: 79701

Phone #: _____
Fax #: _____

Project Manager: Hadlie Green
Address: 3122 Nati Parks Hwy
City: Carlsbad State: NM Zip: 88230
Phone #: 432-557-8895 Fax #: _____
Project #: 03C2A012058 Project Owner:
Project Name: Chiso 14 State 8711 Flowline
Project Location: 32.38496, -103.43480
Sampler Name: Meredith Roberts

FOR LAB USE ONLY

Lab I.D.	Sample I.D.	Depth (feet)	PRESERV		DATE	TIME	ANALYSIS REQUEST	
			(G)RAB OR (C)OMP.	# CONTAINERS			BTEX	Chlorides
HE33122	FSO1	4.5'	C	1	6/14/23	1345	X	X
	FSO2	4.5'	↑	↑		1355	↑	↑
	SWO1	0-4.5'	↑	↑		1400	↑	↑
	SWO2	0-4.5'	↑	↑			↑	↑

PLEASE NOTE: Liability and Damages. Cardinal's liability and claims are limited to the amount paid by the client for the analysis. All claims excluding 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: *Prober*
Date: 6-14-23
Time: 9:05
Received By: *Meredith Roberts*
Date: _____
Time: _____

Delivered By: (Circle One) Observed Temp. °C 1.3
Sampler - UPS - Bus - Other: Corrected Temp. °C 0.7
Sample Condition: Cool Intact Yes No
CHECKED BY: (Initials) *AE*
Turnaround Time: _____
Thermometer ID #113
Standard Bacteria (only)
Rush Cool Intact
Corrected Temp. °C Yes No
Corrected Temp. °C Yes No



APPENDIX E
NMOCD Notifications

From: [Enviro, OCD, EMNRD](#)
To: [Hadlie Green](#)
Cc: [Bratcher, Michael, EMNRD](#); [Hamlet, Robert, EMNRD](#)
Subject: RE: [EXTERNAL] BTA - Sampling Notification - Week of 05/29/2023
Date: Wednesday, May 24, 2023 4:30:12 PM
Attachments: [image005.jpg](#)
[image006.png](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)

[**EXTERNAL EMAIL]**

Hadlie,

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented 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](http://www.emnrd.nm.gov)



From: Hadlie Green <hgreen@ensolum.com>
Sent: Wednesday, May 24, 2023 2:14 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: Tacoma Morrissey <tmorrissey@ensolum.com>; Nathan Sirgo <nsirgo@btaoil.com>; Kevin Jones (<kjones@btaoil.com>) <kjones@btaoil.com>; Kelton Beard <KBeard@btaoil.com>
Subject: [EXTERNAL] BTA - Sampling Notification - Week of 05/29/2023

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 May 29, 2023.

- Rojo D 7811 JV P Com #003H / nOY1814130699
 - Sampling Date: 6/1/2023 @ 9:00 AM MST

- Harroun Ranch #005 / nAPP2200455573
 - Sampling Date: 6/2/2023 @ 9:00 AM MST
- Mesa Dolphin CTB / nAPP2313555368
 - Sampling Date: 5/25/2023 @ 9:00 AM MST
- Mesa #2H Production Facility / nAPP2115531696
 - Sampling Date: 5/25/2023 @ 9:00 AM MST
- Chiso 14 #3 & 4 Tank Flare / nOY1829542961
- Chiso 14 Sate 8711 #3H Flare Stack / nCH1903548008
- Chiso 14 State 8711 #003H Wellhead / nAB1917652490
- Chiso 14 State 8711 Flowline / nRM2034960665
 - Sampling Dates: 6/1-5/2023 @ 9:00 AM MST

Thank you,



Hadlie Green

Project Geologist

432-557-8895

hgreen@ensolum.com

Ensolum, LLC



From: [Enviro, OCD, EMNRD](#)
To: [Hadlie Green](#)
Cc: [Bratcher, Michael, EMNRD](#); [Velez, Nelson, EMNRD](#)
Subject: RE: [EXTERNAL] BTA - Sampling Notification - Week of 06/12/2023
Date: Friday, June 9, 2023 9:21:41 AM
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](http://www.emnrd.nm.gov)



From: Hadlie Green <hgreen@ensolum.com>
Sent: Thursday, June 8, 2023 9:14 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: Tacoma Morrissey <tmorrissey@ensolum.com>; Kelton Beard <KBeard@btaoil.com>; Nathan Sirgo <nsirgo@btaoil.com>; Peter Van Patten <pvanpatten@ensolum.com>
Subject: [EXTERNAL] BTA - Sampling Notification - Week of 06/12/2023

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 12, 2023.

- Chiso 14 State Jet Pump Excavation / nAPP2205837214
 - Sampling Date: 6/12-13/2023 @ 9:00 AM MST
- Chiso 14 State 8711 #003H Wellhead / nAB1917652490
 - Sampling Date: 6/14-15/2023 @ 9:00 AM MST
- Chiso 14 State 8711 Flowline / nRM2034960665
 - Sampling Date: 6/14-15/2023 @ 9:00 AM MST
- Mesa 30 31 Tank Battery / nAPP2106930621
 - Sampling Date: 6/14/2023 @ 9:00 AM MST
- Rojo 10-13/34-37 / nAPP2313055442
 - Sampling Date: 6/15-16/2023 @ 9:00 AM MST

Thank you,



Hadlie Green

Project Geologist

432-557-8895

hgreen@ensolum.com

Ensolum, LLC





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	NAPP2034960665
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: 32.38511° Longitude: -103.43559°

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Chiso 14 State 8711 Flowline	Site Type: Oil Well
Date Release Discovered: 11/28/2020	API# (if applicable) Nearest well: Chiso 14 State 8711 #3H API #30-025-43614

Unit Letter	Section	Township	Range	County
P	14	22S	34E	Lea

Surface Owner: State Federal Tribal Private (Name: Merchant Livestock, PO Box 1105, Eunice, NM 88231)

Nature and Volume of Release

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

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 7 BBL	Volume Recovered (bbls) 0 BBL
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 12 BBL	Volume Recovered (bbls) 0 BBL
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Flowline leak.

The buried flowline was excavated in the vicinity of the leak. Then, additional excavation was conducted in order to reach flowline connections to replace the failed portion of the pipe. Any soil that was wetted by the released fluid has been stockpiled on location.

(See attached spill calculation spreadsheet.)

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2034960665
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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:

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:  Date: **12/3/2020**

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

OCD Only

Received by: _____ Date: _____

Location Chiso 14 State Flowline
API # 30-025-43614
Spill Date 11/28/2020

Spill Dimensions

ENTER - Length of Spill feet
ENTER - Width of Spill feet
ENTER - Saturation Depth of Spill inches

ENTER - Porosity Factor decimal

Oil Cut - Well Test / Vessel Throughput or Contents

Oil
 Water
 Calculated Oil Cut

Volume Recovered in Truck / Containment

ENTER - Recovered Oil BBL
ENTER - Recovered Water BBL

Calculated Values

Release of Oil in Soil - Unrecovered BBL
 Release of Water in Soil - Unrecovered BBL
 Unrecovered Total Release BBL

Calculated Values

Total Release of Oil BBL
 Total Release of Water BBL
 Total Release 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 ft³ / BBL

X Oil Cut
 (or Water Cut)

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 11420

CONDITIONS OF APPROVAL

Operator:	BTA OIL PRODUCERS, LLC	104 S Pecos	Midland, TX79701	OGRID:	260297	Action Number:	11420	Action Type:	C-141
OCD Reviewer				Condition					
marcus				None					

Incident ID	NRM2034960665
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?	<u>50</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

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

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

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

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	NRM2034960665
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: Kelton Beard Title: Environmental Manager

Signature:  Date: 9/28/2023

email: KBeard@btaoil.com Telephone: 432-312-2203

OCD Only

Received by: _____ Date: _____

Incident ID	NRM2034960665
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 Beard Title: Environmental Manager
Signature:  Date: 9/28/2023
email: KBeaird@btaoil.com Telephone: 432-312-2203

OCD Only

Received by: _____ Date: _____

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: 01/09/2024
Printed Name: Scott Rodgers Title: Environmental Specialist Adv.

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 270267

CONDITIONS

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 270267
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	None	1/9/2024