



August 2, 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
Pardue 1H-4H Tank Battery
Incident Number nAPP2130941255
Eddy 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 Pardue 1H-4H Tank Battery (Site). The purpose of the excavation and soil sampling activities was to address impacts to soil resulting from a crude oil release at the Site. Based on the excavation activities and laboratory analytical results from soil sampling events, BTA is submitting this *Closure Request*, describing remediation that has occurred and requesting closure for Incident Number nAPP2130941255.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit D, Section 11, Township 23 South, Range 28 East, in Eddy County, New Mexico (32.32532°, -104.06511°) and is associated with oil and gas exploration and production operations on private land owned by Antonio and Gloria Onsurez.

On November 4, 2021, a dump valve on a scrubber failed, causing approximately 3 barrels (bbls) of crude oil to be sent to the flare. The crude oil ignited and extinguished itself after reaching the ground. The fire affected the well pad beneath the flare and the surrounding pasture. BTA reported the release to the New Mexico Oil Conservation Division (NMOCD) and submitted a *Release Notification Form C-141* (Form C-141) on November 5, 2021. The release was assigned Incident Number nAPP2130941255.

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 is New Mexico Office of the State Engineer (NMOSE) well C-00512, located approximately 0.14 miles southeast of the Site. The groundwater well has a reported depth to groundwater of 15 feet bgs and a total depth of 175 feet bgs. Ground surface elevation at the groundwater well location is 2,998 feet above mean sea level (amsl), which is approximately 4 feet higher in elevation than the Site. All wells used

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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 dry wash, located approximately 577 feet southeast 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 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): 100 mg/kg
- Chloride: 600 mg/kg

DELINEATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

Between May 1 and May 16, 2023, Ensolum personnel were at the Site to evaluate the release extent based on the Form C-141 and visual observations. No visible indications of the historical release were observed during the Site visit. Six delineation boreholes (SS01 through SS06) were advanced via hand auger within the inferred release area, to assess for the presence or absence of impacted soil. Delineation soil samples were collected from each borehole at depths ranging from 0.25 feet to 4 feet bgs. In addition, four soil samples (SS07 through SS10) were collected around the release extent from a depth of 0.25 feet bgs to assess the lateral extent of the release footprint. 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. Visual observations and field screening results were logged on lithologic soil sampling logs which are included in Appendix B. The inferred release area and soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation was completed during Site assessment and a photographic log is included in Appendix C.

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) and TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following Standard Method 4500.0.

Laboratory analytical results for delineation soil samples SS07 through SS10 indicated all COC concentrations were compliant with the Site Closure Criteria and successfully defined the lateral extent of the inferred release area. Laboratory analytical results for delineation soil samples SS02 through SS06, collected at depths ranging from 0.25 feet to 4 feet bgs within the inferred release area, indicated all COC concentrations were compliant with the Site Closure Criteria. Laboratory analytical results for SS01, collected within the inferred area at a depth of 0.25 feet bgs, indicated a TPH concentration exceeding the Site Closure Criteria. Based on laboratory analytical results for soil sample SS01, excavation activities appeared warranted.

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EXCAVATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On May 16, 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 hand shovels and back-hoe. To direct excavation activities, soil was screened for VOCs and chloride. The excavation was completed to a maximum depth of 0.5 feet bgs. Photographic documentation of the excavation activities is included in Appendix C.

Following removal of impacted soil, 5-point composite soil samples were collected every 200 square feet from the floor and sidewalls 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. Due to the shallow depth of the excavation extent, the sidewalls were incorporated into the floor samples. Composite soil samples FS01 through FS06 were collected from the floor of the excavation at a depth of 0.5 feet bgs. The soil samples were collected, handled, and analyzed following the same procedures as described above.

Laboratory analytical results for excavation confirmation soil samples FS01 through FS06 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 1,072 square feet. A total of approximately 20 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 excavation activities were conducted at the Site to address impacted soil resulting from the historical crude oil release at the Site. Laboratory analytical results for the excavation soil samples, collected from the final excavation extent, indicated all COCs were compliant with the Site Closure Criteria. Delineation soil samples indicated all COCs were compliant with the Site Closure Criteria confirming the lateral and vertical extent of the inferred release area. Based on the soil sample laboratory analytical results, no further remediation was required.

No visible indications of the releases were observed, and excavation of impacted soil has mitigated impacts at this Site. BTA believes these remedial actions are protective of human health, the environment, and groundwater. As such, BTA respectfully requests closure for Incident Number nAPP2130941255. Notifications submitted to the NMOCD are included in Appendix E and the final Form C-141 is included in Appendix F.

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

Sincerely,
Ensolum, LLC



Hadlie Green
Project Geologist



Daniel R. Moir, PG
Senior Managing Geologist

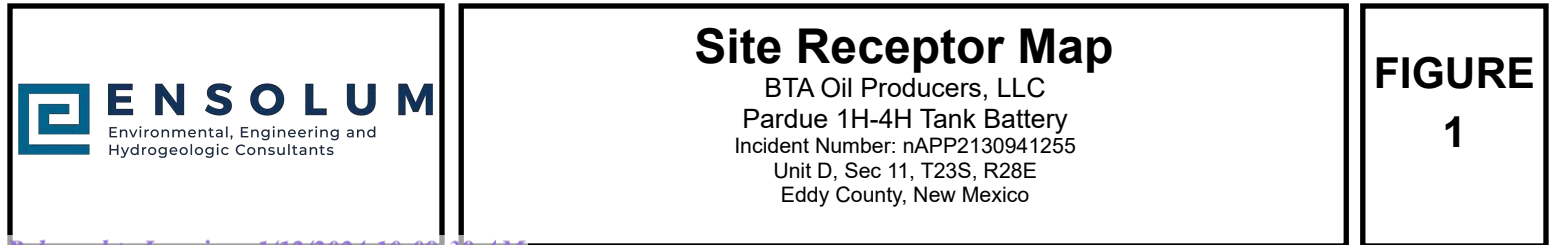
cc: Kelton Beaird, BTA
Nathan Sirgo, BTA
Antonio and Gloria Onsurez

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	Lithologic/Soil Sampling Logs
Appendix C	Photographic Log
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix E	NMOCD Notifications
Appendix F	Final C-141



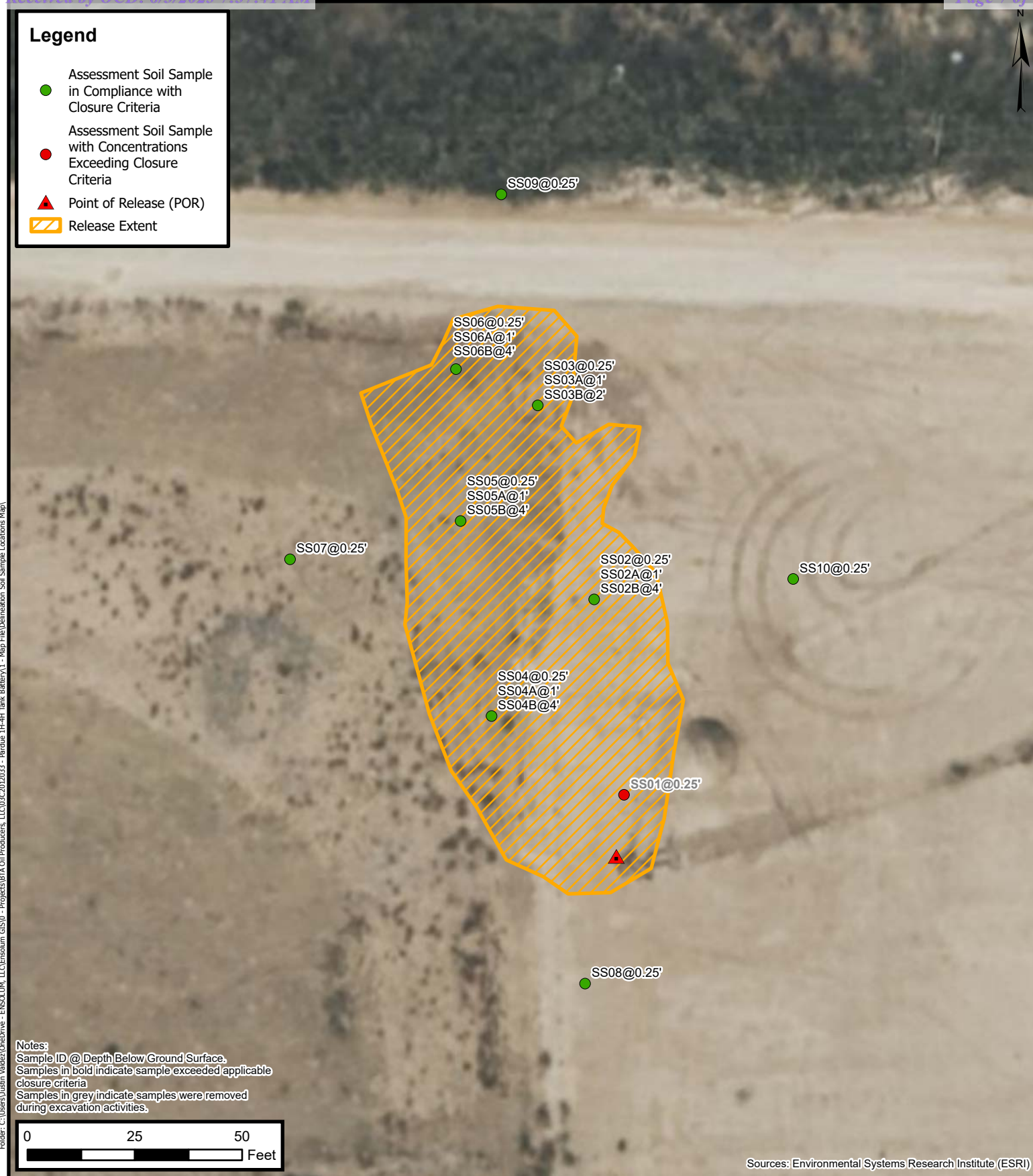
FIGURES



Legend

- Assessment Soil Sample in Compliance with Closure Criteria
- Assessment Soil Sample with Concentrations Exceeding Closure Criteria
- ▲ Point of Release (POR)
- ▨ Release Extent

Folder: C:\Users\Justin Velez\OneDrive - ENSOLUM, LLC\Ensolum GIS\0 - Projects\BTA Oil Producers, LLC\0320202033 - Pardue 1H-4H Tank Battery\1 - Map Files\Definition Soil Sample Locations Map\



Assessment Soil Sample Locations

BTA Oil Producers, LLC
 Pardue 1H-4H Tank Battery
 Incident Number: nAPP2130941255
 Unit D, Sec 11, T23S, R28E
 Eddy County, New Mexico

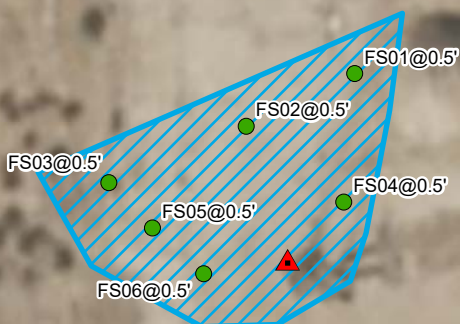
FIGURE

2

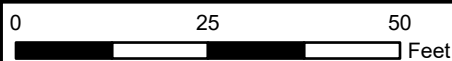


Legend

- Excavation Floor Sample in Compliance with Closure Criteria
- ▲ Point of Release (POR)
- Excavation Extent



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 D, Sec 11, T23S, R28E
Eddy County, New Mexico

FIGURE

3



TABLES



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
 Pardue 1H-4H Tank Battery
 BTA Oil Producers, LLC
 Eddy 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	05/01/2023	0.25	<0.050	<0.300	<10.0	1,290	461	1,290	1,751	128
SS02	05/01/2023	0.25	<0.050	<0.300	<10.0	20.0	12.1	20.0	32.1	272
SS02A	05/16/2023	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0
SS02B	05/16/2023	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	560
SS03	05/01/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS03A	05/16/2023	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS03B	05/16/2023	2	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS04	05/01/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	336
SS04A	05/16/2023	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	64.0
SS04B	05/16/2023	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112
SS05	05/01/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	288
SS05A	05/16/2023	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112
SS05B	05/16/2023	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
SS06	05/01/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	352
SS06A	05/16/2023	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
SS06B	05/16/2023	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	520
SS07	05/01/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	368
SS08	05/01/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	240
SS09	05/01/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112
SS10	05/01/2023	0.25	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Pardue 1H-4H Tank Battery
BTA Oil Producers, LLC
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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
Excavation Soil Samples										
FS01	05/16/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	96.0
FS02	05/16/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	256
FS03	05/16/2023	0.5	<0.050	<0.300	<10.0	37.8	<10.0	37.8	37.8	224
FS04	05/16/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0
FS05	05/16/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	256
FS06	05/16/2023	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	256

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
Grey text represents sample has been excavated.



APPENDIX A

Referenced Well Records



New Mexico Office of the State Engineer

Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
C	00512	4	1	1	11	23S	28E	588188	3576775

x

Driller License: 24 **Driller Company:** BRININSTOOL, M.D.

Driller Name: BRININSTOOL, M.D.

Drill Start Date: 05/04/1975	Drill Finish Date: 05/20/1975	Plug Date:
Log File Date: 05/11/1976	PCW Rcv Date: 10/22/1976	Source: Shallow
Pump Type: TURBIN	Pipe Discharge Size: 4"	Estimated Yield: 300 GPM
Casing Size: 16.00	Depth Well: 175 feet	Depth Water: 15 feet

x

Water Bearing Stratifications:	Top	Bottom	Description
	15	28	Shallow Alluvium/Basin Fill

x

Casing Perforations:	Top	Bottom
	15	90

x

Meter Number: 5520	Meter Make: MCCROMETER
Meter Serial Number: 02-4-1040	Meter Multiplier: 100.0000
Number of Dials: 6	Meter Type: Diversion
Unit of Measure: Gallons	Return Flow Percent:
Usage Multiplier:	Reading Frequency:

x

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount Online
03/27/2002	2002	0	A	tw		0
05/07/2002	2002	391	A	tw		0.120
06/12/2002	2002	1914	A	tw		0.467
09/03/2002	2002	3920	A	tw		0.616
01/13/2003	2002	4253	A	tw		0.102

04/02/2003	2003	4451	A	tw	0.061
06/04/2003	2003	4729	A	tw	0.085
08/02/2003	2003	4932	A	tw	0.062
10/27/2003	2003	4932	A	tw	0
01/07/2004	2003	4932	A	tw	0
04/27/2004	2004	4932	A	tw	0
07/15/2004	2004	5085	A	tw	0.047
10/20/2004	2004	649	R	tw	305.527
01/03/2005	2004	649	A	tw	0
03/01/2005	2005	649	A	tw	0
07/06/2005	2005	675	A	tw	0.008
10/19/2005	2005	675	A	tw	0
01/05/2006	2005	675	A	tw	0
04/06/2006	2006	676	A	tw	0
07/06/2006	2006	676	A	tw	0
01/09/2007	2007	676	A	tw	0
01/03/2008	2007	55046	A	tw	16.686
04/24/2008	2008	85512	A	tw	9.350
07/17/2008	2008	98411	A	tw	3.959
10/02/2008	2008	103913	A	tw	1.689
01/15/2009	2008	104404	A	tw	0.151
04/22/2009	2009	123664	A	tw	5.911
08/04/2009	2009	142056	A	tw	5.644
01/06/2010	2009	160768	A	tw	5.743
06/02/2010	2010	160899	A	tw	0.040
01/12/2011	2010	160899	A	tw	0
01/23/2012	2011	170841	A	tw	3.051
03/12/2012	2012	170841	A	tw	0
07/24/2012	2012	171317	A	tw	0.146
02/13/2013	2012	171504	A	tw	0.057
11/05/2013	2013	172273	A	tw	0.236
07/22/2014	2014	172369	A	tw	0.029
02/24/2016	2015	172706	A	tw	0.103
08/11/2016	2016	178853	A	tw	1.886

Meter Rollover

12/27/2016	2016	172959	C	tw	Meter Reading Correction	-1.809
07/18/2017	2017	173150	A	tw		0.059
01/08/2018	2017	173271	A	tw		0.037

x

**YTD Meter Amounts:	Year	Amount
	2002	1.305
	2003	0.208
	2004	305.574
	2005	0.008
	2006	0
	2007	16.686
	2008	15.149
	2009	17.298
	2010	0.040
	2011	3.051
	2012	0.203
	2013	0.236
	2014	0.029
	2015	0.103
	2016	0.077
	2017	0.096

x

Meter Number:	15518	Meter Make:	MASTER
Meter Serial Number:	2680127	Meter Multiplier:	100.0000
Number of Dials:	6	Meter Type:	Diversion
Unit of Measure:	Gallons	Return Flow Percent:	
Usage Multiplier:		Reading Frequency:	

x

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount Online
02/02/2012	2012	17	A	RPT		0
04/03/2012	2012	2594	A	RPT		0.791

x

**YTD Meter Amounts:	Year	Amount
	2012	0.791

x

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

5/4/23 10:09 AM

POINT OF DIVERSION SUMMARY



National Water Information System: Web Interface

USGS Water Resources

Data Category:
Groundwater

Geographic Area:
New Mexico

GO

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 New Mexico

Click to hide state-specific text

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

Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 321927104033701

Minimum number of levels = 1
[Save file of selected sites](#) to local disk for future upload

USGS 321927104033701 23S.28E.11.114421

Eddy County, New Mexico
Latitude 32°19'27", Longitude 104°03'37" NAD27
Land-surface elevation 2,991 feet above NAVD88
The depth of the well is 100 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	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source of measurement
1947-02-07			D 62610		2973.73	NGVD29	1		Z	
1947-02-07			D 62611		2975.30	NAVD88	1		Z	
1947-02-07			D 72019	15.70			1		Z	
1947-09-24			D 62610		2960.82	NGVD29	P		Z	
1947-09-24			D 62611		2962.39	NAVD88	P		Z	
1947-09-24			D 72019	28.61			P		Z	
1948-01-13			D 62610		2960.13	NGVD29	P		Z	
1948-01-13			D 62611		2961.70	NAVD88	P		Z	
1948-01-13			D 72019	29.30			P		Z	
1949-01-29			D 62610		2973.38	NGVD29	1		Z	
1949-01-29			D 62611		2974.95	NAVD88	1		Z	
1949-01-29			D 72019	16.05			1		Z	
1950-01-19			D 62610		2977.81	NGVD29	1		Z	
1950-01-19			D 62611		2979.38	NAVD88	1		Z	

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 of measurement
1950-01-19			D 72019	11.62			1		Z	
1951-01-17			D 62610		2976.41	NGVD29	1		Z	
1951-01-17			D 62611		2977.98	NAVD88	1		Z	
1951-01-17			D 72019	13.02			1		Z	
1952-01-14			D 62610		2973.38	NGVD29	1		Z	
1952-01-14			D 62611		2974.95	NAVD88	1		Z	
1952-01-14			D 72019	16.05			1		Z	
1953-01-24			D 62610		2972.31	NGVD29	1		Z	
1953-01-24			D 62611		2973.88	NAVD88	1		Z	
1953-01-24			D 72019	17.12			1		Z	
1954-01-14			D 62610		2970.07	NGVD29	1		Z	
1954-01-14			D 62611		2971.64	NAVD88	1		Z	
1954-01-14			D 72019	19.36			1		Z	
1955-01-18			D 62610		2974.09	NGVD29	1		Z	
1955-01-18			D 62611		2975.66	NAVD88	1		Z	
1955-01-18			D 72019	15.34			1		Z	
1956-01-11			D 62610		2978.53	NGVD29	1		Z	
1956-01-11			D 62611		2980.10	NAVD88	1		Z	
1956-01-11			D 72019	10.90			1		Z	
1957-01-09			D 62610		2974.15	NGVD29	1		Z	
1957-01-09			D 62611		2975.72	NAVD88	1		Z	
1957-01-09			D 72019	15.28			1		Z	
1958-01-15			D 62610		2974.29	NGVD29	1		Z	
1958-01-15			D 62611		2975.86	NAVD88	1		Z	
1958-01-15			D 72019	15.14			1		Z	
1959-01-08			D 62610		2975.77	NGVD29	1		Z	
1959-01-08			D 62611		2977.34	NAVD88	1		Z	
1959-01-08			D 72019	13.66			1		Z	
1960-01-14			D 62610		2974.73	NGVD29	1		Z	
1960-01-14			D 62611		2976.30	NAVD88	1		Z	
1960-01-14			D 72019	14.70			1		Z	
1961-01-12			D 62610		2976.15	NGVD29	1		Z	
1961-01-12			D 62611		2977.72	NAVD88	1		Z	
1961-01-12			D 72019	13.28			1		Z	
1962-01-16			D 62610		2974.63	NGVD29	1		Z	
1962-01-16			D 62611		2976.20	NAVD88	1		Z	
1962-01-16			D 72019	14.80			1		Z	
1963-01-17			D 62610		2975.43	NGVD29	1		Z	
1963-01-17			D 62611		2977.00	NAVD88	1		Z	
1963-01-17			D 72019	14.00			1		Z	
1964-01-20			D 62610		2973.48	NGVD29	1		Z	
1964-01-20			D 62611		2975.05	NAVD88	1		Z	
1964-01-20			D 72019	15.95			1		Z	
1965-01-19			D 62610		2967.68	NGVD29	1		Z	
1965-01-19			D 62611		2969.25	NAVD88	1		Z	
1965-01-19			D 72019	21.75			1		Z	
1966-01-04			D 62610		2970.19	NGVD29	1		Z	
1966-01-04			D 62611		2971.76	NAVD88	1		Z	
1966-01-04			D 72019	19.24			1		Z	
1967-01-26			D 62610		2973.92	NGVD29	1		Z	

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 of measurement
1967-01-26			D	62611	2975.49	NAVD88	1		Z	
1967-01-26			D	72019	15.51		1		Z	
1968-01-26			D	62610	2972.76	NGVD29	1		Z	
1968-01-26			D	62611	2974.33	NAVD88	1		Z	
1968-01-26			D	72019	16.67		1		Z	
1969-01-28			D	62610	2971.66	NGVD29	1		Z	
1969-01-28			D	62611	2973.23	NAVD88	1		Z	
1969-01-28			D	72019	17.77		1		Z	
1970-01-22			D	62610	2975.14	NGVD29	1		Z	
1970-01-22			D	62611	2976.71	NAVD88	1		Z	
1970-01-22			D	72019	14.29		1		Z	
1971-01-13			D	62610	2973.33	NGVD29	1		Z	
1971-01-13			D	62611	2974.90	NAVD88	1		Z	
1971-01-13			D	72019	16.10		1		Z	
1972-01-12			D	62610	2968.52	NGVD29	1		Z	
1972-01-12			D	62611	2970.09	NAVD88	1		Z	
1972-01-12			D	72019	20.91		1		Z	
1973-01-12			D	62610	2972.66	NGVD29	1		Z	
1973-01-12			D	62611	2974.23	NAVD88	1		Z	
1973-01-12			D	72019	16.77		1		Z	
1974-01-18			D	62610	2975.74	NGVD29	1		Z	
1974-01-18			D	62611	2977.31	NAVD88	1		Z	
1974-01-18			D	72019	13.69		1		Z	
1975-01-10			D	62610	2976.65	NGVD29	1		Z	
1975-01-10			D	62611	2978.22	NAVD88	1		Z	
1975-01-10			D	72019	12.78		1		Z	
1976-01-14			D	62610	2975.20	NGVD29	1		Z	
1976-01-14			D	62611	2976.77	NAVD88	1		Z	
1976-01-14			D	72019	14.23		1		Z	
1977-01-14			D	62610	2972.40	NGVD29	1		Z	
1977-01-14			D	62611	2973.97	NAVD88	1		Z	
1977-01-14			D	72019	17.03		1		Z	
1978-01-23			D	62610	2970.28	NGVD29	1		Z	
1978-01-23			D	62611	2971.85	NAVD88	1		Z	
1978-01-23			D	72019	19.15		1		Z	
1979-01-18			D	62610	2975.09	NGVD29	1		Z	
1979-01-18			D	62611	2976.66	NAVD88	1		Z	
1979-01-18			D	72019	14.34		1		Z	
1983-01-26			D	62610	2976.40	NGVD29	1		Z	
1983-01-26			D	62611	2977.97	NAVD88	1		Z	
1983-01-26			D	72019	13.03		1		Z	
1988-02-12			D	62610	2973.85	NGVD29	1		Z	
1988-02-12			D	62611	2975.42	NAVD88	1		Z	
1988-02-12			D	72019	15.58		1		Z	
1988-03-17			D	62610	2973.45	NGVD29	1		Z	
1988-03-17			D	62611	2975.02	NAVD88	1		Z	
1988-03-17			D	72019	15.98		1		Z	
1993-02-03			D	62610	2972.12	NGVD29	1		S	
1993-02-03			D	62611	2973.69	NAVD88	1		S	
1993-02-03			D	72019	17.31		1		S	

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 of measurement
1995-07-19		D	62610		2971.03	NGVD29	1		S	
1995-07-19		D	62611		2972.60	NAVD88	1		S	
1995-07-19		D	72019	18.40			1		S	
1996-01-25		D	62610		2971.67	NGVD29	1		S	
1996-01-25		D	62611		2973.24	NAVD88	1		S	
1996-01-25		D	72019	17.76			1		S	
2003-01-27		D	62610		2969.99	NGVD29	1		S	USGS
2003-01-27		D	62611		2971.56	NAVD88	1		S	USGS
2003-01-27		D	72019	19.44			1		S	USGS

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
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: 2023-06-28 17:47:24 EDT
0.29 0.25 nadww02



APPENDIX B

Photographic Log

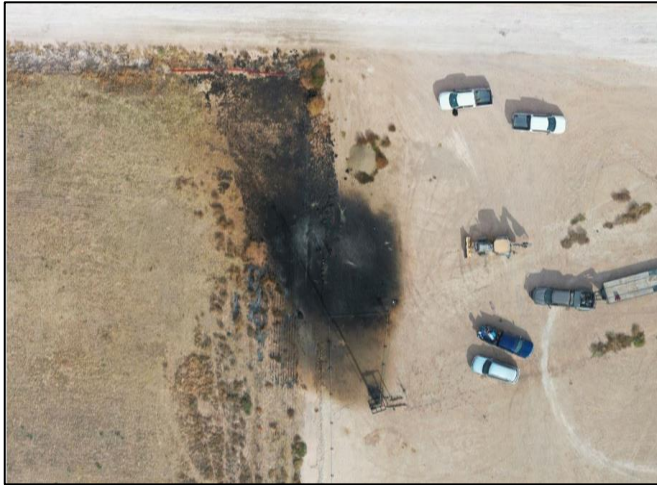


Photographic Log

BTA Oil Producers, LLC

Pardue 1H-4H Tank Battery

Incident Number nAPP2130941255



Photograph: 1 Date: 11/8/2021
Description: Soil staining in release footprint
View: North



Photograph: 2 Date: 11/11/2021
Description: Initial scrape activities
View: South



Photograph: 3 Date: 5/1/2023
Description: Assessment activities
View: South





Photograph: 4 Date: 5/16/2023
Description: Delineation and excavation activities
View: Southeast





APPENDIX C


Lithologic Soil Sampling Logs

								Sample Name: SS02		Date: 5/16/2023	
								Site Name: Pardue 1H-4H Tank Battery			
								Incident Number: nAPP2130941255			
								Job Number: 03C2012033			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Peter Van Patten		Method: Hand Auger	
Coordinates: 32.325495,-104.065138								Hole Diameter:		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. 40% correction factor included. ND: Non-Detect, <173 ppm											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
Dry	ND	15.8	N	SS02	0.25	0.25	CCHE	CALICHE, light tan, coarse grain, poorly graded, medium gravel, no stain, no odor.			
Dry	ND	0.1	N	SS02A	1	1	SP-SM	Sand: brown, light brown, fine grain, moderately graded, trace medium gravel, no stain, no odor			
Dry	ND	0.1	N			2	SP-SM	SAA (Same as above)			
Dry	ND	0.1	N			3	SP-SM	SAA			
Dry	ND	0.1	N	SS02B	4	4	SP-SM	Sand: brown, fine-medium grain, poorly graded, trace-some medium gravel, no stain, no odor			
TD (Total Depth) 4 feet bgs											

								Sample Name: SS03		Date: 5/16/2023	
LITHOLOGIC / SOIL SAMPLING LOG								Site Name: Pardue 1H-4H Tank Battery			
								Incident Number: nAPP2130941255			
								Job Number: 03C2012033			
Coordinates: 32.325619,-104.065179								Logged By: Peter Van Patten		Method: Hand Auger	
								Hole Diameter:		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. 40% correction factor included. ND: Non-Detect, <173 ppm											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
Dry	ND	0.2	N	SS03	0.25	0.25	CCHE	Caliche: tan, coarse grain, poorly graded, no stain, no odor.			
Dry	ND	0.1	N	SS03A	1	1	SP-SM	Sand: brown, fine grain, moderately graded, no stain, no odor.			
Dry	ND	0.1	N	SS03B	2	2	SP-SM	SAA (Same as above)			
								Refusal just after 2 feet bgs			

								Sample Name: SS04		Date: 5/16/2023	
								Site Name: Pardue 1H-4H Tank Battery			
								Incident Number: nAPP2130941255			
								Job Number: 03C2012033			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Peter Van Patten		Method: Hand Auger	
Coordinates: 32.325421,-104.065216								Hole Diameter:		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. 40% correction factor included. ND: Non-Detect, <173 ppm											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
Dry	ND	0.2	N	SS04	0.25	0.25	CCHE	Caliche: tan, coarse grain, poorly graded, no stain, no odor.			
Dry	ND	0.1	N	SS04A	1	1	SP-SM	Sand: brown, fine grain, moderately graded, no stain, no odor.			
Dry	ND	0.1	N			2	SP-SM	SAA (Same as above)			
Dry	ND	0.1	N			3	SP-SM	SAA			
Dry	ND	0.1	N	SS04B	4	4	SP-SM	Sand: brown, fine-medium grain, poorly graded, trace medium gravel, no stain, no odor.			
								TD (Total Depth) 4 feet bgs			

								Sample Name: SS05		Date: 5/16/2023	
								Site Name: Pardue 1H-4H Tank Battery			
								Incident Number: nAPP2130941255			
								Job Number: 03C2012033			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Peter Van Patten		Method: Hand Auger	
Coordinates: 32.325546,-104.065238								Hole Diameter:		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. 40% correction factor included. ND: Non-Detect, <173 ppm											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
Dry	ND	0.1	N	SS05	0.25	0.25	CCHE	Caliche: light tan, coarse grained, poorly graded, abundant gravel, no stain, no odor.			
Dry	ND	0.1	N	SS05A	1	1	SP-SM	Sand: brown, light brown, fine grain, moderately graded, trace medium gravel, no stain, no odor.			
Dry	ND	0.1	N			2	SP-SM	SAA (Same as above)			
Dry	ND	0.1	N			3	SP-SM	SAA			
Dry	ND	0.1	N	SS05B	4	4	SP-SM	Sand: brown, fine-medium grain, poorly graded, trace-some medium gravel, no stain, no odor.			
TD (Total Depth) 4 feet bgs											

								Sample Name: SS06		Date: 5/16/2023	
								Site Name: Pardue 1H-4H Tank Battery			
								Incident Number: nAPP2130941255			
								Job Number: 03C2012033			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Peter Van Patten		Method: Hand Auger	
Coordinates: 32.325643,-104.065241								Hole Diameter:		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. 40% correction factor included. ND: Non-Detect, <173 ppm											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
Dry	ND	0.1	N	SS06	0.25	0.25	CCHE	Caliche: light tan, coarse grain, poorly graded, no stain, no odor.			
Dry	ND	0.1	N	SS06A	1	1	SP-SM	Sand: brown, fine grain, moderately graded, no stain, no odor.			
Dry	ND	0.1	N			2	SP-SM	SAA (Same as above)			
Dry	ND	0.1	N			3	SP-SM	SAA			
Dry	ND	0.1	N	SS06B	4	4	SP-SM	Sand: brown, fine-medium grain, poorly graded, trace-some medium gravel, no stain, no odor.			
								TD (Total Depth) 4 feet bgs			



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation



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

May 05, 2023

HADLIE GREEN

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: PARDUE 1H - 4H TANK BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 05/01/23 13:49.

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: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 01 0.25' (H232130-01)

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	05/02/2023	ND	2.01	101	2.00	3.98	
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10	
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88	
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31	
Total BTEx	<0.300	0.300	05/02/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	05/02/2023	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	05/02/2023	ND	194	96.9	200	1.46	
DRO >C10-C28*	1290	10.0	05/02/2023	ND	183	91.4	200	0.249	
EXT DRO >C28-C36	461	10.0	05/02/2023	ND					

Surrogate: 1-Chlorooctane 64.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 113 % 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: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 02 0.25' (H232130-02)

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	05/02/2023	ND	2.01	101	2.00	3.98	
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10	
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88	
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31	
Total BTEx	<0.300	0.300	05/02/2023	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	272	16.0	05/02/2023	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	05/02/2023	ND	194	96.9	200	1.46	
DRO >C10-C28*	20.0	10.0	05/02/2023	ND	183	91.4	200	0.249	
EXT DRO >C28-C36	12.1	10.0	05/02/2023	ND					

Surrogate: 1-Chlorooctane 67.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 70.6 % 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: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 03 0.25' (H232130-03)

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	05/02/2023	ND	2.01	101	2.00	3.98		
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10		
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88		
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31		
Total BTEx	<0.300	0.300	05/02/2023	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	16.0	16.0	05/02/2023	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	05/02/2023	ND	194	96.9	200	1.46	
DRO >C10-C28*	<10.0	10.0	05/02/2023	ND	183	91.4	200	0.249	
EXT DRO >C28-C36	<10.0	10.0	05/02/2023	ND					

Surrogate: 1-Chlorooctane 81.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 93.9 % 49.1-148

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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: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 04 0.25' (H232130-04)

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	05/02/2023	ND	2.01	101	2.00	3.98	
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10	
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88	
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31	
Total BTEX	<0.300	0.300	05/02/2023	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	336	16.0	05/02/2023	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	05/02/2023	ND	194	96.9	200	1.46	
DRO >C10-C28*	<10.0	10.0	05/02/2023	ND	183	91.4	200	0.249	
EXT DRO >C28-C36	<10.0	10.0	05/02/2023	ND					

Surrogate: 1-Chlorooctane 70.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 73.5 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 05 0.25' (H232130-05)

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	05/02/2023	ND	2.01	101	2.00	3.98	
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10	
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88	
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31	
Total BTEX	<0.300	0.300	05/02/2023	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	288	16.0	05/02/2023	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	05/03/2023	ND	194	96.9	200	0.345	
DRO >C10-C28*	<10.0	10.0	05/03/2023	ND	213	106	200	3.24	
EXT DRO >C28-C36	<10.0	10.0	05/03/2023	ND					

Surrogate: 1-Chlorooctane 110 % 48.2-134

Surrogate: 1-Chlorooctadecane 140 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 06 0.25' (H232130-06)

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	05/02/2023	ND	2.01	101	2.00	3.98	
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10	
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88	
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31	
Total BTEX	<0.300	0.300	05/02/2023	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	352	16.0	05/02/2023	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	05/04/2023	ND	194	96.9	200	0.345	
DRO >C10-C28*	<10.0	10.0	05/04/2023	ND	213	106	200	3.24	
EXT DRO >C28-C36	<10.0	10.0	05/04/2023	ND					

Surrogate: 1-Chlorooctane 78.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 93.0 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager

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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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A handwritten signature in black ink, appearing to read "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

[illegible]



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

May 05, 2023

HADLIE GREEN

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: PARDUE 1H - 4H TANK BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 05/01/23 13:49.

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: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 07 0.25' (H232131-01)

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	05/02/2023	ND	2.01	101	2.00	3.98	
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10	
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88	
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31	
Total BTEX	<0.300	0.300	05/02/2023	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	368	16.0	05/02/2023	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	05/04/2023	ND	194	96.9	200	0.345	
DRO >C10-C28*	<10.0	10.0	05/04/2023	ND	213	106	200	3.24	
EXT DRO >C28-C36	<10.0	10.0	05/04/2023	ND					

Surrogate: 1-Chlorooctane 77.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 92.5 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 08 0.25' (H232131-02)

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	05/02/2023	ND	2.01	101	2.00	3.98	
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10	
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88	
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31	
Total BTEX	<0.300	0.300	05/02/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	240	16.0	05/02/2023	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	05/03/2023	ND	194	96.9	200	0.345	
DRO >C10-C28*	<10.0	10.0	05/03/2023	ND	213	106	200	3.24	
EXT DRO >C28-C36	<10.0	10.0	05/03/2023	ND					

Surrogate: 1-Chlorooctane 114 % 48.2-134

Surrogate: 1-Chlorooctadecane 139 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 09 0.25' (H232131-03)

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	05/02/2023	ND	2.01	101	2.00	3.98		
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10		
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88		
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31		
Total BTEx	<0.300	0.300	05/02/2023	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	112	16.0	05/02/2023	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	05/04/2023	ND	194	96.9	200	0.345	
DRO >C10-C28*	<10.0	10.0	05/04/2023	ND	213	106	200	3.24	
EXT DRO >C28-C36	<10.0	10.0	05/04/2023	ND					

Surrogate: 1-Chlorooctane 88.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 107 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 05/01/2023
Reported: 05/05/2023
Project Name: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/01/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SS 10 0.25' (H232131-04)

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	05/02/2023	ND	2.01	101	2.00	3.98		
Toluene*	<0.050	0.050	05/02/2023	ND	2.13	106	2.00	3.10		
Ethylbenzene*	<0.050	0.050	05/02/2023	ND	2.04	102	2.00	5.88		
Total Xylenes*	<0.150	0.150	05/02/2023	ND	6.31	105	6.00	6.31		
Total BTEx	<0.300	0.300	05/02/2023	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	80.0	16.0	05/02/2023	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	05/04/2023	ND	194	96.9	200	0.345	
DRO >C10-C28*	<10.0	10.0	05/04/2023	ND	213	106	200	3.24	
EXT DRO >C28-C36	<10.0	10.0	05/04/2023	ND					

Surrogate: 1-Chlorooctane 83.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 101 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager

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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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A handwritten signature in black ink, appearing to read "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

BILL TO

ANALYSIS REQUEST

Project Manager: Hadley Green

Address: 3122 National Park Hwy

City: Carlsbad

State: NM Zip: 88220

Phone #: 505-325-5578 Fax #: 505-325-5578

Project #: BSCA01203 Project Owner: BSA 01

Project Name: Redwood 1H-4H Tank Battery

Project Location: 32632532, -104.06511

Sampler Name: Dmitry Nikolaev

P.O. #:

Company: BSA 01

Attn: Kevin Jones

Address: 104 S Peasest

City: Midland

State: TX Zip: 79701

Phone #: 432-312-2223

Fax #:

FOR LAB USE ONLY

Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX					PRESERV	DATE	TIME	SAMPLING									
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :												
11932131	SS07	0.25'		X																		
2	SS08			X																		
3	SS09			X																		
4	SS10			X																		

Relinquished By: DK

Date: 8/1/23

Received By: Shodriqvey

Date: 8/1/23

Received By: Shodriqvey

Turnaround Time: Standard

Thermometer ID #113

Corrosion Factor: 0.5°C

Standard Rush

Bacteria (only) Sample Condition

Cool Intact

Observed Temp. °C

Corrected Temp. °C

Remarks: hgnew@ensolum.com, dnikaev@ensolum.com

Verbal Result: ☐ Yes ☐ No Add'l Phone #:

All Results are emailed. Please provide Email address:

REMARKS:

Delivered By: (Circle One)

Sampler - UPS - Bus - Other:

Observed Temp. °C

Corrected Temp. °C

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

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

June 09, 2023

HADLIE GREEN

ENSOLUM, LLC

705 W WADLEY AVE.

MIDLAND, TX 79705

RE: PARDUE 1H - 4H TANK BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 05/17/23 14:45.

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/ga/lab_accred_certif.html.

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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



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

Analytical Results For:

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

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS 02 A 1'	H232487-01	Soil	16-May-23 09:30	17-May-23 14:45
SS 02 B 4'	H232487-02	Soil	16-May-23 09:45	17-May-23 14:45
SS 03 A 1'	H232487-03	Soil	16-May-23 10:00	17-May-23 14:45
SS 03 B 2'	H232487-04	Soil	16-May-23 10:05	17-May-23 14:45
SS 04 A 1'	H232487-05	Soil	16-May-23 08:55	17-May-23 14:45
SS 04 B 4'	H232487-06	Soil	16-May-23 09:10	17-May-23 14:45
SS 05 A 1'	H232487-07	Soil	16-May-23 10:20	17-May-23 14:45
SS 05 B 4'	H232487-08	Soil	16-May-23 10:35	17-May-23 14:45
SS 06 A 1'	H232487-09	Soil	16-May-23 10:50	17-May-23 14:45
SS 06 B 4'	H232487-10	Soil	16-May-23 11:05	17-May-23 14:45

06/09/23 - Client changed the sample IDs (see COC). This is the revised report and will replace the one sent on 05/22/23.

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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 02 A 1'
H232487-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	80.0		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134 3051815 JH 20-May-23 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

Surrogate: 1-Chlorooctane 97.4 % 48.2-134 3051816 MS 18-May-23 8015B

Surrogate: 1-Chlorooctadecane 103 % 49.1-148 3051816 MS 18-May-23 8015B

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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 02 B 4'
H232487-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	560		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			101 %	71.5-134		3051815	JH	20-May-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			100 %	48.2-134		3051816	MS	18-May-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			105 %	49.1-148		3051816	MS	18-May-23	8015B	
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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 03 A 1'
H232487-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	16.0		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			102 %	71.5-134		3051815	JH	20-May-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			93.4 %	48.2-134		3051816	MS	18-May-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			97.4 %	49.1-148		3051816	MS	18-May-23	8015B	
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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 03 B 2'
H232487-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	16.0		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			99.7 %	71.5-134		3051815	JH	20-May-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			95.3 %	48.2-134		3051816	MS	18-May-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			99.8 %	49.1-148		3051816	MS	18-May-23	8015B	
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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 04 A 1'
H232487-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	64.0		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			100 %	71.5-134		3051815	JH	20-May-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			95.6 %	48.2-134		3051816	MS	18-May-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			99.8 %	49.1-148		3051816	MS	18-May-23	8015B	
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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 04 B 4'
H232487-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	112		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			101 %	71.5-134		3051815	JH	20-May-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			93.4 %	48.2-134		3051816	MS	18-May-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			97.8 %	49.1-148		3051816	MS	18-May-23	8015B	
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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 05 A 1'
H232487-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	112		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			100 %	71.5-134		3051815	JH	20-May-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			93.0 %	48.2-134		3051816	MS	18-May-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			96.2 %	49.1-148		3051816	MS	18-May-23	8015B	
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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 05 B 4'
H232487-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			101 %	71.5-134		3051815	JH	20-May-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			95.4 %	48.2-134		3051816	MS	18-May-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			101 %	49.1-148		3051816	MS	18-May-23	8015B	
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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 06 A 1'
H232487-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			101 %	71.5-134		3051815	JH	20-May-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

Surrogate: 1-Chlorooctane			94.4 %	48.2-134		3051816	MS	18-May-23	8015B	
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Surrogate: 1-Chlorooctadecane			98.9 %	49.1-148		3051816	MS	18-May-23	8015B	
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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

SS 06 B 4'
H232487-10 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	520		16.0	mg/kg	4	3051833	AC	18-May-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3051815	JH	20-May-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3051815	JH	20-May-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3051815	JH	20-May-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 102 % 71.5-134 3051815 JH 20-May-23 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3051816	MS	18-May-23	8015B	

Surrogate: 1-Chlorooctane 88.1 % 48.2-134 3051816 MS 18-May-23 8015B

Surrogate: 1-Chlorooctadecane 94.6 % 49.1-148 3051816 MS 18-May-23 8015B

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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
705 W WADLEY AVE.
MIDLAND TX, 79705

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

Inorganic Compounds - Quality Control**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 3051833 - 1:4 DI Water									
Blank (3051833-BLK1)					Prepared & Analyzed: 18-May-23				
Chloride	ND	16.0	mg/kg						
LCS (3051833-BS1)					Prepared & Analyzed: 18-May-23				
Chloride	416	16.0	mg/kg	400		104 80-120			
LCS Dup (3051833-BSD1)					Prepared & Analyzed: 18-May-23				
Chloride	432	16.0	mg/kg	400		108 80-120	3.77	20	

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Analytical Results For:

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

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

Volatile Organic Compounds by EPA Method 8021 - Quality Control**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3051815 - Volatiles**Blank (3051815-BLK1)**

Prepared: 18-May-23 Analyzed: 19-May-23

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0506		mg/kg	0.0500		101	71.5-134			

LCS (3051815-BS1)

Prepared: 18-May-23 Analyzed: 19-May-23

Benzene	2.41	0.050	mg/kg	2.00		121	81.4-118			BS-3
Toluene	2.39	0.050	mg/kg	2.00		120	88.7-121			
Ethylbenzene	2.34	0.050	mg/kg	2.00		117	86.1-120			
m,p-Xylene	4.80	0.100	mg/kg	4.00		120	88.2-124			
o-Xylene	2.27	0.050	mg/kg	2.00		114	84.9-118			
Total Xylenes	7.07	0.150	mg/kg	6.00		118	87.3-122			
Surrogate: 4-Bromofluorobenzene (PID)	0.0486		mg/kg	0.0500		97.1	71.5-134			

LCS Dup (3051815-BS1)

Prepared: 18-May-23 Analyzed: 19-May-23

Benzene	2.40	0.050	mg/kg	2.00		120	81.4-118	0.483	15.8	BS-3
Toluene	2.37	0.050	mg/kg	2.00		118	88.7-121	0.915	15.9	
Ethylbenzene	2.34	0.050	mg/kg	2.00		117	86.1-120	0.157	16	
m,p-Xylene	4.82	0.100	mg/kg	4.00		120	88.2-124	0.312	16.2	
o-Xylene	2.31	0.050	mg/kg	2.00		115	84.9-118	1.66	16.7	
Total Xylenes	7.12	0.150	mg/kg	6.00		119	87.3-122	0.746	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0486		mg/kg	0.0500		97.2	71.5-134			

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Project: PARDUE 1H - 4H TANK BATTERY
Project Number: 03C2012033
Project Manager: HADLIE GREEN
Fax To:

Reported:
09-Jun-23 17:00

Petroleum Hydrocarbons by GC FID - Quality Control**Cardinal Laboratories**

Analyte	Result	Type text h Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3051816 - General Prep - Organics**Blank (3051816-BLK1)**

Prepared & Analyzed: 18-May-23

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	39.8		mg/kg	49.6		80.4	48.2-134			
Surrogate: 1-Chlorooctadecane	43.2		mg/kg	50.0		86.4	49.1-148			

LCS (3051816-BS1)

Prepared & Analyzed: 18-May-23

GRO C6-C10	186	10.0	mg/kg	200		93.1	78.5-124			
DRO >C10-C28	177	10.0	mg/kg	200		88.7	72.5-126			
Total TPH C6-C28	364	10.0	mg/kg	400		90.9	77.6-123			
Surrogate: 1-Chlorooctane	45.1		mg/kg	49.6		90.9	48.2-134			
Surrogate: 1-Chlorooctadecane	45.1		mg/kg	50.0		90.2	49.1-148			

LCS Dup (3051816-BSD1)

Prepared & Analyzed: 18-May-23

GRO C6-C10	175	10.0	mg/kg	200		87.4	78.5-124	6.31	17.7	
DRO >C10-C28	166	10.0	mg/kg	200		83.2	72.5-126	6.40	21	
Total TPH C6-C28	341	10.0	mg/kg	400		85.3	77.6-123	6.35	18.5	
Surrogate: 1-Chlorooctane	44.3		mg/kg	49.6		89.4	48.2-134			
Surrogate: 1-Chlorooctadecane	45.3		mg/kg	50.0		90.6	49.1-148			

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

BS-3	Blank spike recovery outside of lab established statistical limits, but still within method limits. Data is not adversely affected.
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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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		P.O. #:		BILL TO												ANALYSIS REQUEST														
Project Manager: Hadlie Green		Company: BTA Oil																												
Address: 601 N Marientfeld Street, Suite 400		Attn: Kevin Jones																												
City: Midland		Address: 104 S. Recos St																												
State: TX Zip: 79701																														
Phone #: 432-557-8895		City: Midland																												
Fax #:		State: TX Zip: 79701																												
Project #: 03C2012033		Project Owner:																												
Project Name: Rodvuc 1H-4H Tank Battery		State: TX Zip: 79701																												
Project Location: 32,32532, -104.06511		Phone #: 432-682-3753																												
Fax #:																														
Sampler Name: Peter Van Patten		Fax #:																												
FOR LAB USE ONLY																														
Lab I.D.	* Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX					PRESERV.	SAMPLING																			
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chlorides	BTEX	TPH												
H232487	SS	1'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5/6/23	930	X	X	X												
1	1102A	4'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		945	X	X	X												
2	1102AB	1'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1000	X	X	X												
3	1103A	2'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1005	X	X	X												
4	1103B	1'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		855	X	X	X												
5	1104A	1'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		910	X	X	X												
6	1104B	1'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1020	X	X	X												
7	1105A	4'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1035	X	X	X												
8	1105B	1'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1050	X	X	X												
9	1106A	4'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1105	X	X	X												
10	1106B	4'	C 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																	

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Relinquished By:	Date: 5-17-23	Received By:	Date: 5-17-23
Relinquished By:	Date: 5-17-23	Received By:	Date: 5-17-23

Delivered By: (Circle One) ☒ Observed Temp. °C 2.1 ☐ Corrected Temp. °C 1.5

Sampler - UPS - Bus - Other: ☐ Sample Condition ☒ Cool ☐ Intact ☐ Yes ☐ No

Checked By: (Initials) 8/2

Turnaround Time: ☒ Standard ☐ Rush

Thermometer ID #113 ☐ Bacteria (only) ☐ Sample Condition ☐ Cool ☐ Intact ☐ Yes ☐ No

Correction Factor -0.5°C ☐ Observed Temp. °C ☐ Corrected Temp. °C

REMARKS: *Customer requested changes to 6/8/23

Verbal Result: ☐ Yes ☒ No Add'l Phone #: ☐ All Results are emailed. Please provide Email address: hgreen@ensolum.com, tuncat'sey@ensolum.com



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

May 22, 2023

HADLIE GREEN

ENSOLUM, LLC

705 W WADLEY AVE.

MIDLAND, TX 79705

RE: PARDUE 1H - 4H TANK BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 05/17/23 14:45.

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". The signature is written in a cursive, flowing style.

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: 05/17/2023
 Reported: 05/22/2023
 Project Name: PARDUE 1H - 4H TANK BATTERY
 Project Number: 03C2012033
 Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/16/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FS 01 0.5' (H232488-01)

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	05/20/2023	ND	2.41	121	2.00	0.483	
Toluene*	<0.050	0.050	05/20/2023	ND	2.39	120	2.00	0.915	
Ethylbenzene*	<0.050	0.050	05/20/2023	ND	2.34	117	2.00	0.157	
Total Xylenes*	<0.150	0.150	05/20/2023	ND	7.07	118	6.00	0.746	
Total BTEX	<0.300	0.300	05/20/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	96.0	16.0	05/18/2023	ND	416	104	400	3.77	

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	05/18/2023	ND	186	93.1	200	6.31	
DRO >C10-C28*	<10.0	10.0	05/18/2023	ND	177	88.7	200	6.40	
EXT DRO >C28-C36	<10.0	10.0	05/18/2023	ND					

Surrogate: 1-Chlorooctane 88.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 93.0 % 49.1-148

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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: 05/17/2023
 Reported: 05/22/2023
 Project Name: PARDUE 1H - 4H TANK BATTERY
 Project Number: 03C2012033
 Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/16/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FS 02 0.5' (H232488-02)

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	05/20/2023	ND	2.41	121	2.00	0.483		
Toluene*	<0.050	0.050	05/20/2023	ND	2.39	120	2.00	0.915		
Ethylbenzene*	<0.050	0.050	05/20/2023	ND	2.34	117	2.00	0.157		
Total Xylenes*	<0.150	0.150	05/20/2023	ND	7.07	118	6.00	0.746		
Total BTEx	<0.300	0.300	05/20/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 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	256	16.0	05/18/2023	ND	416	104	400	3.77		

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	05/18/2023	ND	186	93.1	200	6.31	
DRO >C10-C28*	<10.0	10.0	05/18/2023	ND	177	88.7	200	6.40	
EXT DRO >C28-C36	<10.0	10.0	05/18/2023	ND					

Surrogate: 1-Chlorooctane 90.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 95.6 % 49.1-148

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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: 05/17/2023
 Reported: 05/22/2023
 Project Name: PARDUE 1H - 4H TANK BATTERY
 Project Number: 03C2012033
 Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/16/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FS 03 0.5' (H232488-03)

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	05/20/2023	ND	2.41	121	2.00	0.483	
Toluene*	<0.050	0.050	05/20/2023	ND	2.39	120	2.00	0.915	
Ethylbenzene*	<0.050	0.050	05/20/2023	ND	2.34	117	2.00	0.157	
Total Xylenes*	<0.150	0.150	05/20/2023	ND	7.07	118	6.00	0.746	
Total BTEX	<0.300	0.300	05/20/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	224	16.0	05/18/2023	ND	400	100	400	3.92	

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	05/18/2023	ND	186	93.1	200	6.31	
DRO >C10-C28*	37.8	10.0	05/18/2023	ND	177	88.7	200	6.40	
EXT DRO >C28-C36	<10.0	10.0	05/18/2023	ND					

Surrogate: 1-Chlorooctane 76.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 81.8 % 49.1-148

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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: 05/17/2023
 Reported: 05/22/2023
 Project Name: PARDUE 1H - 4H TANK BATTERY
 Project Number: 03C2012033
 Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/16/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FS 04 0.5' (H232488-04)

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	05/20/2023	ND	2.41	121	2.00	0.483		
Toluene*	<0.050	0.050	05/20/2023	ND	2.39	120	2.00	0.915		
Ethylbenzene*	<0.050	0.050	05/20/2023	ND	2.34	117	2.00	0.157		
Total Xylenes*	<0.150	0.150	05/20/2023	ND	7.07	118	6.00	0.746		
Total BTEx	<0.300	0.300	05/20/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	80.0	16.0	05/18/2023	ND	400	100	400	3.92		

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	05/18/2023	ND	186	93.1	200	6.31	
DRO >C10-C28*	<10.0	10.0	05/18/2023	ND	177	88.7	200	6.40	
EXT DRO >C28-C36	<10.0	10.0	05/18/2023	ND					

Surrogate: 1-Chlorooctane 94.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 101 % 49.1-148

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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: 05/17/2023
 Reported: 05/22/2023
 Project Name: PARDUE 1H - 4H TANK BATTERY
 Project Number: 03C2012033
 Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/16/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FS 05 0.5' (H232488-05)

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	05/20/2023	ND	2.41	121	2.00	0.483		
Toluene*	<0.050	0.050	05/20/2023	ND	2.39	120	2.00	0.915		
Ethylbenzene*	<0.050	0.050	05/20/2023	ND	2.34	117	2.00	0.157		
Total Xylenes*	<0.150	0.150	05/20/2023	ND	7.07	118	6.00	0.746		
Total BTEx	<0.300	0.300	05/20/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	256	16.0	05/18/2023	ND	400	100	400	3.92	

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	05/18/2023	ND	186	93.1	200	6.31	
DRO >C10-C28*	<10.0	10.0	05/18/2023	ND	177	88.7	200	6.40	
EXT DRO >C28-C36	<10.0	10.0	05/18/2023	ND					

Surrogate: 1-Chlorooctane 87.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 91.4 % 49.1-148

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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: 05/17/2023
 Reported: 05/22/2023
 Project Name: PARDUE 1H - 4H TANK BATTERY
 Project Number: 03C2012033
 Project Location: BTA 32.32532,-104.06511

Sampling Date: 05/16/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FS 06 0.5' (H232488-06)

BTX 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	05/20/2023	ND	2.17	109	2.00	0.148	
Toluene*	<0.050	0.050	05/20/2023	ND	2.23	111	2.00	0.986	
Ethylbenzene*	<0.050	0.050	05/20/2023	ND	2.13	106	2.00	0.464	
Total Xylenes*	<0.150	0.150	05/20/2023	ND	6.54	109	6.00	0.248	
Total BTX	<0.300	0.300	05/20/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	256	16.0	05/18/2023	ND	400	100	400	3.92		

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	05/18/2023	ND	186	93.1	200	6.31	
DRO >C10-C28*	<10.0	10.0	05/18/2023	ND	177	88.7	200	6.40	
EXT DRO >C28-C36	<10.0	10.0	05/18/2023	ND					

Surrogate: 1-Chlorooctane 80.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 85.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
BS-3	Blank spike recovery outside of lab established statistical limits, but still within method limits. Data is not adversely affected.
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

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A handwritten signature in black ink, appearing to read "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				BILL TO				ANALYSIS REQUEST			
Project Manager: Hadlie Green				P.O. #:							
Address: 601 N Marientfield Street, Suite 400				Company: BTA Oil							
City: Midland				Attn: Kevin Jones							
Phone #: 432-557-8895				Address: 104 S. Peas St							
Fax #: 393-202033				City: Midland							
Project #: 03C202033				State: TX Zip: 79701							
Project Name: Radium 1A-4H Tank Battery				Phone #: 432-682-3753							
Project Location: 32, 32532, -104, D6511				Fax #:							
Sampler Name: Peter Van Patten											
FOR LAB USE ONLY											
Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX			PRESERV.	SAMPLING		
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	
					ACID/BASE:	ICE / COOL	OTHER :				
					DATE	TIME					
H232488	FS01	0.2'	C 1	✓	5-16-23	1110				Chlorides	
1	FS02	0.2'	C 1	✓		1115				BTEX	
2	FS03	0.2'	C 1	✓		1120				TPH	
3	FS04	0.2'	C 1	✓		1125					
4	FS05	0.2'	C 1	✓		1130					
4	FS06	0.2'	C 1	✓		1135					
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Relinquished By: <i>Peter Van Patten</i>				Received By: <i>Shoddiq</i>				REMARKS: <i>All Results are emailed. Please provide Email address: ngyen@ensolum.com, thortissay@ensolum.com</i>			
Date: 5-17-23				Time: 1445							
Delivered By: (Circle One)				Oscillated Temp. °C: 2.1				Sample Condition: <input checked="" type="checkbox"/> Cool <input type="checkbox"/> Intact			
Sampler - UPS - Bus - Other:				Corrected Temp. °C: 1.5				CHECKED BY: <i>SC</i>			
								Turnaround Time: Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>			
								Thermometer ID #113			
								Corrosion Factor: -0.5°C			
								Bacteria (only) Sample Condition: <input type="checkbox"/> Cool <input type="checkbox"/> Intact			
								<input type="checkbox"/> Yes <input type="checkbox"/> No			
								Observed Temp. °C			
								Corrected Temp. °C			

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



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 05/15/2023
Date: Friday, May 12, 2023 5:03:42 PM
Attachments: [image005.jpg](#)
[image006.png](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)

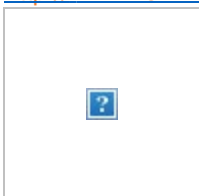
[**EXTERNAL EMAIL**]

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: Friday, May 12, 2023 8:25 AM
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>
Subject: [EXTERNAL] BTA - Sampling Notification - Week of 05/15/2023

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 location the week of May 15, 2023.

- Pardue 1H-4H Tank Battery / nAPP2130941255
 - Sampling Date: 5/16/2023 @ 9:00 AM MST
- Harroun East Tank Battery / nAPP2204151142

- Sampling Date: 5/18/2023 @ 9:00 AM MST
- Harroun East Tank Battery / nAPP2202845563
 - Sampling Date: 5/19/2023 @ 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	nAPP2130941255
District RP	
Facility ID	fAPP2130123090
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) nAPP2130941255
Contact mailing address: 104 S. Pecos St., Midland, TX 79701	

Location of Release Source

Latitude: 32.32532 Longitude: -104.06511
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Pardue 1H-4H Tank Battery	Site Type: Tank Battery
Date Release Discovered: 11/4/2021	API# (if applicable) Nearest well: Pardue D 8808 #002 API #30-015-26406

Unit Letter	Section	Township	Range	County
D	11	23S	28E	Eddy

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: Antonio & Gloria Onsurez)

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) 3 BBL	Volume Recovered (bbls) 0 BBL
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input 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

Dump Valve Failure.

Failure of oil dump valve allowed oil to accumulate in the heater treater and spill over to the flare line. The oil was burned at the flare stack and made a burn area in the vicinity of the ground surrounding the flare stack. No oil was recovered, it was burned up.

Form C-141

Page 2

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2130941255
District RP	
Facility ID	fAPP2130123090
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?

☒ Yes ☐ No

If YES, for what reason(s) does the responsible party consider this a major release?

There was a fire that burned on the ground in the vicinity of the flare stack.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Yes – By filing the Notice of Release on 11/5/2021 via the NMOCD E-Permitting Portal.

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: Bob Hall

Date: 11/5/2021

email: bhall@btaoil.com

Telephone: 432-682-3753

OCD Only

Ramona Marcus

11/8/2021

Received by: _____

Date: _____

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 60498

CONDITIONS

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 60498
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
marcus	None	11/8/2021

Incident ID	nAPP2130941255
District RP	
Facility ID	fAPP2130123090
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

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

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

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

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	nAPP2130941255
District RP	
Facility ID	fAPP2130123090
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 Beaird

Title: Environmental Manager

Signature: 

Date: 8/2/2023

email: KBeaird@btaoi.com

Telephone: 432-312-2203

OCD Only

Received by: Shelly Wells

Date: 8/3/2023

Incident ID	nAPP2130941255
District RP	
Facility ID	fAPP2130123090
Application ID	

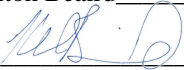
Closure

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: 8/2/2023
email: KBeaird@btaoil.com Telephone: 432-312-2203

OCD Only

Received by: Shelly Wells Date: 8/3/2023

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
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1000 Rio Brazos Rd., Aztec, NM 87410
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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 247618

CONDITIONS

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 247618
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	1/12/2024