ENSOLUM

October 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
Macho State 002H
Incident Number NAPP2319153053
Lea County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of COG Operating, LLC (COG), has prepared this *Closure Request* to document assessment and soil sampling activities performed at the Macho State 002H (Site). The purpose of the Site assessment and soil sampling activities was to assess for the presence or absence of impacts to soil following a release of produced water within a lined containment at the Site. Based on field observations, field screening activities, and soil sample laboratory analytical results, COG is submitting this *Closure Request*, describing Site assessment and delineation activities that have occurred and requesting no further action and closure for Incident Number NAPP2319153053.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit E, Section 02, Township 24 South, Range 33 East, in Lea County, New Mexico (32.2480°, -103.5507°) and is associated with oil and gas exploration and production operations on State Land managed by the New Mexico State Land Office (NMSLO).

On July 5, 2023, a cracked bypass valve resulted in the release of approximately 10.5845 barrels (bbls) of produced water into the graveled and lined secondary containment. The saturated gravel was immediately removed from the lined containment and hauled to a disposal facility. COG reported the release to the New Mexico Oil Conservation Division (NMOCD) on a *Release Notification Form C-141* (Form C-141) on July 10, 2023. The release was assigned Incident Number NAPP2319153053.

Since the release remained within a lined containment on the active well pad, an assessment of cultural properties had already been completed prior to the construction of the well pad and as such, the Cultural Properties Protection Rule (CPP) has been followed. No additional cultural resource surveys were completed in connection with this release. The release area is not expected to be reclaimed until the oil and gas well is plugged and abandoned and the well pad is reclaimed. The Reclamation Plan for this release will default to the NMSLO-approved Reclamation Plan for the well pad per 19.2.100.67 of the New Mexico Administrative Code (NMAC).

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized for applicability of Table I, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29 (19.15.29) of the 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 between 51 and 100 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to groundwater data is New Mexico Office of the State Engineer (NMOSE) well C-04595 POD 1, located approximately 0.95 miles northwest of the Site. The groundwater well was drilled during March 2022 to a total depth of 55 feet bgs and no water was encountered.

There are nine water wells located between 0.95 miles and 3 miles in all cardinal directions of the Site indicating regional depth to groundwater is greater than 55 feet bgs. There are no surface features, such as watercourses, ponds, wetlands, or vegetation indicative of shallow groundwater near the Site. Based on the number of wells surrounding the Site, a consistent pattern of depth to groundwater that corresponds to topography and, therefore, underlying geology, it is evident that groundwater is deep and a conservative estimate of between 51 and 100 feet bgs is estimated. All wells used for depth to groundwater determination are presented on Figure 1. The referenced well records and a map showing the distance to the surrounding wells are included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a freshwater emergent wetland, located approximately 2,200 feet east of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is 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 (low potential karst designation area). Site receptors are identified on Figure 1.

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

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

SITE ASSESSMENT ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

A liner integrity inspection was conducted by Ensolum personnel on July 21, 2023. Upon inspection, the liner was determined to be insufficient. Four delineation soil samples (SS01 through SS04) were collected around the lined containment at a depth of 0.5 feet bgs to confirm the lateral extent of the release.

On August 9, 2023, one borehole (BH01) was advanced via hand auger at the location of the tear in the liner to assess for the presence or absence of impacted soil. Discrete delineation soil samples BH01 and BH01A were collected from the borehole at depths of 0.5 feet and 2 feet bgs. Hand auger refusal was encountered at a depth of 2 feet bgs. The delineation soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. Field screening results and observations from the borehole were documented on a lithologic/soil sampling log, which is included as Appendix B. The borehole was backfilled with the soil removed and COG repaired the tear in the liner. The delineation soil sample

locations are depicted on Figure 2. Photographic documentation was conducted at the Site. 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 Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analyses of the following constituents of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

Laboratory analytical results for delineation soil samples SS01 through SS04, collected around the lined containment, indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria and successfully defined the lateral extent of the release. Laboratory analytical results for delineation soil samples BH01 and BH01A, collected at 0.5 feet and 2 feet bgs beneath the tear in the liner, indicated all COC concentrations were compliant with the Site Closure Criteria and defined the vertical extent of the release. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Appendix D.

CLOSURE REQUEST

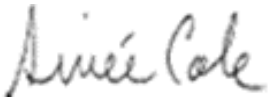
Following the failed liner integrity inspection at the Site, Ensolum personnel advanced one borehole (BH01) at the location of the tear in the liner to assess for the presence or absence of impacted soil resulting from the July 5, 2023, produced water release within the lined containment. Two delineation soil samples were collected from borehole BH01, at depths ranging from 0.5 feet to 2 feet bgs. Laboratory analytical results for the delineation soil samples indicated all COC concentrations were compliant with the Site Closure Criteria. Additionally, laboratory analytical results for soil samples SS01 through SS04, collected around the containment, were compliant with the most stringent Table I Closure Criteria. The release was contained laterally within the lined containment and the tear in the liner was repaired.

Based on initial response efforts, absence of elevated field screening results, and soil sample laboratory analytical results compliant with the Site Closure Criteria directly beneath the tear in the liner, COG respectfully requests closure for Incident Number NAPP2319153053. The Final Form C-141 is included as Appendix E.

If you have any questions or comments, please contact Ms. Hadlie Green at (432) 557-8895 or hgreen@ensolum.com.

Sincerely,
Ensolum, LLC

Hadlie Green
Project Geologist



Aimee Cole
Senior Managing Scientist

cc: Jacob Laird, COG Operating, LLC
New Mexico State Land Office

Appendices:

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

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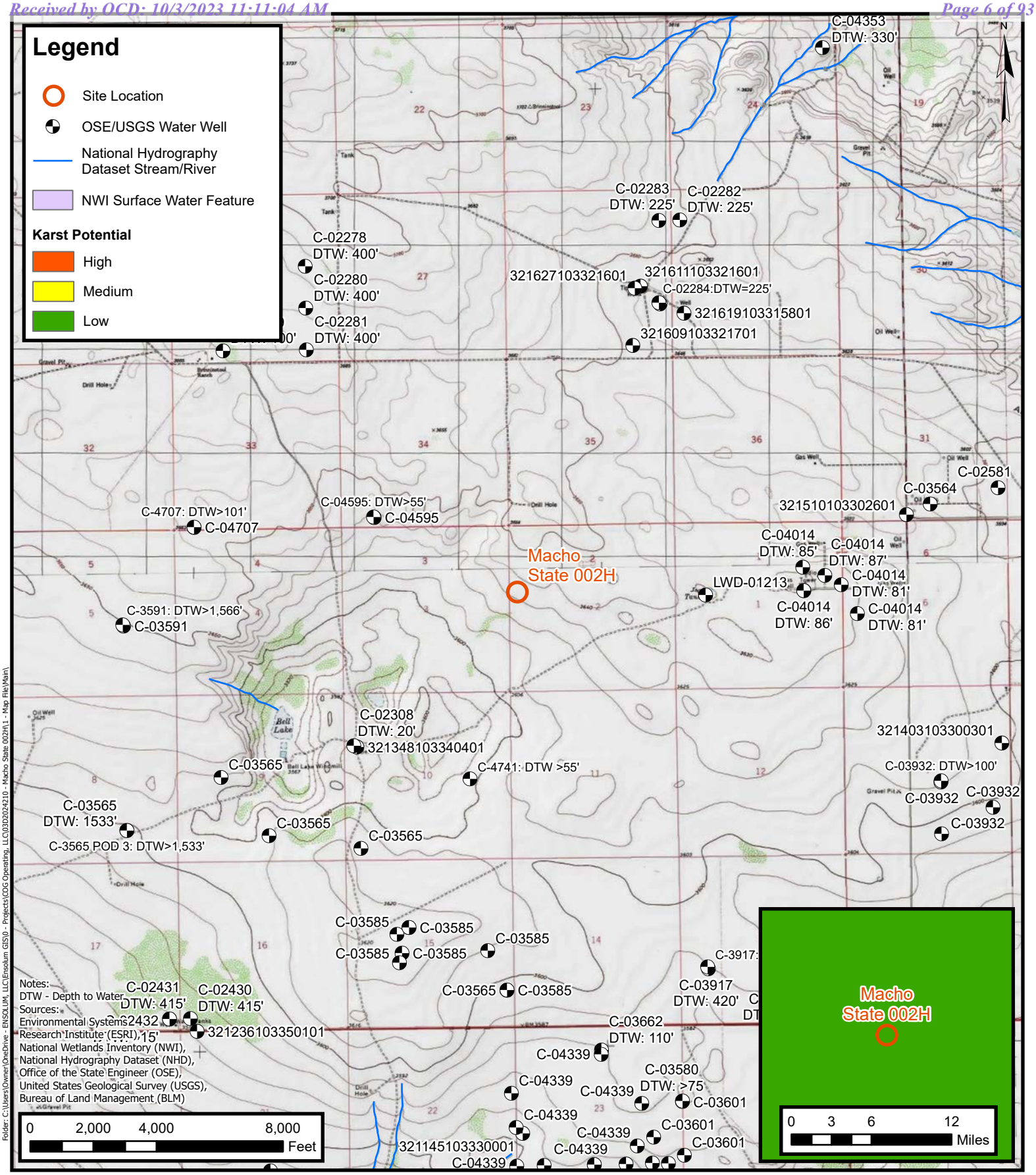
FIGURES



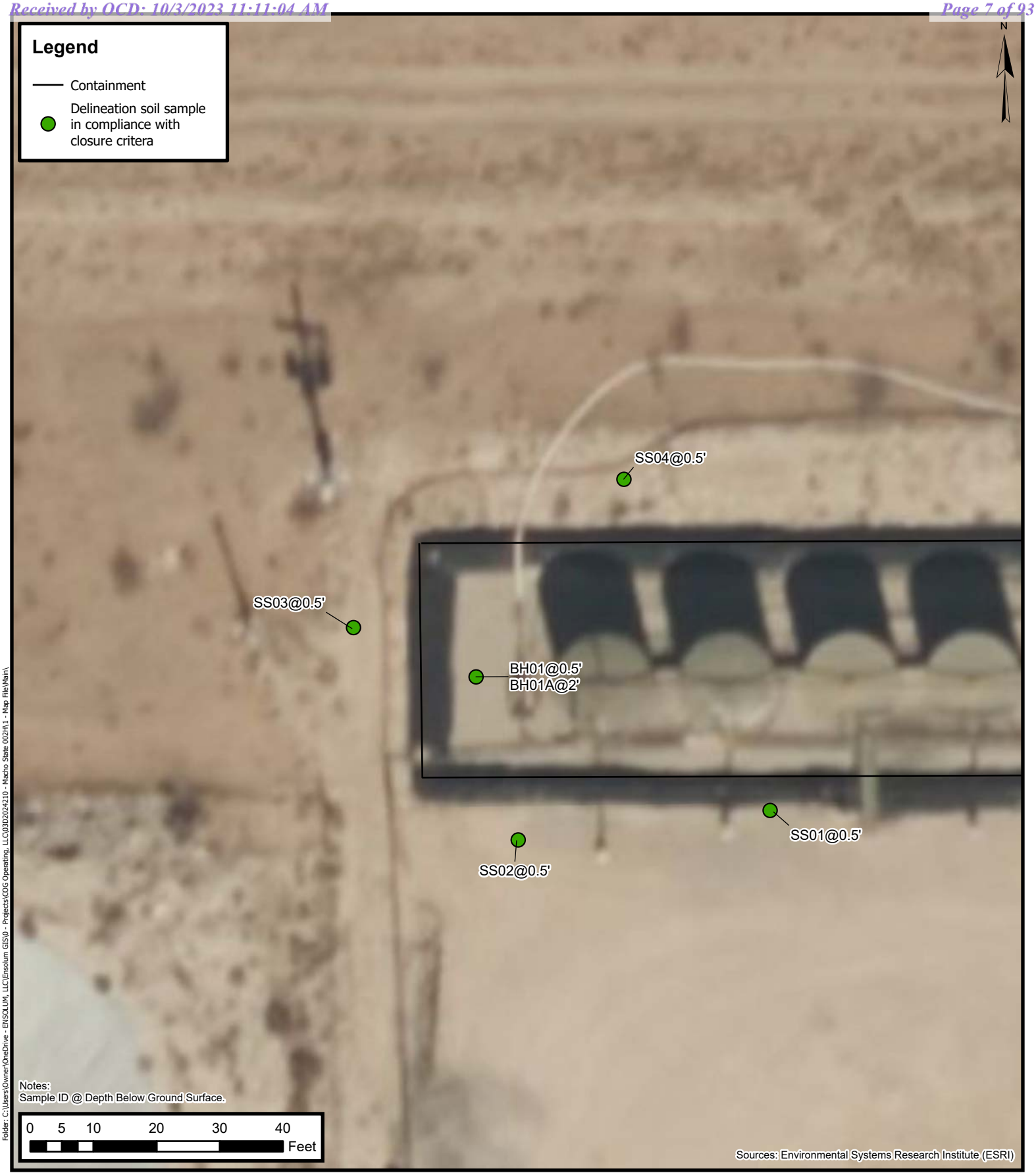
Folder: C:\Users\Owner\OneDrive - ENSOLUM, LLC\Ensolum GIS\0 - Projects\COG Operating, LLC\03D2024210 - Macho State 002H\1 - Map File\Main\

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Site Receptor Map

COG Operating, LLC
Macho State 002H
Incident Number: NAPP2319153053
Unit E, Sec 02, T24S, R33E
Lea County, New Mexico

FIGURE 1



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Environmental, Engineering and Hydrogeologic Consultants

Delineation Soil Sample Locations

COG Operating, LLC
Macho State 002H
Incident Number: NAPP2319153053
Unit E, Sec 02, T24S, R33E
Lea County, New Mexico

FIGURE 2

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TABLES

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Macho State 002H
COG Operating, LLC
Lea County, New Mexico

Sample Designation	Date	Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			**10**	**50**	**NE**	**NE**	**NE**	**1,000**	**2,500**	**10,000**
Delineation Soil Samples										
SS01	07/21/2023	0.5	<0.00199	<0.00398	<49.7	<49.7	<49.7	<49.7	<49.7	120
SS02	07/21/2023	0.5	<0.00199	<0.00398	<49.6	<49.6	<49.6	<49.6	<49.6	36.7
SS03	07/21/2023	0.5	<0.00200	<0.00400	<50.4	<50.4	<50.4	<50.4	<50.4	41.4
SS04	07/21/2023	0.5	<0.00198	<0.00397	<50.4	<50.4	<50.4	<50.4	<50.4	79.9
BH01	08/09/2023	0.5	<0.00198	<0.00397	<50.1	<50.1	<50.1	<50.1	<50.1	1,510
BH01A	08/09/2023	2	<0.00200	<0.00400	<50.4	<50.4	<50.4	<50.4	<50.4	1,890

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

NMAC: New Mexico Administrative Code

NE: Not Established

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

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

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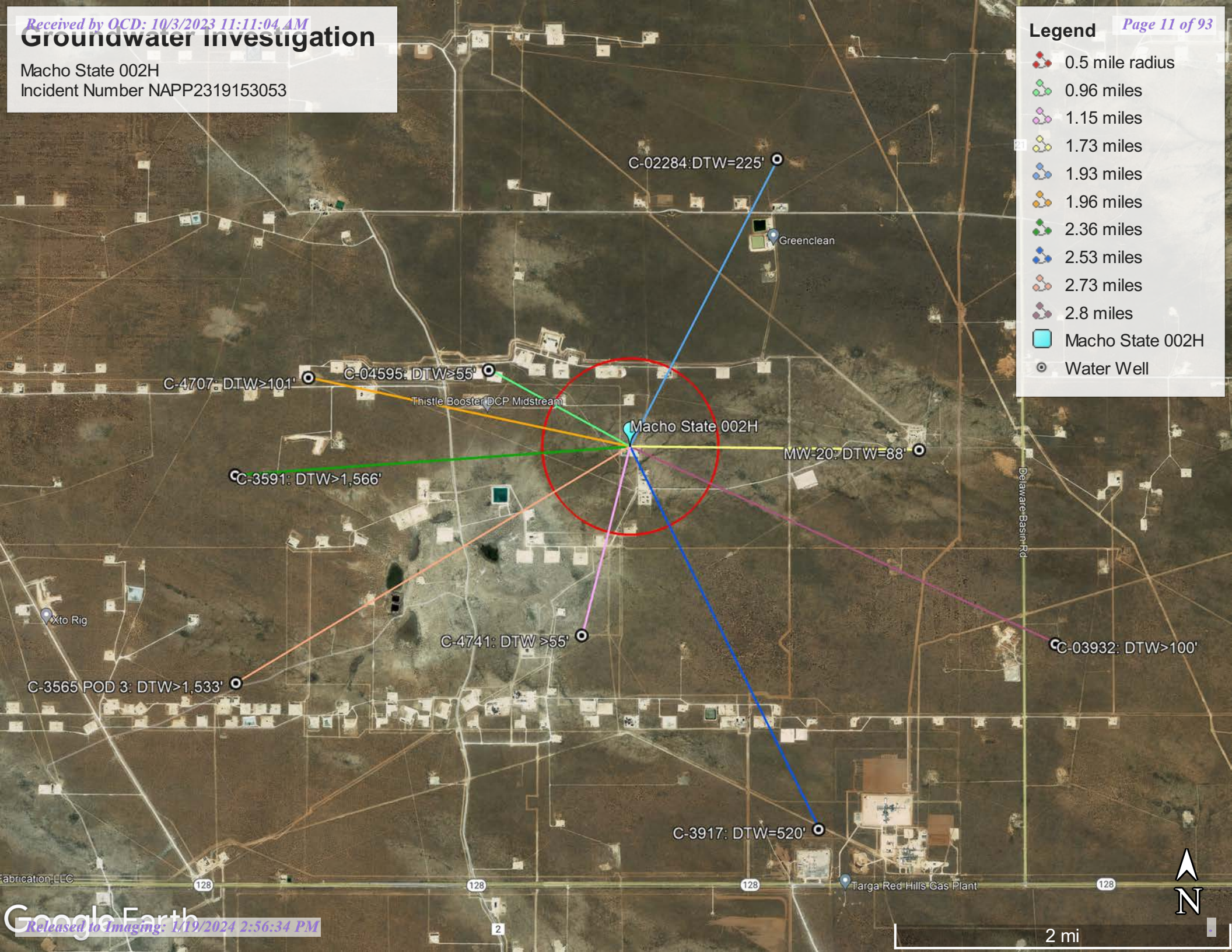
APPENDIX A

Referenced Well Records

Groundwater Investigation

Macho State 002H
Incident Number NAPP2319153053



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD 1 (TW-1)		C-4595

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Devon Energy	575-748-1838

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
6488 7 Rivers Hwy	Artesia	NM	88210

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	15	16.73	N
	LONGITUDE	103	33	54.92	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

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

SE SW SW Sec. 34 T23S R33E

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
03/09/2022	03/09/2022	temporary well casing	±55	n/a

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): dry

DATE STATIC MEASURED: 03/9/22,3/15/22

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Hollow Stem Auger

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	55	±6.5	Boring	--	--	--	--

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

RECEIVED APR 4 2022 PM 2:05

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4595	POD NO. 1	TRN NO. 719171	
LOCATION 23S.33E.34433		WELL TAG ID NO. —	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	4	4	Caliche, with medium to fine grained sand, white and Red	Y ✓ N	
4	24	20	Sand, medium/ fine grained, poorly graded, tan	Y ✓ N	
24	29	5	Sand, medium/ fine grained, poorly graded, Reddish Brown	Y ✓ N	
29	55	26	Sand, medium/ fine grained, poorly graded, with clay Reddish Brown	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

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

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

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

MISCELLANEOUS INFORMATION: Temporary well material removed and soil boring backfilled using drill cuttings from total depth to ten feet below ground surface(bgs), then hydrated bentonite chips ten feet bgs to surface.

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

Shane Eldridge, Carmelo Trevino, Cameron Pruitt

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

OSE DII APR 4 2022 PM2:05

Jack Atkins — Jackie D. Atkins — 03/31/2022

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4595	POD NO. 1	TRN NO. 719171	
LOCATION 23S.33E.34 43		WELL TAG ID NO. —	PAGE 2 OF 2

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
C-4741 POD-1 (SB-1)		C-4741

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Plains All American	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
1106 Griffith Drive	Midland	TX	79706

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	15	53.91	N
	LONGITUDE	103	33	20.72	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

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

Neptune

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1456	John W. White	White Drilling Company, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
5/8/2023	5/11/2023		55.0	

COMPLETED WELL IS: ☐ ARTESIAN *add Centralizer info below ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT):

DATE STATIC MEASURED:

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)

OSE DII JUN 15 2023 PM 1:10

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0.0	55.0	6.0	Cement-Bentonite Slurry	10.8	Tremie Pipe

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO. C-4741	POD NO. 1	TRN NO. 746179	
LOCATION 24S.33E.10 1 2 4		WELL TAG ID NO. NA	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0.0	10.0	10.0	Brown sand	Y ✓ N	
10.0	15.0	5.0	Yellow brown sand	Y ✓ N	
15.0	21.0	6.0	Light tan sand/sandstone	Y ✓ N	
21.0	26.0	5.0	Brown sand /sandstone	Y ✓ N	
26.0	43.0	17.0	Red brown silty sandy shale	Y ✓ N	
43.0	55.0	12.0	Brown/red brown mudstone	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

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

TOTAL ESTIMATED WELL YIELD (gpm):

5. TEST; RIG SUPERVISION

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

MISCELLANEOUS INFORMATION:

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

William B. Atkins

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

John W. White — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

6/6/2023 — DATE

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO. C-4741	POD NO 1	TRN NO 746179	
LOCATION 24S. 33E. 10 1 24		WELL TAG ID NO. NA	PAGE 2 OF 2

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER): MW 20 POD 4 GHD 71	OSE FILE NUMBER(S): C-4014
WELL OWNER NAME(S): GHD SERVICES ON BEHALF OF ENERGY TRANSFER COMPANY	PHONE (OPTIONAL): 505-884-0672
WELL OWNER MAILING ADDRESS: 6121 INDIAN SCHOOL ROAD, NE, SUITE 200	CITY: ALBUQUERQUE STATE: NM ZIP: 87110

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	32	14	52.026	N
LONGITUDE	-103	31	16.914	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

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

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD 1186	RODNEY HAMMER	ENVIRO-DRILL, INC.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
02/13/17	02/17/17	96.5	96.5	88

STATIC WATER LEVEL IN COMPLETED WELL (FT): 86

COMPLETED WELL IS: ARTESIAN DRY HOLE (X) SHALLOW (UNCONFINED)

DRILLING FLUID: AIR MUD ADDITIVES - SPECIFY:

DRILLING METHOD: ROTARY HAMMER CABLE TOOL (•) OTHER - SPECIFY: HSA

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
96.5	35	8	SCREEN	FTJ	2	SCH 40	.010
		8	RISER	FTJ	2	SCH 40	

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
96.5	~~80~~ 77.6	8	10-20 SILICA SAND	15	TREMMIE
~~80~~ 77.6	73.3	8	3/8" BENT CHIPS	2	TREMMIE
73.3	0	8	BENT/CEMENT SLURRY	1165 gal.	TREMMIE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-4014	POD NUMBER	4	TRN NUMBER	600875
LOCATION	MON	24S.33E.1.243			PAGE 1 OF 2

2017 MAR -3 PM 1:14 STATE ENGINEER

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	28	28	CALICHE MED HARD	○ Y ⊗ N	
28	35	7	CALICHE VERY HARD	○ Y ⊗ N	
35	96.5	61.5	SAND FINE W/LENSES MED CEM	⊗ Y ○ N	N/A
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: ○ PUMP ○ AIR LIFT ○ BAILER ○ OTHER – SPECIFY: monitor well

TOTAL ESTIMATED WELL YIELD (gpm): N/A

5. TEST; RIG SUPERVISION

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

MISCELLANEOUS INFORMATION:

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

6. SIGNATURE

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

JOHN AGUIRRE — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

2-21-17 — DATE

2017 MAR -3 PM 12

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-4014	POD NUMBER	4	TRN NUMBER	600875
LOCATION	MON	245.33E.1.243			PAGE 2 OF 2

New Mexico Office of the State Engineer
Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	C 02284	4	2	4	26	23S	33E	637907	3571626*

Driller License: **Driller Company:**

Driller Name: CARL BRININSTOOL

Drill Start Date:		**Drill Finish Date:**	12/31/1919	**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	3 GPM
Casing Size:	6.50	**Depth Well:**	325 feet	**Depth Water:**	225 feet

***UTM location was derived from PLSS - see Help**

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD 1 (TW-1)	N/A	C-4707

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Devon Energy	575-748-1838

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
6488 7 Rivers Hwy	Artesia	NM	88210

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	15	14.18	N
	LONGITUDE	103	35	1.32	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND

* DATUM REQUIRED: WGS 84

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

SW SW SW Sec.33 T23S R33E NMPM

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
4/11/23	4/12/23	Temporary Well Material	±101	N/A

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): N/A

DATE STATIC MEASURED: 4/18/2023

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Hollow Stem Auger

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	101	±6.25	Soil Boring	--	--	--	--

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
			N/A		

OSE DIT APR 27 2023 PM 3:30

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4707	POD NO. 1	TRN NO. 742696	
LOCATION 23S. 33E. 33 4 3 3		WELL TAG ID NO. NA	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	9	9	Sand, fine-grained, poorly graded with caliche, Tan	Y ✓ N	
9	50	41	Sand, fine-grained, poorly graded, cemented layers , Tan	Y ✓ N	
50	65	15	Sand, very fine-grained, poorly graded , Tan / Brown	Y ✓ N	
65	101	36	Clay, Stiff, consolidated, with fine silt, Reddish Brown	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

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

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

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

MISCELLANEOUS INFORMATION: Temporary well material removed and soil boring backfilled using drill cuttings from total depth to ten feet below ground surface(bgs), then hydrated bentonite chips ten feet bgs to surface.
41
Thistle Unit #043

OSE DIT APR 27 2023 PM 3:30

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

Shane Eldridge, Cameron Pruitt

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Jack Atkins — Jackie D. Atkins — 4/26/23

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4707	POD NO. 1	TRN NO. 742696	
LOCATION 23S.33E.33.4.33		WELL TAG ID NO. NA	PAGE 2 OF 2

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2013 JAN 25 P 1:41

1. GENERAL AND WELL LOCATION

POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
ICP-088	C-3591
WELL OWNER NAME(S)	**PHONE (OPTIONAL)**
Intercontinental Potash (USA)	575-942-2799
WELL OWNER MAILING ADDRESS	**CITY / STATE / ZIP**
600 West Bender Boulevard	Hobbs / NM / 88240

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	32	14	43.77	N
LONGITUDE	103	35	27.84	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS

2. OPTIONAL

(2.5 ACRE)	(10 ACRE)	(40 ACRE)	(160 ACRE)	SECTION	TOWNSHIP	RANGE
¼	¼	¼	¼	5	24 ☐ NORTH ☑ SOUTH	33 ☑ EAST ☐ WEST

SUBDIVISION NAME	LOT NUMBER	BLOCK NUMBER	UNIT/TRACT

HYDROGRAPHIC SURVEY	MAP NUMBER	TRACT NUMBER

3. DRILLING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD #331	Phillip Stewart	Stewart Brothers Drilling Co.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
12/8/2012	01/10/2013	NA	1566 FT	NA

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): NA

DRILLING FLUID: ☐ AIR ☑ MUD ☐ ADDITIVES - SPECIFY: ETH GEL, PLATINUM PAC, BI-CARB, SODA ASH,

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY: TACKLE, MYLOGEL, NaCl

DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
0	1263	12.625	J-55 #36 steel	theaded	8.921	0.302	
1263	1566	8.75	NA				

4. WATER BEARING STRATA

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)
NA		NA	NA	NA

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA	TOTAL ESTIMATED WELL YIELD (GPM)
Bypass flow	NA

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	C-3591	POD NUMBER	1	TRN NUMBER	517368
LOCATION	T 24S – R 33E – Sec 5. 412			PAGE 1 OF 2	

5. SEAL AND PUMP

TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☑ NO PUMP – WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER – SPECIFY:

ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
	NA		NA	NA	NA	NA

6. GEOLOGIC LOG OF WELL

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
0	20	20	Caliche	☐ YES ☑ NO
20	55	35	Gutuna Fm. - red siltstones and sandstones	☐ YES ☑ NO
55	1250	1155	Dewey Lake Fm.Red siltstones and mudstones, gray/green mottling	☐ YES ☑ NO
1250	1281	31	Rustler Fm./A-5, white anhydrite	☐ YES ☑ NO
1281	1316	35	H-4 sub-mbr. - milky white halite	☐ YES ☑ NO
1316	1332	16	A-4 sub-mbr. - white anhydrite	☐ YES ☑ NO
1332	1350	18	Magenta Dolomite	☐ YES ☑ NO
1350	1397	47	A-3 sub-mbr. white anhydrite	☐ YES ☑ NO
1397	1504	111	H-3 sub-mbr. - milky halite	☐ YES ☑ NO
1504	1514	10	Ore zone, anhydrite and white polyhalite	☐ YES ☑ NO
1514	1520	6	Halite, with some anhydrite	☐ YES ☐ NO
1520	1528	8	Brown mudstone/ scattered halite	☐ YES ☐ NO
1528	1566	38	Clear to milky halite	☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO

ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL

7. TEST & ADDITIONAL INFO

WELL TEST — METHOD: ☐ BAILER ☐ PUMP ☐ AIR LIFT ☐ OTHER – SPECIFY: NA

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

ADDITIONAL STATEMENTS OR EXPLANATIONS:

2013 JAN 25 P 1:

STATE ENGINEER OFFICE ROSWELL, NEW MEXICO

8. SIGNATURE

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

SIGNATURE OF DRILLER — DATE: 1-24-13

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	C-3591	POD NUMBER	1	TRN NUMBER	
LOCATION	T24S – R33E – Sec 5, 412				PAGE 2 OF 2

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

		OSE FILE NUMBER(S): C-3917
WELL OWNER NAME(S): MARK McCLOY		PHONE (OPTIONAL):
WELL OWNER MAILING ADDRESS: BOX 795	CITY: TATUM	STATE: NM ZIP: 88267

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	12	54.52	N
	LONGITUDE	103	31	54.52	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

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

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1058	CASEY KEY	KEYS DRILLING & PUMP SERVICE INC.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
03/1/16	03/4/16	600'	600'	520'

COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☑ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT): 420'

DRILLING FLUID: ☑ AIR ☐ MUD ☐ ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☑ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
-1.50	20	10-3/4	STEEL		10"	1/4"	
-1.50	300	9-7/8	PVC SCH 40	SPLINE	6"	SCH-40	
300	600	9-7/8	PVC SCH 40	SPLINE	6"	SCH-40	.032

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	20	10-3/4	CEMENT		TOP POUR
20	600	9-7/8	GRAVEL PACK		TOP POUR

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER C-3917	POD NUMBER 1	TRN NUMBER 578203
LOCATION 24S.33E.13.314		PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	20	20	SURFACE	☐ Y ■ N	
20	80	60	TAN SANDSTONE	☐ Y ■ N	
80	120	40	GREY SANDSONTE	☐ Y ■ N	
120	150	30	RED SANDY CLAY & GREY SANDSTONE	☐ Y ■ N	
150	170	20	GREEN & RED SANDSTONE	☐ Y ■ N	
170	180	10	GREY SANDSTONE	☐ Y ■ N	
180	240	60	RED & GREY SANDSTONE	☐ Y ■ N	
240	280	40	GREY SANDSTONE	☐ Y ■ N	
280	320	40	RED & GREY SANDSTONE	☐ Y ■ N	
320	380	60	RED SANDSTONE	☐ Y ■ N	
380	520	40	RED SANDSTONE W/BROWN CLAY	☐ Y ■ N	
520	600	80	RED SANDSTONE	■ Y ☐ N	30 GPM
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: ☐ PUMP ■ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 30

5. TEST; RIG SUPERVISION

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

MISCELLANEOUS INFORMATION: WELL TESTED WITH A TEST PUMP

2016 MAR 11 STATE ENGINEER

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

CASEY KEY

6. SIGNATURE

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

YOGI HURFORD — 03-11-2016

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-3917	POD NUMBER	1	TRN NUMBER	578203
LOCATION	24S.33E.13.314				PAGE 2 OF 2

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO

2012 DEC 11 P 4: 02

1. GENERAL AND WELL LOCATION

POD NUMBER (WELL NUMBER): ICP-085	OSE FILE NUMBER(S): C-3565 POD 3
WELL OWNER NAME(S): Intercontinental Potash (USA)	PHONE (OPTIONAL): 575-942-2799
WELL OWNER MAILING ADDRESS: 600 West Bender Boulevard	CITY: Hobbs; STATE: NM; ZIP: 88240

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	32	13	39.75	N
LONGITUDE	103	35	27.62	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS:

2. OPTIONAL

(2.5 ACRE)	(10 ACRE)	(40 ACRE)	(160 ACRE)	SECTION	TOWNSHIP	RANGE
¼	¼	¼	¼	8	24 ☐ NORTH ☑ SOUTH	33 ☑ EAST ☐ WEST

SUBDIVISION NAME	LOT NUMBER	BLOCK NUMBER	UNIT/TRACT

HYDROGRAPHIC SURVEY	MAP NUMBER	TRACT NUMBER

3. DRILLING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD #331	Phillip Stewart	Stewart Brothers Drilling Co.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
9/27/2012	10/21/2012	NA	1533 FT	NA

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

DRILLING FLUID: ☐ AIR ☑ MUD ☐ ADDITIVES – SPECIFY: ETH GEL, PLATINUM PAC, BI-CARB, SODA ASH,

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY: TACKLE, MYLOGEL, NaCl

DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
0	1250	12.625	J-55 #36 steel	theaded	8.921	0.302	
1250	1533	8.75	NA				

4. WATER BEARING STRATA

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)
NA		NA	NA	NA

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA	TOTAL ESTIMATED WELL YIELD (GPM)
Bypass flow	na

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 1 OF 2

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2012 DEC 11 P 1:03

5. SEAL AND PUMP

TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☑ NO PUMP – WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER – SPECIFY:

ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
	NA		NA	NA	NA	NA

6. GEOLOGIC LOG OF WELL

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
0	20	20	Caliche	☐ YES ☑ NO
20	55	35	Gutuna Fm. - red siltstones and sandstones	☐ YES ☑ NO
55	1227	1181	Dewey Lake Fm.Red siltstones and mudstones, gray/green mottling	☐ YES ☑ NO
1227	1262	35	Rustler Fm./A-5, white anhydrite	☐ YES ☑ NO
1262	1295	33	H-4 sub-mbr. - milky white halite	☐ YES ☑ NO
1295	1310	15	A-4 sub-mbr. - white anhydrite	☐ YES ☑ NO
1310	1330	20	Magenta Dolomite	☐ YES ☑ NO
1330	1375	45	A-3 sub-mbr. white anhydrite	☐ YES ☑ NO
1375	1479	112	H-3 sub-mbr. - milky halite	☐ YES ☑ NO
1479	1489	10	Ore zone, anhydrite and white polyhalite	☐ YES ☑ NO
1489	1533	44	Halite, with some anhydrite	☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO

ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL

7. TEST & ADDITIONAL INFO

WELL TEST: METHOD: ☐ BAILER ☐ PUMP ☐ AIR LIFT ☐ OTHER – SPECIFY: NA

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

ADDITIONAL STATEMENTS OR EXPLANATIONS:

8. SIGNATURE

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

Rodney D. Hunt — SIGNATURE OF DRILLER

12-10-12 — DATE

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 2 OF 2

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO

2012 DEC 11 P 4: 02

1. GENERAL AND WELL LOCATION

POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
ICP-085	C-3565 POD 3
WELL OWNER NAME(S)	**PHONE (OPTIONAL)**
Intercontinental Potash (USA)	575-942-2799
WELL OWNER MAILING ADDRESS	**CITY / STATE / ZIP**
600 West Bender Boulevard	Hobbs / NM / 88240

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	13	39.75	N
	LONGITUDE	103	35	27.62	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS

2. OPTIONAL

(2.5 ACRE)	(10 ACRE)	(40 ACRE)	(160 ACRE)	SECTION	TOWNSHIP	RANGE
¼	¼	¼	¼	8	24 ☐ NORTH ☑ SOUTH	33 ☑ EAST ☐ WEST

SUBDIVISION NAME	LOT NUMBER	BLOCK NUMBER	UNIT/TRACT

HYDROGRAPHIC SURVEY	MAP NUMBER	TRACT NUMBER

3. DRILLING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD #331	Phillip Stewart	Stewart Brothers Drilling Co.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
9/27/2012	10/21/2012	NA	1533 FT	NA

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

DRILLING FLUID: ☐ AIR ☑ MUD ☐ ADDITIVES - SPECIFY: ETH GEL, PLATINUM PAC, BI-CARB, SODA ASH,

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY: TACKLE, MYLOGEL, NaCl

DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
0	1250	12.625	J-55 #36 steel	theaded	8.921	0.302	
1250	1533	8.75	NA				

4. WATER BEARING STRATA

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)
NA		NA	NA	NA

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA	TOTAL ESTIMATED WELL YIELD (GPM)
Bypass flow	na

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 1 OF 2

5. SEAL AND PUMP

TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☑ NO PUMP – WELL NOT EQUIPPED
☐ TURBINE ☐ CYLINDER ☐ OTHER – SPECIFY:

ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
	NA		NA	NA	NA	NA

6. GEOLOGIC LOG OF WELL

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
0	20	20	Caliche	☐ YES ☑ NO
20	55	35	Gutuna Fm. - red siltstones and sandstones	☐ YES ☑ NO
55	1227	1181	Dewey Lake Fm.Red siltstones and mudstones, gray/green mottling	☐ YES ☑ NO
1227	1262	35	Rustler Fm./A-5, white anhydrite	☐ YES ☑ NO
1262	1295	33	H-4 sub-mbr. - milky white halite	☐ YES ☑ NO
1295	1310	15	A-4 sub-mbr. - white anhydrite	☐ YES ☑ NO
1310	1330	20	Magenta Dolomite	☐ YES ☑ NO
1330	1375	45	A-3 sub-mbr. white anhydrite	☐ YES ☑ NO
1375	1479	112	H-3 sub-mbr. - milky halite	☐ YES ☑ NO
1479	1489	10	Ore zone, anhydrite and white polyhalite	☐ YES ☑ NO
1489	1533	44	Halite, with some anhydrite	☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO

ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL

7. TEST & ADDITIONAL INFO

WELL TEST — METHOD: ☐ BAILER ☐ PUMP ☐ AIR LIFT ☐ OTHER – SPECIFY: NA

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

ADDITIONAL STATEMENTS OR EXPLANATIONS:

8. SIGNATURE

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

Rusty D. Hurd — SIGNATURE OF DRILLER

12-10-12 — DATE

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 2 OF 2

2017 DEC 11 P 4:02

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
S5-BH-03	C 03932
WELL OWNER NAME(S)	PHONE (OPTIONAL)
Bryce Krager % Parkhill, Smith & Cooper Attention: R.H. Holder	
WELL OWNER MAILING ADDRESS	CITY / STATE / ZIP
4222 85th Street	Lubbock / TX / 79423

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	14	48.24	N
	LONGITUDE	103	29	16.72	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

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

SE 1/2 of SE 1/4 of SW 1/4 of NE 1/2 of Section 05, Township 24S, Range 34E

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1222	Lee Peterson	Peterson Drilling & Testing, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
02/09/16	02/10/16		100'	

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

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 10/29/15)

FILE NUMBER	C-3932	POD NUMBER	3	TRN NUMBER	581433
LOCATION	24S.34E.5.2.3.4			EXPL	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	3	3	Reddish Brown Silty Sand	Y ✓ N	
3	5	2	Light Reddish Brown Sand	Y ✓ N	
5	7	2	Tan to White Caliche with Sand	Y ✓ N	
7	25	18	Tan-White Caliche, Light Reddish Brown Sand	Y ✓ N	
25	30	5	Light Reddish Brown Sand	Y ✓ N	
30	50	20	Light Reddish Brown Fine Sand with Caliche Pebbles	Y ✓ N	
50	58	8	Light Reddish Brown Sand	Y ✓ N	
58	94	36	Light Reddish Brown Sand with Sandstone Pebbles	Y ✓ N	
94	95	1	Reddish Brown Sandy Gravel	Y ✓ N	
95	96	1	Green to Gray Shaley Claystone	Y ✓ N	
96	99	1	Dark Reddish Brown Silty Sand	Y ✓ N	
99	100	1	Green to Gray Clayey Shale	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

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

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

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

MISCELLANEOUS INFORMATION: Boring location drilled only as a soil boring and plugged after completion per well plugging plan.

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

6. SIGNATURE

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

Lee Peterson — 2/26/16

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-3932	POD NUMBER	3	TRN NUMBER	581433
LOCATION	24S.34E.5.2.3.4		EXPL		PAGE 2 OF 2

Tom Blaine, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 581433
File Nbr: C 03932
Well File Nbr: C 03932 POD3

Mar. 28, 2016

ROBERT H HOLDER
BRYCE KRAGER
4222 85TH ST
LUBBOCK, TX 79423

Greetings:

The above numbered permit was issued in your name on 01/27/2016.

The Well Record was received in this office on 03/01/2016, stating that it had been completed on 02/10/2016, and was a dry well. The well is to be plugged or capped or otherwise maintained in a manner satisfactory to the State Engineer.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 01/14/2017.

If you have any questions, please feel free to contact us.

Sincerely,

D Dunaway

Deborah Dunaway
(575)622-6521

drywell

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
S5-BH-03	C 03932
WELL OWNER NAME(S)	PHONE (OPTIONAL)
Bryce Krager % Parkhill, Smith & Cooper Attention: R.H. Holder	
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WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
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DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 10/29/15)

FILE NUMBER	C-3932	POD NUMBER	3	TRN NUMBER	581433
LOCATION	24S.34E.5.2.3.4			EXPL	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
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7	25	18	Tan-White Caliche, Light Reddish Brown Sand	Y ✓ N	
25	30	5	Light Reddish Brown Sand	Y ✓ N	
30	50	20	Light Reddish Brown Fine Sand with Caliche Pebbles	Y ✓ N	
50	58	8	Light Reddish Brown Sand	Y ✓ N	
58	94	36	Light Reddish Brown Sand with Sandstone Pebbles	Y ✓ N	
94	95	1	Reddish Brown Sandy Gravel	Y ✓ N	
95	96	1	Green to Gray Shaley Claystone	Y ✓ N	
96	99	1	Dark Reddish Brown Silty Sand	Y ✓ N	
99	100	1	Green to Gray Clayey Shale	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

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

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

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MISCELLANEOUS INFORMATION: Boring location drilled only as a soil boring and plugged after completion per well plugging plan.

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6. SIGNATURE

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Lee Peterson — 2/26/16

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-3932	POD NUMBER	3	TRN NUMBER	581433
LOCATION	24S.34E.5.2.3.4		EXPL		PAGE 2 OF 2

Tom Blaine, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 581433
File Nbr: C 03932
Well File Nbr: C 03932 POD3

Apr. 12, 2016

ROBERT H. HOLDER
BRYCE KARGER
4222 85TH ST.
LUBBOCK, TX 79423

Greetings:

The above numbered permit was issued in your name on 01/27/2016.

The Well Record was received in this office on 03/01/2016, stating that it had been completed on 02/10/2016, and was a dry well. The well is to be plugged or capped or otherwise maintained in a manner satisfactory to the State Engineer.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 01/14/2017.

If you have any questions, please feel free to contact us.

Sincerely,

Deborah Dunaway
(575)622-6521

drywell

ENSOLUM

APPENDIX B

Lithologic Soil Sampling Log

ENSOLUM

	Sample Name: BH01	Date: 8/9/2023
	Site Name: Macho State 2H	
	Incident Number: NAPP2319153053	
	Job Number: 03D2024210	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Peter Van Patten	Method: Hand Auger
Coordinates: 32.247998,-103.550962	Hole Diameter: 4"	Total Depth: 2'

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

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
Dry	1,943	0.0	N	BH01	0.5	0	CHHE	Caliche: tan, light tan, light brown, coarse to large gravel, little brown sand, no stain, no odor
Dry	2,077	0.0	N			1	CHHE	SAA (same as above)
Dry	2,223	0.0	N	BH01B	2	2	CHHE	SAA Note: Hand auger refusal @ 2 feet bgs

TD @ 2 FEET BGS

ENSOLUM

APPENDIX C

Photographic Log

ENSOLUM

Photographic Log
COG Operating, LLC
Macho State 002H
Incident Number NAPP2319153053

Photograph: 1 Date: 7/5/2023
Description: Initial release discovery
View: Southwest

Photograph: 2 Date: 7/21/2022
Description: Liner inspection activities
View: Southeast

Photograph: 3 Date: 8/9/2023
Description: Hole identified during inspection activities
View: Southeast

Photograph: 4 Date: 8/9/2023
Description: Liner delineation activities
View: South

ENSOLUM

APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Hadlie Green
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 8/7/2023 12:33:32 PM

JOB DESCRIPTION

Macho State 2H
SDG NUMBER 03D2024210

JOB NUMBER

890-4982-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

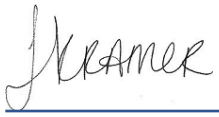
Eurofins Carlsbad

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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8/7/2023 12:33:32 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Ensolum
Project/Site: Macho State 2H

Laboratory Job ID: 890-4982-1
SDG: 03D2024210

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Job ID: 890-4982-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-4982-1

Receipt
The samples were received on 7/21/2023 4:26 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.4°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: SS01 (890-4982-1), SS02 (890-4982-2), SS03 (890-4982-3) and SS04 (890-4982-4).

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-58735 and analytical batch 880-58782 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-58782 recovered above the upper control limit for Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 880-58782/33).

Method 8021B: Surrogate recovery for the following samples were outside control limits: SS01 (890-4982-1), SS02 (890-4982-2), SS03 (890-4982-3), SS04 (890-4982-4), (LCSD 880-58735/2-A), (890-4976-A-1-D), (890-4976-A-1-B MS) and (890-4976-A-1-C MSD). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-59193 and analytical batch 880-59388 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: SS03 (890-4982-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-59388/20), (CCV 880-59388/31) and (CCV 880-59388/5). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-58446 and analytical batch 880-58488 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Client Sample ID: SS01

Lab Sample ID: 890-4982-1
Matrix: Solid
Date Collected: 07/21/23 13:50
Date Received: 07/21/23 16:26
Sample Depth: 0.5

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		07/28/23 13:24	07/30/23 03:19	1
Toluene	<0.00199	U	0.00199		mg/Kg		07/28/23 13:24	07/30/23 03:19	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		07/28/23 13:24	07/30/23 03:19	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		07/28/23 13:24	07/30/23 03:19	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		07/28/23 13:24	07/30/23 03:19	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		07/28/23 13:24	07/30/23 03:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*146*	*S1+*	*70 - 130*	*07/28/23 13:24*	*07/30/23 03:19*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*07/28/23 13:24*	*07/30/23 03:19*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			07/31/23 14:05	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.7	U	49.7		mg/Kg			08/07/23 10:37	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.7	U	49.7		mg/Kg		08/03/23 09:28	08/05/23 16:38	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7		mg/Kg		08/03/23 09:28	08/05/23 16:38	1
OII Range Organics (Over C28-C36)	<49.7	U	49.7		mg/Kg		08/03/23 09:28	08/05/23 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*122*		*70 - 130*	*08/03/23 09:28*	*08/05/23 16:38*	*1*
o-Terphenyl	*103*		*70 - 130*	*08/03/23 09:28*	*08/05/23 16:38*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**		5.00		mg/Kg			07/26/23 00:55	1

Client Sample ID: SS02

Lab Sample ID: 890-4982-2
Matrix: Solid
Date Collected: 07/21/23 13:55
Date Received: 07/21/23 16:26
Sample Depth: 0.5

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		07/28/23 13:24	07/30/23 03:45	1
Toluene	<0.00199	U	0.00199		mg/Kg		07/28/23 13:24	07/30/23 03:45	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		07/28/23 13:24	07/30/23 03:45	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		07/28/23 13:24	07/30/23 03:45	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		07/28/23 13:24	07/30/23 03:45	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		07/28/23 13:24	07/30/23 03:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*151*	*S1+*	*70 - 130*	*07/28/23 13:24*	*07/30/23 03:45*	*1*

Client Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Client Sample ID: SS02

Date Collected: 07/21/23 13:55
Date Received: 07/21/23 16:26
Sample Depth: 0.5

Lab Sample ID: 890-4982-2

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*07/28/23 13:24*	*07/30/23 03:45*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			07/31/23 14:05	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.6	U	49.6	mg/Kg			08/07/23 10:37	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		08/03/23 09:28	08/05/23 17:00	1
Diesel Range Organics (Over C10-C28)	<49.6	U	49.6	mg/Kg		08/03/23 09:28	08/05/23 17:00	1
OII Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		08/03/23 09:28	08/05/23 17:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*119*		*70 - 130*	*08/03/23 09:28*	*08/05/23 17:00*	*1*
o-Terphenyl	*100*		*70 - 130*	*08/03/23 09:28*	*08/05/23 17:00*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**36.7**		4.96	mg/Kg			07/26/23 01:02	1

Client Sample ID: SS03

Date Collected: 07/21/23 14:00
Date Received: 07/21/23 16:26
Sample Depth: 0.5

Lab Sample ID: 890-4982-3

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/28/23 13:24	07/30/23 04:10	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/28/23 13:24	07/30/23 04:10	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/28/23 13:24	07/30/23 04:10	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		07/28/23 13:24	07/30/23 04:10	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/28/23 13:24	07/30/23 04:10	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		07/28/23 13:24	07/30/23 04:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*148*	*S1+*	*70 - 130*	*07/28/23 13:24*	*07/30/23 04:10*	*1*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*07/28/23 13:24*	*07/30/23 04:10*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			07/31/23 14:05	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.4	U	50.4	mg/Kg			08/07/23 10:37	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Client Sample ID: SS03

Lab Sample ID: 890-4982-3
Matrix: Solid
Date Collected: 07/21/23 14:00
Date Received: 07/21/23 16:26
Sample Depth: 0.5

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.4	U	50.4		mg/Kg		08/03/23 09:28	08/05/23 17:22	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4		mg/Kg		08/03/23 09:28	08/05/23 17:22	1
OII Range Organics (Over C28-C36)	<50.4	U	50.4		mg/Kg		08/03/23 09:28	08/05/23 17:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*133*	*S1+*	*70 - 130*	*08/03/23 09:28*	*08/05/23 17:22*	*1*
o-Terphenyl	*104*		*70 - 130*	*08/03/23 09:28*	*08/05/23 17:22*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.4**		5.05		mg/Kg			07/26/23 01:08	1

Client Sample ID: SS04

Lab Sample ID: 890-4982-4
Matrix: Solid
Date Collected: 07/21/23 14:05
Date Received: 07/21/23 16:26
Sample Depth: 0.5

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		07/28/23 13:24	07/30/23 04:36	1
Toluene	<0.00198	U	0.00198		mg/Kg		07/28/23 13:24	07/30/23 04:36	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		07/28/23 13:24	07/30/23 04:36	1
m-Xylene & p-Xylene	<0.00397	U	0.00397		mg/Kg		07/28/23 13:24	07/30/23 04:36	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		07/28/23 13:24	07/30/23 04:36	1
Xylenes, Total	<0.00397	U	0.00397		mg/Kg		07/28/23 13:24	07/30/23 04:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*152*	*S1+*	*70 - 130*	*07/28/23 13:24*	*07/30/23 04:36*	*1*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*	*07/28/23 13:24*	*07/30/23 04:36*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00397	U	0.00397		mg/Kg			07/31/23 14:05	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.4	U	50.4		mg/Kg			08/07/23 10:37	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.4	U	50.4		mg/Kg		08/03/23 09:28	08/05/23 17:45	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4		mg/Kg		08/03/23 09:28	08/05/23 17:45	1
OII Range Organics (Over C28-C36)	<50.4	U	50.4		mg/Kg		08/03/23 09:28	08/05/23 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*126*		*70 - 130*	*08/03/23 09:28*	*08/05/23 17:45*	*1*
o-Terphenyl	*108*		*70 - 130*	*08/03/23 09:28*	*08/05/23 17:45*	*1*

Client Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Client Sample ID: SS04
Date Collected: 07/21/23 14:05
Date Received: 07/21/23 16:26
Sample Depth: 0.5

Lab Sample ID: 890-4982-4
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	79.9		5.02		mg/Kg			07/26/23 01:14	1

Surrogate Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-4976-A-1-B MS	Matrix Spike	155 S1+	98
890-4976-A-1-C MSD	Matrix Spike Duplicate	158 S1+	103
890-4982-1	SS01	146 S1+	95
890-4982-2	SS02	151 S1+	90
890-4982-3	SS03	148 S1+	90
890-4982-4	SS04	152 S1+	81
LCS 880-58735/1-A	Lab Control Sample	117	88
LCSD 880-58735/2-A	Lab Control Sample Dup	144 S1+	96
MB 880-58735/5-A	Method Blank	79	82

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-4979-A-1-D MS	Matrix Spike	125	92
890-4979-A-1-E MSD	Matrix Spike Duplicate	103	76
890-4982-1	SS01	122	103
890-4982-2	SS02	119	100
890-4982-3	SS03	133 S1+	104
890-4982-4	SS04	126	108
LCS 880-59193/2-A	Lab Control Sample	95	95
LCSD 880-59193/3-A	Lab Control Sample Dup	95	109
MB 880-59193/1-A	Method Blank	132 S1+	118

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-58735/5-A
Matrix: Solid
Analysis Batch: 58782

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 58735

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		07/28/23 13:24	07/29/23 18:51	1
Toluene	<0.00200	U	0.00200		mg/Kg		07/28/23 13:24	07/29/23 18:51	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		07/28/23 13:24	07/29/23 18:51	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		07/28/23 13:24	07/29/23 18:51	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		07/28/23 13:24	07/29/23 18:51	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		07/28/23 13:24	07/29/23 18:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*70 - 130*	*07/28/23 13:24*	*07/29/23 18:51*	*1*
1,4-Difluorobenzene (Surr)	*82*		*70 - 130*	*07/28/23 13:24*	*07/29/23 18:51*	*1*

Lab Sample ID: LCS 880-58735/1-A
Matrix: Solid
Analysis Batch: 58782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 58735

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09556		mg/Kg		96	70 - 130		
Toluene			0.100	0.09532		mg/Kg		95	70 - 130		
Ethylbenzene			0.100	0.1016		mg/Kg		102	70 - 130		
m-Xylene & p-Xylene			0.200	0.1885		mg/Kg		94	70 - 130		
o-Xylene			0.100	0.09037		mg/Kg		90	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*

Lab Sample ID: LCSD 880-58735/2-A
Matrix: Solid
Analysis Batch: 58782

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 58735

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1172		mg/Kg		117	70 - 130	20	35
Toluene			0.100	0.1169		mg/Kg		117	70 - 130	20	35
Ethylbenzene			0.100	0.1255		mg/Kg		126	70 - 130	21	35
m-Xylene & p-Xylene			0.200	0.2264		mg/Kg		113	70 - 130	18	35
o-Xylene			0.100	0.1156		mg/Kg		116	70 - 130	24	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*144*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*

Lab Sample ID: 890-4976-A-1-B MS
Matrix: Solid
Analysis Batch: 58782

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 58735

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00202	U	0.0996	0.1169		mg/Kg		117	70 - 130		
Toluene	<0.00202	U	0.0996	0.1192		mg/Kg		120	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 890-4976-A-1-B MS
Matrix: Solid
Analysis Batch: 58782

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 58735

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00202	U F1	0.0996	0.1254		mg/Kg		126	70 - 130
m-Xylene & p-Xylene	<0.00404	U	0.199	0.2223		mg/Kg		112	70 - 130
o-Xylene	<0.00202	U	0.0996	0.1178		mg/Kg		118	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*155*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: 890-4976-A-1-C MSD
Matrix: Solid
Analysis Batch: 58782

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 58735

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U	0.0994	0.1214		mg/Kg		122	70 - 130	4	35
Toluene	<0.00202	U	0.0994	0.1228		mg/Kg		124	70 - 130	3	35
Ethylbenzene	<0.00202	U F1	0.0994	0.1325	F1	mg/Kg		133	70 - 130	5	35
m-Xylene & p-Xylene	<0.00404	U	0.199	0.2321		mg/Kg		117	70 - 130	4	35
o-Xylene	<0.00202	U	0.0994	0.1208		mg/Kg		122	70 - 130	3	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*158*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-59193/1-A
Matrix: Solid
Analysis Batch: 59388

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 59193

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		08/03/23 09:28	08/05/23 08:24	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/03/23 09:28	08/05/23 08:24	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/03/23 09:28	08/05/23 08:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*132*	*S1+*	*70 - 130*	*08/03/23 09:28*	*08/05/23 08:24*	*1*
o-Terphenyl	*118*		*70 - 130*	*08/03/23 09:28*	*08/05/23 08:24*	*1*

Lab Sample ID: LCS 880-59193/2-A
Matrix: Solid
Analysis Batch: 59388

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 59193

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1000		mg/Kg		100	70 - 130
Diesel Range Organics (Over C10-C28)			1000	971.1		mg/Kg		97	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-59193/2-A
Matrix: Solid
Analysis Batch: 59388

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 59193

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	95		70 - 130

Lab Sample ID: LCSD 880-59193/3-A
Matrix: Solid
Analysis Batch: 59388

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 59193

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	975.9		mg/Kg		98	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	979.0		mg/Kg		98	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	109		70 - 130

Lab Sample ID: 890-4979-A-1-D MS
Matrix: Solid
Analysis Batch: 59388

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 59193

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	992	1031		mg/Kg		101	70 - 130
Diesel Range Organics (Over C10-C28)	<50.3	U	992	1253		mg/Kg		124	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	125		70 - 130
o-Terphenyl	92		70 - 130

Lab Sample ID: 890-4979-A-1-E MSD
Matrix: Solid
Analysis Batch: 59388

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 59193

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	992	1146		mg/Kg		113	70 - 130	11	20
Diesel Range Organics (Over C10-C28)	<50.3	U	992	1041		mg/Kg		103	70 - 130	18	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	103		70 - 130
o-Terphenyl	76		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-58446/1-A
Matrix: Solid
Analysis Batch: 58488

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			07/25/23 22:10	1

Lab Sample ID: LCS 880-58446/2-A
Matrix: Solid
Analysis Batch: 58488

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	231.5		mg/Kg		93	90 - 110		

Lab Sample ID: LCSD 880-58446/3-A
Matrix: Solid
Analysis Batch: 58488

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	232.1		mg/Kg		93	90 - 110	0	20

Lab Sample ID: 890-4980-A-3-B MS
Matrix: Solid
Analysis Batch: 58488

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	81.0	F1	248	301.0	F1	mg/Kg		89	90 - 110		

Lab Sample ID: 890-4980-A-3-C MSD
Matrix: Solid
Analysis Batch: 58488

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	81.0	F1	248	302.4	F1	mg/Kg		89	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

GC VOA

Prep Batch: 58735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4982-1	SS01	Total/NA	Solid	5035	
890-4982-2	SS02	Total/NA	Solid	5035	
890-4982-3	SS03	Total/NA	Solid	5035	
890-4982-4	SS04	Total/NA	Solid	5035	
MB 880-58735/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-58735/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-58735/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4976-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
890-4976-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 58782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4982-1	SS01	Total/NA	Solid	8021B	58735
890-4982-2	SS02	Total/NA	Solid	8021B	58735
890-4982-3	SS03	Total/NA	Solid	8021B	58735
890-4982-4	SS04	Total/NA	Solid	8021B	58735
MB 880-58735/5-A	Method Blank	Total/NA	Solid	8021B	58735
LCS 880-58735/1-A	Lab Control Sample	Total/NA	Solid	8021B	58735
LCSD 880-58735/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	58735
890-4976-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	58735
890-4976-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	58735

Analysis Batch: 58871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4982-1	SS01	Total/NA	Solid	Total BTEX	
890-4982-2	SS02	Total/NA	Solid	Total BTEX	
890-4982-3	SS03	Total/NA	Solid	Total BTEX	
890-4982-4	SS04	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 59193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4982-1	SS01	Total/NA	Solid	8015NM Prep	
890-4982-2	SS02	Total/NA	Solid	8015NM Prep	
890-4982-3	SS03	Total/NA	Solid	8015NM Prep	
890-4982-4	SS04	Total/NA	Solid	8015NM Prep	
MB 880-59193/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-59193/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-59193/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4979-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-4979-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 59388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4982-1	SS01	Total/NA	Solid	8015B NM	59193
890-4982-2	SS02	Total/NA	Solid	8015B NM	59193
890-4982-3	SS03	Total/NA	Solid	8015B NM	59193
890-4982-4	SS04	Total/NA	Solid	8015B NM	59193
MB 880-59193/1-A	Method Blank	Total/NA	Solid	8015B NM	59193
LCS 880-59193/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	59193

QC Association Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

GC Semi VOA (Continued)

Analysis Batch: 59388 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-59193/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	59193
890-4979-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	59193
890-4979-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	59193

Analysis Batch: 59497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4982-1	SS01	Total/NA	Solid	8015 NM	
890-4982-2	SS02	Total/NA	Solid	8015 NM	
890-4982-3	SS03	Total/NA	Solid	8015 NM	
890-4982-4	SS04	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 58446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4982-1	SS01	Soluble	Solid	DI Leach	
890-4982-2	SS02	Soluble	Solid	DI Leach	
890-4982-3	SS03	Soluble	Solid	DI Leach	
890-4982-4	SS04	Soluble	Solid	DI Leach	
MB 880-58446/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-58446/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-58446/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-4980-A-3-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-4980-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 58488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4982-1	SS01	Soluble	Solid	300.0	58446
890-4982-2	SS02	Soluble	Solid	300.0	58446
890-4982-3	SS03	Soluble	Solid	300.0	58446
890-4982-4	SS04	Soluble	Solid	300.0	58446
MB 880-58446/1-A	Method Blank	Soluble	Solid	300.0	58446
LCS 880-58446/2-A	Lab Control Sample	Soluble	Solid	300.0	58446
LCSD 880-58446/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	58446
890-4980-A-3-B MS	Matrix Spike	Soluble	Solid	300.0	58446
890-4980-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	58446

Lab Chronicle

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Client Sample ID: SS01
Date Collected: 07/21/23 13:50
Date Received: 07/21/23 16:26

Lab Sample ID: 890-4982-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	58735	07/28/23 13:24	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	58782	07/30/23 03:19	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			58871	07/31/23 14:05	AJ	EET MID
Total/NA	Analysis	8015 NM		1			59497	08/07/23 10:37	SM	EET MID
Total/NA	Prep	8015NM Prep			10.07 g	10 mL	59193	08/03/23 09:28	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	59388	08/05/23 16:38	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	58446	07/25/23 09:41	KS	EET MID
Soluble	Analysis	300.0		1			58488	07/26/23 00:55	CH	EET MID

Client Sample ID: SS02
Date Collected: 07/21/23 13:55
Date Received: 07/21/23 16:26

Lab Sample ID: 890-4982-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	58735	07/28/23 13:24	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	58782	07/30/23 03:45	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			58871	07/31/23 14:05	AJ	EET MID
Total/NA	Analysis	8015 NM		1			59497	08/07/23 10:37	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	59193	08/03/23 09:28	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	59388	08/05/23 17:00	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	58446	07/25/23 09:41	KS	EET MID
Soluble	Analysis	300.0		1			58488	07/26/23 01:02	CH	EET MID

Client Sample ID: SS03
Date Collected: 07/21/23 14:00
Date Received: 07/21/23 16:26

Lab Sample ID: 890-4982-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	58735	07/28/23 13:24	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	58782	07/30/23 04:10	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			58871	07/31/23 14:05	AJ	EET MID
Total/NA	Analysis	8015 NM		1			59497	08/07/23 10:37	SM	EET MID
Total/NA	Prep	8015NM Prep			9.93 g	10 mL	59193	08/03/23 09:28	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	59388	08/05/23 17:22	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	58446	07/25/23 09:41	KS	EET MID
Soluble	Analysis	300.0		1			58488	07/26/23 01:08	CH	EET MID

Client Sample ID: SS04
Date Collected: 07/21/23 14:05
Date Received: 07/21/23 16:26

Lab Sample ID: 890-4982-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	58735	07/28/23 13:24	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	58782	07/30/23 04:36	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			58871	07/31/23 14:05	AJ	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Client Sample ID: SS04

Date Collected: 07/21/23 14:05
Date Received: 07/21/23 16:26

Lab Sample ID: 890-4982-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			59497	08/07/23 10:37	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	59193	08/03/23 09:28	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	59388	08/05/23 17:45	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	58446	07/25/23 09:41	KS	EET MID
Soluble	Analysis	300.0		1			58488	07/26/23 01:14	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-4982-1
SDG: 03D2024210

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-4982-1	SS01	Solid	07/21/23 13:50	07/21/23 16:26	0.5
890-4982-2	SS02	Solid	07/21/23 13:55	07/21/23 16:26	0.5
890-4982-3	SS03	Solid	07/21/23 14:00	07/21/23 16:26	0.5
890-4982-4	SS04	Solid	07/21/23 14:05	07/21/23 16:26	0.5

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 1 of 1

Project Manager:	Hadlie Green	Bill to: (if different)	Kalei Jennings
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Marienfeld St Suite 400	Address:	601 N Marienfeld St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	432-557-8895	Email:	hgreen@ensolum.com, kjennings@ensolum.com

Work Order Comments

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

Project Name:	Macho State 2H	Turn Around	☑ Routine ☐ Rush
Project Number:	03D2024210	Due Date:	
Project Location:	32.248,-103.5507	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Peter Van Patten		
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	TM007	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	2.6	
Total Containers:		Corrected Temperature:	2.4	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
SS01	Soil	7/21/2023	1350	0.5'	Comp	1		x	x	x
SS02	Soil	7/21/2023	1355	0.5'	Comp	1		x	x	x
SS03	Soil	7/21/2023	1400	0.5'	Comp	1		x	x	x
SS04	Soil	7/21/2023	1405	0.5'	Comp	1		x	x	x

Parameters

890-4982 Chain of Custody

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2S0_4: H_2 | NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Peter Van Patten		7.21.23 1628			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4982-1
SDG Number: 03D2024210

Login Number: 4982
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4982-1
SDG Number: 03D2024210

Login Number: 4982
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 07/25/23 10:57 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Hadlie Green
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 8/21/2023 2:58:29 PM

JOB DESCRIPTION

Macho State 2H
SDG NUMBER 03D2024210

JOB NUMBER

890-5071-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

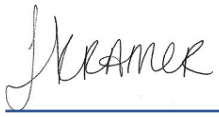
Eurofins Carlsbad

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Ensolum
Project/Site: Macho State 2H

Laboratory Job ID: 890-5071-1
SDG: 03D2024210

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Job ID: 890-5071-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-5071-1

Receipt
The samples were received on 8/9/2023 2:40 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.2°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: BH01 (890-5071-1) and BH01B (890-5071-2).

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-60389 and analytical batch 880-60609 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-60609/21), (CCV 880-60609/32), (CCV 880-60609/6) and (LCS 880-60389/2-A). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-60064 and analytical batch 880-60267 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.The associated samples are: BH01 (890-5071-1), BH01B (890-5071-2), (880-31978-A-1-A), (880-31978-A-1-B MS) and (880-31978-A-1-C MSD).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Client Sample ID: BH01

Date Collected: 08/09/23 11:40
Date Received: 08/09/23 14:40
Sample Depth: COMP

Lab Sample ID: 890-5071-1
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		08/17/23 09:14	08/17/23 16:57	1
Toluene	<0.00198	U	0.00198		mg/Kg		08/17/23 09:14	08/17/23 16:57	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		08/17/23 09:14	08/17/23 16:57	1
m-Xylene & p-Xylene	<0.00397	U	0.00397		mg/Kg		08/17/23 09:14	08/17/23 16:57	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		08/17/23 09:14	08/17/23 16:57	1
Xylenes, Total	<0.00397	U	0.00397		mg/Kg		08/17/23 09:14	08/17/23 16:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*70 - 130*	*08/17/23 09:14*	*08/17/23 16:57*	*1*
1,4-Difluorobenzene (Surr)	*71*		*70 - 130*	*08/17/23 09:14*	*08/17/23 16:57*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00397	U	0.00397		mg/Kg			08/18/23 08:44	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.1	U	50.1		mg/Kg			08/21/23 11:32	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.1	U	50.1		mg/Kg		08/16/23 14:53	08/19/23 18:13	1
Diesel Range Organics (Over C10-C28)	<50.1	U	50.1		mg/Kg		08/16/23 14:53	08/19/23 18:13	1
OII Range Organics (Over C28-C36)	<50.1	U	50.1		mg/Kg		08/16/23 14:53	08/19/23 18:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*117*		*70 - 130*	*08/16/23 14:53*	*08/19/23 18:13*	*1*
o-Terphenyl	*102*		*70 - 130*	*08/16/23 14:53*	*08/19/23 18:13*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1510**		24.9		mg/Kg			08/15/23 05:48	5

Client Sample ID: BH01A

Date Collected: 08/09/23 12:00
Date Received: 08/09/23 14:40
Sample Depth: COMP

Lab Sample ID: 890-5071-2
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/17/23 09:14	08/17/23 17:17	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/17/23 09:14	08/17/23 17:17	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/17/23 09:14	08/17/23 17:17	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/17/23 09:14	08/17/23 17:17	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/17/23 09:14	08/17/23 17:17	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/17/23 09:14	08/17/23 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*	*08/17/23 09:14*	*08/17/23 17:17*	*1*

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Client Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Client Sample ID: BH01A
Date Collected: 08/09/23 12:00
Date Received: 08/09/23 14:40
Sample Depth: COMP

Lab Sample ID: 890-5071-2
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*80*		*70 - 130*	*08/17/23 09:14*	*08/17/23 17:17*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			08/18/23 08:44	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.4	U	50.4		mg/Kg			08/21/23 11:32	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.4	U	50.4		mg/Kg		08/16/23 14:53	08/19/23 18:34	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4		mg/Kg		08/16/23 14:53	08/19/23 18:34	1
OII Range Organics (Over C28-C36)	<50.4	U	50.4		mg/Kg		08/16/23 14:53	08/19/23 18:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*122*		*70 - 130*	*08/16/23 14:53*	*08/19/23 18:34*	*1*
o-Terphenyl	*107*		*70 - 130*	*08/16/23 14:53*	*08/19/23 18:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1890**		25.0		mg/Kg			08/15/23 05:58	5

Surrogate Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)											
		BFB1	DFBZ1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
880-32194-A-1-D MS	Matrix Spike	118	117										
880-32194-A-1-E MSD	Matrix Spike Duplicate	125	120										
890-5071-1	BH01	82	71										
890-5071-2	BH01B	88	80										
LCS 880-60430/1-A	Lab Control Sample	113	114										
LCSD 880-60430/2-A	Lab Control Sample Dup	115	104										
MB 880-60430/5-A	Method Blank	71	99										

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)											
		1CO1	OTPH1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
880-31775-A-1-D MS	Matrix Spike	104	79										
880-31775-A-1-E MSD	Matrix Spike Duplicate	105	78										
890-5071-1	BH01	117	102										
890-5071-2	BH01B	122	107										
LCS 880-60389/2-A	Lab Control Sample	131 S1+	120										
LCSD 880-60389/3-A	Lab Control Sample Dup	130	113										
MB 880-60389/1-A	Method Blank	156 S1+	145 S1+										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-60430/5-A
Matrix: Solid
Analysis Batch: 60428

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 60430

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/17/23 09:14	08/17/23 11:26	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/17/23 09:14	08/17/23 11:26	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/17/23 09:14	08/17/23 11:26	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/17/23 09:14	08/17/23 11:26	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/17/23 09:14	08/17/23 11:26	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/17/23 09:14	08/17/23 11:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*71*		*70 - 130*	*08/17/23 09:14*	*08/17/23 11:26*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*08/17/23 09:14*	*08/17/23 11:26*	*1*

Lab Sample ID: LCS 880-60430/1-A
Matrix: Solid
Analysis Batch: 60428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 60430

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09480		mg/Kg		95	70 - 130		
Toluene			0.100	0.1113		mg/Kg		111	70 - 130		
Ethylbenzene			0.100	0.1133		mg/Kg		113	70 - 130		
m-Xylene & p-Xylene			0.200	0.2460		mg/Kg		123	70 - 130		
o-Xylene			0.100	0.1203		mg/Kg		120	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*

Lab Sample ID: LCSD 880-60430/2-A
Matrix: Solid
Analysis Batch: 60428

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 60430

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09120		mg/Kg		91	70 - 130	4	35
Toluene			0.100	0.1069		mg/Kg		107	70 - 130	4	35
Ethylbenzene			0.100	0.1079		mg/Kg		108	70 - 130	5	35
m-Xylene & p-Xylene			0.200	0.2357		mg/Kg		118	70 - 130	4	35
o-Xylene			0.100	0.1157		mg/Kg		116	70 - 130	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: 880-32194-A-1-D MS
Matrix: Solid
Analysis Batch: 60428

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 60430

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00202	U	0.0994	0.09908		mg/Kg		100	70 - 130		
Toluene	<0.00202	U	0.0994	0.1071		mg/Kg		108	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-32194-A-1-D MS
Matrix: Solid
Analysis Batch: 60428

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 60430

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00202	U	0.0994	0.1051		mg/Kg		106	70 - 130
m-Xylene & p-Xylene	<0.00403	U	0.199	0.2281		mg/Kg		115	70 - 130
o-Xylene	<0.00202	U	0.0994	0.1126		mg/Kg		113	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*118*		*70 - 130*
1,4-Difluorobenzene (Surr)	*117*		*70 - 130*

Lab Sample ID: 880-32194-A-1-E MSD
Matrix: Solid
Analysis Batch: 60428

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 60430

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U	0.0998	0.08800		mg/Kg		88	70 - 130	12	35
Toluene	<0.00202	U	0.0998	0.09855		mg/Kg		99	70 - 130	8	35
Ethylbenzene	<0.00202	U	0.0998	0.09672		mg/Kg		97	70 - 130	8	35
m-Xylene & p-Xylene	<0.00403	U	0.200	0.2114		mg/Kg		106	70 - 130	8	35
o-Xylene	<0.00202	U	0.0998	0.1071		mg/Kg		107	70 - 130	5	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*
1,4-Difluorobenzene (Surr)	*120*		*70 - 130*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-60389/1-A
Matrix: Solid
Analysis Batch: 60609

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 60389

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		08/16/23 14:52	08/19/23 07:38	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/16/23 14:52	08/19/23 07:38	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/16/23 14:52	08/19/23 07:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*156*	*S1+*	*70 - 130*	*08/16/23 14:52*	*08/19/23 07:38*	*1*
o-Terphenyl	*145*	*S1+*	*70 - 130*	*08/16/23 14:52*	*08/19/23 07:38*	*1*

Lab Sample ID: LCS 880-60389/2-A
Matrix: Solid
Analysis Batch: 60609

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 60389

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1041		mg/Kg		104	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1099		mg/Kg		110	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-60389/2-A
Matrix: Solid
Analysis Batch: 60609

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 60389

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	131	S1+	70 - 130
o-Terphenyl	120		70 - 130

Lab Sample ID: LCSD 880-60389/3-A
Matrix: Solid
Analysis Batch: 60609

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 60389

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	962.4		mg/Kg		96	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	953.3		mg/Kg		95	70 - 130	14	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	130		70 - 130
o-Terphenyl	113		70 - 130

Lab Sample ID: 880-31775-A-1-D MS
Matrix: Solid
Analysis Batch: 60609

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 60389

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	998	1166		mg/Kg		113	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.2	U	998	968.0		mg/Kg		97	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	104		70 - 130
o-Terphenyl	79		70 - 130

Lab Sample ID: 880-31775-A-1-E MSD
Matrix: Solid
Analysis Batch: 60609

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 60389

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	998	1174		mg/Kg		113	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	<50.2	U	998	956.5		mg/Kg		96	70 - 130	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	105		70 - 130
o-Terphenyl	78		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-60064/1-A
Matrix: Solid
Analysis Batch: 60267

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			08/15/23 01:18	1

Lab Sample ID: LCS 880-60064/2-A
Matrix: Solid
Analysis Batch: 60267

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	269.8		mg/Kg		108	90 - 110		

Lab Sample ID: LCSD 880-60064/3-A
Matrix: Solid
Analysis Batch: 60267

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	270.8		mg/Kg		108	90 - 110	0	20

Lab Sample ID: 880-31978-A-1-B MS
Matrix: Solid
Analysis Batch: 60267

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	190	F1	252	349.2	F1	mg/Kg		63	90 - 110		

Lab Sample ID: 880-31978-A-1-C MSD
Matrix: Solid
Analysis Batch: 60267

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	190	F1	250	347.0	F1	mg/Kg		63	90 - 110	1	20

QC Association Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

GC VOA

Analysis Batch: 60428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5071-1	BH01	Total/NA	Solid	8021B	60430
890-5071-2	BH01B	Total/NA	Solid	8021B	60430
MB 880-60430/5-A	Method Blank	Total/NA	Solid	8021B	60430
LCS 880-60430/1-A	Lab Control Sample	Total/NA	Solid	8021B	60430
LCSD 880-60430/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	60430
880-32194-A-1-D MS	Matrix Spike	Total/NA	Solid	8021B	60430
880-32194-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	60430

Prep Batch: 60430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5071-1	BH01	Total/NA	Solid	5035	
890-5071-2	BH01B	Total/NA	Solid	5035	
MB 880-60430/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-60430/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-60430/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-32194-A-1-D MS	Matrix Spike	Total/NA	Solid	5035	
880-32194-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 60535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5071-1	BH01	Total/NA	Solid	Total BTEX	
890-5071-2	BH01B	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 60389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5071-1	BH01	Total/NA	Solid	8015NM Prep	
890-5071-2	BH01B	Total/NA	Solid	8015NM Prep	
MB 880-60389/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-60389/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-60389/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-31775-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-31775-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 60609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5071-1	BH01	Total/NA	Solid	8015B NM	60389
890-5071-2	BH01B	Total/NA	Solid	8015B NM	60389
MB 880-60389/1-A	Method Blank	Total/NA	Solid	8015B NM	60389
LCS 880-60389/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	60389
LCSD 880-60389/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	60389
880-31775-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	60389
880-31775-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	60389

Analysis Batch: 60720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5071-1	BH01	Total/NA	Solid	8015 NM	
890-5071-2	BH01B	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

HPLC/IC

Leach Batch: 60064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5071-1	BH01	Soluble	Solid	DI Leach	
890-5071-2	BH01B	Soluble	Solid	DI Leach	
MB 880-60064/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-60064/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-60064/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-31978-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-31978-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 60267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5071-1	BH01	Soluble	Solid	300.0	60064
890-5071-2	BH01B	Soluble	Solid	300.0	60064
MB 880-60064/1-A	Method Blank	Soluble	Solid	300.0	60064
LCS 880-60064/2-A	Lab Control Sample	Soluble	Solid	300.0	60064
LCSD 880-60064/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	60064
880-31978-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	60064
880-31978-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	60064

Lab Chronicle

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Client Sample ID: BH01
Date Collected: 08/09/23 11:40
Date Received: 08/09/23 14:40

Lab Sample ID: 890-5071-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	60430	08/17/23 09:14	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	60428	08/17/23 16:57	SM	EET MID
Total/NA	Analysis	Total BTEX		1			60535	08/18/23 08:44	SM	EET MID
Total/NA	Analysis	8015 NM		1			60720	08/21/23 11:32	SM	EET MID
Total/NA	Prep	8015NM Prep			9.98 g	10 mL	60389	08/16/23 14:53	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	60609	08/19/23 18:13	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	60064	08/13/23 12:41	SMC	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	60267	08/15/23 05:48	SMC	EET MID

Client Sample ID: BH01B
Date Collected: 08/09/23 12:00
Date Received: 08/09/23 14:40

Lab Sample ID: 890-5071-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	60430	08/17/23 09:14	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	60428	08/17/23 17:17	SM	EET MID
Total/NA	Analysis	Total BTEX		1			60535	08/18/23 08:44	SM	EET MID
Total/NA	Analysis	8015 NM		1			60720	08/21/23 11:32	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	60389	08/16/23 14:53	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	60609	08/19/23 18:34	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	60064	08/13/23 12:41	SMC	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	60267	08/15/23 05:58	SMC	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: Macho State 2H

Job ID: 890-5071-1
SDG: 03D2024210

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5071-1	BH01	Solid	08/09/23 11:40	08/09/23 14:40	COMP
890-5071-2	BH01B	Solid	08/09/23 12:00	08/09/23 14:40	COMP

eurofins | Environment Testing Xenco

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page _____ of _____

Project Manager:	Hadlie Green	Bill to: (if different)	Hadlie Green
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Marienfeld St Suite 400	Address:	601 N Marienfeld St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	432-557-8895	Email:	hgreen@ensolum.com

Work Order Comments

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

Project Name:	Macho State 2H	Turn Around	☑ Routine ☐ Rush
Project Number:	03D2024210	Due Date:	
Project Location:	32.2480,-103.5507	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Peter Van Patten		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TM003
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	2.4
Total Containers:		Corrected Temperature:	2.2

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
BH01	Soil	8/9/2023	1140	0.5'	Comp	1	x	x	x
BH01B	Soil	8/9/2023	1200	2.0'	Comp	1	x	x	x

ANALYSIS REQUEST — Pres. Code / Parameters

890-5071 Chain of Custody

Preservative Codes

None: NO — DI Water: H_2O
Cool: Cool — MeOH: Me
HCL: HC — HNO_3: HN
H_2SO_4: H_2 — NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Peter Van Patten	Ice	8-9-23 1410	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev: 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5071-1
SDG Number: 03D2024210

Login Number: 5071
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5071-1
SDG Number: 03D2024210

Login Number: 5071
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 08/11/23 10:51 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

ENSOLUM

APPENDIX E

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	NAPP2319153053
District RP	
Facility ID	fAPP2203546963
Application ID	

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Jacob Laird	Contact Telephone	(575) 703-5482
Contact email	Jacob.Laird@ConocoPhillips.com	Incident # *(assigned by OCD)*	NAPP2319153053
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.2480 Longitude -103.5507
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Macho State 002H	Site Type	Tank Battery
Date Release Discovered	July 5, 2023	API# *(if applicable)*	30-025-39885

Unit Letter	Section	Township	Range	County
E	02	24S	33E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 10.5845	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by a cracked BPV.
The release occurred within a gravel lined facility. Evaluation will be made of the spill area for any possible impact from the release.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2319153053
District RP	
Facility ID	fAPP2203546963
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?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

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

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

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

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

Printed Name: Brittany N. Esparza Title: Environmental Technician

Signature: Brittany Esparza Date: 7/10/2023

email: Brittany.Esparza@ConocoPhillips.com Telephone: (432) 221-0398

OCD Only

Received by: Shelly Wells Date: 7/10/2023

Spill Calculation - On-Pad Surface Pool Spill

Convert Irregular shape into a series of rectangles	Length (ft.)	Width (ft.)	Average Depth (in.)	Estimated *Pool* Area (sq. ft.)	Estimated volume of each pool area (bbl.)	Penetration allowance (ft.)	Total Estimated Volume of Spill (bbl.)
Rectangle A	34	22	1.0	748.00	11.10	0.00	11.14
Rectangle B				0.00	0.00	0.00	0.00
Rectangle C				0.00	0.00	0.00	0.00
Rectangle D				0.00	0.00	0.00	0.00
Rectangle E				0.00	0.00	0.00	0.00
Rectangle F				0.00	0.00	0.00	0.00
Rectangle G				0.00	0.00	0.00	0.00
Rectangle H				0.00	0.00	0.00	0.00
Rectangle I				0.00	0.00	0.00	0.00
Rectangle J				0.00	0.00	0.00	0.00

Total Volume Release, Soil not impacted: 10.5845

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

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 238158
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	9/30/2023

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2319153053
District RP	
Facility ID	fAPP2203546963
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	51-100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2319153053
District RP	
Facility ID	fAPP2203546963
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: __Jacob Laird_____ Title: _Environmental Engineer_____

Signature: Jacob Laird_____ Date: _____10/2/2023_____

email: __Jacob.Laird@conocophillips.com_____ Telephone: ___575-703-5482_____

OCD Only

Received by: Shelly Wells_____ Date: 10/3/2023_____

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2319153053
District RP	
Facility ID	fAPP2203546963
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: Jacob Laird Title: Environmental Engineer

Signature: Jacob Laird Date: 10/2/2023

email: Jacob.Laird@conocophillips.com Telephone: 575-703-5482

OCD Only

Received by: Shelly Wells Date: 10/3/2023

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: Scott Rodgers Date: 01/19/2024

Printed Name: Scott Rodgers Title: Environmental Specialist Adv.

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

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

CONDITIONS

Action 271831

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 271831
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	This Remediation Closure Report is approved. Areas reasonably needed for production or subsequent drilling operations will need to be reclaimed and revegetated as soon as they are no longer reasonably needed. A report for reclamation and revegetation will need to be submitted and approved prior to this incident receiving the final status of "Restoration Complete".	1/19/2024