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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: **Enterprise Field Services, LLC**	OGRID: **241602**
Contact Name: **Thomas Long**	Contact Telephone: **505-599-2286**
Contact email:**tjlong@eprod.com**	Incident # *(assigned by OCD)* **nAPP2223534793**
Contact mailing address: **614 Reilly Ave, Farmington, NM 87401**	

Location of Release Source

Latitude **36.75889** Longitude **-107.91211** *(NAD 83 in decimal degrees to 5 decimal places)*

Site Name **Ludwick LS #25**	Site Type **Natural Gas Gathering Pipeline**
Date Release Discovered: **08/23/2022**	Serial Number *(if applicable)*: **N/A**

Unit Letter	Section	Township	Range	County
C	**5**	**29N**	**10W**	**San Juan**

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

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)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☒ Condensate	Volume Released (bbls): **Estimated 5-10 BBLs**	Volume Recovered (bbls): **None**
☒ Natural Gas	Volume Released (Mcf): **0.148 MCF**	Volume Recovered (Mcf): **None**
☐ Other (describe)	Volume/Weight Released (provide units):	Volume/Weight Recovered (provide units)

Cause of Release: On August 17, 2022, Enterprise had a release of natural gas from the Ludwick LS #25. The pipeline was isolated, depressurized, locked and tagged out. No liquids were released to the ground surface. No emergency services responded. No fire nor injuries occurred. Remediation and repairs began on August 23, 2022, at which time the release was determined reportable per New Mexico Oil Conservation Division regulation, due to the volume of impacted subsurface soil. Remediation and repairs were completed on August 30, 2022. The final excavation dimensions measured approximately 24 feet long by 16 feet wide by eight (8) feet deep. A total of 114 cubic yards of hydrocarbon impacted soil was excavated and transported to a New Mexico Oil Conservation Division (NMOCD) approved land farm. A third party closure report is included with this “Final” C-141.

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

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

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

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

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

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

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Thomas Long Title: Senior Environmental Scientist

Signature: Thomas Long Date: 6-12-2023

email: tjlong@eprod.com Telephone: (505) 599-2286

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

ENSOLUM

CLOSURE REPORT

Property:

Ludwick LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W
San Juan County, New Mexico

New Mexico EMNRD OCD Incident ID No. NAPP2223534793

October 17, 2022

Ensolum Project No. 05A1226206

Prepared for:

Enterprise Field Services, LLC
614 Reilly Avenue
Farmington, NM 87401
Attn: Mr. Thomas Long

Prepared by:

Ranee Deechilly
Project Manager

Kyle Summers
Senior Managing Geologist

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 Site Description & Background

Operator:	Enterprise Field Services, LLC / Enterprise Products Operating LLC (Enterprise)
Site Name:	Ludwick LS #25 (08/23/22) (Site)
NM EMNRD OCD Incident ID No.	NAPP2223534793
Location:	36.75889° North, 107.91211° West Unit Letter C, Section 5, Township 29 North, Range 10 West San Juan County, New Mexico
Property:	United States Bureau of Land Management (BLM)
Regulatory:	New Mexico (NM) Energy, Minerals and Natural Resources Department (EMNRD) Oil Conservation Division (OCD)

On August 17, 2022, Enterprise identified a release of natural gas from the Ludwick LS #25 pipeline. Enterprise subsequently isolated and locked the pipeline out of service. On August 23, 2022, Enterprise initiated activities to repair the pipeline and remediate petroleum hydrocarbon impact. Enterprise determined the release was "reportable" due to the estimated volume of impacted soil. The NM EMNRD OCD was subsequently notified.

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

1.2 Project Objective

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

2.0 CLOSURE CRITERIA

The Site is subject to regulatory oversight by the New Mexico EMNRD OCD. Ensolum, LLC (Ensolum) referenced New Mexico Administrative Code (NMAC) 19.15.29 *Releases,* which establishes investigation and abatement action requirements for oil and gas release sites that are subject to reporting and/or corrective action, during the evaluation and remediation of the Site. The appropriate closure criteria for sites are determined using the siting requirements outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC. Ensolum utilized the general site characteristics and information available from NM state agency databases and federal agency geospatial databases to determine the appropriate closure criteria for the Site. Supporting figures and documentation associated with the following Siting bullets are provided in **Appendix B**.

- The NM Office of the State Engineer (OSE) tracks the usage and assignment of water rights and water well installations and records this information in the Water Rights Reporting System (WRRS) database. Water wells and other points of diversion (PODs) are each assigned POD numbers in the database (which is searchable and includes an interactive map). No PODs were identified in the same Public Land Survey System (PLSS) section as the Site. Three PODS (SJ-00785-S, SJ-04521-POD1, and SJ-0116) were identified in the adjacent PLSS sections (**Figure A**, **Appendix B**). Only one (SJ-0116) of the three PODS, has a recorded depth to water. This POD is located approximately 1.8 miles northeast of the Site and has a recorded depth to water of 45 feet below grade surface.

- Five cathodic protection wells (CPWs) were identified in the NM EMNRD OCD imaging database in the adjacent PLSS sections. These five CPWs are depicted on **Figure B** (**Appendix B**). The record for the cathodic protection well located near the Aztec Com #3 well location indicates a depth to water of approximately 180 feet bgs. This cathodic protection well is located approximately 0.98 miles northeast of the Site and is approximately 166 feet higher in elevation than the Site. The records for the cathodic protection well located near the NYE #290 well location indicate depths to water at approximately 50 feet and 95 feet bgs. This cathodic protection well is located approximately 1.0 miles southeast of the Site and is approximately 75 feet lower in elevation than the Site. The records for the cathodic protection well located near the Feuille A #5E and #4 well locations indicate a depth to water of approximately 110 feet bgs. This cathodic protection well is located approximately 1.2 miles southeast of the Site and is approximately 27 feet higher in elevation than the Site. The records for the cathodic protection well located near the Feuille A #5 and #1R well locations indicate a depth to water of approximately 55 feet bgs. This cathodic protection well is located approximately 1.5 miles southeast of the Site and is approximately 22 feet lower in elevation than the Site. The records for the cathodic protection well located near the Feuille A #3, NYE #10, and #292 well locations indicate depths to water of approximately 25 feet and 75 feet bgs. This cathodic protection well is located approximately 1.7 miles southeast of the Site and is approximately 84 feet lower in elevation than the Site.

- The Site is not located within 300 feet of a NM EMNRD OCD-defined continuously flowing watercourse or significant watercourse (**Figure C**, **Appendix B**).

- The Site is not located within 200 feet of a lakebed, sinkhole, or playa lake.

- The Site is not located within 300 feet of a permanent residence, school, hospital, institution, or church (**Figure D**, **Appendix B**).

- No springs, or private domestic freshwater wells used by less than five households for domestic or stock watering purposes were identified within 500 feet of the Site (**Figure E**, **Appendix B**).

- No freshwater wells or springs were identified within 1,000 feet of the Site (**Figure E**, **Appendix B**).

- The Site is not located within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to New Mexico Statutes Annotated (NMSA) 1978, Section 3-27-3.

- Based on information identified in the U.S. Fish & Wildlife Service National Wetlands Inventory Wetlands Mapper, the Site is not within 300 feet of a wetland (**Figure F**, **Appendix B**).

- Based on information identified in the NM Mining and Minerals Division's Geographic Information System (GIS) Maps and Mine Data database, the Site is not within an area overlying a subsurface mine (**Figure G**, **Appendix B**).

- The Site is not located within an unstable area per Paragraph (6) of Subsection U of 19.15.2.7 NMAC.

- Based on information provided by the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) geospatial database, the Site is not within a 100-year floodplain (**Figure H**, **Appendix B**).

Based on available information, the applicable closure criteria for soils remaining in place at the Site include:

Tier I Closure Criteria for Soils Impacted by a Release		
Constituent[1]	**Method**	**Limit**
Chloride	EPA 300.0 or SM4500 Cl B	600 mg/kg
TPH (GRO+DRO+MRO)[2]	EPA SW-846 Method 8015	100 mg/kg
BTEX[3]	EPA SW-846 Method 8021 or 8260	50 mg/kg
Benzene	EPA SW-846 Method 8021 or 8260	10 mg/kg

[1] – Constituent concentrations are in milligrams per kilogram (mg/kg).
[2] – Total Petroleum Hydrocarbons (TPH). Gasoline Range Organics (GRO). Diesel Range Organics (DRO). Motor Oil/Lube Oil Range Organics (MRO).
[3] – Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX).

3.0 SOIL REMEDIATION ACTIVITIES

On August 23, 2022, Enterprise initiated activities to repair the pipeline and remediate petroleum hydrocarbon impact resulting from the release. During the remediation and corrective action activities, OFT Construction Inc (OFT), provided heavy equipment and labor support, while Ensolum provided environmental consulting support.

The final excavation measured approximately 24 feet long and 16 feet wide at the maximum extents. The maximum depth of the excavation measured approximately eight feet bgs. The lithology encountered during the completion of remediation activities consisted primarily of silty sand underlain by sandstone.

Approximately 114 cubic yards (yd^3) of petroleum hydrocarbon-affected soils and 35 barrels (bbls) of hydro-excavation soil cuttings and water were transported to the Envirotech, Inc., (Envirotech) landfarm near Hilltop, NM for disposal/remediation. The executed C-138 solid waste acceptance form is provided in **Appendix C**. The excavation was backfilled with imported fill and then contoured to the surrounding topography.

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

4.0 SOIL SAMPLING PROGRAM

Ensolum field screened the soil samples from the excavation utilizing a calibrated Dexsil PetroFLAG® hydrocarbon analyzer system and a photoionization detector (PID) fitted with a 10.6 eV lamp to guide excavation extents.

Ensolum's soil sampling program included the collection of five composite soil samples (S-1 through S-5) from the excavation for laboratory analysis. The composite samples were comprised of five aliquots each and represent an estimated 200 square foot (ft^2) sample area per guidelines outlined in Section D of 19.15.29.12 NMAC. Hand tools or the excavator bucket were utilized to obtain fresh aliquots from each area of the excavation. Regulatory correspondence is provided in **Appendix E**.

First Sampling Event
On August 30, 2022, sampling was performed at the Site. The NM EMNRD OCD was notified of the sampling event although no representative was present during sampling activities. Composite

soil sample S-1 (8') was collected from floor of the excavation. Composite soil samples S-2 (0'-8'), S-3 (0'-8'), S-4 (0'-8'), and S-5 (0'-8') were collected from the walls of the excavation.

All soil samples were collected and placed in laboratory-prepared glassware. The containers were labeled and sealed using the laboratory-supplied labels and custody seals and were stored on ice in a cooler. The samples were relinquished to the courier for Hall Environmental Analysis Laboratory of Albuquerque, NM, under proper chain-of-custody procedures.

5.0 SOIL LABORATORY ANALYTICAL METHODS

The composite soil samples were analyzed for BTEX using Environmental Protection Agency (EPA) SW-846 Method #8021; TPH GRO/DRO/MRO using EPA SW-846 Method #8015; and chlorides using EPA Method #300.0.

The laboratory analytical results are summarized in **Table 1** (**Appendix F**). The laboratory data sheets and executed chain-of-custody forms are provided in **Appendix G**.

6.0 SOIL DATA EVALUATION

Ensolum compared the benzene, BTEX, TPH, and chloride laboratory analytical results or laboratory practical quantitation limits (PQLs) / reporting limits (RLs) associated with the composite soil samples (S-1 through S-5) to the applicable NM EMNRD OCD closure criteria. The laboratory analytical results are summarized in **Table 1** (**Appendix F**).

- The laboratory analytical results for all composite soil samples indicate benzene is not present at concentrations greater than the laboratory PQLs/RLs, which are less than the applicable NM EMNRD OCD criteria of 10 mg/kg.

- The laboratory analytical results for all composite soil samples indicate that total BTEX is not present in concentrations greater than the laboratory PQLs/RLs, which are less than the applicable NM EMNRD OCD closure criteria of 50 mg/kg.

- The laboratory analytical results for all composite soil samples indicate combined TPH GRO/DRO/MRO is not present in concentrations greater than the laboratory PQLs/RLs, which are less than the applicable NM EMNRD OCD closure criteria of 100 mg/kg.

- The laboratory analytical results for all composite soil samples indicate chloride is not present at concentrations greater than the laboratory PQLs/RLs, which are less than the applicable NM EMNRD OCD criteria of 600 mg/kg.

7.0 RECLAMATION AND REVEGETATION

The excavation was backfilled with imported fill and then contoured to the surrounding topography. Enterprise will re-seed the Site with an approved seeding mixture.

8.0 FINDINGS AND RECOMMENDATION

- Five composite soil samples were collected from the Site. Based on laboratory analytical results, no benzene, BTEX, chloride, or combined TPH GRO/DRO or TPH GRO/DRO/MRO exceedances were identified in the soils remaining at the Site.

- Approximately 114 yd^3 of petroleum hydrocarbon-affected soils and 35 bbls of hydro-excavation soil cuttings and water were transported to the Envirotech landfarm for disposal/remediation. The excavation was backfilled with imported fill and then contoured to the surrounding topography.

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

9.0 STANDARDS OF CARE, LIMITATIONS, AND RELIANCE

9.1 Standard of Care

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

9.2 Limitations

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

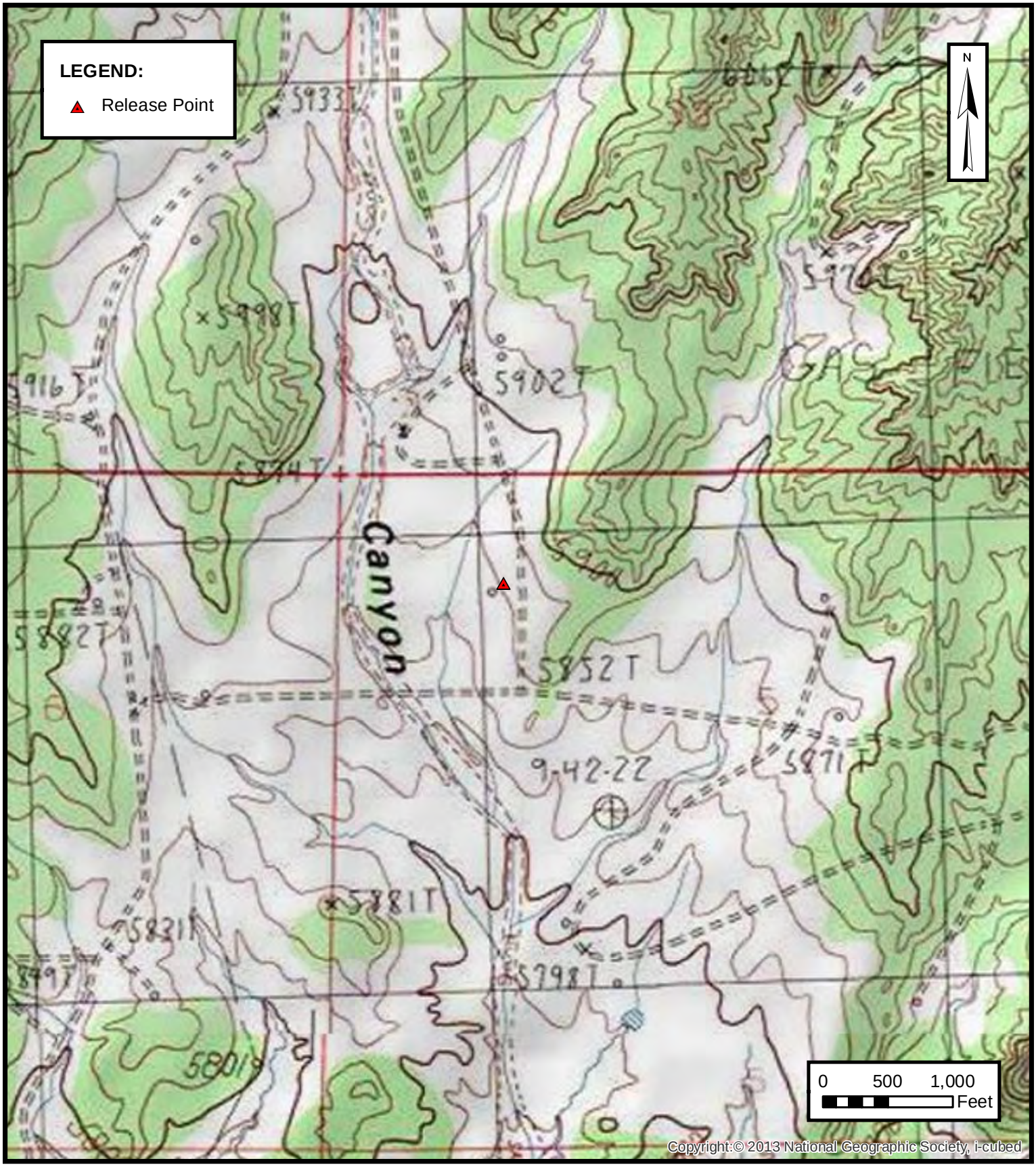
9.3 Reliance

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

ENSOLUM

APPENDIX A

Figures



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

TOPOGRAPHIC MAP

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico
36.75889° N, 107.91211° W

PROJECT NUMBER: 05A1226206

FIGURE
1

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

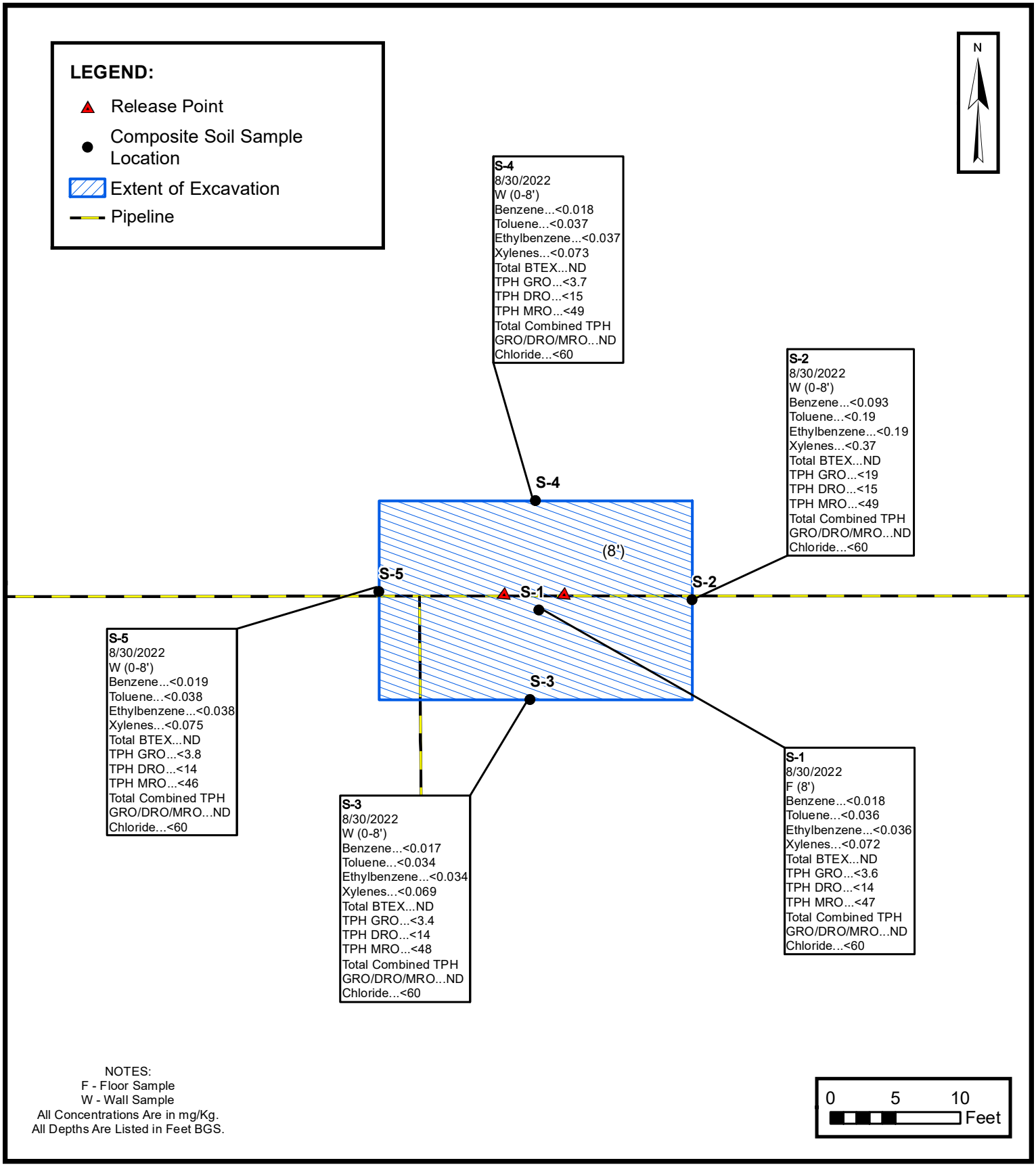
SITE VICINITY MAP

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico
36.75889° N, 107.91211° W

PROJECT NUMBER: 05A1226206

FIGURE

2



ENSOLUM
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SITE MAP WITH SOIL ANALYTICAL RESULTS

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico
36.75889° N, 107.91211° W

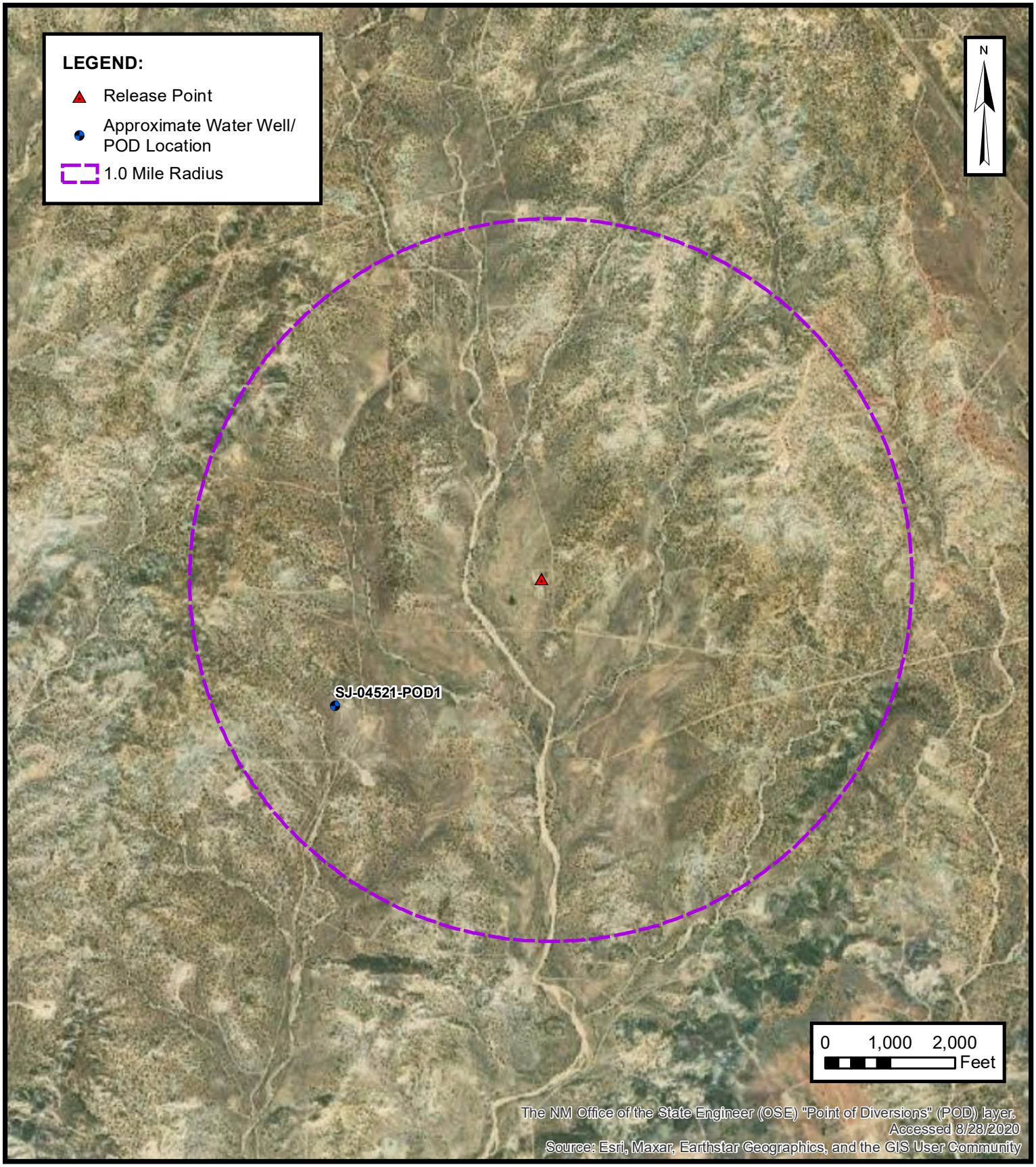
PROJECT NUMBER: 05A1226206

FIGURE
3

ENSOLUM

APPENDIX B

Siting Figures and Documentation



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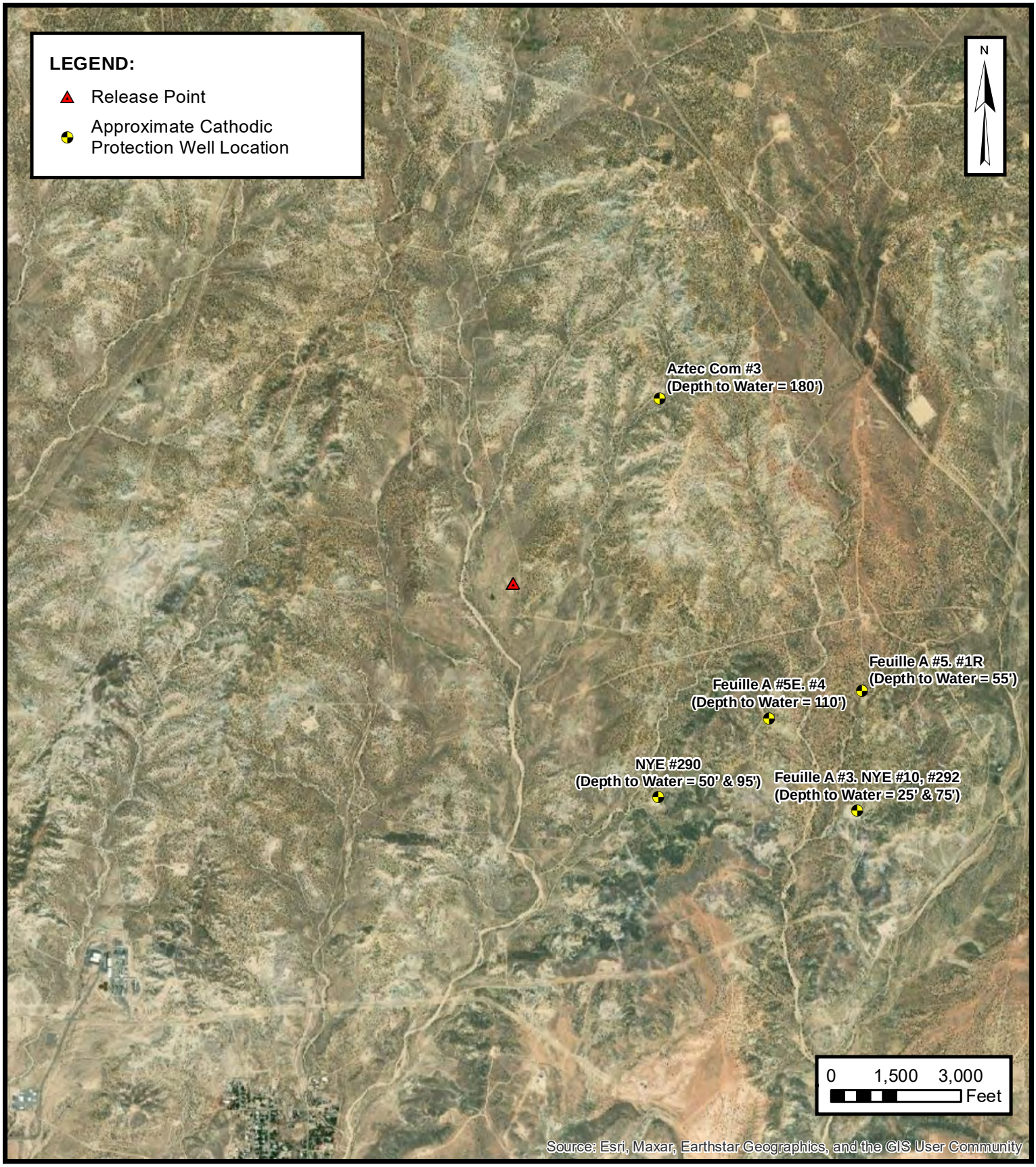
1.0 MILE RADIUS WATER WELL/ POD LOCATION MAP

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico
36.75889° N, 107.91211° W

PROJECT NUMBER: 05A1226206

FIGURE

A



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

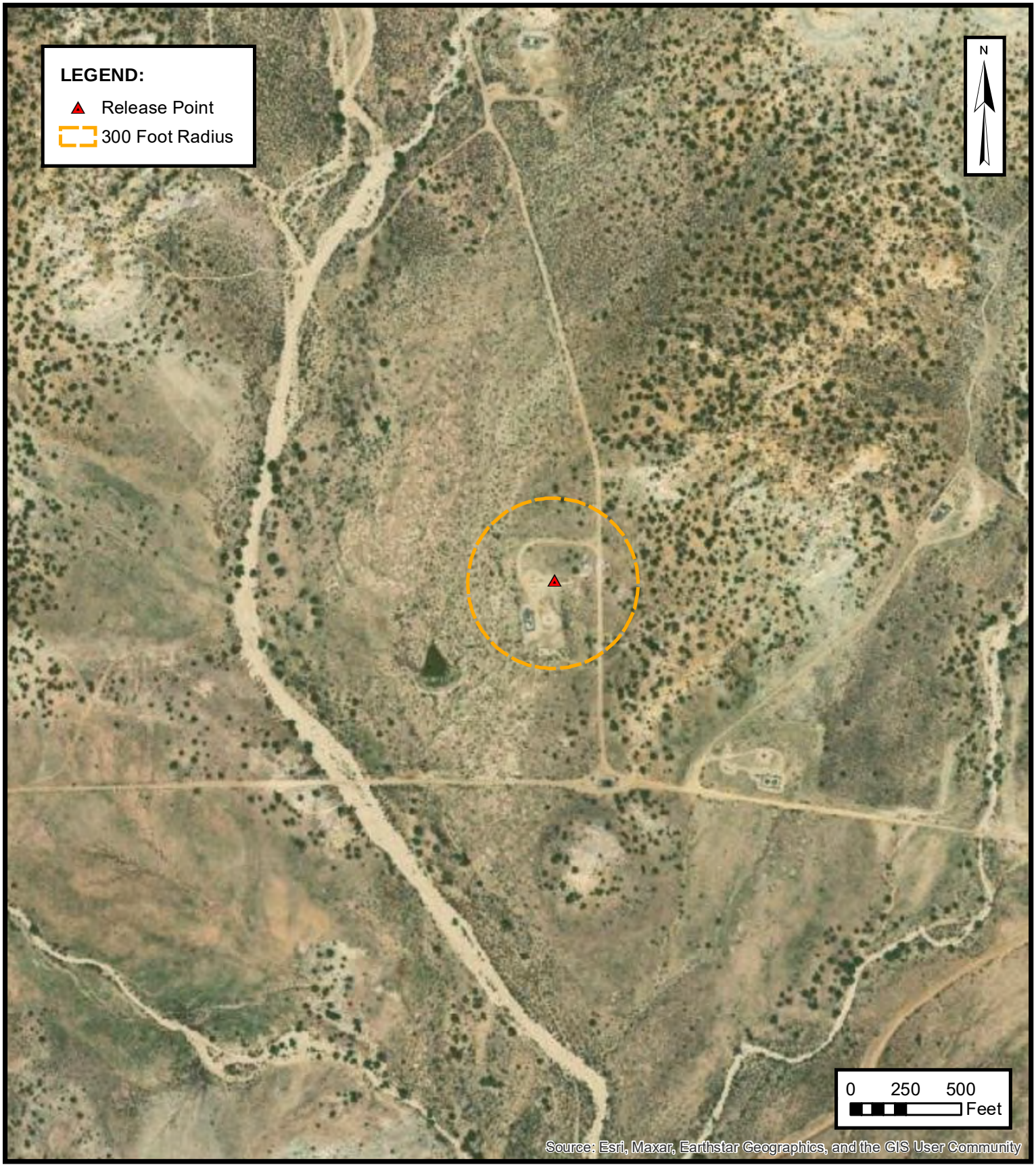
CATHODIC PROTECTION WELL RECORDED DEPTH TO WATER

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico
36.75889° N, 107.91211° W

PROJECT NUMBER: 05A1226206

FIGURE

B



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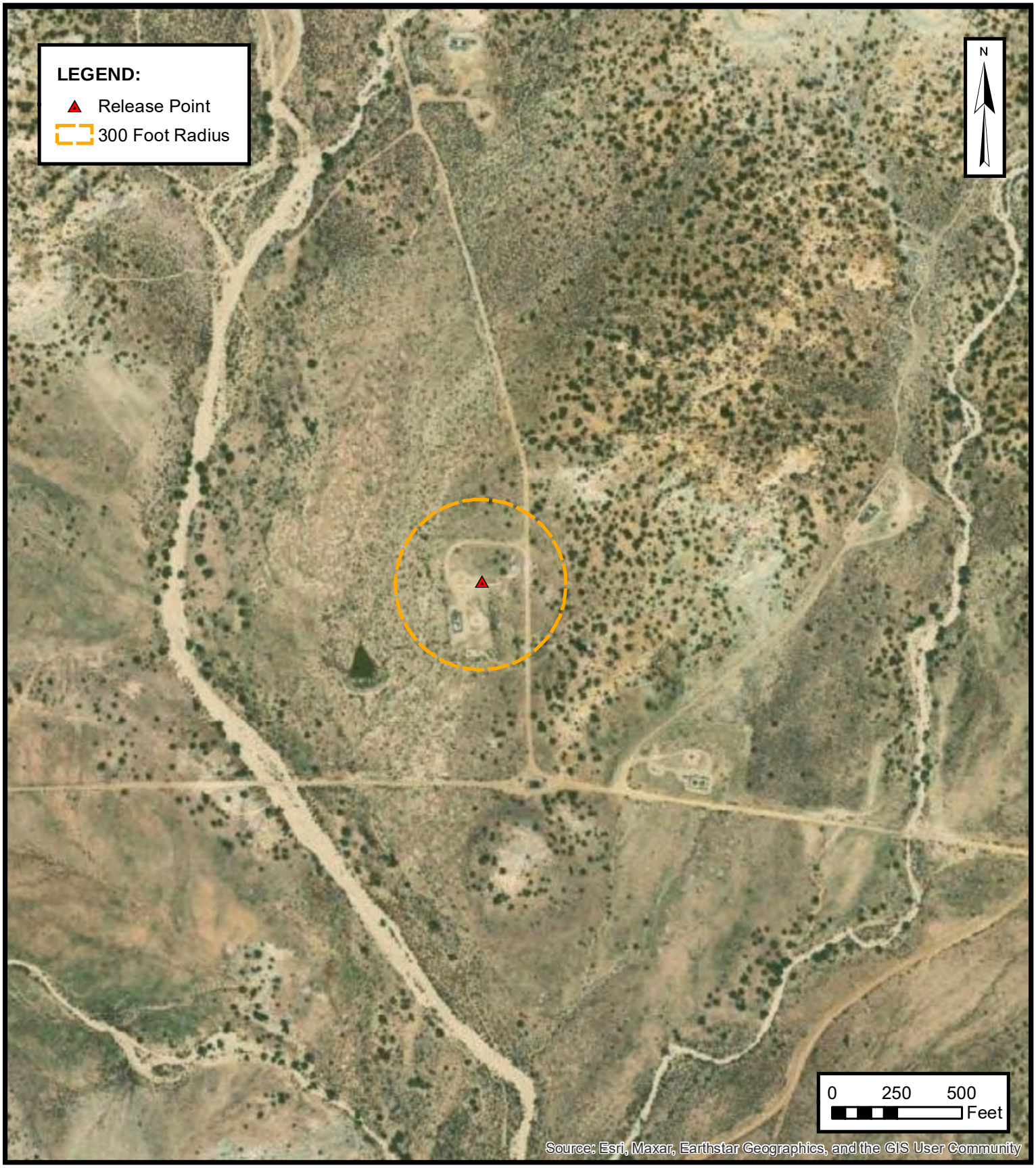
Environmental, Engineering and Hydrogeologic Consultants

300 FOOT RADIUS
WATERCOURSE AND DRAINAGE IDENTIFICATION

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico
36.75889° N, 107.91211° W

PROJECT NUMBER: 05A1226206

FIGURE
C



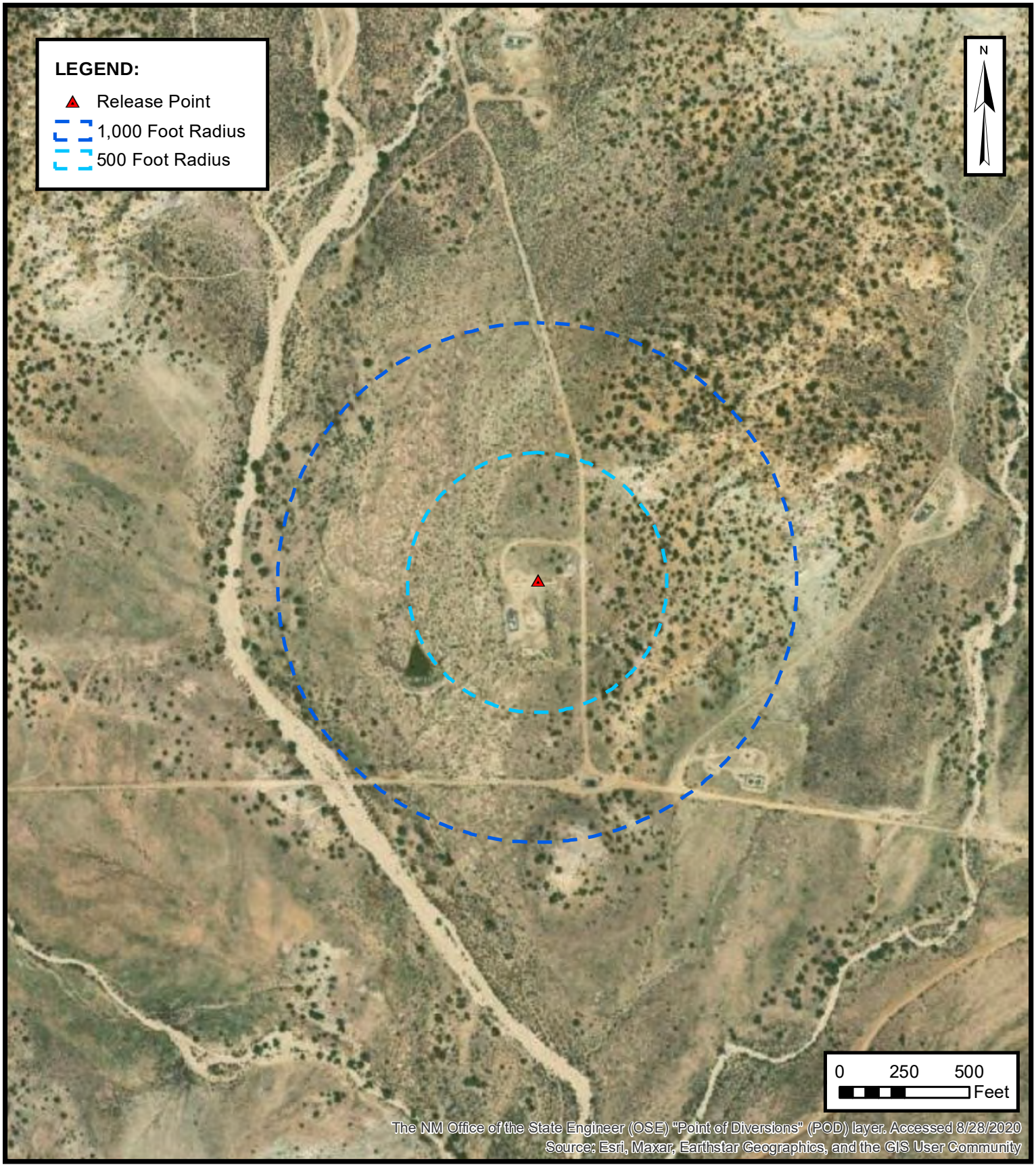
ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

300 FOOT RADIUS
OCCUPIED STRUCTURE IDENTIFICATION

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico 36.75889° N, 107.91211° W

PROJECT NUMBER: 05A1226206

FIGURE
D



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

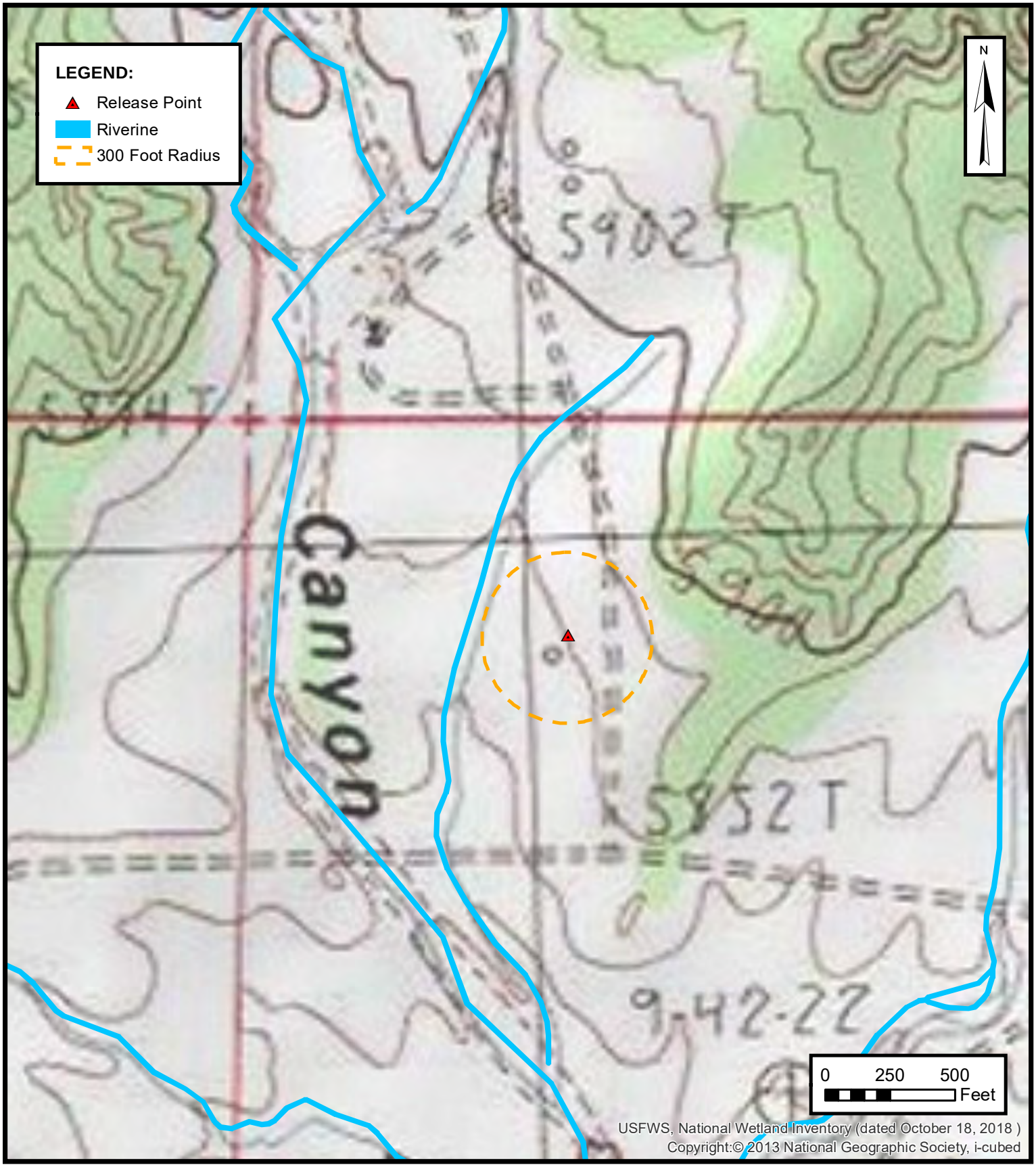
WATER WELL AND NATURAL SPRING LOCATION

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico
36.75889° N, 107.91211° W

PROJECT NUMBER: 05A1226206

FIGURE

E



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

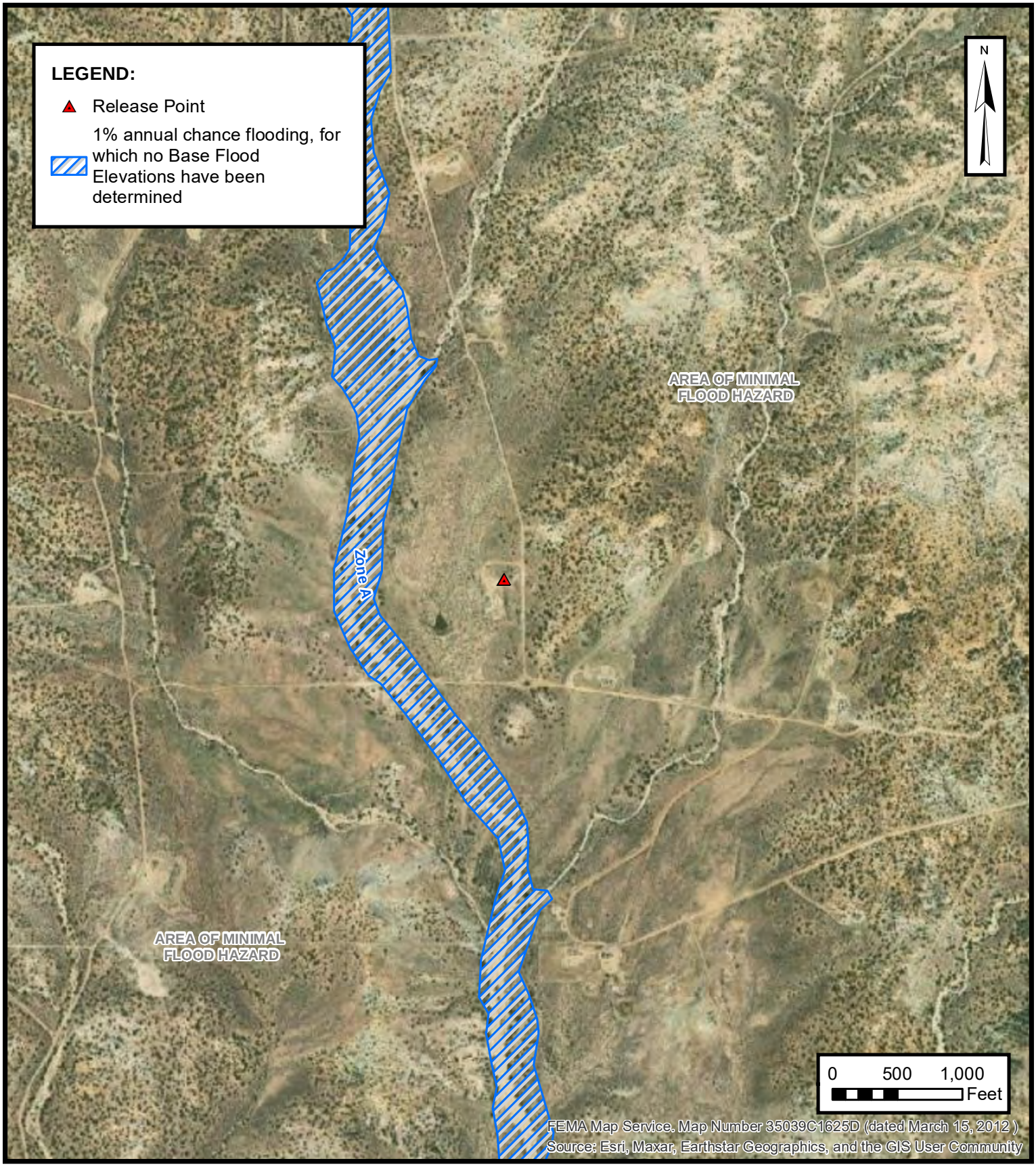
WETLANDS

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico 36.75889° N, 107.91211° W

PROJECT NUMBER: 05A1226206

FIGURE

F



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

100-YEAR FLOOD PLAIN MAP

ENTERPRISE FIELD SERVICES, LLC
LUDWICK LS #25 (08/23/22)
Unit Letter C, S5 T29N R10W, San Juan County, New Mexico
36.75889° N, 107.91211° W

PROJECT NUMBER: 05A1226206

FIGURE

H

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
SJ 00785 S	SJ	SJ	2	4	2	04	29N	10W	242705	4071829*	20		
SJ 04521 POD1	SJ	SJ	4	1	4	06	29N	10W	239077	4071559	100		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 2

PLSS Search:

Section(s): 5, 4, 6, 7, 8, 9 **Township:** 29N **Range:** 10W

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

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
SJ 01116	SJ	SJ	1	2		33	30N	10W	242296	4073713*	105	45	60

Average Depth to Water: **45 feet**

Minimum Depth: **45 feet**

Maximum Depth: **45 feet**

Record Count: 1

PLSS Search:

Section(s): 31, 32, 33 **Township:** 30N **Range:** 10W

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

E

142 IR - 30-045-23563
5- 30-045-08693

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO
(Submit 3 copies to OCD Aztec Office)

Operator MERIDAIN OIL Location: Unit SE Sec. 4 Twp 29 Rng 10

Name of Well/Wells or Pipeline Serviced FEUILLE A #5, #1R

cps 1026w

Elevation 5843' Completion Date 11/4/76 Total Depth 235' Land Type* N/A

Casing, Sizes, Types & Depths N/A

If Casing is cemented, show amounts & types used N/A

If Cement or Bentonite Plugs have been placed, show depths & amounts used

N/A

Depths & thickness of water zones with description of water when possible:

Fresh, Clear, Salty, Sulphur, Etc. 55'

Depths gas encountered: N/A

Type & amount of coke breeze used: 43 SACKS

Depths anodes placed: 210', 195', 180', 170', 140'

Depths vent pipes placed: N/A

Vent pipe perforations: 168'

Remarks: gb #2

RECEIVED
MAY 31 1991
OIL CON. DIV.
DIST. 3

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

*Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

El Paso Natural Gas Company
Form 7-238 (Rev. 1-69)

WELL CASING
CATHODIC PROTECTION CONSTRUCTION REPORT
DAILY LOG

LOGGED

Drilling Log (Attach Hereto). ☐ Completion Date 11-4-76

Well Name	Location	CPS No.
FEUILLE A #5, #1R	SE4-29-10	1026W

Type & Size Bit Used	Work Order No.
6 3/4	20679

Anode Hole Depth	Total Drilling Rig Time	Total Lbs. Coke Used	Lost Circulation Mat'l Used	No. Sacks Mud Used
Log 235		43 SACKS		

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Anode Depth	210	195	180	170	140					
Anode Output (Amps)	4.2	4.7	5.1	5.1	5.2					

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Anode Depth										
Anode Output (Amps)										

Total Circuit Resistance			No. 8 C.P. Cable Used	No. 2 C.P. Cable Used
Volts 12.0	Amps 15.0	Ohms 0.80		

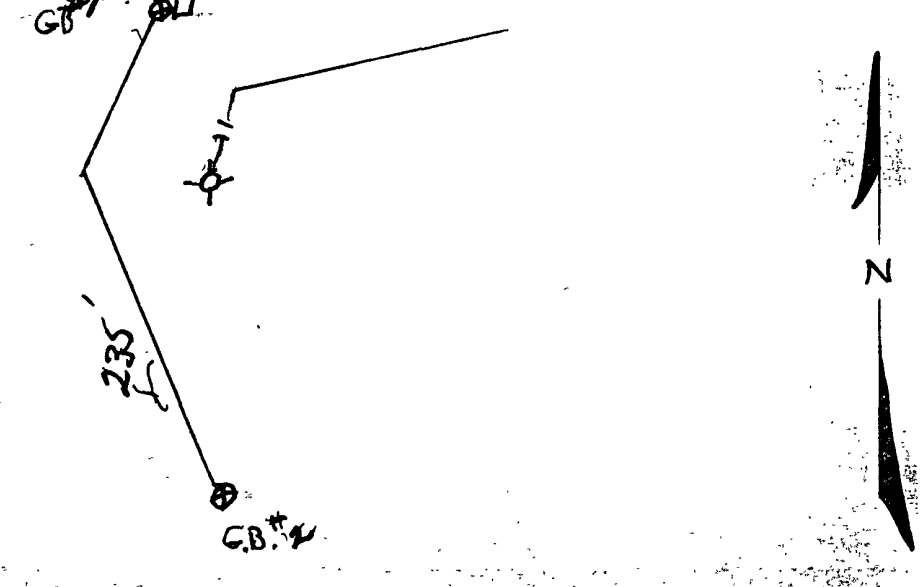
Remarks: DRILLER SAID WATER @ 55'
VENT PERF 168'
43 SACKS SLURRY

$2,648.00
- 345.09 Depth Credit
82.25 Surf. Cable
2,385.25
95.41
2,480.66
258.00 Coke
213.40 Insp.
50.00 Misc
$3,002.06

All Construction Completed

C. W. Hines
(Signature)

GROUND BED LAYOUT SKETCH



Original & 1 Copy All Reports.

Form 22-2 (Rev. 1-61)

EL PASO NATURAL GAS COMPANY

DRILLING DEPARTMENT

DAILY DRILLING REPORT

LEASE | WELL NO. 1026 W | CONTRACTOR | RIG NO. | REPORT NO. | DATE 11-4-76 19

MORNING

Driller | Total Men In Crew

FROM	TO	FORMATION	WT-BIT	R.P.M.

NO. DC ____ SIZE ____ LENG. ____

BIT NO. ____ NO. DC ____ SIZE ____ LENG. ____

SERIAL NO. ____ STANDS

SIZE ____ SINGLES

TYPE ____ DOWN ON KELLY

MAKE ____ TOTAL DEPTH

MUD RECORD

Time	Wt.	Vis.

MUD, ADDITIVES USED AND RECEIVED

FROM	TO	TIME BREAKDOWN
0	5	Surface
5	15	Sand Dry
15	21	Sand wet
21	30	Shale
30	55	Sand wet water
55	62	Shale

REMARKS –

62 – 95 Sand wet
95 – 125 Shale
125 – 157 Sandy Shale
157 – 240 Shale

DAYLIGHT

Driller Daily | Total Men In Crew

FROM	TO	FORMATION	WT-BIT	R.P.M.

NO. DC ____ SIZE ____ LENG. ____

BIT NO. ____ NO. DC ____ SIZE ____ LENG. ____

SERIAL NO. ____ STANDS

SIZE ____ SINGLES

TYPE ____ DOWN ON KELLY

MAKE ____ TOTAL DEPTH

MUD RECORD

Time	Wt.	Vis.

MUD, ADDITIVES USED AND RECEIVED

FROM	TO	TIME BREAKDOWN

REMARKS –

EVENING

Driller | Total Men In Crew

FROM	TO	FORMATION	WT-BIT	R.P.M.

NO. DC ____ SIZE ____ LENG. ____

BIT NO. ____ NO. DC ____ SIZE ____ LENG. ____

SERIAL NO. ____ STANDS

SIZE ____ SINGLES

TYPE ____ DOWN ON KELLY

MAKE ____ TOTAL DEPTH

MUD RECORD

Time	Wt.	Vis.

MUD, ADDITIVES USED AND RECEIVED

FROM	TO	TIME BREAKDOWN

REMARKS –

Water at 5P

SIGNED: Toolpusher _____ Company Supervisor _____

El Paso Natural Gas Company
ENGINEERING CALCULATION

Sheet: ___ of ___
Date:
By: 10-4-
File:

Fenille A #5

1026 W

SE-4-29-10

20679

1 00	1.3		50	.9				
	1.4			.1				
1 0	1.5		60	.6				
	1.8			.5				
2 0	1.9		70	.9				
	2.4			.1				
3 0	2.5		80	.1				
	2.5			.5				
4 0	3.0	X	90	.9				
	2.6			1.2				
5 0	2.4		100	1.3	230 - 5			
	2.2							
6 0	2.2							
	2.6							
7 0	3.0	X						
	3.1				1. 210		3.2	4.2
8 0	2.0	X			2. 195		3.6	4.7
	2.7				3. 180		4.0	5.1
9 0	2.1				4. 170		3.8	5.1
	2.8	X			5. 140		3.9	5.2
2 00	2.5							
	2.5							
1 0	2.1	X						
	2.5							
2 0	2.2							
	2.2							
3 0	2.2				DRILLER SAID WATER @ 55			
					T.D. 230+5 = 235			
4 0					VENT PERF 168'			
5 0					12.V			
					15.A	4/5 = .80		
6 0								

MW		gals/mol
16.04	C_1	6.4
30.07	C_2	10.12
44.10	C_3	10.42
58.12	iC_4	12.38
58.12	nC_4	11.93
72.15	iC_5	13.85
72.15	nC_5	13.71
86.18	iC_6	15.50
86.18	C_6	15.57
100.21	iC_7	17.2
100.21	C_7	17.46
114.23	C_8	19.39
28.05	$C_2^=$	9.64
42.08	$C_3^=$	9.67

MISC.

MW		gals/mol
32.00	O_2	3.37
28.01	CO	4.19
44.01	CO_2	6.38
64.06	SO_2	5.50
34.08	H_2S	5.17
28.01	N_2	4.16
2.02	H_2	3.38

1090 #5E 30-045-26249
#4 30-045-20670

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO
(Submit 3 copies to OCD Aztec Office)

Operator MERIDIAN OIL INC. Location: Unit SW Sec. 4 Twp 29 Rng 10

Name of Well/Wells or Pipeline Serviced FEUILLE A #5E, #4

cps 1818w

Elevation 5892' Completion Date 8/4/87 Total Depth 400' Land Type* N/A

Casing, Sizes, Types & Depths N/A

If Casing is cemented, show amounts & types used N/A

If Cement or Bentonite Plugs have been placed, show depths & amounts used

N/A

Depths & thickness of water zones with description of water when possible:

Fresh, Clear, Salty, Sulphur, Etc. 110' SAMPLE TAKEN

Depths gas encountered: N/A

Type & amount of coke breeze used: N/A

Depths anodes placed: 350', 340', 280', 270', 260', 250', 205', 195', 185', 175'

Depths vent pipes placed: 385'

Vent pipe perforations: 300'

Remarks: gb #1

RECEIVED
MAY 31 1991
OIL CON. DIV.
DIST. 3

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

*Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

comp 8-6-87

FM-07-0238 (Rev.: 10-82)

WELL CASING

CATHODIC PROTECTION CONSTRUCTION REPORT

DAILY LOG

Drilling Log (Attach Hereto) ☐ *5E m.m. 95-349-01 ✓ #4 m.m. 87-2180 1 ✓ Completion Date 8-4-87

CPS #	Well Name, Line or Plant	Work Order #	Static:	Ins Union Check
1818-W	Feuille A #5-E	K 04-29-10	600E = .84	☒ Good ☐ Bad
	Feuille A #4	N 04-29-10	600E = .80	

Location	Anode Size.	Anode Type	Size Bit:
SW 4-29-10	2" x 60"	Duriron	6 3/4

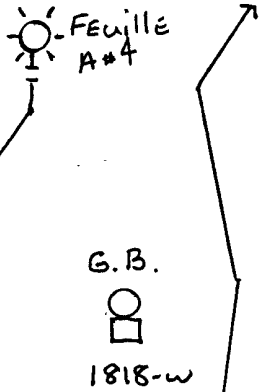
Depth Drilled	Depth Logged	Drilling Rig Time	Total Lbs. Coke Used	Lost Circulation Mat'l Used	No Sacks Mud Used
400'	383'				

Anode Depth	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
	350	340	280	270	260	250	205	195	185	175
Anode Output (Amps)	4.0	4.1	3.7	4.3	4.9	4.8	4.9	5.4	6.2	5.0
Anode Depth	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Anode Output (Amps)										

Total Circuit Resistance			No. 8 C.P. Cable Used	No. 2 C.P. Cable Used
Volts 11.8	Amps 17.2	Ohms .69	ELEVATION = 5892'	

Remarks: DRILLED TO 400', LOGGED 383'. DRILLER SAID WATER AT 110' CAUGHT SAMPLE. INSTALLED 385' of 1" PVC VENT PIPE PERFORATED BOTTOM 300'

Rectifier Size: 60 V 28 A
Addn'l Depth
Depth Credit: 117' ✓
Extra Cable: 20'
Ditch & 1 Cable:
Ditch & 2 Cable: 160'
25' Meter Pole: -
20' Meter Pole: -
10' Stub Pole: 1
Junction Box: 1



All Construction Completed

Michael R. Williams
(Signature)

4300 ✓
- 468. ✓
5.00 ✓
83.20 ✓
40.00 ✓
150.00 ✓
4110.20
TAX 205.51 ✓
4315.71 ✓

ACext 1600' @ .52
832.00
41 60
873 60

Grand Total $5189.31

BURGE CORROSION SYSTEMS, INC.

P.O. BOX 1359 - PHONE 334-6141
AZTEC, NEW MEXICO 87410

DEEP WELL GROUNDBED LOG

Date 8-4-87

Company MERIDIAN Oil .69

Well No Fe~~ultz~~ A#5-E Location SW 4-29-10 Volts Applied 11.8 Amperes 17.0

Depth	Reading	Depth	Reading	Depth	Reading	Depth	Reading
0							
5		230	1.5	455		680	(1) 350-4.2 > 7.0
10		235	1.4	460		685	(2) 340-3.7
15		240	1.4	465		690	(3) 330-
20		245	1.5	470		695	(4) 320-
25		250	2.3 •	475		700	(5) 300-
30		255	2.8	480		705	(6) 290-
35		260	2.6 •	485		710	(7) 280-
40		265	2.5	490		715	(8) 270-
45		270	2.4 •	495		720	(9) 260-
50		275	2.3	500		725	(10) 250-
55		280	2.5 x	505		730	
60		285	2.4	510		735	(3) 280-3.3
65		290	2.6 •	515		740	(4) 270-3.2
70		295	2.3	520		745	(6) 260→3.8
75		300	2.3 •	525		750	(5) 250→3.2
80		305	1.9	530		755	(6) 205 → 3.1
85		310	2.0	535		760	(7) 195 3.1
90		315	2.5	540		765	(8) 185 3.6
95		320	2.7 •	545		770	(9) 175 3.1
100	2.4	325	2.7	550		775	(10) ~~175~~
105	2.4	330	2.9 •	555		780	
110	2.1	335	2.8	560		785	(1) ~~38~~ 40
115	2.0	340	2.8 •	565		790	(2) ~~40~~ 41
120	2.0	345	2.7	570		795	(3) ~~35~~ 37
125	2.0	350	3.0 •	575		800	(4) 4.3
130	1.6	355	2.7	580		805	(5) 4.9
135	1.2	360	2.8	585		810	(6) 4.8
140	1.0	365	3.0	590		815	(7) 4.9
145	.7	370	2.9	595		820	(8) 5.2
150	1.0	375	2.6	600		825	(9) 6.2
155	2.0 x	380	2.5 383 TD	605		830	(10) 50
160	1.9	385		610		835	
165	2.1 x	390		615		840	
170	1.6	395		620		845	
175	2.2 x	400		625		850	
180	2.3	405		630		855	
185	2.5 x	410		635		860	
190	2.4	415		640		865	
195	2.2 x	420		645		870	
200	2.1	425		650		875	
205	2.1	430		655		880	
210	1.9	435		660		885	
215	1.6	440		665		890	
220	1.3	445		670		895	
225	1.6	450		675		900	

CPS 1818W
K 4-29-10

API WATER ANALYSIS REPORT FORM

Company: MERIDIAN OIL COMPANY		Sample No.: 2	Date Sampled: 08-04-87
Field: Blanco	Legal Description: SW4-29-10	County or Parish: San Juan	State: NM
Lease or Unit: FEUILLE	Well: A#5-E	Depth:	Formation: Dakota
Water, B/D:			
Type of Water (Produced, Supply, etc.):	Sampling Point: 110'		Sampled By: MW

DISSOLVED SOLIDS

CATIONS	mg/l	me/l
Sodium, Na (calc.)	1320	57.4
Calcium, Ca	76	3.8
Magnesium, Mg	7	.6
Barium, Ba		

ANIONS	mg/l	me/l
Chloride, Cl	142	4.0
Sulfate, SO_4	2610	54.4
Carbonate, CO_3	0	0
Bicarbonate, HCO_3	207	3.4

OTHER PROPERTIES

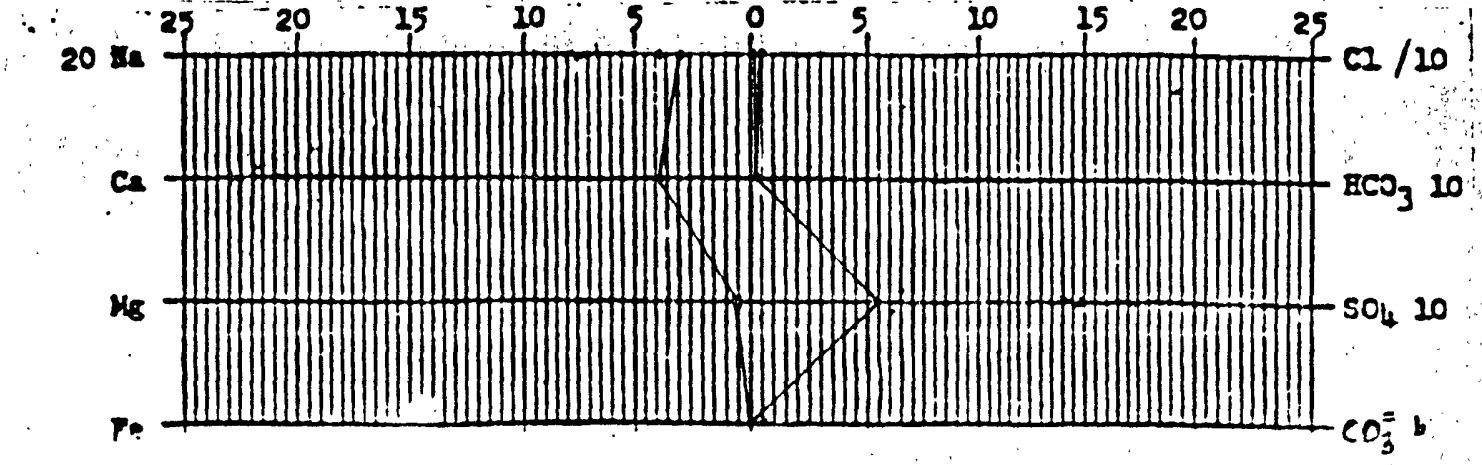
pH	8.31
Specific Gravity, 60/60 F.	1.0057
Resistivity (ohm-meters) 71.6°F.	2.6
Conductivity	3.8X10³ µmho

Total Dissolved Solids (calc.): 4360

Iron, Fe (total):

Sulfide, as H_2S: 0

REMARKS & RECOMMENDATIONS:



CPS 18186

BURGE CORROSION SYSTEMS, INC.

P.O. BOX 1359 - PHONE 334-6141
AZTEC, NEW MEXICO 87410

COMPANY Meridian DAILY DRILLING REPORT 8-4 ,19 87

WELL NAME:	WELL NUMBER:	SECTION:	TOWNSHIP:	RANGE:
Fowle "A"	5-E	4	29	10

WATER AT:	FEET:	HOLE MADE:
	70	400

DESCRIPTION OF FORMATION

FROM	TO	FORMATION IS	COLOR
0	30	CLAY	
30	70	SANDSTONE	
70	100	SANDSTONE	
100	110	SHALE	
110	160	SANDSTONE	
160	250	SANDSTONE SHALE	
250	350	SHALE SANDSTONE	
350	400	SANDSTONE SHALE	

REMARKS: WATER INJECTION AT 70ft WENT BACK IN HOLE TO BUNCH BOOT

Driller Brad Hanks Tool Dresser

1424 30-045-27178

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO
(Submit 3 copies to OCD Aztec Office)

Operator MERIDIAN OIL INC. Location: Unit A Sec. 8 Twp 29 Rng 10

Name of Well/Wells or Pipeline Serviced NYE #290

cps 215lw

Elevation 5790' Completion Date 6/15/89 Total Depth 360' Land Type* N/A

Casing, Sizes, Types & Depths 20'

If Casing is cemented, show amounts & types used N/A

If Cement or Bentonite Plugs have been placed, show depths & amounts used

N/A

Depths & thickness of water zones with description of water when possible:

Fresh, Clear, Salty, Sulphur, Etc. 50' & 95'

Depths gas encountered: N/A

Type & amount of coke breeze used: N/A

Depths anodes placed: 325', 315', 305', 295', 280', 265', 245', 230', 220', 210'

Depths vent pipes placed: 350'

Vent pipe perforations: 300'

Remarks: gb #1

RECEIVED
MAY 31 1991
OIL CON. DIV.
DIST. 3

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

*Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

FM-07-0238 (Rev. 10-82)

WELL CASING

CATHODIC PROTECTION CONSTRUCTION REPORT

DAILY LOG

Drilling Log (Attach Hereto) ☒ Completion Date 6-15-89

CPS #	Well Name, Line or Plant	Work Order #	Static:	Ins. Union Check
2151-W	NYE #290	35274	600' NE = .763	☒ Good ☐ Bad

Location:	Anode Size:	Anode Type:	Size Bit:
A8-29-10	2" x 60"	Duriron	6 3/4"

Depth Drilled	Depth Logged	Drilling Rig Time	Total Lbs. Coke Used	Lost Circulation Mat'l Used	No. Sacks Mud Used
360'	345'				

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Anode Depth	325'	315'	305'	295'	5280'	255	245'	230	220'	210
Anode Output (Amps)	4.7	5.1	5.7	5.4	5.5	6.4	5.9	6.0	5.4	5.1
Anode Depth	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Anode Output (Amps)	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20

Total Circuit Resistance			No. 8 C.P. Cable Used	No. 2 C.P. Cable Used
Volts 11.89	Amps 26.2	Ohms .454		

Remarks: DRILLED 360' LOGGED 345' DRILLER SAID WATER AT 50' +95' SET 20' of surface CASING 1 hour INSTALLED 350 of 1" PVC VENT PIPE, perforated BOTTOM 300'

* Build Power

Rectifier Size: 40 V 16 A
Addn'l Depth
Depth Credit: 155' 3.05
Extra Cable: 350' .20
Ditch & 1 Cable: 320' .70
25'Meter Pole:
20' Meter Pole: 1
10' Stub Pole:
Junction Box: 1

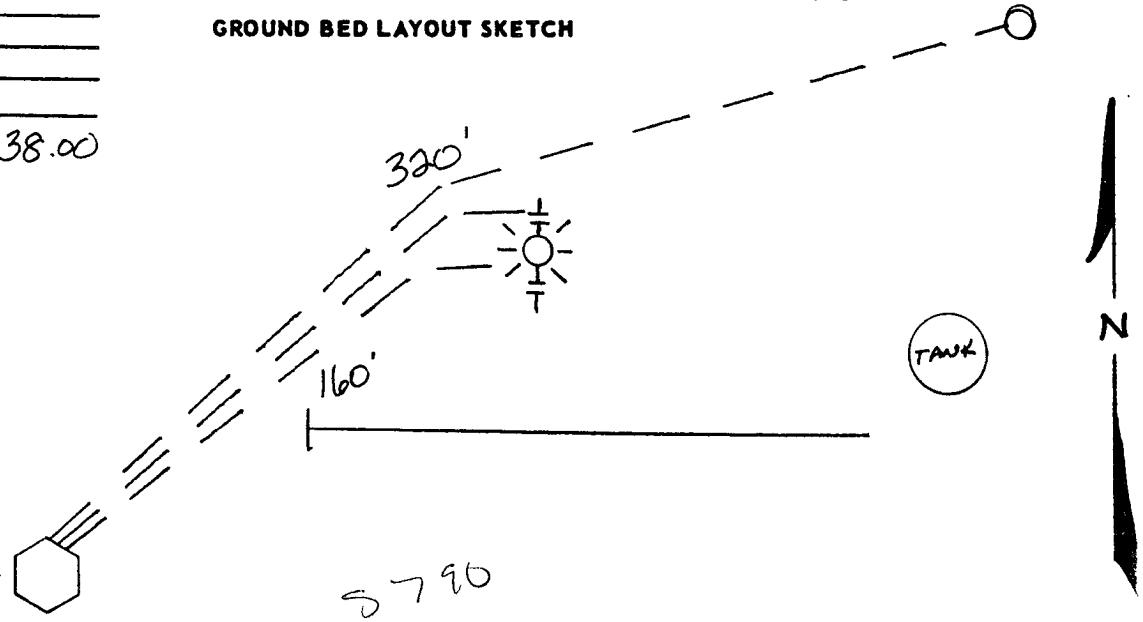
CASING TIME 1 HR = 138.00

3870.00 ✓
599.00 ✓
~~-542.50~~ -581.25
70.00 ✓
224.00 ✓
312.50 ✓
237.00 ✓
138.00 ✓
~~4408.00~~ 4869.25
~~243.40~~ 243.46
4164.60 4625.79

All Construction Completed

(Signature)

GROUND BED LAYOUT SKETCH



D. CRASS DRILLING CO.

Drill No. 3 251

DRILLER'S WELL LOG

S. P. No. Nye #290 Date 6-15-89

Client Meridian Oil Co. Prospect

County San Juan State New Mex.

If hole is a redrill or if moved from original staked position show distance and direction moved:

FROM	TO	FORMATION — COLOR — HARDNESS
0	80	Sandstone
80	90	Shale
90	115	Sandstone
115	170	Shale
170	185	Sandstone
185	220	Shale
220	230	Sandstone
230	340	Sandy shale
340	360	Sandstone

Mud Bran Lime

Rock Bit Number Make

Remarks: Water @ 95'

Damp @ 50' 20' Casing 1 Hr.

Driller Connie Brown

1425 30-045-20091 C

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO
(Submit 3 copies to OCD Aztec Office)

Operator MERIDIAN OIL INC. Location: Unit B Sec. 9 Twp 29 Rng 10

Name of Well/Wells or Pipeline Serviced FEUILLE A #3, NYE #10, #292

cps 2150w

Elevation 5781' Completion Date 6/14/89 Total Depth 400' Land Type* N/A

Casing, Sizes, Types & Depths N/A

If Casing is cemented, show amounts & types used N/A

If Cement or Bentonite Plugs have been placed, show depths & amounts used

N/A

Depths & thickness of water zones with description of water when possible:

Fresh, Clear, Salty, Sulphur, Etc. 25' & 75'

Depths gas encountered: N/A

Type & amount of coke breeze used: N/A

Depths anodes placed: 365', 355', 345', 335', 325', 310', 300', 290', 260', 250'

Depths vent pipes placed: 390'

Vent pipe perforations: 380'

Remarks: gb #1

RECEIVED
MAY 31 1991
OIL CON. DIV.
DIST. 3

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

*Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

WELL CASING

CATHODIC PROTECTION CONSTRUCTION REPORT

DAILY LOG

Drilling Log (Attach Hereto) ☑ ✓ Completion Date 6-14-89

CPS #	Well Name, Line or Plant:	Work Order #	Static:	Ins. Union Check:
2150-W	NYE # 292	3511A	600' W = .788	☒ Good ☐ Bad
	FEWILLE 'A' #3 PC	5/6694		
	NYE # 10 PC	44860A		

Location:	Anode Size:	Anode Type:	Size Bit:
B9-29-10	2"x60"	PURIRON	6 3/4"

Depth Drilled	Depth Logged	Drilling Rig Time	Total Lbs. Coke Used	Lost Circulation Mat'l Used	No. Sacks Mud Used
400'	385'				

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Anode Depth	365	355'	345'	335'	325'	310'	300'	290'	260'	250
Anode Output (Amps)	4.9	6.0	4.7	6.0	4.9	4.2	4.4	4.0	4.6	5.6
Anode Depth	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Anode Output (Amps)	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20

Total Circuit Resistance			No. 8 C.P. Cable Used	No. 2 C.P. Cable Used
Volts 11.72	Amps 24.1	Ohms .486		

Remarks: DRILLED 400', LOGGED 385' DRILLER SAID WATER AT 25' & 75'. INSTALLED 390' of 1" PVC VENT PIPE, PERFORATE BOTTOM 380'

FLOW / NEGATIVE TO FEWILLE A #3 ~~#1~~ TO NYE #10 (EST. 750' + 500')

Rectifier Size: 60 V 30 A
Addn'l Depth
Depth Credit: 115' 3.75
Extra Cable: 310 20
Ditch & 1 Cable: 315' .70
25' Meter Pole:
20' Meter Pole: 1
10' Stub Pole:
Junction Box: 1

All Construction Completed

(Signature)

GROUND BED LAYOUT SKETCH

2150-W

TANK

N

NYE #10

Fewille "A" #3

3870.00
789.00
~~402.50~~ 431.25
62.00
220.50
312.50
237.00
~~5088.50~~ 5059.75
~~254.43~~ 252.99
~~5342.93~~ 5312.74

250

D. CLASS DRILLING CO.

Drill No. 3

DRILLER'S WELL LOG

S. P. No. NMC # 292 Date 6-14-89

Client Meridian Oil Co. Prospect

County San Juan State New Mex.

If hole is a redrill or if moved from original staked position show distance and direction moved:

FROM	TO	FORMATION — COLOR — HARDNESS
0	40	Sandstone
40	60	Shale
60	90	Sandstone
90	110	Shale
110	125	Sandstone
125	155	Shale
155	175	Sandstone
175	275	Shale
275	300	Sandstone
300	330	Sandy shale
330	400	Shale

Mud Bran Lime

Rock Bit Number Make

Remarks: Water @ 25' & 75'

Driller Lonnie Brown

DATA SHEET FOR DEEP BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO
(SUBMIT 2 COPIES TO OCD AZTEC OFFICE)

3-30-045-09021

PPCO DESIGNATION: FM-494
OPERATOR: PHILLIPS PETROLEUM COMPANY
FARMINGTON, N.M. 87401
(505) 599-3400
LOCATION: H 32 30 10
LEASE NUMBER: 650121
NAME OF WELL/S OR PIPELINE SERVED: (1) AZTEC COM #3 PC
(2) N/A

ELEVATION:NA
COMPLETION DATE: 08/22/86
TOTAL DEPTH: 500 FT.
LAND: STATE

CASING INFO.: SIZE: NA IN. TYPE: NA
DEPTH: NA FT. CEMENT USED: NA

IF CEMENT OR BENTONITE PLUGS HAVE BEEN PLACED, SHOW DEPTHS & AMOUNTS:
PLUG DEPTH: NONE
PLUG AMOUNT: NONE

WATER INFORMATION:
WATER DEPTH (FT): (1) 180 (2) -0-
WATER INFORMATION: NA

DEPTHS GAS ENCOUNTERED (FT): NA

TYPE AND AMOUNT OF COKE BREEZE USED:
COKE TYPE: METALLURGICAL COKE BREEZE
COKE AMOUNT: 3067 LBS.

DEPTHS ANODES PLACED (FT):
380,390,400,410,420,430,440,450,460,470

DEPTH VENT PIPE PLACED (FT): 500

VENT PIPE PERFORATIONS (FT): TOP 370 BOTTOM 500

REMARKS: -0-

IF ANY OF THE ABOVE DATA IS UNAVAILABLE, PLEASE INDICATE SO. COPIES OF ALL LOGS, INCLUDING DRILLERS LOG, WATER ANALYSIS & WELL BORE SCHEMATICS SHOULD BE SUBMITTED WHEN AVAILABLE. UNPLUGGED ABANDONED WELLS ARE TO BE INCLUDED.

* - LAND TYPE MAY BE SHOWN: F-FEDERAL; I-INDIAN; S-STATE; P-FEE
IF FEDERAL OR INDIAN, ADD LEASE NUMBER.

NA-INFORMATION NOT AVAILABLE

RECEIVED
FEB21 1992
OIL CON. DIV.
DIST. 3

CC: CP FILE--FARMINGTON
HOUSTON

REPRODUCTION OF "OCD" FORM

ENSOLUM

APPENDIX C

Executed C-138 Solid Waste Acceptance Form

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-138
Revised 08/01/11

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

97057-1125

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. Generator Name and Address:
Enterprise Field Services, LLC, 614 Reilly Ave, Farmington NM 87401

PayKey: RB21200
PM: Gary Turner
AFE: Pending

2. Originating Site:
Ludwick LS #25

3. Location of Material (Street Address, City, State or ULSTR):
UL C Section 5 T29N R110W; 36.758890, -107.912100

Aug 2022

4. Source and Description of Waste:
Source: Remediation activities associated with a natural gas pipeline leak.
Description: Hydrocarbon/Condensate impacted soil associated natural gas pipeline release.
Estimated Volume 50 ~~yd³~~ / bbls Known Volume (to be entered by the operator at the end of the haul) 114/35 yd³ / bbls

5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS

I, Thomas Long (Thomas Long) , representative or authorized agent for Enterprise Products Operating do hereby
Generator Signature
certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. *Operator Use Only: Waste Acceptance Frequency* ☐ *Monthly* ☐ *Weekly* ☐ *Per Load*

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, Thomas Long (Thomas Long) 8-19-2022, representative for Enterprise Products Operating authorizes Envirotech, Inc. to complete
Generator Signature
the required testing/sign the Generator Waste Testing Certification.

I, Greg Crabtree, representative for Envirotech, Inc. do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. Transporter: ~~TBD~~ Riley, OFT, Stan Horn, Baily's,

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: **Envirotech Inc. Soil Remediation Facility * Permit #: NM 01-0011**
Address of Facility: **Hilltop, NM**
Method of Treatment and/or Disposal:
☐ Evaporation ☐ Injection ☐ Treating Plant ☒ Landfarm ☐ Landfill ☐ Other

Waste Acceptance Status:

☒ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: Greg Crabtree TITLE: Enviro Manager DATE: 8/19/22
SIGNATURE: TELEPHONE NO.:
Surface Waste Management Facility Authorized Agent 505-632-0615

ENSOLUM

APPENDIX D

Photographic Documentation

SITE PHOTOGRAPHS

Closure Report
Enterprise Field Services, LLC
Ludwick LS #25 (08/23/22)
Ensolum Project No. 05A1226206

ENSOLUM

Photograph 1 Photograph Description: View of the in-process excavation activities.	
Photograph 2 Photograph Description: View of the in-process excavation activities.	
Photograph 3 Photograph Description: View of the final excavation.	

SITE PHOTOGRAPHS

Closure Report
Enterprise Field Services, LLC
Ludwick LS #25 (08/23/22)
Ensolum Project No. 05A1226206

ENSOLUM

Photograph 4 Photograph Description: View of the site after initial restoration.	
Photograph 5 Photograph Description: View of the site after initial restoration.	

ENSOLUM

APPENDIX E

Regulatory Correspondence

From: Kyle Summers
To: Chad D"Aponti
Cc: Ranee Deechilly
Subject: Fwd: [EXTERNAL] Ludwick LS #25 - UL C Section 5 T29N R110W; 36.758890, -107.912100 - Incident # nAPP2223534793
Date: Monday, August 29, 2022 4:15:09 PM

Kyle Summers
Principal
903-821-5603
Ensolum, LLC

From: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Sent: Monday, August 29, 2022 4:14:15 PM
To: Long, Thomas <tjlong@eprod.com>; Ryan Joyner <rjoyner@blm.gov>
Cc: Stone, Brian <bmstone@eprod.com>; Kyle Summers <ksummers@ensolum.com>
Subject: RE: [EXTERNAL] Ludwick LS #25 - UL C Section 5 T29N R110W; 36.758890, -107.912100 - Incident # nAPP2223534793

[**EXTERNAL EMAIL**]

Tom,

Thank you for the notice. Your variance request is approved.

If an OCD representative is not on-site on the date &/or time given, please sample per 19.15.29 NMAC. For whatever reason, if the sampling timeframe is altered, please notify the OCD as soon as possible so we may adjust our schedule(s). Failure to notify the OCD of this change may result in the closure sample(s) not being accepted.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

The OCD requires a copy of all correspondence relative to remedial activities be included in all proposals and/or final closure reports. Correspondence required to be included in reports may include, but not limited to, notifications for liner inspections, sample events, spill/release/fire, and request for time extensions or variances.

Regards

Nelson Velez ● Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@state.nm.us

Office Hrs.:
7:00am – 12:00pm & 1:00 – 3:30 pm Mon.–Thur.
7:00am – 12:00pm & 1:00 – 4:00 pm Fri.

From: Long, Thomas <tjlong@eprod.com>
Sent: Monday, August 29, 2022 11:08 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>; Ryan Joyner <rjoyner@blm.gov>
Cc: Stone, Brian <bmstone@eprod.com>; Kyle Summers <ksummers@ensolum.com>
Subject: [EXTERNAL] Ludwick LS #25 - UL C Section 5 T29N R110W; 36.758890, -107.912100 - Incident # nAPP2223534793

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

Nelson/Ryan,

This email is a notification and a variance request. Enterprise is requesting a variance for required 48 hour notification per 19.15.29.12D (1a) NMAC. Enterprise would like to collect partial closure samples tomorrow August 30, 2022 at 9:00 a.m. at the Ludwick LS#25 excavation. Please acknowledge acceptance of this variance request. If you have any questions, please call or email.

Thomas J. Long
Senior Environmental Scientist
Enterprise Products Company
614 Reilly Ave.
Farmington, New Mexico 87401
505-599-2286 (office)
505-215-4727 (Cell)
tjlong@eprod.com

ENSOLUM

APPENDIX F

Table 1 – Soil Analytical Summary

ENSOLUM

TABLE 1
Ludwick LS #25 (08/23/22)
SOIL ANALYTICAL SUMMARY

Sample I.D.	Date	Sample Type C- Composite G - Grab	Sample Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX[1] (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total Combined TPH (GRO/DRO/MRO)[1] (mg/kg)	Chloride (mg/kg)
New Mexico Energy, Mineral & Natural Resources Department Oil Conservation Division Closure Criteria (Tier I)				**10**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**NE**	**100**	**600**
Excavation Composite Soil Samples													
S-1	8.30.22	C	8	<0.018	<0.036	<0.036	<0.072	ND	<3.6	<14	<47	ND	<60
S-2	8.30.22	C	0 to 8	<0.093	<0.19	<0.19	<0.37	ND	<19	<15	<49	ND	<60
S-3	8.30.22	C	0 to 8	<0.017	<0.034	<0.034	<0.069	ND	<3.4	<14	<48	ND	<60
S-4	8.30.22	C	0 to 8	<0.018	<0.037	<0.037	<0.073	ND	<3.7	<15	<49	ND	<60
S-5	8.30.22	C	0 to 8	<0.019	<0.038	<0.038	<0.075	ND	<3.8	<14	<46	ND	<60

*Note: Concentrations in **bold** and yellow exceed the applicable NM EMNRD Closure Criteria*

[1] = Total combined concentrations are rounded to two (2) significant figures to match the laboratory resolution of the individual constituents.

ND = Not Detected above the Practical Quantitation Limits (PQLs) or Reporting Limits (RLs)

NA = Not Analyzed

NE = Not established

mg/kg = milligram per kilogram

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes

TPH = Total Petroleum Hydrocarbons

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

MRO = Motor Oil/Lube Oil Range Organics

ENSOLUM

APPENDIX G

Laboratory Data Sheets & Chain of Custody Documentation

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 06, 2022

Kyle Summers

ENSOLUM
606 S. Rio Grande Suite A
Aztec, NM 87410
TEL: (903) 821-5603
FAX

RE: Ludwick LS 25 OrderNo.: 2208H94

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/31/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2208H94**
Date Reported: **9/6/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** S-1
Project: Ludwick LS 25 **Collection Date:** 8/30/2022 9:00:00 AM
Lab ID: 2208H94-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/31/2022 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	8/31/2022 12:40:20 PM	69881
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/31/2022 2:06:03 PM	69874
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/31/2022 2:06:03 PM	69874
Surr: DNOP	85.7	21-129		%Rec	1	8/31/2022 2:06:03 PM	69874
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	8/31/2022 10:57:02 AM	A90700
Surr: BFB	97.1	37.7-212		%Rec	1	8/31/2022 10:57:02 AM	A90700
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.018		mg/Kg	1	8/31/2022 10:57:02 AM	C90700
Toluene	ND	0.036		mg/Kg	1	8/31/2022 10:57:02 AM	C90700
Ethylbenzene	ND	0.036		mg/Kg	1	8/31/2022 10:57:02 AM	C90700
Xylenes, Total	ND	0.072		mg/Kg	1	8/31/2022 10:57:02 AM	C90700
Surr: 4-Bromofluorobenzene	90.0	70-130		%Rec	1	8/31/2022 10:57:02 AM	C90700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208H94**
Date Reported: **9/6/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** S-2
Project: Ludwick LS 25 **Collection Date:** 8/30/2022 9:05:00 AM
Lab ID: 2208H94-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/31/2022 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	8/31/2022 12:52:45 PM	69881
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/31/2022 2:16:50 PM	69874
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/31/2022 2:16:50 PM	69874
Surr: DNOP	88.1	21-129		%Rec	1	8/31/2022 2:16:50 PM	69874
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	19		mg/Kg	5	8/31/2022 11:20:31 AM	A90700
Surr: BFB	98.6	37.7-212		%Rec	5	8/31/2022 11:20:31 AM	A90700
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.093		mg/Kg	5	8/31/2022 11:20:31 AM	C90700
Toluene	ND	0.19		mg/Kg	5	8/31/2022 11:20:31 AM	C90700
Ethylbenzene	ND	0.19		mg/Kg	5	8/31/2022 11:20:31 AM	C90700
Xylenes, Total	ND	0.37		mg/Kg	5	8/31/2022 11:20:31 AM	C90700
Surr: 4-Bromofluorobenzene	92.0	70-130		%Rec	5	8/31/2022 11:20:31 AM	C90700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208H94**
Date Reported: **9/6/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** S-3
Project: Ludwick LS 25 **Collection Date:** 8/30/2022 9:10:00 AM
Lab ID: 2208H94-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/31/2022 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	8/31/2022 1:05:09 PM	69881
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/31/2022 2:28:30 PM	69874
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/31/2022 2:28:30 PM	69874
Surr: DNOP	87.6	21-129		%Rec	1	8/31/2022 2:28:30 PM	69874
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.4		mg/Kg	1	8/31/2022 11:44:06 AM	A90700
Surr: BFB	97.7	37.7-212		%Rec	1	8/31/2022 11:44:06 AM	A90700
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.017		mg/Kg	1	8/31/2022 11:44:06 AM	C90700
Toluene	ND	0.034		mg/Kg	1	8/31/2022 11:44:06 AM	C90700
Ethylbenzene	ND	0.034		mg/Kg	1	8/31/2022 11:44:06 AM	C90700
Xylenes, Total	ND	0.069		mg/Kg	1	8/31/2022 11:44:06 AM	C90700
Surr: 4-Bromofluorobenzene	91.5	70-130		%Rec	1	8/31/2022 11:44:06 AM	C90700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208H94**
Date Reported: **9/6/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** S-4
Project: Ludwick LS 25 **Collection Date:** 8/30/2022 9:15:00 AM
Lab ID: 2208H94-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/31/2022 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	8/31/2022 1:17:33 PM	69881
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/31/2022 2:50:11 PM	69874
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/31/2022 2:50:11 PM	69874
Surr: DNOP	92.4	21-129		%Rec	1	8/31/2022 2:50:11 PM	69874
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	8/31/2022 12:07:33 PM	A90700
Surr: BFB	98.4	37.7-212		%Rec	1	8/31/2022 12:07:33 PM	A90700
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.018		mg/Kg	1	8/31/2022 12:07:33 PM	C90700
Toluene	ND	0.037		mg/Kg	1	8/31/2022 12:07:33 PM	C90700
Ethylbenzene	ND	0.037		mg/Kg	1	8/31/2022 12:07:33 PM	C90700
Xylenes, Total	ND	0.073		mg/Kg	1	8/31/2022 12:07:33 PM	C90700
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	8/31/2022 12:07:33 PM	C90700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208H94**
Date Reported: **9/6/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** S-5
Project: Ludwick LS 25 **Collection Date:** 8/30/2022 9:20:00 AM
Lab ID: 2208H94-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/31/2022 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	8/31/2022 1:29:57 PM	69881
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/31/2022 3:00:56 PM	69874
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/31/2022 3:00:56 PM	69874
Surr: DNOP	89.3	21-129		%Rec	1	8/31/2022 3:00:56 PM	69874
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	8/31/2022 12:31:04 PM	A90700
Surr: BFB	98.2	37.7-212		%Rec	1	8/31/2022 12:31:04 PM	A90700
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.019		mg/Kg	1	8/31/2022 12:31:04 PM	C90700
Toluene	ND	0.038		mg/Kg	1	8/31/2022 12:31:04 PM	C90700
Ethylbenzene	ND	0.038		mg/Kg	1	8/31/2022 12:31:04 PM	C90700
Xylenes, Total	ND	0.075		mg/Kg	1	8/31/2022 12:31:04 PM	C90700
Surr: 4-Bromofluorobenzene	91.9	70-130		%Rec	1	8/31/2022 12:31:04 PM	C90700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2208H94**
06-Sep-22

Client: ENSOLUM
Project: Ludwick LS 25

Sample ID: **MB-69881**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **69881**	RunNo: **90702**							
Prep Date: **8/31/2022**	Analysis Date: **8/31/2022**	SeqNo: **3243311**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-69881**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **69881**	RunNo: **90702**							
Prep Date: **8/31/2022**	Analysis Date: **8/31/2022**	SeqNo: **3243312**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208H94**

06-Sep-22

Client: ENSOLUM

Project: Ludwick LS 25

Sample ID: **LCS-69874** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **69874** RunNo: **90697**

Prep Date: **8/31/2022** Analysis Date: **8/31/2022** SeqNo: **3241478** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	37	15	50.00	0	74.3	64.4	127			
Surr: DNOP	3.7		5.000		73.5	21	129			

Sample ID: **MB-69874** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **69874** RunNo: **90697**

Prep Date: **8/31/2022** Analysis Date: **8/31/2022** SeqNo: **3241482** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		84.7	21	129			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2208H94**
06-Sep-22

Client: ENSOLUM
Project: Ludwick LS 25

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **A90700**	RunNo: **90700**
Prep Date:	Analysis Date: **8/31/2022**	SeqNo: **3241883** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		96.0	37.7	212			

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **A90700**	RunNo: **90700**
Prep Date:	Analysis Date: **8/31/2022**	SeqNo: **3241884** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.9	72.3	137			
Surr: BFB	1900		1000		187	37.7	212			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208H94**

06-Sep-22

Client: ENSOLUM

Project: Ludwick LS 25

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **C90700**	RunNo: **90700**
Prep Date:	Analysis Date: **8/31/2022**	SeqNo: **3241908** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.90		1.000		89.8	70	130			

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **C90700**	RunNo: **90700**
Prep Date:	Analysis Date: **8/31/2022**	SeqNo: **3241909** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	88.9	80	120			
Toluene	0.92	0.050	1.000	0	91.6	80	120			
Ethylbenzene	0.91	0.050	1.000	0	90.6	80	120			
Xylenes, Total	2.7	0.10	3.000	0	90.4	80	120			
Surr: 4-Bromofluorobenzene	0.92		1.000		92.5	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: ENSOLUM Work Order Number: 2208H94 RcptNo: 1

Received By: **Joseph Alderette** 8/31/2022 7:40:00 AM

Completed By: **Sean Livingston** 8/31/2022 8:00:34 AM

Reviewed By: KPA 8.31.22

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: JN 8/31/22

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.9	Good				

Chain-of-Custody Record

Client: Ensolum

Mailing Address: 606 S Rio Grand Suite A 87410

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 100%
☐ Standard ☐ Rush 8-31-22

Project Name: Ludwick LS #25

Project #:

Project Manager: K Summers

Sampler: C DAponte

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.9 0 = 4.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2208H94	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO3, NO2, PO4, SO4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8/30	900	S	S-1	1 4oz Jar	Cool	001	✓	✓					✓			
8/30	905	S	S-2		Cool	002	✓	✓					✓			
8/30	910	S	S-3		Cool	003	✓	✓					✓			
8/30	915	S	S-4		Cool	004	✓	✓					✓			
8/30	920	S	S-5		Cool	005	✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8/30/22	1538			Wave	8/30/22	1538
8/31/22	1747			Courier	8-31-22	7:40

Remarks: PM Tom Long
RB21200

Same Day

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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 226494

CONDITIONS

Operator: Enterprise Field Services, LLC PO Box 4324 Houston, TX 77210	OGRID: 241602
	Action Number: 226494
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	6/13/2023