Interim Characterization Report and Remediation Plan

Property:

2D-1 Well Tie/Bruce R Sullivan #2 (7/29/21)
Unit Letter I, S23 T28N R10W
San Juan County, New Mexico

NM EMNRD OCD Incident ID No. NAPP2121054964

February 9, 2022
Ensolum Project No. 05A1226149

Prepared for:

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Interim Characterization Report and Remediation Plan

2D-1 Well Tie/Bruce R Sullivan #2 (7/29/21)
Unit Letter I, S23 T28N R10W
San Juan County, New Mexico

Ensolum Project No. 05A1226149

1.0 INTRODUCTION

1.1 Site Description & Background

Operator:	Enterprise Field Services, LLC / Enterprise Products Operating LLC (Enterprise)
Site Name:	2D-1 Well Tie/Bruce R Sullivan #2 (7/29/21) (Site)
NM EMNRD OCD Incident ID No.	NAPP2121054964
Location:	36.644538° North, 107.857891° West Unit Letter I, Section 23, Township 28 North, Range 10 West San Juan County, New Mexico
Property:	Private
Regulatory:	New Mexico (NM) Energy, Minerals and Natural Resources Department (EMNRD) Oil Conservation Division (OCD)

On July 29, 2021, a release of natural gas was identified on the 2D-1 Well Tie/Bruce R Sullivan #2 pipeline. Enterprise subsequently isolated and locked the pipeline out of service. On August 9, 2021, Enterprise initiated activities to facilitate the repair of the pipeline and remediate potential petroleum hydrocarbon impact.

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 NM EMNRD OCD. To address activities related to oil and gas releases, the NM EMNRD OCD references NM 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. Ensolum, LLC (Ensolum) utilized information provided by Enterprise, the general site characteristics, and information available from the NM Office of the State Engineer (OSE) and the NM EMNRD OCD imaging database to determine the appropriate closure criteria for the Site. Additionally, Ensolum utilized the NM WQCC GQSs (NMAC 20.6.2 *Ground and Surface Water Protection*) to evaluate groundwater conditions. Supporting figures and documentation associated with the following Siting bullets are provided in **Appendix B**.

- The 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 within a one mile radius of the Site. In addition, no PODs were identified in the adjacent Public Land Survey System (PLSS) sections (**Figure A**, **Appendix B**).

- Numerous cathodic protection wells (CPWs) were identified in the NM EMNRD OCD imaging database within one mile of the Site and in adjacent PLSS sections **Figure B** (**Appendix B**). The two closest CPWs are located less than one mile from the Site. The first CPW is associated with the McClanahan A#, A#2 and A#3 oil/gas production wells and is located approximately 0.75 miles southeast of the site and at a higher elevation (5,811 feet, according to the well record) than the Site (5,727 feet), with a reported depth to water of 155 feet bgs. The second CPW is associated with the Omler #500 oil/gas production well and is located approximately 0.9 miles southeast of the site and at a higher elevation (5,825 feet, according to the well record) than the Site, with a reported depth to water of 120 feet bgs. The remaining CPWs that are located over one mile from the Site have recorded depths to water ranging from 120 feet bgs to 310 feet bgs.

- The Site is located within 300 feet of a NM EMNRD OCD-defined continuously flowing watercourse or significant watercourse. The Site is located approximately 60 feet east of the Armenta Canyon Wash normal high water mark and is within the flood plain (**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 fresh water 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 fresh water 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 located 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 located within an area overlying a subsurface mine (**Figure G**, **Appendix B**).

- The Site is not located within an unstable area.

- Based on information provided by the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) geospatial database the location of the Site is located within a 100-year floodplain (**Figure H**, **Appendix B**).

Based on the identified siting criteria, 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 REMEDIATION ACTIVITIES

On August 9, 2021, Enterprise initiated activities to remediate petroleum hydrocarbon impact resulting from the release. During the remediation and corrective action activities, Industrial Mechanical Inc (IMI), provided heavy equipment and labor support, while Ensolum provided environmental consulting support.

During remediation activities, water was encountered at approximately seven feet bgs (capillary fringe). Upon completion of pipeline repair and soil remediation activities, Enterprise corresponded with the New Mexico EMNRD OCD and informed them of Enterprise's plan to install a temporary monitoring well at the Site. On August 13, 2021, the temporary monitoring well was installed at the Site during the backfill activities to provide access to groundwater for sampling, and a sampling event was performed at the Site on August 17, 2021. The regulatory correspondence is provided in **Appendix C**.

The final excavation measured approximately 24 feet long and 12 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 unconsolidated silty sand.

Approximately 36 cubic yards (yd^3) of petroleum hydrocarbon affected soils 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 D**. The excavation was backfilled with imported fill and laboratory-confirmed stockpiled soils, and the area was then contoured to the surrounding grade.

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

4.0 SOIL AND WATER 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. In addition, two composite soil samples (SP-1 and SP-2) were collected from the stockpiled soils to confirm the material was suitable to use as backfill. 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 were utilized to obtain fresh aliquots from each area of the excavation. The regulatory correspondence is provided in **Appendix C**.

First Sampling Event
On August 11, 2021, the first sampling event 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 samples S-1 (0' to 8'), S-2 (0' to 8'), S-3 (0' to 8'), S-4 (0' to 8'), S-5 (0' to 8') were collected from the sidewalls of the excavation. A water sample (WS-1) was collected from base of the capillary fringe in the open excavation utilizing a disposable bailer and was subsequently submitted for laboratory analysis to evaluate the potential for water impact at the Site. Subsequent water analytical results for EW-1 identified a benzene concentration that exceeded the applicable WQCC standard.

Second Sampling Event
On August 13, 2021, Ensolum installed a temporary monitoring well (MW-1) at the Site, and on August 16, 2021, the well was developed by removing groundwater until the fluid appeared relatively free of fine-grained sediment. On August 17, 2021, the temporary monitoring well was sampled utilizing disposable bailer. The analytical results indicated benzene, sulfate, and TDS concentrations above the WQCC GQSs.

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 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 initial water sample collected from the open excavation was analyzed for BTEX using EPA SW-846 Method 8260. The water sample collected from the temporary monitoring well was analyzed for VOCs using EPA Method SW-846 8260; total dissolved solids (TDS) using Standard Method (SM) 2540C MOD; cations using EPA Method 200.7; and anions using EPA Method 300.0.

The laboratory analytical results are summarized in **Table 1** through **Table 3** in **Appendix F**. **Table 2** only identifies the constituents that indicated a concentration above the laboratory practical quantitation limits (PQLs) or reporting limits (RLs). The laboratory data sheets and executed chain-of-custody forms are provided in **Appendix G**.

6.0 DATA EVALUATION

6.1 Soil Data Evaluation

Ensolum compared the 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, SP-1, and SP-2) to the NM EMNRD OCD Tier I closure criteria.

- The laboratory analytical results for the composite soil samples indicate that benzene is not present at concentrations greater than the laboratory PQLs/RLs, which are less than the NM EMNRD OCD closure criteria of 10 mg/kg.
- The laboratory analytical results for the composite soil samples indicate that total BTEX is not present at concentrations greater than the laboratory PQLs/RLs, which are less than the NM EMNRD OCD closure criteria of 50 mg/kg.

- The laboratory analytical result for composite soil sample SP-1 indicates a combined TPH GRO/DRO/MRO concentration of 26 mg/kg, which is less than the NM EMNRD OCD closure criteria of 100 mg/kg. The laboratory analytical results for all other composite soil samples indicate that total combined TPH GRO/DRO/MRO is not present at concentrations greater than the laboratory PQLs/RLs, which are less than the NM EMNRD OCD closure criteria of 100 mg/kg.

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

The laboratory analytical results are summarized in **Table 1** (**Appendix F**).

6.2 Water Data Evaluation

Ensolum compared the laboratory analytical results associated with the water samples (EW-1 and MW-1) to the NM WQCC Human Health Standards (HHSs) and Domestic Water Supply Standards (DWSSs). The results of the water sample analyses are summarized in **Table 2** and **Table 3** of **Appendix F**.

- The laboratory analytical results for samples EW-1 and MW-1 indicate benzene concentrations of 5.3 µg/L and 33 µg/L, respectively, which exceed the WQCC HHS of 5 µg/L.

- The laboratory analytical result for sample MW-1 indicates a toluene concentration of 3.2 µg/L, which is below the WQCC HHS of 1,000 µg/L. The laboratory analytical result for sample EW-1 does not indicate a toluene concentration above the laboratory PQL/RL, which is below the WQCC HHS of 1,000 µg/L.

- The laboratory analytical result for sample MW-1 indicates an ethylbenzene concentration of 1.3 µg/L, which is below the WQCC HHS of 700 µg/L. The laboratory analytical result for sample EW-1 does not indicate an ethylbenzene concentration above the laboratory PQL/RL, which is below the WQCC HHS of 700 µg/L.

- The laboratory analytical result for sample MW-1 indicates a total xylene concentration of 17 µg/L, which is below the WQCC HHS of 620 µg/L. The laboratory analytical result for sample EW-1 does not indicate a total xylene concentration above the laboratory PQL/RL, which is below the WQCC HHS of 620 µg/L.

- The laboratory analytical result for sample MW-1 indicates a naphthalene concentration of 4.9 µg/L, which is below the WQCC HHS of 30 µg/L.

- The laboratory analytical result for sample MW-1 indicates a 1,2,4-trimethylbenzene concentration of 7.6 µg/L. The WQCC does not have an established standard for 1,2,4-trimethylbenzene.

- The laboratory analytical result for sample MW-1 indicates a 1,3,5-Trimethylbenzene concentration of 4.8 µg/L. The WQCC does not have an established standard for 1,3,5-trimethylbenzene.

- The laboratory analytical result for sample MW-1 indicates a 2-methylnaphthalene concentration of 4.8 µg/L. The WQCC does not have an established standard for 2-methylnaphthalene.

Cations/Anions

- The laboratory analytical result for sample MW-1 indicates a fluoride concentration of 0.79 mg/L, which is less than the WQCC HHS of 1.6 mg/L.

- The laboratory analytical result for sample MW-1 indicates a chloride concentration of 62 mg/L, which is below the WQCC DWSS of 250 mg/L.
- The laboratory analytical result for sample MW-1 indicates a sulfate concentration of 4,000 mg/L, which exceeds the WQCC DWSS of 600 mg/L.
- The laboratory analytical result for sample MW-1 indicates a Nitrate + Nitrite concentration below the laboratory PQLs/RL, which is less than the WQCC HHS of 11 mg/L.
- The laboratory analytical result for sample MW-1 indicates a bromide concentration below the laboratory PQLs/RLs. There is no WQCC standard established for bromide.
- The laboratory analytical result for sample MW-1 indicates a phosphorous concentration below the laboratory PQLs/RLs. There is no WQCC standard established for phosphorous.
- The laboratory analytical result for sample MW-1 indicates a calcium concentration of 530 mg/L. There is no WQCC standard established for calcium.
- The laboratory analytical result for sample MW-1 indicates a magnesium concentration of 78 mg/L. There is no WQCC standard established for magnesium.
- The laboratory analytical result for sample MW-1 indicates a potassium concentration of 13 mg/L. There is no WQCC standard established for potassium.
- The laboratory analytical result for sample MW-1 indicates a sodium concentration of 1,300 mg/L. There is no WQCC standard established for sodium.

TDS

- The laboratory analytical result for sample MW-1 indicates a TDS concentration of 6,300 mg/L, which exceeds the WQCC DWSS of 1,000 mg/L.

Conductivity

- The laboratory analytical result for sample MW-1 indicates a conductivity value of 7,200 micromhos per centimeter (µmhos/cm). There is no WQCC standard established for conductivity.

Total Alkalinity

- The laboratory analytical result for sample MW-1 indicates a total alkalinity concentration of 427.2 mg/L Calcium (Ca). There is no WQCC standard established for total alkalinity.

7.0 RECLAMATION AND REVEGETATION

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

8.0 FINDINGS

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

- Approximately 36 yd^3 of petroleum hydrocarbon affected soils were transported to the Envirotech landfarm for disposal/remediation. The excavation was backfilled with imported fill and laboratory-confirmed stockpiled soils, and then contoured to the surrounding grade.

- Two water samples were collected from the. Based on the laboratory analytical results for the water samples, benzene, sulfate, and TDS concentrations were identified above the applicable WQCC standards.

9.0 RECOMMENDATIONS AND INTERIM REMEDIATION PLAN

Based upon the information provided herein, additional investigation appears warranted at this time with relation to groundwater. Based on conversations with the NM EMNRD OCD, Enterprise plans to install additional temporary monitoring wells to delineate the extent of impact to groundwater, determine the hydraulic gradient, and determine if the impact to groundwater is naturally attenuating. Enterprise recommends utilizing a track-mounted drilling or push-probe rig to access the Site. The proposed temporary monitoring well locations are depicted on **Figure 5** (**Appendix A**).

10.0 STANDARDS OF CARE, LIMITATIONS, AND RELIANCE

10.1 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).

10.2 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.

10.3 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.

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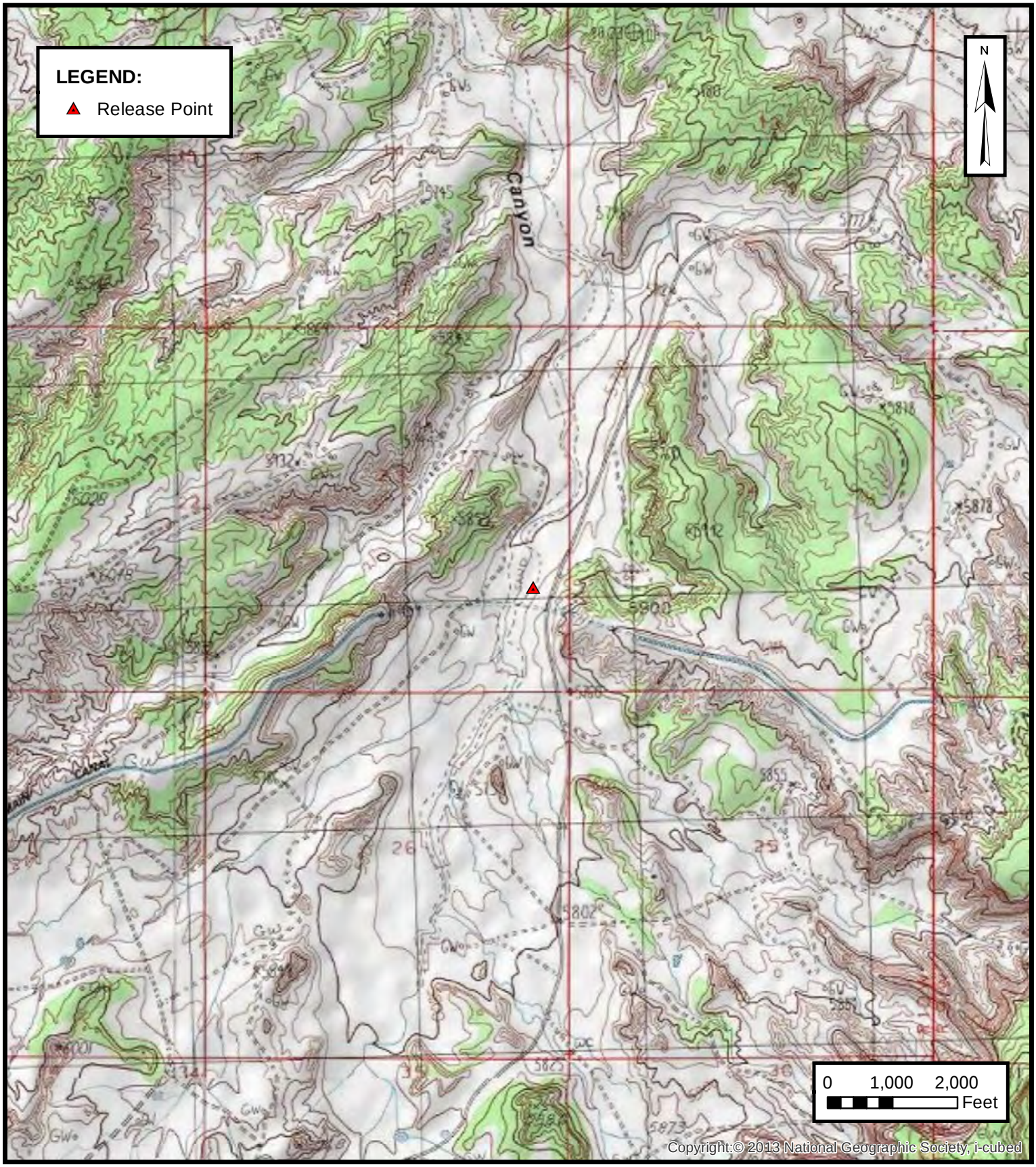
APPENDIX A

Figures



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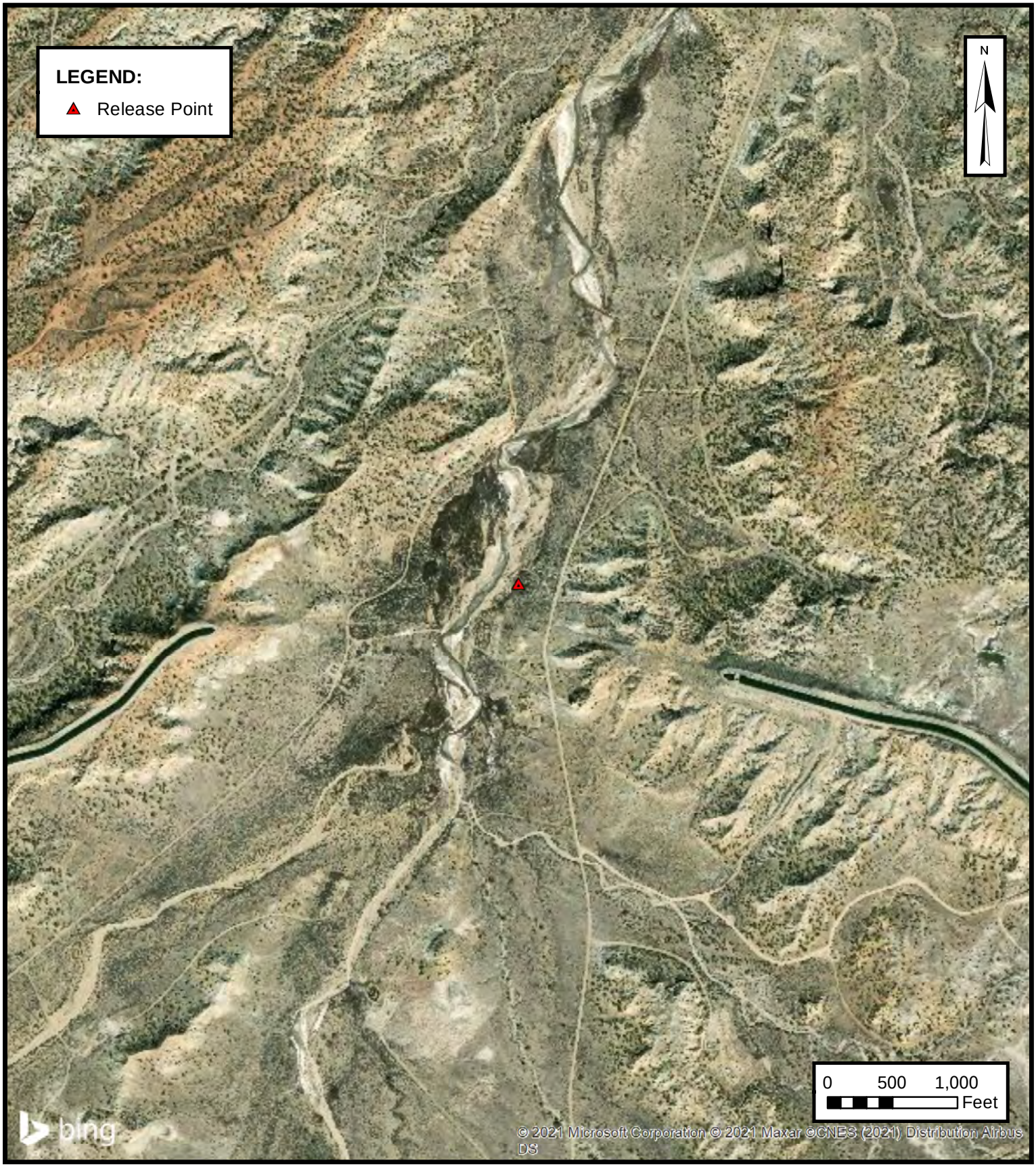
TOPOGRAPHIC MAP

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE
1



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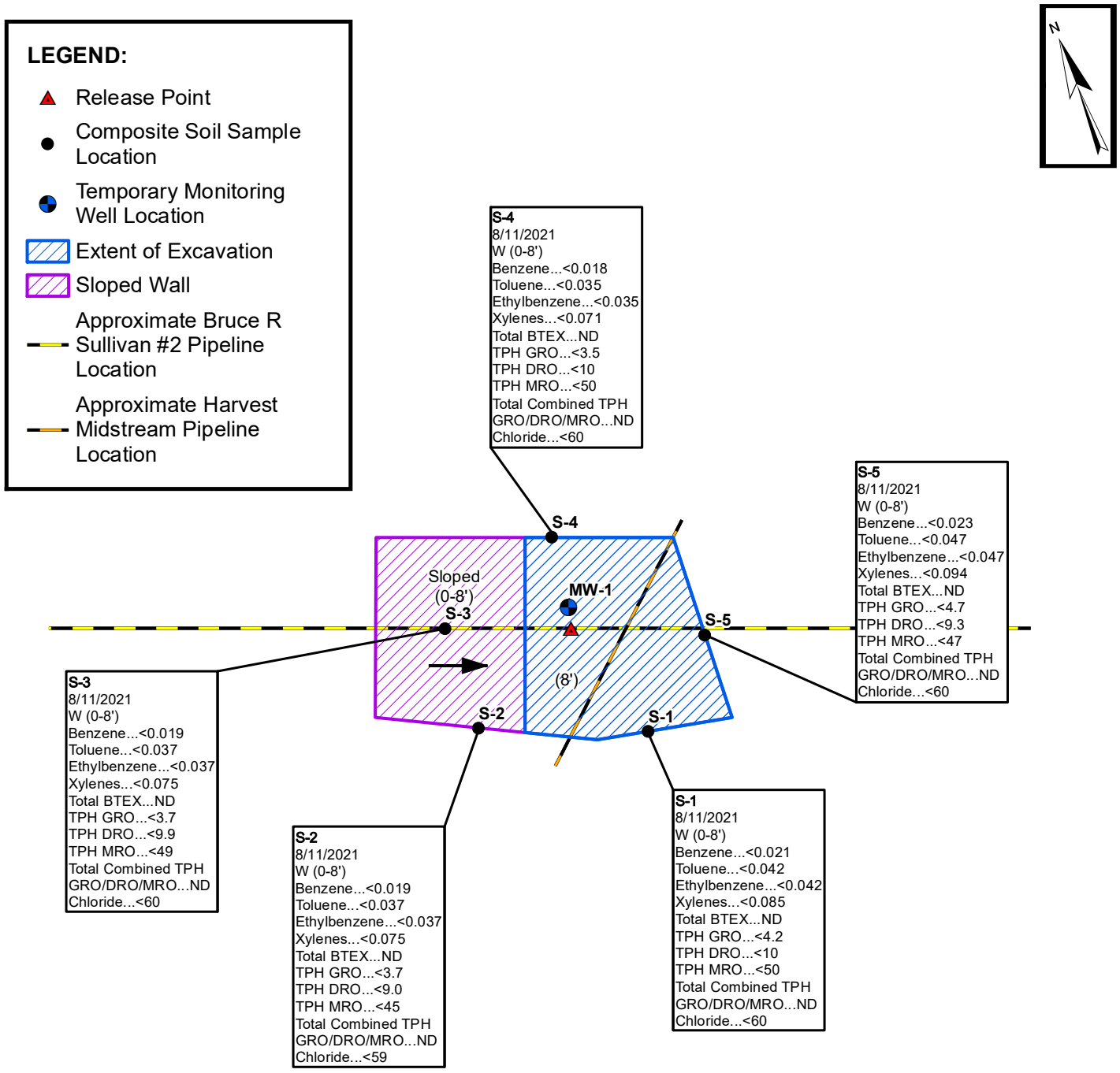
SITE VICINITY MAP

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE
2



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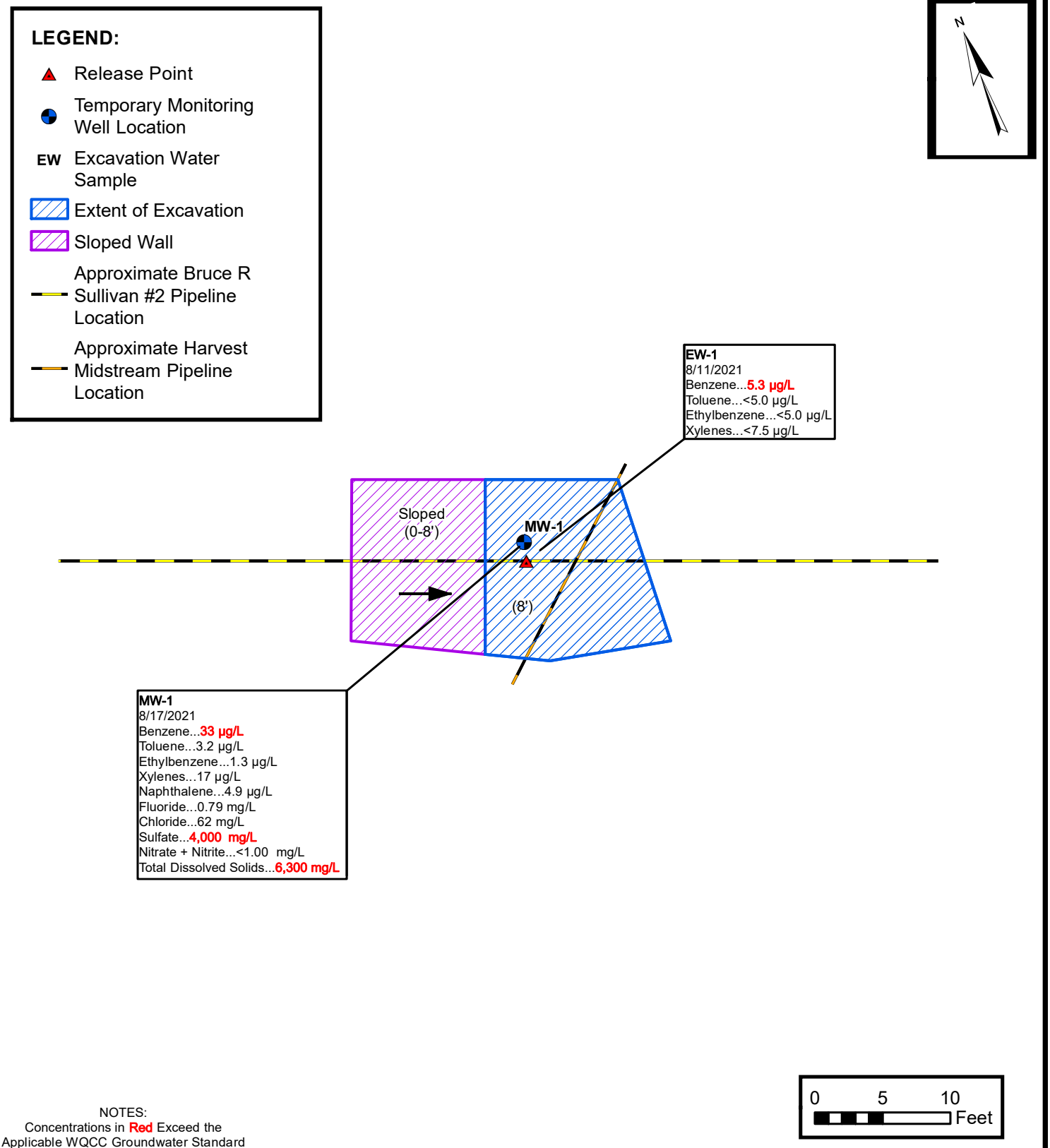
SITE MAP WITH SOIL ANALYTICAL RESULTS

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE
3



NOTES:
Concentrations in Red Exceed the Applicable WQCC Groundwater Standard

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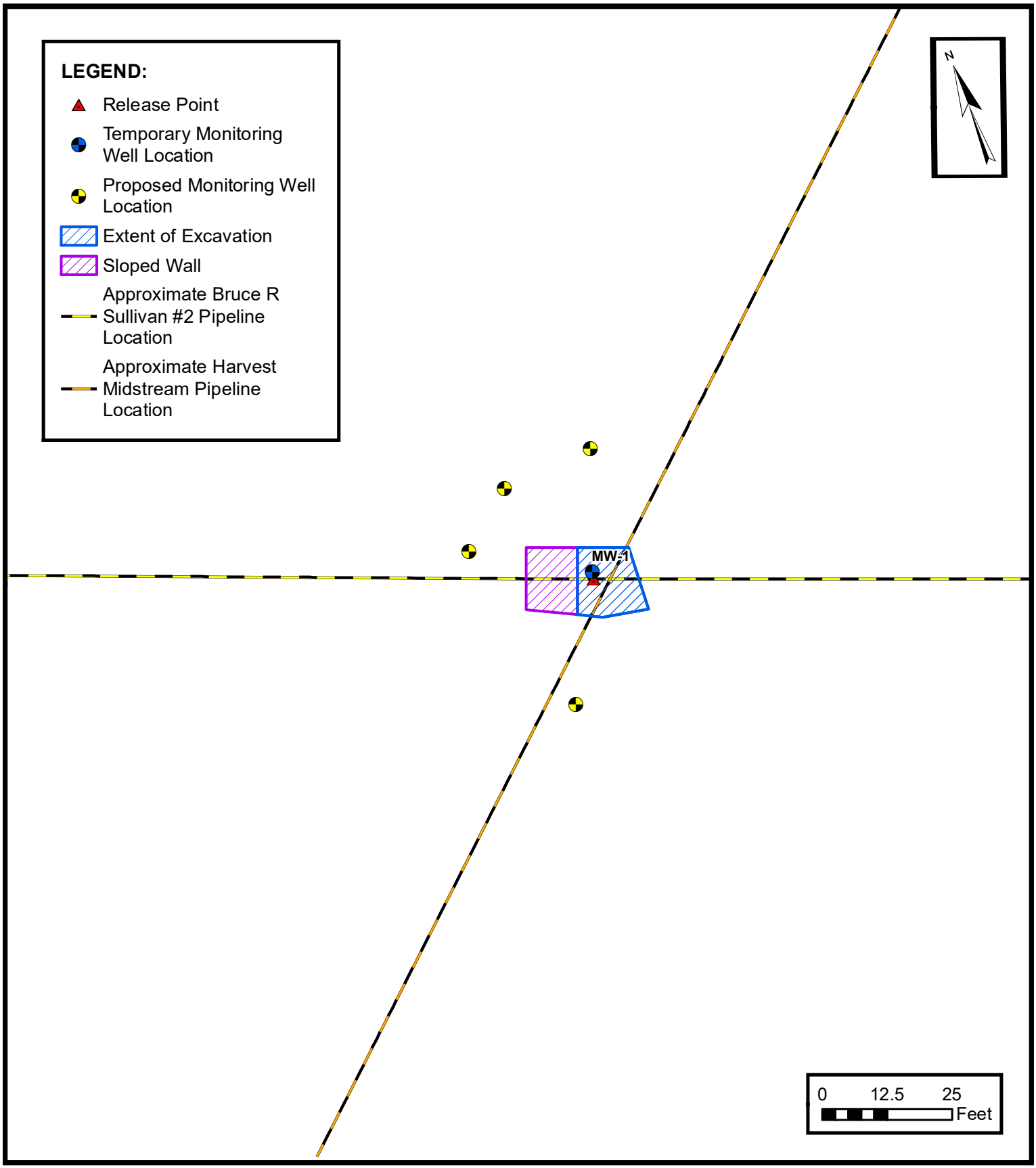
SITE MAP WITH WATER ANALYTICAL RESULTS

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE
4



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PROPOSED MONITORING WELL LOCATIONS

ENTERPRISE FIELD SERVICES, LLC
2D-1 Well Tie/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE
5

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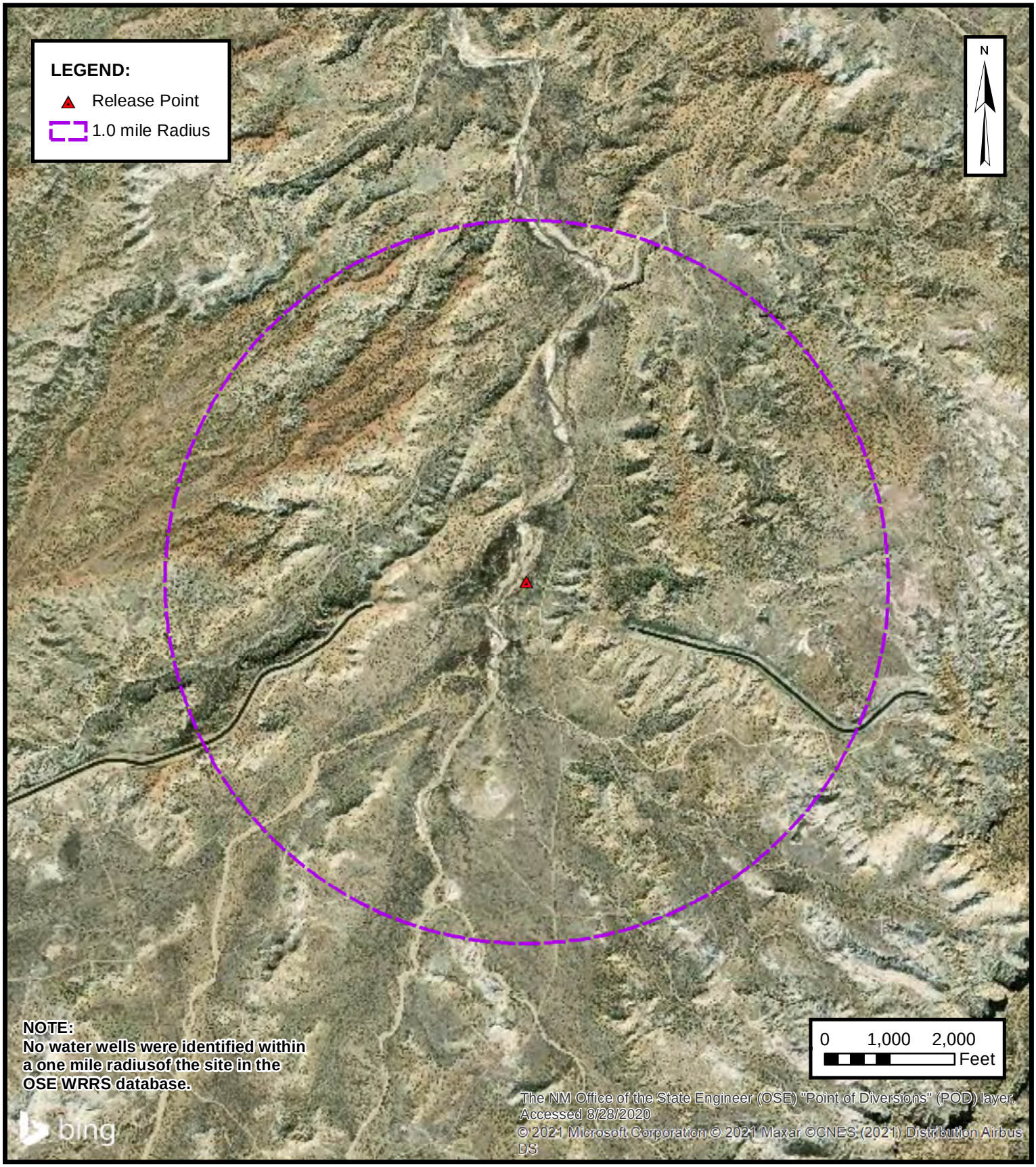
APPENDIX B

Siting Figures and Documentation



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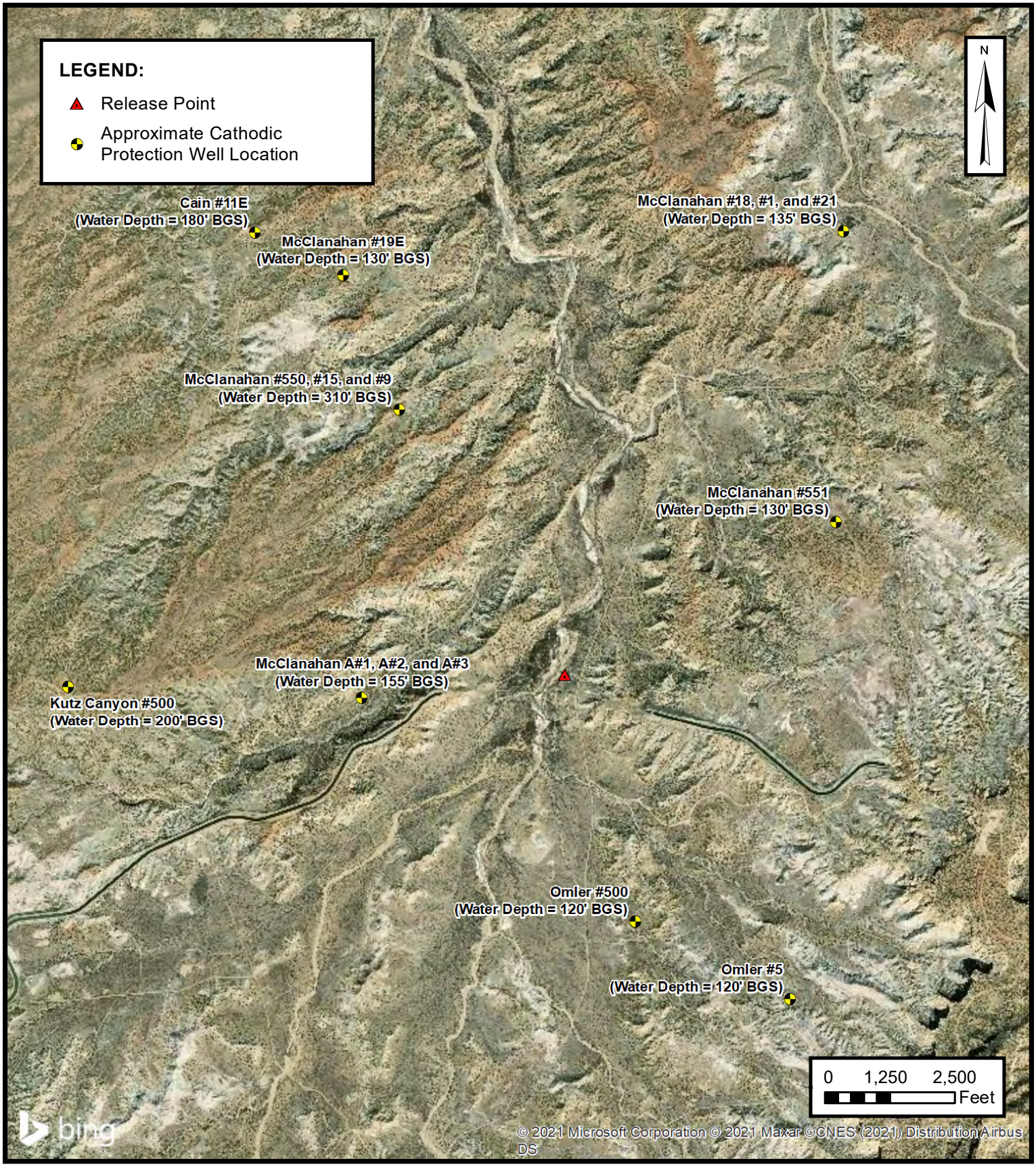
1.0 MILE RADIUS WATER WELL/ POD LOCATION MAP

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE

A



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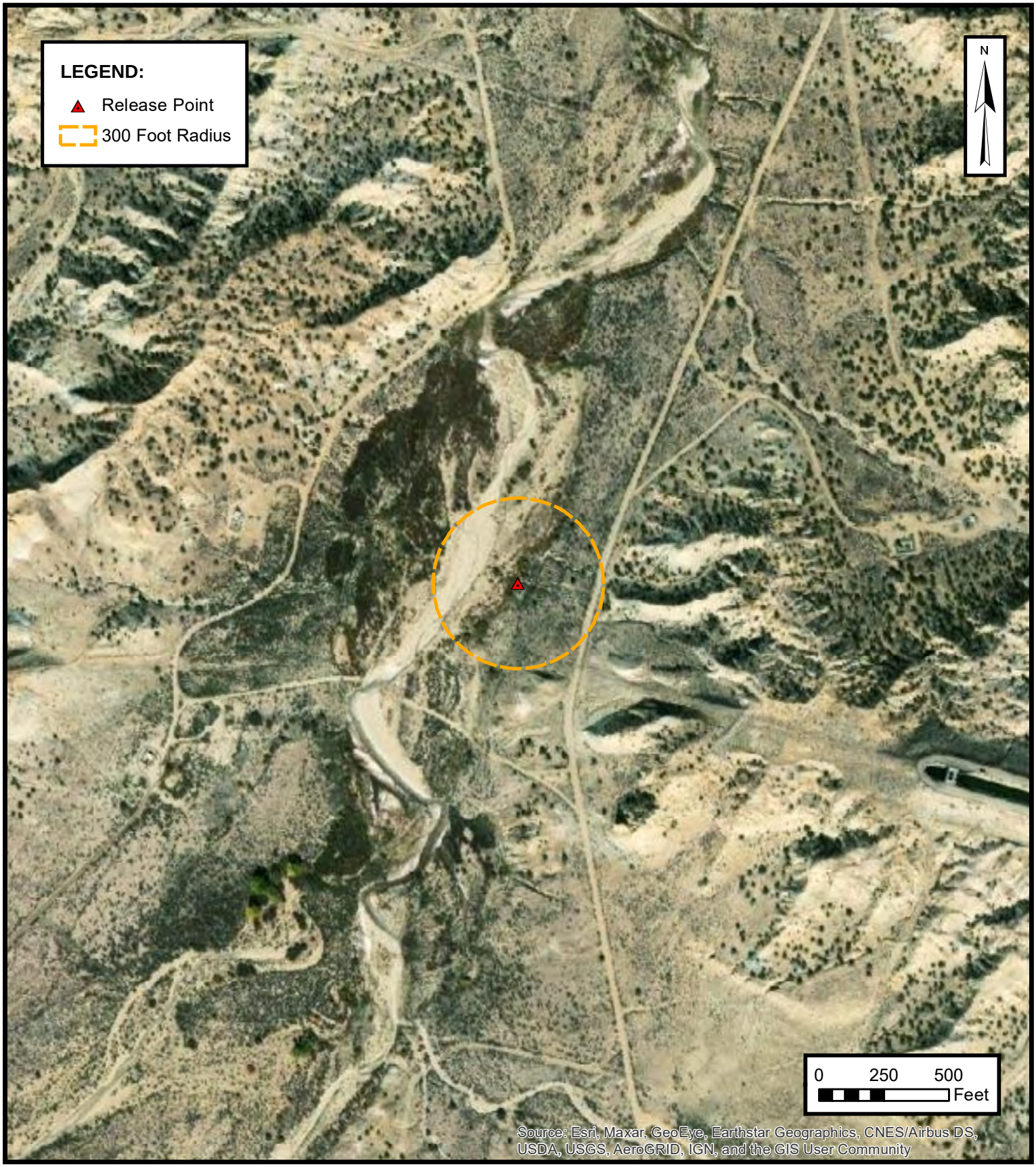
CATHODIC PROTECTION WELL RECORDED DEPTH TO WATER

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE

B



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300 FOOT RADIUS
WATERCOURSE AND DRAINAGE IDENTIFICATION
ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

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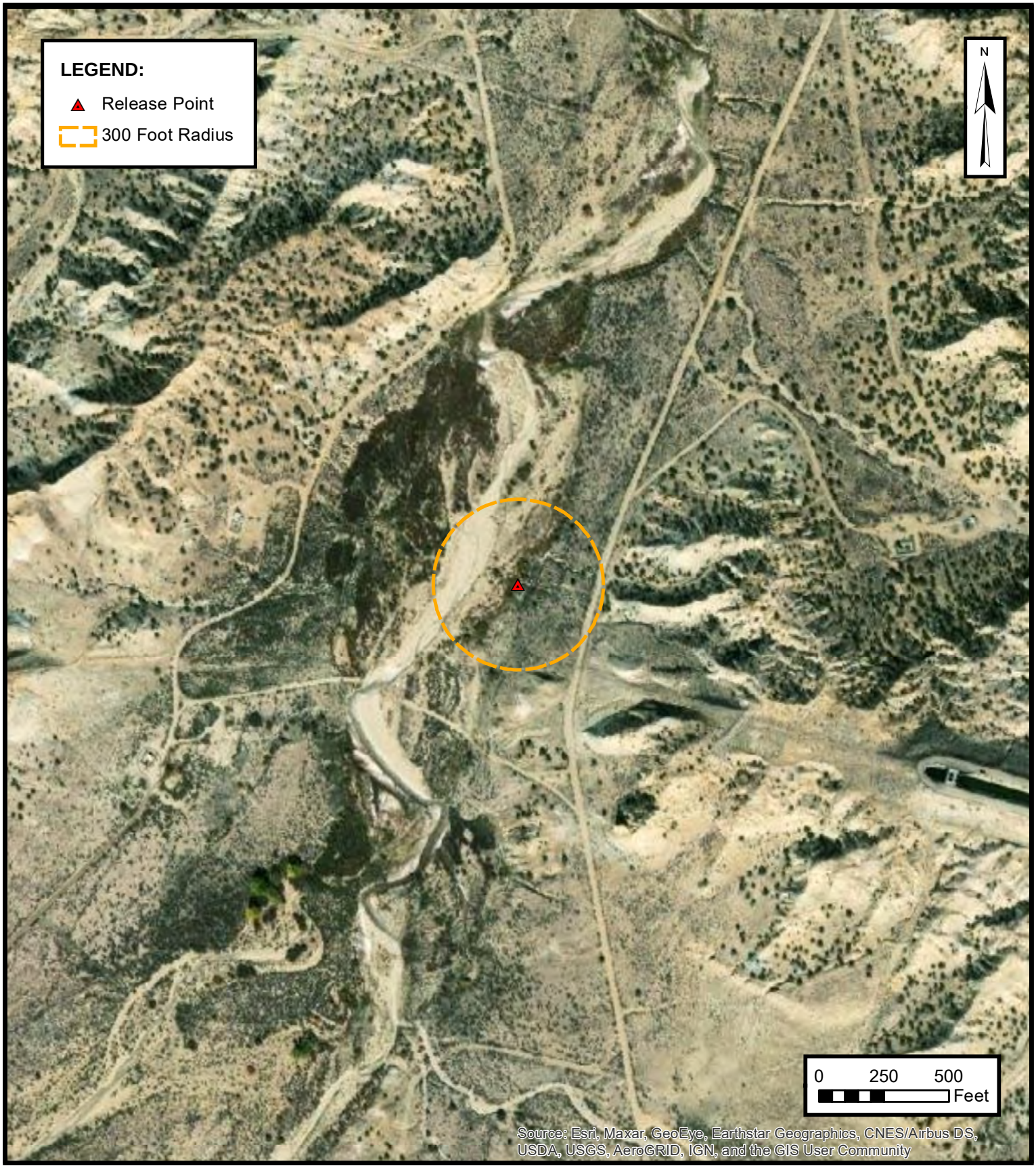
FIGURE
C



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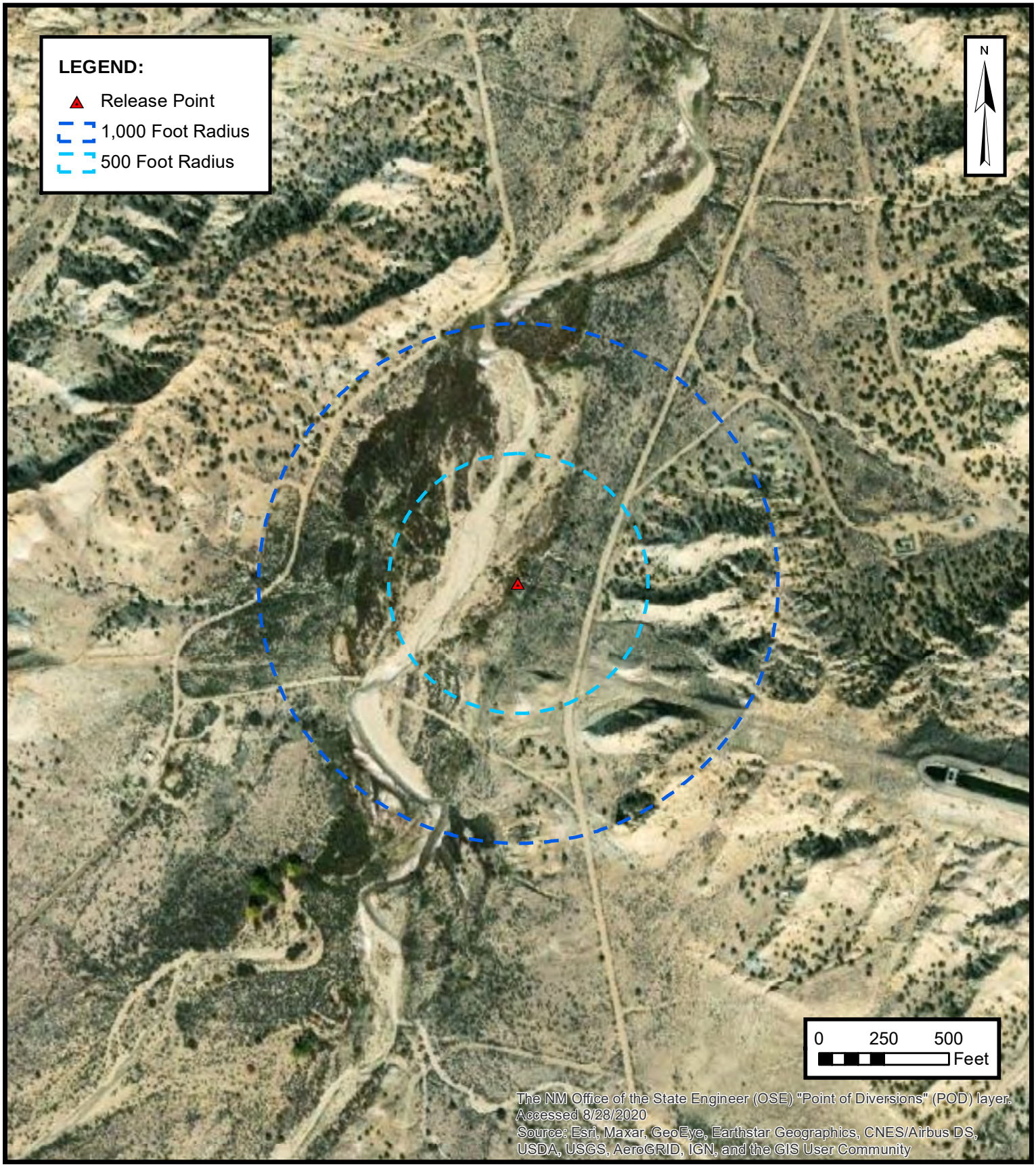
300 FOOT RADIUS
OCCUPIED STRUCTURE IDENTIFICATION

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE
D



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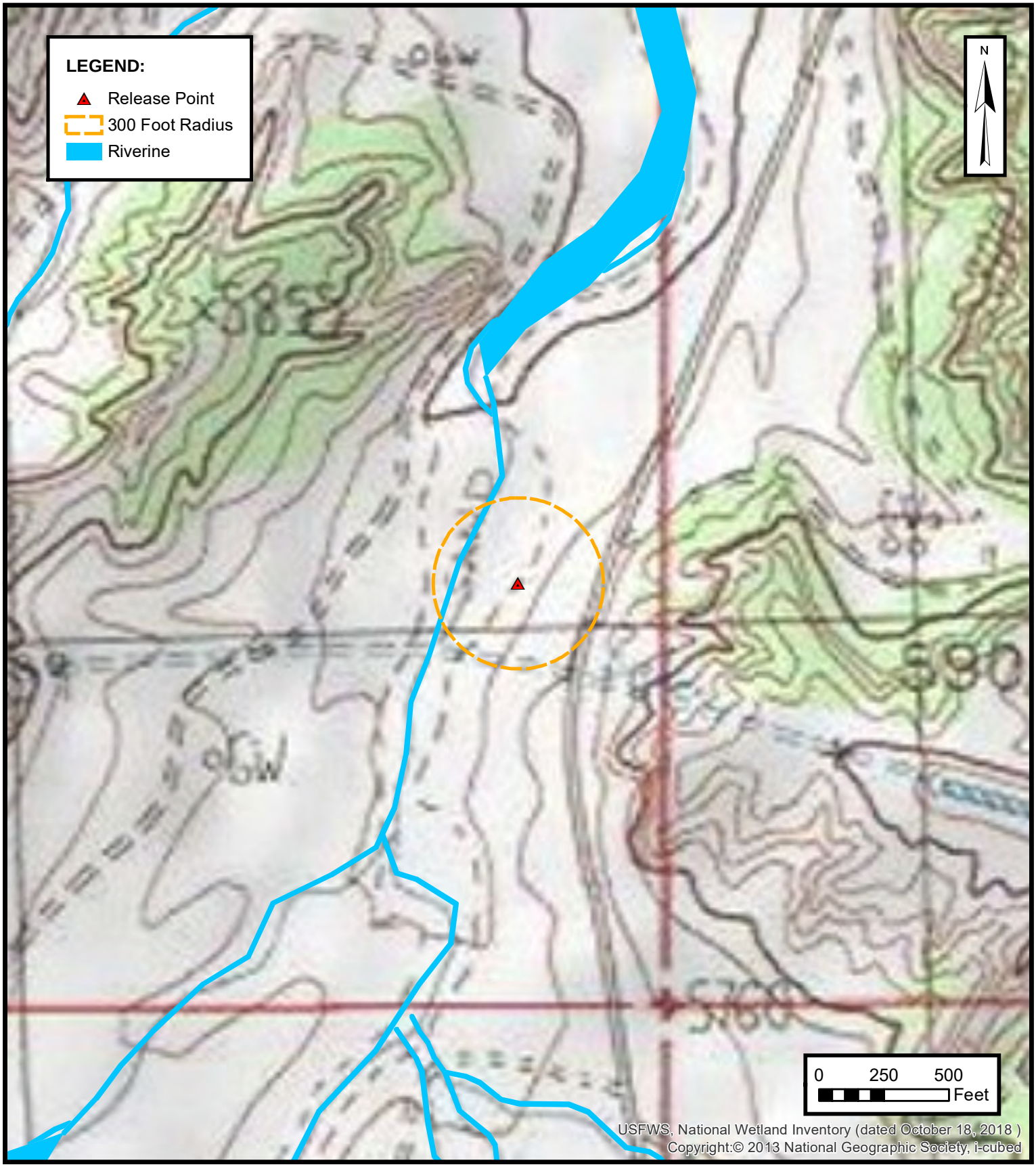
WATER WELL AND NATURAL SPRING LOCATION

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE

E



ENSOLUM
Environmental & Hydrogeologic Consultants

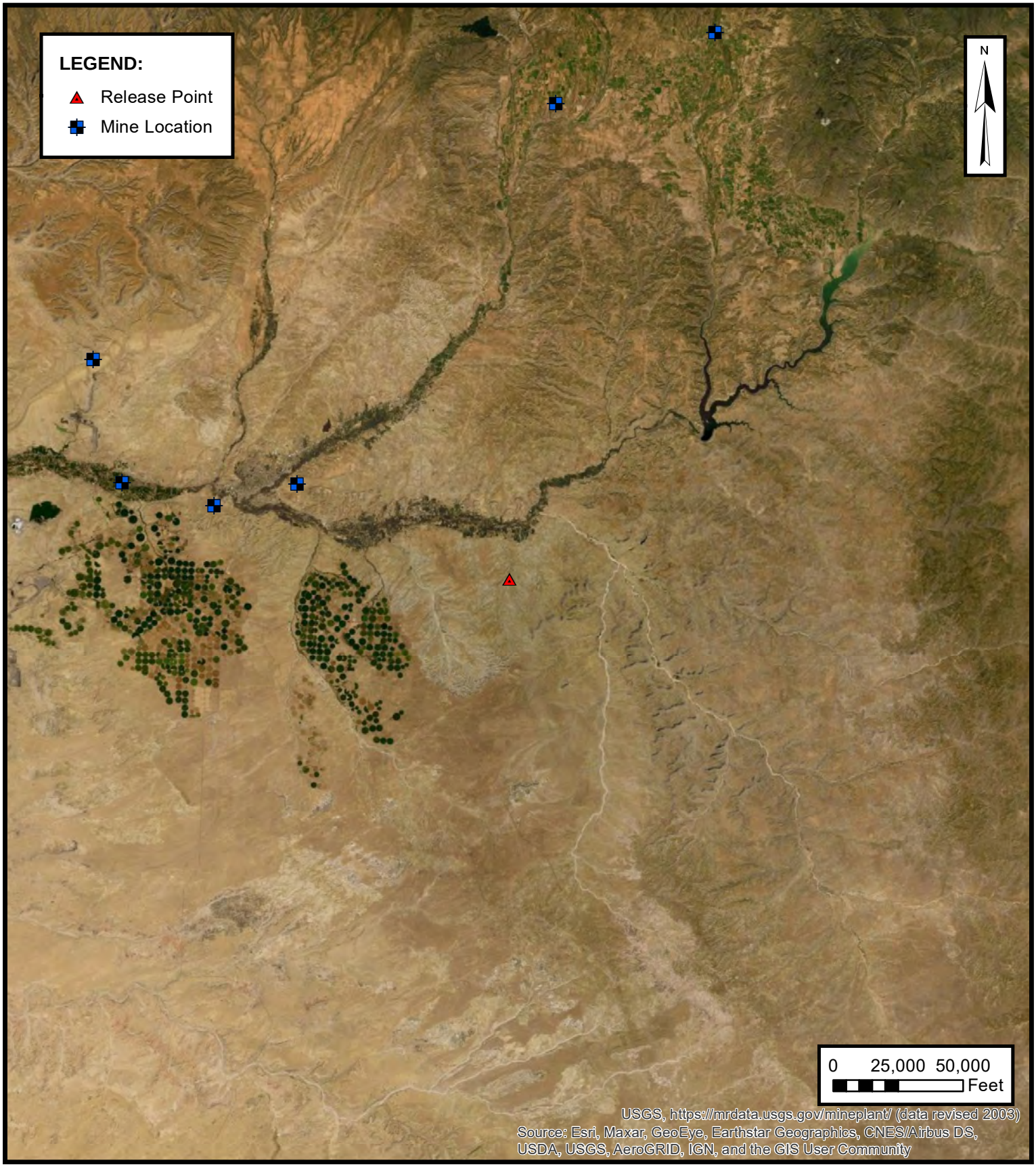
WETLANDS

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE

F



ENSOLUM
Environmental & Hydrogeologic Consultants

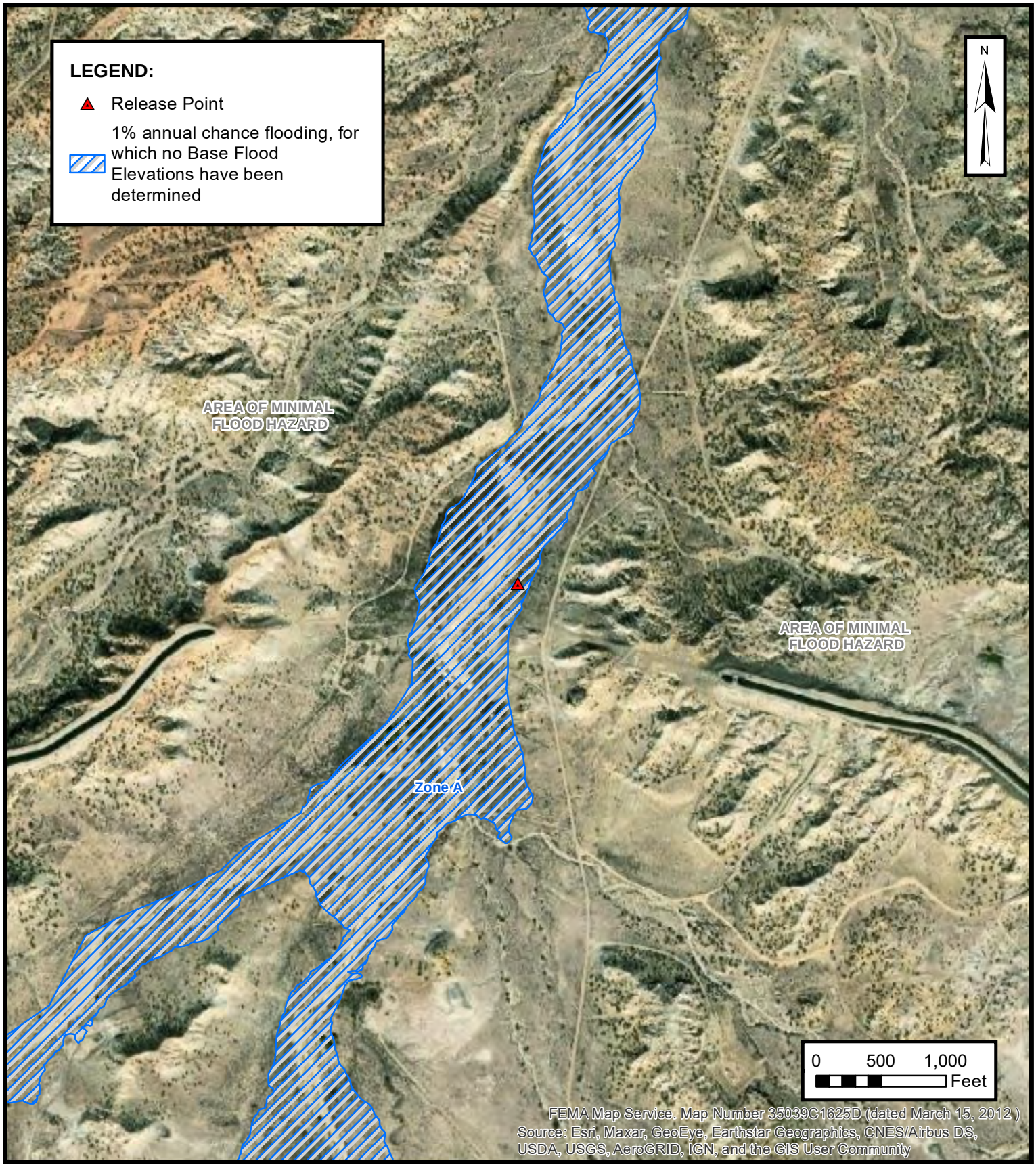
MINES, MILLS AND QUARRIES

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE

G



ENSOLUM
Environmental & Hydrogeologic Consultants

100-YEAR FLOOD PLAIN MAP

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE
H

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

No records found.

PLSS Search:

Section(s): 23, 15, 14, 13, 22, 24, 25, 26, 27 **Township:** 28N **Range:** 10W

3720

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO

Operator Meridian Oil Co. Location: Unit M Sec. 23 Twp 28 Rng 10

Name of Well/Wells or Pipeline Serviced 30-045-07272, 30-045-13069, McClanahan #1, #2, & #3 30-045-24757

Elevation 5811 Completion Date 2-22-93 Total Depth 413 Land Type F

Casing Strings, Sizes, Types & Depths 2/18 Set 99' of 8" PVC Casing. NO GAS, WATER, or Boulders were Encountered During Casing.

If Casing Strings are cemented, show amounts & types used Cemented with 21 SACKS.

If Cement or Bentonite Plugs have been placed, show depths & amounts used None

Depths & thickness of water zones with description of water: Fresh, Clear, Salty, Sulphur, Etc. 155' and was clear.

Depths gas encountered: No gas

Ground bed depth with type & amount of coke breeze used: 413' with 20 (1001b) sacks Loresco S.W. and 80 (5016) Asbury.

Depths anodes placed: #1 at 390' and #5 at 175'

Depths vent pipes placed: Bottom to surface

Vent pipe perforations: Up to 150'

Remarks:

RECEIVED
JAN 31 1994
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.

Leila Fellows
analyst

BRIONES LAW FIRM TEL No.5053253311 Mar 21,93 16:02 No.001 P.16

TECH, Inc.
333 East Main
Farmington
New Mexico
87401
505/327-3311

LABORATORY REPORT

OIL-FIELD WATER ANALYSIS

6160W

Lab Number:	25930315-08	Date Sampled:	02-22-93
Client:	Meridian Oil	Date Received:	03-15-93
Sample ID:	McClanahan A #2,#1,#3 G.bed	Date Analyzed:	03-17-93
Location:	M23-28-10	Date Reported:	03-18-93

DISSOLVED SOLIDS:

	me/L	mg/L	Detection Limit, mg/L
Calcium, Ca++	7.9	158	1.0
Magnesium, Mg++	0.4	5	1.0
Sodium, Na+ (calc)	50.5	1,160	5.0
Chloride, Cl-	0.7	25	2.0
Sulfate, SO4--	52.9	2,540	5.0
Bicarbonate, HCO3-	4.8	293	5.0
Carbonate,CO3--	0.4	12	1.0
Hydroxide, OH-	ND	ND	1.0
Total Dissolved Solids (calculated):		4,200	10.0

OTHER PROPERTIES:

pH (units):	8.1
reisistivity (ohm-meters):	2.2
specific gravity at 60F:	1.0071
room temperature (F):	72

ND = Not Detected at the stated dectection limit

Comments: DK, PC, FC Formation.
San Juan County, New Mexico
Sampled by R. Smith

Methods: American Petroleum Institute, "Recommended Practice for Analysis of Oil-Field Waters;" 2nd edition.

Leila Fellows
analyst

TECH, Inc.
333 East Main
Farmington
New Mexico
87401
505/327-3311

LABORATORY REPORT

OIL-FIELD WATER ANALYSIS

Lab Number: 25930315-08
Client: Meridian Oil
Sample ID: McClanahan A #2,#1,#3 G.bed
Location: M23-28-10

Date Sampled: 02-22-93
Date Received: 03-15-93
Date Analyzed: 03-17-93
Date Reported: 03-18-93

DISSOLVED SOLIDS:

	me/L	mg/L	Detection Limit, mg/L
Calcium, Ca++	7.9	158	1.0
Magnesium, Mg++	0.4	5	1.0
Sodium, Na+ (calc)	50.5	1,160	5.0
Chloride, Cl-	0.7	25	2.0
Sulfate, SO4--	52.9	2,540	5.0
Bicarbonate, HCO3-	4.8	293	5.0
Carbonate,CO3--	0.4	12	1.0
Hydroxide, OH-	ND	ND	1.0
Total Dissolved Solids (calculated):		4,200	10.0

OTHER PROPERTIES:

pH (units):	8.1
reisistivity (ohm-meters):	2.2
specific gravity at 60F:	1.0071
room temperature (F):	72

ND = Not Detected at the stated dectection limit

Comments: DK, PC, PC Formation.
San Juan County, New Mexico
Sampled by R. Smith

Methods: American Petroleum Institute, "Recommended Practice for Analysis of Oil-Field Waters;" 2nd edition.

analyst

 1419 #500 30-045-27203

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 L Sec. 25 Twp 28 Rng 10

Name of Well/Wells or Pipeline Serviced OMLER #500

cps 2156w

Elevation 5825 Completion Date 6/23/89 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. 120'

Depths gas encountered: N/A

Type & amount of coke breeze used: N/A

Depths anodes placed: 300', 290', 280', 270', 260', 250', 195', 155', 145', 135'

Depths vent pipes placed: N/A

Vent pipe perforations: 280'

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

Comp 7-7-89

Drilling Log (Attach Hereto) ☐

Completion Date 6-23-89

CPS #	Well Name, Line or Plant	Work Order #	Static:	Ins Union Check
2,156 W	Omler 500	355810	-817 /V	☑ Good ☐ Bad

Location	Anode Size	Anode Type	Size Bit.
L25-28-10	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	340	5 hrs	—	—	—

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10
Anode Depth	300	290	280	270	260	250	195	155	145	135
Anode Output (Amps)	5.2	5.9	5.9	5.2	4.9	5.3	5.5	5.1	5.4	5.6

	# 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 11.92	Amps 25	Ohms .47		

Remarks: Driller said water was at 120'. Vent pipe is perforated up to 120'. Suggest we build power to this location, from approx. 4/10 mi. to the East.

3870.00 ✓
599.00 ✓
600.00 ✓
34.00 ✓
105.00 ✓
312.50
237.00
4552.50
227.88

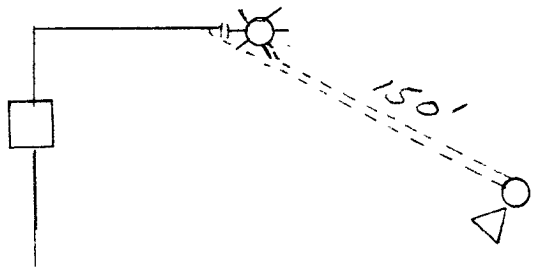
Rectifier Size: 40 V 16 A
Addn'l Depth
Depth Credit: 160' 3.75
Extra Cable: 170' .30
Ditch & 1 Cable: 150' .70
25' Meter Pole:
20' Meter Pole: 312.50
10' Stub Pole:
J box 237.00

All Construction Completed

Randy Smith
(Signature)

GROUND BED LAYOUT SKETCH

4785.38 OKJ



N

2,5-7 5825

18 - 30-045-07513
1 - 30-045-07512
21 - 30-045-25362

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO

Operator Meridian Oil Inc. Location: Unit A Sec. 13 Twp 28 Rng 10

Name of Well/Wells or Pipeline Serviced

McClanahan #18, #1, and #21

Elevation ____ Completion Date 5/12/94 Total Depth 398' Land Type F

Casing Strings, Sizes, Types & Depths 5/11 Set 99' of 8" PVC Casing. No Gas or Boulders, But Water at 45' Was Encountered During Casing

If Casing Strings are cemented, show amounts & types used Cemented with 30 Sacks.

If Cement or Bentonite Plugs have been placed, show depths & amounts used None

Depths & thickness of water zones with description of water: Fresh, Clear, Salty, Sulphur, Etc. Hit Some Fresh Water at 135', And More Fresh Water at 370'. A Water Sample was Taken.

Depths gas encountered: None

Ground bed depth with type & amount of coke breeze used: 398' Depth. Used 103 Sacks of Asbury 218R (5150#)

Depths anodes placed: 345', 335', 320', 310', 290', 275', 265', 235', 225', 215', 205', 190', 180', 170', + 145'

Depths vent pipes placed: Surface to 398'.

Vent pipe perforations: Bottom 275'.

Remarks:

RECEIVED
JAN 20 1995
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.

#19E 30-045-24107

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO

Operator Meridian Oil Inc. Location: Unit E Sec. 14 Twp 28 Rng 10

Name of Well/Wells or Pipeline Serviced Mc Clanahan #19E

Elevation 5900 Completion Date 2-15-95 Total Depth _____ Land Type F

Casing Strings, Sizes, Types & Depths 100' of 8" P.V.C.

If Casing Strings are cemented, show amounts & types used Cemented with 17 sacks of type II cement.

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

Depths & thickness of water zones with description of water: Fresh, Clear, Salty, Sulphur, Etc. 130' and was clear.

Depths gas encountered: _____

Ground bed depth with type & amount of coke breeze used: _____

Depths anodes placed: _____

Depths vent pipes placed: Bottom to Surface

Vent pipe perforations: Up to 120'

Remarks: _____

RECEIVED
JAN 11 1996
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.

100' 17 sacks

#9 30-045-07430
#15 30-045-07423
#550 30-045-27926

700

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS NORTHWESTERN NEW MEXICO

4207e)

Operator Meridian Oil Location: Unit N Sec. 14 Twp 28 Rng 10

Name of Well/Wells or Pipeline Serviced McClanahan #550, 15, 9

Elevation 5800 Completion Date 12-6-91 Total Depth 497' Land Type F

Casing Strings, Sizes, Types & Depths 8" PVC surface casing,

If Casing Strings are cemented, show amounts & types used yes with 24 Bags of Neat Cement

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

Depths & thickness of water zones with description of water: Fresh, Clear, Salty, Sulphur, Etc. 310' fresh

Depths gas encountered: NA

Ground bed depth with type & amount of coke breeze used: 497' 7600 lbs Asbury 4518 flo coke

Depths anodes placed: 469, 460, 450, 440, 430, 415, 405, 395, 385, 375, 365, 350

Depths vent pipes placed: 497', ~~7600 lbs Asbury 4518 flo coke~~

Vent pipe perforations: Bottom 300'

Remarks:

RECEIVED
FEB 24 1992
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.

CPS GROUND BED CONSTRUCTION WORKSHEET

CPS #	P/L NAME(s), NUMBER(s)					
4207 W	MCCLANAHAN #550 15, 9					
WO #	TOTAL	VOLTS	AMPS	OHMS	DATE	NAME
K443		11.7	28.9	.40	12-6-91	MW, KB

REMARKS (notes for construction log)

100' of casing, 24 Bags cement, water at 320', Perforated Bottom 300'

150 Bags of Asbury 4518, 1 Bag of Loresco type SW

DEPTH	LOG ANODE	ANODE #	DEPTH	LOG ANODE	ANODE #	DEPTH	LOG ANODE	ANODE #	DEPTH	LOG ANODE	ANODE #
100			295			490	1.3		685		
105			300			495	TO 497		690		
110			305			500			695		
115			310			505			700		
120			315			510			ANODE #	DEPTH	NO COKE
125			320	1.7		515					
130			325	1.6		520			1	469	2.4
135			330	1.8		525			2	460	2.8
140			335	1.2		530			3	450	3.4
145			340	.9		535			4	440	2.8
150			345	2.3		540			5	430	2.6
155			350	2.4	12	545			6	415	2.5
160			355	1.9		550			7	405	3.0
165			360	2.1		555			8	395	2.4
170			365	2.1	11	560			9	385	2.9
175			370	2.1		565			10	375	2.5
180			375	2.0	10	570			11	365	2.4
185			380	2.1		575			12	350	2.4
190			385	2.3	9	580			13		
195			390	2.1		585			14		
200			395	2.1	8	590			15		
205			400	2.2		595			16		
210			405	2.4	7	600			17		
215			410	2.3		605			18		
220			415	2.1	6	610			19		
225			420	1.6		615			20		
230			425	1.1		620			21		
235			430	2.2	5	625			22		
240			435	2.4		630			23		
245			440	2.6	4	635			24		
250			445	2.6		640			25		
255			450	3.2	3	645			26		
260			455	2.8		650			27		
265			460	2.6	2	655			28		
270			465	2.6		660			29		
275			470	2.0	1	665			30		
280			475	1.0		670					
285			480	.7		675					
290			485	1.0		680					

ANODE #	DEPTH	NO COKE	FULL COKE
1	469	2.4	5.8
2	460	2.8	6.7
3	450	3.4	7.4
4	440	2.8	6.6
5	430	2.6	6.2
6	415	2.5	6.6
7	405	3.0	8.1
8	395	2.4	7.4
9	385	2.9	8.6
10	375	2.5	7.9
11	365	2.4	8.0
12	350	2.4	8.4

DISTRIBUTION — original — permanent CPS FILE
copy — Division Corrosion Supervisor
copy — Region Corrosion Specialist

#11E 30-045-23972

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO

Operator Meridian Oil Location: Unit O Sec. 15 Twp 28 Rng 10

Name of Well/Wells or Pipeline Serviced Cain #11E

Elevation 5700 Completion Date 2-13-95 Total Depth 430 Land Type F

Casing Strings, Sizes, Types & Depths 8" P.V.C. to 100'

If Casing Strings are cemented, show amounts & types used Used 17 sacks of type II cement.

If Cement or Bentonite Plugs have been placed, show depths & amounts used no plugs

Depths & thickness of water zones with description of water: Fresh, Clear, Salty, Sulphur, Etc. 180' and was clear

Depths gas encountered: No gas

Ground bed depth with type & amount of coke breeze used: 430' with 57 (50016) of Lonesco SW

Depths anodes placed: #1 is at 415 and #15 is at 230

Depths vent pipes placed: Up to 180' Bottom to Surface

Vent pipe perforations: Up to 180'

Remarks:

RECEIVED
JAN 11 1996
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.

3708

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO

30-045-28109

Operator Meridian Oil Co. Location: Unit M Sec. 22 Twp 28 Rng 10

Name of Well/Wells or Pipeline Serviced

Kutz Canyon #500

Elevation 589' Completion Date 2-14-93 Total Depth 415 Land Type F

Casing Strings, Sizes, Types & Depths 2/2 set 99' of 8" PVC Casing.

No Gas, Water, or Boulders were encountered during casing

If Casing Strings are cemented, show amounts & types used Cemented

with 21 sacks.

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

none

Depths & thickness of water zones with description of water: Fresh, Clear,

Salty, Sulphur, Etc. 200 and 300 - water is clear

Depths gas encountered: no gas

Ground bed depth with type & amount of coke breeze used: 415' with

60 (100 lb) sacks of Loresco SW

Depths anodes placed: 390' to 405'

Depths vent pipes placed: Bottom to surface

Vent pipe perforations: up to 140'

Remarks:

RECEIVED
JAN 31 1994
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.

TECH, Inc.
333 East Main
Farmington
New Mexico
87401
505/327-3311

LABORATORY REPORT

OIL-FIELD WATER ANALYSIS

Lab Number: 930220-3
Client: Meridian Oil
Sample ID: Kutz Canyon #500
Location: M22-28-10

Date Sampled: 01-14-93
Date Received: 02-20-93
Date Analyzed: 02-20-93
Date Reported: 02-21-93

DISSOLVED SOLIDS:

	me/L	mg/L	Detection Limit, mg/L
Calcium, Ca++	1.0	20.8	1.0
Magnesium, Mg++	0.1	1.0	1.0
Sodium, Na+ (calc)	12.0	275	5.0
Chloride, Cl-	0.1	5.0	2.0
Sulfate, SO4--	10.9	525	5.0
Bicarbonate, HCO3-	ND	ND	5.0
Carbonate,CO3--	1.6	48.0	1.0
Hydroxide, OH-	0.4	6.8	1.0
Total Dissolved Solids (calculated):		880	10.0

OTHER PROPERTIES:

pH (units):	8.7
reisistivity (ohm-meters):	11
specific gravity at 60F:	1.0036
room temperature (F):	72

ND = Not Detected at the stated dectection limit

Methods: American Petrolium Institute, "Recommended Practice for Analysis of Oil-Field Waters;" 2nd edition.

Comments: Fruitland Coal; SJ, NM; Groundbed
Sampled by R. Smith

analyst

645

E

30-045-27866

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS NORTHWESTERN NEW MEXICO

2269

Operator MERIDIAN OIL Location: Unit G Sec. 24 Twp 28 Rng 10

Name of Well/Wells or Pipeline Serviced NMC CLANAHAN #551

Elevation 5875 Completion Date 12-5-91 Total Depth 395' Land Type F

Casing Strings, Sizes, Types & Depths 8" PVC SURFACE CASING 95' DEEP

If Casing Strings are cemented, show amounts & types used YES, WITH 22 BAGS NEAT CEMENT

If Cement or Bentonite Plugs have been placed, show depths & amounts used NO

Depths & thickness of water zones with description of water: Fresh, Clear, Salty, Sulphur, Etc. FRESH 130'

Depths gas encountered: NO

Ground bed depth with type & amount of coke breeze used: 395' WITH 5400 lbs of Loresco Type SW

Depths anodes placed: 375, 360, 350, 340, 330, 320, 310, 285, 275, 265, 255

Depths vent pipes placed: 395'

Vent pipe perforations: BOTTOM 270

Remarks:

RECEIVED
FEB 24 1992
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.

CPS GROUND BED CONSTRUCTION WORKSHEET

CPS# 2269.~	P/L NAME(s), NUMBER(s)	M^c CLANAHAN #551				
WO # K444	TOTAL	VOLTS 11.82	AMPS 29.1	- OHMS .406	DATE 12-5-91	NAME MRW

REMARKS (notes for construction log) 95 CASING 22 SACKS CEMENT

G24-28-10 WATER AT 130' Drilled 400', LOGGED 395

Perforated bottom 270'

54 bags Loresco

DEPTH	LOG ANODE	ANODE #	DEPTH	LOG ANODE	ANODE #	DEPTH	LOG ANODE	ANODE #
100			295	1.0		490		
105			300	1.1		495		
110			305	2.5		500		
115			310	3.1-		505		
120			315	3.4		510		
125	1.4		320	3.3-		515		
130	1.6		325	3.4		520		
135	1.6		330	3.5-		525		
140	1.6		335	3.7		530		
145	2.0		340	3.6-		535		
150	2.0		345	3.9		540		
155	2.0		350	3.5-		545		
160	2.2		355	3.4		550		
165	2.2		360	2.8-		555		
170	2.2		365	2.2		560		
175	2.6		370	2.5		565		
180	2.1		375	2.6		570		
185	1.9		380	1.8		575		
190	1.8		385	2.0		580		
195	1.6		390	1.7		585		
200	1.5		395		395	590		
205	1.0		400			595		
210	1.1		405			600		
215	1.5		410			605		
220	2.0		415			610		
225	1.4		420			615		
230	1.2		425			620		
235	2.4		430			625		
240	2.9		435			630		
245	3.4-		440			635		
250	3.5		445			640		
255	3.8		450			645		
260	3.8		455			650		
265	3.5-		460			655		
270	3.9		465			660		
275	4.0-		470			665		
280	3.9		475			670		
285	3.9-		480			675		
290	1.0		485			680		

DEPTH	LOG ANODE	ANODE #	
685			
690			
695			
700			

ANODE #	DEPTH	NO COKE	FUL COK
1	375	2.6	5
2	360	3.0	6.
3	350	3.5	7
4	340	3.6	7.
5	330	3.5	7.
6	320	3.4	7.
7	310	3.1	6.
8	285	4.0	8.
9	275	4.0	8.
10	265	3.5	7.
11	255	3.7	7.
12	245	3.4	7.
13			
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DISTRIBUTION – original – permanent CPS FILE

copy – Division Corrosion Supervisor

– Region Corrosion Specialist

30-045-07134

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS NORTHWESTERN NEW MEXICO

Operator Meridian Oil Co. Location: Unit O Sec. 25 Twp 28 Rng 10

Name of Well/Wells or Pipeline Serviced

Ohlen #5

Elevation 5872 Completion Date 2-23-73 Total Depth 413 Land Type F

Casing Strings, Sizes, Types & Depths 2 @ 25 ft 99' of 8" PVC Casing

No Gas, Water, or Boulders were Encountered During Casing.

If Casing Strings are cemented, show amounts & types used Cemented

With 24 Sacks

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

No plugs

Depths & thickness of water zones with description of water: Fresh, Clear, Salty, Sulphur, Etc. 120' and was clear.

Depths gas encountered: No gas

Ground bed depth with type & amount of coke breeze used: 413' with 160 (5016) sacks of Asbury

Depths anodes placed: #1 at 327 and #15 at 145

Depths vent pipes placed: Bottom to Surface

Vent pipe perforations: up to 140'.

Remarks:

RECEIVED
JAN 31 1994
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.

TECH, Inc.
333 East Main
Farmington
New Mexico
87401
505/327-3311

LABORATORY REPORT

OIL-FIELD WATER ANALYSIS

2397W

Lab Number: 25930315-06
Client: Meridian Oil
Sample ID: Omler #5 groundbed
Location: 025-28-10

Date Sampled: 02-23-93
Date Received: 03-15-93
Date Analyzed: 03-17-93
Date Reported: 03-18-93

DISSOLVED SOLIDS:

	me/L	mg/L	Detection Limit, mg/L
Calcium, Ca++	23.2	465	1.0
Magnesium, Mg++	5.1	62	1.0
Sodium, Na+ (calc)	25.1	577	5.0
Chloride, Cl-	0.4	13	2.0
Sulfate, SO4--	47.6	2,290	5.0
Bicarbonate, HCO3-	5.4	329	5.0
Carbonate, CO3--	ND	ND	1.0
Hydroxide, OH-	ND	ND	1.0
Total Dissolved Solids (calculated):		3,730	10.0

OTHER PROPERTIES:

pH (units):	8.1
resistivity (ohm-meters):	2.2
specific gravity at 60F:	1.0073
room temperature (F):	72

ND = Not Detected at the stated dectection limit

Comments: Fruitland Coal
San Juan County, New Mexico
Sampled by R. Smith

Methods: American Petroleum Institute, "Recommended Practice for Analysis of Oil-Field Waters;" 2nd edition.

Leila Lahlum
analyst

TECH, Inc.
333 East Main
Farmington
New Mexico
87401
505/327-3311

LABORATORY REPORT

OIL-FIELD WATER ANALYSIS

Lab Number: 25930315-06 2397 W
Client: Meridian Oil
Sample ID: Omler #5 groundbed
Location: 025-28-10

Date Sampled: 02-23-93
Date Received: 03-15-93
Date Analyzed: 03-17-93
Date Reported: 03-18-93

DISSOLVED SOLIDS:

	me/L	mg/L	Detection Limit, mg/L
Calcium, Ca++	23.2	465	1.0
Magnesium, Mg++	5.1	62	1.0
Sodium, Na+ (calc)	25.1	577	5.0
Chloride, Cl-	0.4	13	2.0
Sulfate, SO4--	47.6	2,290	5.0
Bicarbonate, HCO3-	5.4	329	5.0
Carbonate,CO3--	ND	ND	1.0
Hydroxide, OH-	ND	ND	1.0
Total Dissolved Solids (calculated):		3,730	10.0

OTHER PROPERTIES:

pH (units):	8.1
reisistivity (ohm-meters):	2.2
specific gravity at 60F:	1.0073
room temperature (F):	72

ND = Not Detected at the stated dectection limit

Comments: Fruitland Coal
San Juan County, New Mexico
Sampled by R. Smith

Methods: American Petroleum Institute, "Recommended Practice for Analysis of Oil-Field Waters;" 2nd edition.

Sheila Pettman
analyst

ENSOLUM

APPENDIX C

Regulatory Correspondence

From: Smith, Cory, EMNRD
To: Long, Thomas
Cc: Stone, Brian
Subject: [EXTERNAL] RE: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964
Date: Thursday, August 26, 2021 8:47:22 AM

[Use caution with links/attachments]

Tom,

No lets go ahead and get the delineation done you can always send in a stage 1 and 2 and the same time..

Cory Smith • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
5200 Oakland Avenue N.E Suite 100 | Albuquerque, NM 87113
505.419.2687 | Cory.Smith@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Long, Thomas <tjlong@eprod.com>
Sent: Thursday, August 26, 2021 8:21 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Stone, Brian <bmstone@eprod.com>
Subject: RE: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964

Cory,

We have to delineate for the Benzene, so might as well install groundwater monitoring wells in the source area and the four cardinal directions to delineate the hydrocarbon plume. Do we need to submit an Abatement Plan prior to installing the monitoring wells?

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

Enterprise Products

From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Sent: Thursday, August 26, 2021 7:59 AM

To: Long, Thomas <tjlong@eprod.com>
Cc: Stone, Brian <bmstone@eprod.com>
Subject: [EXTERNAL] RE: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964

[Use caution with links/attachments]
Tom,

What are your thoughts on getting an upgradient sample before moving forward.

I think it would be beneficial, however if your mobilizing to get an upgrade it would also make sense to do more delineation. To reduce cost etc.

Cory Smith • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
5200 Oakland Avenue N.E Suite 100 | Albuquerque, NM 87113
505.419.2687 | Cory.Smith@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Long, Thomas <tjlong@eprod.com>
Sent: Thursday, August 26, 2021 7:50 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Stone, Brian <bmstone@eprod.com>
Subject: RE: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964

Cory,

Please find the attached lab report for the Bruce R Sullivan temporary well that was sampled on 8/17/2021. Groundwater impacts are confirmed. Benzene concentrations exceed the NMWQCC standard of 5 ppb with a result of 33 ppb and sulfates exceed the NMWQCC standard of 600 ppm with a result of 4,000 ppm. Sulfates could be background, but we will not be able to determine that until we have an up gradient sample. Would you like Enterprise to submit an abatement plan prior to additional delineation activities?

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

From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Sent: Thursday, August 12, 2021 3:14 PM
To: Long, Thomas <tjlong@eprod.com>
Cc: Stone, Brian <bmstone@eprod.com>
Subject: [EXTERNAL] RE: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964

[Use caution with links/attachments]
Tom,

Thanks for the update please make sure to sample for 8026 full list and include Cation/Anion in the water sample.

Cory Smith ● Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1000 Rio Brazos | Aztec, NM 87410
505.334.6178 x115 | Cory.Smith@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Long, Thomas <tjlong@eprod.com>
Sent: Thursday, August 12, 2021 2:58 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Stone, Brian <bmstone@eprod.com>
Subject: RE: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964

Cory,

Please find the attached site sketch and lab reports for the 2D-1 Well Tie/Bruce R Sullivan #2 excavation. We found groundwater in the excavation on the morning we sampled it. We collected a groundwater sample as well. All sample results are below NMOCD Tier I remediation standards and NMWQCC standards. Entperise install a temporary well prior to backfilling the excavation. After the temporary well has been developed and allowed to set for 24 hours, it will be purged and sampled. 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

From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Sent: Tuesday, August 10, 2021 8:04 AM
To: Long, Thomas <tjlong@eprod.com>
Cc: Stone, Brian <bmstone@eprod.com>
Subject: [EXTERNAL] RE: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964

[Use caution with links/attachments]
Tom,

__sips coffee__ my bad hehe..

Thanks for giving me everything I needed

Cory Smith • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1000 Rio Brazos | Aztec, NM 87410
505.334.6178 x115 | Cory.Smith@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Long, Thomas <tjlong@eprod.com>
Sent: Tuesday, August 10, 2021 8:03 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Stone, Brian <bmstone@eprod.com>
Subject: RE: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964

Cory,

The incident number is in the title of this 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

From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Sent: Tuesday, August 10, 2021 8:01 AM
To: Long, Thomas <tjlong@eprod.com>
Cc: Stone, Brian <bmstone@eprod.com>
Subject: [EXTERNAL] RE: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964

[Use caution with links/attachments]
Tom,

Thanks for the update what is the incident# associated with the release?

Cory Smith • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1000 Rio Brazos | Aztec, NM 87410
505.334.6178 x115 | Cory.Smith@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Long, Thomas <tjlong@eprod.com>
Sent: Monday, August 9, 2021 2:42 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Stone, Brian <bmstone@eprod.com>
Subject: 2D-1 Well Tie/Bruce R Sullivan #2 - UL I Section 23 T28N R10W; 36.644538, -107.857891 - Incident # nAPP2121054964

Cory,

This email is a notification that Entperise will be collecting soil samples at the 2D-1 Well Tie/Bruce R Sullivan #2 release site on Wednesday, August 11, 2021 at 11:00 a.m. 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 D

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: M Eddleman
AFE: N54430

2. Originating Site:
Bruce R Sullivan # 2

3. Location of Material (Street Address, City, State or ULSTR):
S23 T28N R10W UL I; 36.644538 -107.857891

Aug / 2021

4. Source and Description of Waste:
Source: Remediation activities associated with underground line repair
Description: Hydrocarbon/Condensate impacted soil.
Estimated Volume 30 (yd³)/bbls Known Volume (to be entered by the operator at the end of the haul) 36 (yd³) / bbls

5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS

I, Brian Stone , 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, Brian Stone 8-5-2021, 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

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: 8/18/21
SIGNATURE: TELEPHONE NO.:
Surface Waste Management Facility Authorized Agent
505-632-0615

ENSOLUM

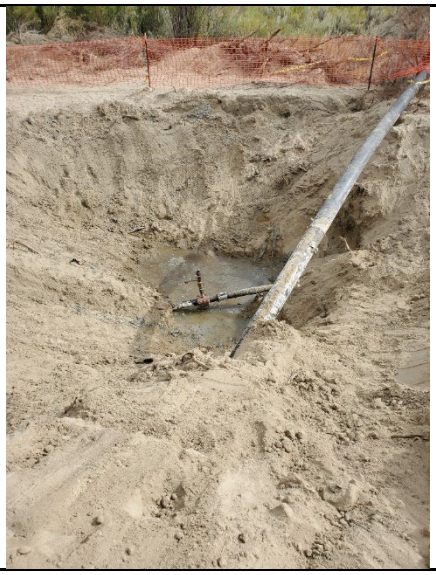
APPENDIX E

Photographic Documentation

SITE PHOTOGRAPHS

Closure Report
Enterprise Field Services, LLC
2D-1 Well Tie/Bruce R Sullivan #2 (7/29/21)
Ensolum Project No. 05A1226149

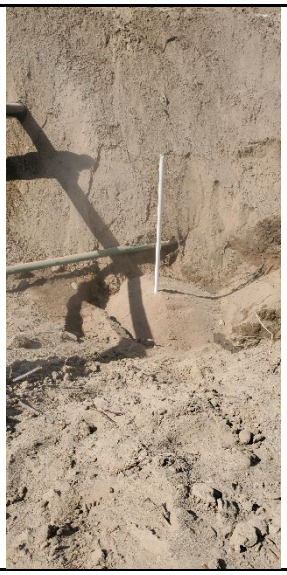
ENSOLUM

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

SITE PHOTOGRAPHS

Closure Report
Enterprise Field Services, LLC
2D-1 Well Tie/Bruce R Sullivan #2 (7/29/21)
Ensolum Project No. 05A1226149

ENSOLUM

Photograph 4 Photograph Description: View of the temporary monitoring well that was installed near the release point.	
Photograph 5 Photograph Description: View of the site after restoration.	

ENSOLUM

APPENDIX F

Tables

ENSOLUM

TABLE 1
2D-1 Well Tie/Bruce R Sullivan #2 (7/29/21)
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**				**100**	**600**
Composite Soil Samples Collected from Stockpiled Soils													
SP-1	8.11.21	C	Stockpile	<0.020	<0.041	<0.041	<0.081	ND	26	<8.9	<45	26	<61
SP-2	8.11.21	C	Stockpile	<0.022	<0.043	<0.043	<0.087	ND	<4.3	<9.4	<47	ND	<60
Excavation Composite Soil Samples													
S-1	8.11.21	C	0 to 8	<0.021	<0.042	<0.042	<0.085	ND	<4.2	<10	<50	ND	<60
S-2	8.11.21	C	0 to 8	<0.019	<0.037	<0.037	<0.075	ND	<3.7	<9.0	<45	ND	<59
S-3	8.11.21	C	0 to 8	<0.019	<0.037	<0.037	<0.075	ND	<3.7	<9.9	<49	ND	<60
S-4	8.11.21	C	0 to 8	<0.018	<0.035	<0.035	<0.071	ND	<3.5	<10	<50	ND	<60
S-5	8.11.21	C	0 to 8	<0.023	<0.047	<0.047	<0.094	ND	<4.7	<9.3	<47	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 or Reporting Limits

NE = Not established

mg/kg = milligram per kilogram

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes

TPH = Total Petroleum Hydrocarbon

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

MRO = Motor Oil/Lube Oil Range Organics

ENSOLUM

TABLE 2
2D-1 Well Tie/Bruce R Sullivan #2 (7/29/21)
GROUNDWATER ANALYTICAL SUMMARY - DETECTED VOLATILE ORGANIC COMPOUNDS

Sample I.D.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-Trimethylbenzene [1,2] (µg/L)	1,3,5-Trimethylbenzene [1,2] (µg/L)	2-Methylnaphthalene [1,2] (µg/L)
New Mexico Water Quality Control Commmission Human Health Standards		**5**	**1,000**	**700**	**620**	**30**	**NE**	**NE**	**NE**
Water Sample Collected from the Excavation									
EW-1*	8.11.21	**5.3**	<5.0	<5.0	<7.5	NA	NA	NA	NA
Water Samples Collected from the Temporary Sample Point									
MW-1	8.17.21	**33**	3.2	1.3	17	4.9	7.6	4.8	4.8

Notes:

Concentrations in **bold** and yellow exceed the applicable WQCC HHS

* = The sample collected from the excavation was only analyzed for benzene, toluene, ethlybenzene, and xylenes.

[1] = Constituent is not identified as "toxic pollutant" under 20.6.2 New Mexico Administrative Code (NMAC).

[2] = Constituent is not identified as a priority pollutant under the Federal Clean Water Act (CWA).

µg/L = microgram per liter

NA = Not Analyzed

NE = Not Established

<1.0 = The numeral (in this case "1.0") identifies the laboratory reporting limit (RL) or practical quantitation limit (PQL).

ENSOLUM

TABLE 3
2D-1 Well Tie/Bruce R Sullivan #2 (7/29/21)
GROUNDWATER ANALYTICAL SUMMARY - INORGANICS, PHYSICAL, AND CHEMICAL PROPERTIES

Sample I.D.	Sample Date	Fluoride (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate + Nitrite (mg/L)	Bromide (mg/L)	Phosphorus (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Total Dissolved Solids (mg/L)	Conductivity (µmhos/cm)	Total Alkalinity (mg/L Ca)
New Mexico Water Quality Control Commmission Human Health Standards and Domestic Water Supply Standards		1.6	250	600	11	NE	NE	NE	NE	NE	NE	1,000	NE	NE
Water Samples Collected from the Temporary Sample Point														
MW-1	8.17.21	0.79	62	**4,000**	<1.00	<0.50	<2.5	530	78	13	1,300	**6,300**	7,200	427.2

Notes:

Concentrations in **bold** and yellow exceed the applicable WQCC HHS or DWSS

mg/L = milligram per liter

µmhos/cm = micromhos per centimeter

Ca = Calcium

NA = Not Analyzed

NE = Not Established

<1.0 = The numeral (in this case "1.0") identifies the laboratory reporting limit (RL) or practical quantitation limit (PQL).

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: clients.hallenvironmental.com

August 17, 2021

Kyle Summers

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

RE: Bruce R Sullivan 2 OrderNo.: 2108592

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 7 sample(s) on 8/12/2021 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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108592**
Date Reported: **8/17/2021**

CLIENT: ENSOLUM **Client Sample ID:** S-1
Project: Bruce R Sullivan 2 **Collection Date:** 8/11/2021 11:00:00 AM
Lab ID: 2108592-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/12/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	ND	60		mg/Kg	20	8/12/2021 10:50:18 AM	61930
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/12/2021 11:13:18 AM	61933
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/12/2021 11:13:18 AM	61933
Surr: DNOP	97.7	70-130		%Rec	1	8/12/2021 11:13:18 AM	61933
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.2		mg/Kg	1	8/12/2021 12:23:07 PM	R80488
Surr: BFB	110	70-130		%Rec	1	8/12/2021 12:23:07 PM	R80488
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.021		mg/Kg	1	8/12/2021 12:23:07 PM	BS8048E
Toluene	ND	0.042		mg/Kg	1	8/12/2021 12:23:07 PM	BS8048E
Ethylbenzene	ND	0.042		mg/Kg	1	8/12/2021 12:23:07 PM	BS8048E
Xylenes, Total	ND	0.085		mg/Kg	1	8/12/2021 12:23:07 PM	BS8048E
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	8/12/2021 12:23:07 PM	BS8048E

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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108592**
Date Reported: **8/17/2021**

CLIENT: ENSOLUM **Client Sample ID:** S-2
Project: Bruce R Sullivan 2 **Collection Date:** 8/11/2021 11:05:00 AM
Lab ID: 2108592-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/12/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	ND	59		mg/Kg	20	8/12/2021 11:02:38 AM	61930
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**	
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	8/12/2021 11:25:07 AM	61933
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/12/2021 11:25:07 AM	61933
Surr: DNOP	98.6	70-130		%Rec	1	8/12/2021 11:25:07 AM	61933
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	8/12/2021 12:46:42 PM	R80488
Surr: BFB	108	70-130		%Rec	1	8/12/2021 12:46:42 PM	R80488
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.019		mg/Kg	1	8/12/2021 12:46:42 PM	BS8048E
Toluene	ND	0.037		mg/Kg	1	8/12/2021 12:46:42 PM	BS8048E
Ethylbenzene	ND	0.037		mg/Kg	1	8/12/2021 12:46:42 PM	BS8048E
Xylenes, Total	ND	0.075		mg/Kg	1	8/12/2021 12:46:42 PM	BS8048E
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	8/12/2021 12:46:42 PM	BS8048E

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	Value above quantitation range
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		

Analytical Report
Lab Order **2108592**
Date Reported: **8/17/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** S-3
Project: Bruce R Sullivan 2 **Collection Date:** 8/11/2021 11:10:00 AM
Lab ID: 2108592-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/12/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	ND	60		mg/Kg	20	8/12/2021 11:14:58 AM	61930
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	8/12/2021 11:36:48 AM	61933
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/12/2021 11:36:48 AM	61933
Surr: DNOP	98.0	70-130		%Rec	1	8/12/2021 11:36:48 AM	61933
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	8/12/2021 1:10:24 PM	R80488
Surr: BFB	110	70-130		%Rec	1	8/12/2021 1:10:24 PM	R80488
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.019		mg/Kg	1	8/12/2021 1:10:24 PM	BS8048E
Toluene	ND	0.037		mg/Kg	1	8/12/2021 1:10:24 PM	BS8048E
Ethylbenzene	ND	0.037		mg/Kg	1	8/12/2021 1:10:24 PM	BS8048E
Xylenes, Total	ND	0.075		mg/Kg	1	8/12/2021 1:10:24 PM	BS8048E
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	8/12/2021 1:10:24 PM	BS8048E

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	Value above quantitation range
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		

Analytical Report
Lab Order **2108592**
Date Reported: **8/17/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** S-4
Project: Bruce R Sullivan 2 **Collection Date:** 8/11/2021 11:15:00 AM
Lab ID: 2108592-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/12/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	ND	60		mg/Kg	20	8/12/2021 11:27:19 AM	61930
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/12/2021 11:48:32 AM	61933
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/12/2021 11:48:32 AM	61933
Surr: DNOP	97.5	70-130		%Rec	1	8/12/2021 11:48:32 AM	61933
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	3.5		mg/Kg	1	8/12/2021 1:34:03 PM	R80488
Surr: BFB	103	70-130		%Rec	1	8/12/2021 1:34:03 PM	R80488
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.018		mg/Kg	1	8/12/2021 1:34:03 PM	BS80488
Toluene	ND	0.035		mg/Kg	1	8/12/2021 1:34:03 PM	BS80488
Ethylbenzene	ND	0.035		mg/Kg	1	8/12/2021 1:34:03 PM	BS80488
Xylenes, Total	ND	0.071		mg/Kg	1	8/12/2021 1:34:03 PM	BS80488
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/12/2021 1:34:03 PM	BS80488

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	Value above quantitation range
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		

Analytical Report
Lab Order **2108592**
Date Reported: **8/17/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** S-5
Project: Bruce R Sullivan 2 **Collection Date:** 8/11/2021 11:20:00 AM
Lab ID: 2108592-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/12/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	ND	60		mg/Kg	20	8/12/2021 11:39:41 AM	61930
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/12/2021 12:00:19 PM	61933
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/12/2021 12:00:19 PM	61933
Surr: DNOP	99.0	70-130		%Rec	1	8/12/2021 12:00:19 PM	61933
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2021 1:57:45 PM	R80488
Surr: BFB	103	70-130		%Rec	1	8/12/2021 1:57:45 PM	R80488
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.023		mg/Kg	1	8/12/2021 1:57:45 PM	BS8048E
Toluene	ND	0.047		mg/Kg	1	8/12/2021 1:57:45 PM	BS8048E
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2021 1:57:45 PM	BS8048E
Xylenes, Total	ND	0.094		mg/Kg	1	8/12/2021 1:57:45 PM	BS8048E
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/12/2021 1:57:45 PM	BS8048E

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	Value above quantitation range
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		

Analytical Report
Lab Order **2108592**
Date Reported: **8/17/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** SP-1
Project: Bruce R Sullivan 2 **Collection Date:** 8/11/2021 11:25:00 AM
Lab ID: 2108592-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/12/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	ND	61		mg/Kg	20	8/12/2021 11:52:01 AM	61930
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**	
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	8/12/2021 12:12:02 PM	61933
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/12/2021 12:12:02 PM	61933
Surr: DNOP	99.4	70-130		%Rec	1	8/12/2021 12:12:02 PM	61933
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	26	4.1		mg/Kg	1	8/12/2021 2:21:29 PM	R80488
Surr: BFB	272	70-130	S	%Rec	1	8/12/2021 2:21:29 PM	R80488
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.020		mg/Kg	1	8/12/2021 2:21:29 PM	BS8048E
Toluene	ND	0.041		mg/Kg	1	8/12/2021 2:21:29 PM	BS8048E
Ethylbenzene	ND	0.041		mg/Kg	1	8/12/2021 2:21:29 PM	BS8048E
Xylenes, Total	ND	0.081		mg/Kg	1	8/12/2021 2:21:29 PM	BS8048E
Surr: 4-Bromofluorobenzene	131	70-130	S	%Rec	1	8/12/2021 2:21:29 PM	BS8048E

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	Value above quantitation range
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		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108592**
Date Reported: **8/17/2021**

CLIENT: ENSOLUM **Client Sample ID:** SP-2
Project: Bruce R Sullivan 2 **Collection Date:** 8/11/2021 11:30:00 AM
Lab ID: 2108592-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/12/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	ND	60		mg/Kg	20	8/12/2021 12:04:21 PM	61930
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	8/12/2021 12:23:46 PM	61933
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/12/2021 12:23:46 PM	61933
Surr: DNOP	98.4	70-130		%Rec	1	8/12/2021 12:23:46 PM	61933
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.3		mg/Kg	1	8/12/2021 2:45:10 PM	R80488
Surr: BFB	105	70-130		%Rec	1	8/12/2021 2:45:10 PM	R80488
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.022		mg/Kg	1	8/12/2021 2:45:10 PM	BS8048E
Toluene	ND	0.043		mg/Kg	1	8/12/2021 2:45:10 PM	BS8048E
Ethylbenzene	ND	0.043		mg/Kg	1	8/12/2021 2:45:10 PM	BS8048E
Xylenes, Total	ND	0.087		mg/Kg	1	8/12/2021 2:45:10 PM	BS8048E
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/12/2021 2:45:10 PM	BS8048E

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	Value above quantitation range
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		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108592**
17-Aug-21

Client: ENSOLUM
Project: Bruce R Sullivan 2

Sample ID: **MB-61930** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **61930** RunNo: **80485**
Prep Date: **8/12/2021** Analysis Date: **8/12/2021** SeqNo: **2837791** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-61930** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **61930** RunNo: **80485**
Prep Date: **8/12/2021** Analysis Date: **8/12/2021** SeqNo: **2837792** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.2	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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108592**

17-Aug-21

Client: ENSOLUM

Project: Bruce R Sullivan 2

Sample ID: **MB-61933** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **61933** RunNo: **80484**

Prep Date: **8/12/2021** Analysis Date: **8/12/2021** SeqNo: **2837292** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		99.6	70	130			

Sample ID: **LCS-61933** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **61933** RunNo: **80484**

Prep Date: **8/12/2021** Analysis Date: **8/12/2021** SeqNo: **2837293** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	92.4	68.9	141			
Surr: DNOP	4.7		5.000		94.5	70	130			

Sample ID: **2108592-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **S-1** Batch ID: **61933** RunNo: **80484**

Prep Date: **8/12/2021** Analysis Date: **8/12/2021** SeqNo: **2837572** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.2	45.91	0	101	15	184	3.07	23.9	
Surr: DNOP	4.4		4.591		96.5	70	130	0	0	

Sample ID: **2108592-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **S-1** Batch ID: **61933** RunNo: **80484**

Prep Date: **8/12/2021** Analysis Date: **8/12/2021** SeqNo: **2837573** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.6	48.12	0	99.6	15	184			
Surr: DNOP	4.8		4.812		99.0	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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108592**

17-Aug-21

Client: ENSOLUM

Project: Bruce R Sullivan 2

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **R80488** RunNo: **80488**
Prep Date: Analysis Date: **8/12/2021** SeqNo: **2837348** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	78.6	131			
Surr: BFB	1200		1000		119	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **R80488** RunNo: **80488**
Prep Date: Analysis Date: **8/12/2021** SeqNo: **2837352** 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	1200		1000		118	70	130			

Sample ID: **2108592-001ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **S-1** Batch ID: **R80488** RunNo: **80488**
Prep Date: Analysis Date: **8/12/2021** SeqNo: **2838457** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.2	21.22	0	106	61.3	114			
Surr: BFB	980		848.9		115	70	130			

Sample ID: **2108592-001amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **S-1** Batch ID: **R80488** RunNo: **80488**
Prep Date: Analysis Date: **8/12/2021** SeqNo: **2838458** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.2	21.22	0	107	61.3	114	0.864	20	
Surr: BFB	970		848.9		115	70	130	0	0	

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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108592**

17-Aug-21

Client: ENSOLUM

Project: Bruce R Sullivan 2

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **BS80488**	RunNo: **80488**
Prep Date:	Analysis Date: **8/12/2021**	SeqNo: **2837356** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.0	80	120			
Toluene	0.96	0.050	1.000	0	96.3	80	120			
Ethylbenzene	0.97	0.050	1.000	0	96.7	80	120			
Xylenes, Total	2.9	0.10	3.000	0	97.6	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		111	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **BS80488**	RunNo: **80488**
Prep Date:	Analysis Date: **8/12/2021**	SeqNo: **2837360** 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	1.2		1.000		118	70	130			

Sample ID: **2108592-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **S-2**	Batch ID: **BS80488**	RunNo: **80488**
Prep Date:	Analysis Date: **8/12/2021**	SeqNo: **2838514** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.70	0.019	0.7491	0	92.8	80	120			
Toluene	0.70	0.037	0.7491	0	93.4	80	120			
Ethylbenzene	0.70	0.037	0.7491	0	93.6	80	120			
Xylenes, Total	2.1	0.075	2.247	0	94.0	80	120			
Surr: 4-Bromofluorobenzene	0.78		0.7491		104	70	130			

Sample ID: **2108592-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **S-2**	Batch ID: **BS80488**	RunNo: **80488**
Prep Date:	Analysis Date: **8/12/2021**	SeqNo: **2838515** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.70	0.019	0.7491	0	93.6	80	120	0.783	20	
Toluene	0.70	0.037	0.7491	0	93.9	80	120	0.502	20	
Ethylbenzene	0.71	0.037	0.7491	0	95.1	80	120	1.59	20	
Xylenes, Total	2.1	0.075	2.247	0	95.0	80	120	1.11	20	
Surr: 4-Bromofluorobenzene	0.77		0.7491		103	70	130	0	0	

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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **ENSOLUM** Work Order Number: **2108592** RcptNo: **1**

Received By: **Cheyenne Cason** **8/12/2021 7:00:00 AM**

Completed By: **Sean Livingston** **8/12/2021 8:01:53 AM**

Reviewed By: JR 8/12/21

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: KPH 8/12/21

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	2.9	Good				

Chain-of-Custody Record

Client: Ensolum, LLC

Mailing Address: 606 S. Rio Grande, Suite A
Aztec, NM 87410

Phone #:

email or Fax#: ksummers@ensolum.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: Same-Day
☐ Standard ☒ Rush 100%

Project Name: Bruce R Sullivan 2

Project #: 05A1226149

Project Manager: K. Summers

Sampler: L. Daniell

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.9 - 0 = 2.9 (°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. 2108592	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, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8/11/21	11:00	S	S-1	1 4oz jar	Cool	001	X	X					X			
8/11/21	11:05 ~~11:00~~	S	S-2	1 4oz jar	Cool	002	X	X					X			
8/11/21	11:10	S	S-3	1 4oz jar	Cool	003	X	X					X			
8/11/21	11:15	S	S-4	1 4oz jar	Cool	004	X	X					X			
8/11/21	11:20	S	S-5	1 4oz jar	Cool	005	X	X					X			
8/11/21	11:25	S	SP-1	1 4oz jar	Cool	006	X	X					X			
8/11/21	11:30	S	SP-2	1 4oz jar	Cool	007	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8/11/21	1432		Christen Walters	Walk	8/11/21	1432
8/11/21	1802	Christen Walters		Courier	8/12/21	0700

Remarks: PM Tom Long
Non AFE #N54659
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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
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August 17, 2021

Kyle Summers

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

RE: Bruce R Sullivan 2 OrderNo.: 2108593

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/12/2021 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 **2108593**
Date Reported: **8/17/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM
Client Sample ID: EW-1
Project: Bruce R Sullivan 2
Collection Date: 8/11/2021 11:35:00 AM
Lab ID: 2108593-001 **Matrix:** AQUEOUS **Received Date:** 8/12/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**	
Benzene	5.3	5.0		µg/L	1	8/12/2021 12:48:00 PM	R80483
Toluene	ND	5.0		µg/L	1	8/12/2021 12:48:00 PM	R80483
Ethylbenzene	ND	5.0		µg/L	1	8/12/2021 12:48:00 PM	R80483
Xylenes, Total	ND	7.5		µg/L	1	8/12/2021 12:48:00 PM	R80483
Surr: 1,2-Dichloroethane-d4	86.5	70-130		%Rec	1	8/12/2021 12:48:00 PM	R80483
Surr: Dibromofluoromethane	87.4	70-130		%Rec	1	8/12/2021 12:48:00 PM	R80483
Surr: Toluene-d8	95.5	70-130		%Rec	1	8/12/2021 12:48:00 PM	R80483

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	Value above quantitation range
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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108593**

17-Aug-21

Client: ENSOLUM

Project: Bruce R Sullivan 2

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260: Volatiles Short List**

Client ID: **PBW** Batch ID: **R80483** RunNo: **80483**

Prep Date: Analysis Date: **8/12/2021** SeqNo: **2837323** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.6		10.00		85.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	8.5		10.00		85.1	70	130			
Surr: Toluene-d8	9.5		10.00		95.1	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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **ENSOLUM** Work Order Number: **2108593** RcptNo: 1

Received By: **Cheyenne Cason** **8/12/2021 7:00:00 AM**

Completed By: **Sean Livingston** **8/12/2021 8:07:39 AM**

Reviewed By: JR 8/12/21

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: KPG 8/12/21

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	2.9	Good				

Chain-of-Custody Record

Client: Ensolum, LLC

Mailing Address: 606 S. Rio Grande, Suite A
Aztec, NM 87410

Phone #:

email or Fax#: K-Summers@ensolum.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 100% Same Day

Project Name: Bruce R Sullivan 2

Project #: 05A1226149

Project Manager: K. Summers

Sampler: L. Daniell

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.9 -0 = 2.9 (°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. 2109593
8/1/24	11:35	W	EW-1	3x40mL VOA	HCl	001

Analysis Request

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, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
X									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/1/24	1432					1432
8/1/24	1802	Christian Waeler		courier	8/2/24	0700

Remarks: PM Tom Long
Non AFE # N54659 (Same Day)
RB 21200

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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 25, 2021

Kyle Summers

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

RE: Bruce R Sullivan 2 OrderNo.: 2108941

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/18/2021 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 **2108941**
Date Reported: **8/25/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** MW-1
Project: Bruce R Sullivan 2 **Collection Date:** 8/17/2021 10:20:00 AM
Lab ID: 2108941-001 **Matrix:** AQUEOUS **Received Date:** 8/18/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LRN**	
Fluoride	0.79	0.50		mg/L	5	8/18/2021 3:58:14 PM	R80640
Chloride	62	2.5		mg/L	5	8/18/2021 3:58:14 PM	R80640
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/18/2021 3:58:14 PM	R80640
Bromide	ND	0.50		mg/L	5	8/18/2021 3:58:14 PM	R80640
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/18/2021 3:58:14 PM	R80640
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/18/2021 3:58:14 PM	R80640
Sulfate	4000	100	*	mg/L	200	8/20/2021 2:33:45 AM	A80673
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **CAS**	
Conductivity	7200	10		µmhos/c	1	8/19/2021 12:47:19 PM	R80675
SM2320B: ALKALINITY						Analyst: **CAS**	
Bicarbonate (As CaCO3)	427.2	20.00		mg/L Ca	1	8/19/2021 12:47:19 PM	R80675
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/19/2021 12:47:19 PM	R80675
Total Alkalinity (as CaCO3)	427.2	20.00		mg/L Ca	1	8/19/2021 12:47:19 PM	R80675
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	6300	100	*D	mg/L	1	8/24/2021 7:04:00 PM	62125
EPA METHOD 200.7: METALS						Analyst: **ELS**	
Calcium	530	20		mg/L	20	8/19/2021 10:39:11 AM	62050
Magnesium	78	1.0		mg/L	1	8/19/2021 8:42:50 AM	62050
Potassium	13	1.0		mg/L	1	8/19/2021 8:42:50 AM	62050
Sodium	1300	20		mg/L	20	8/19/2021 10:39:11 AM	62050
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**	
Benzene	33	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Toluene	3.2	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Ethylbenzene	1.3	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,2,4-Trimethylbenzene	7.6	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,3,5-Trimethylbenzene	4.8	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Naphthalene	4.9	2.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1-Methylnaphthalene	ND	4.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
2-Methylnaphthalene	4.8	4.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Acetone	ND	10		µg/L	1	8/19/2021 12:59:00 AM	R80607
Bromobenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Bromodichloromethane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Bromoform	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Bromomethane	ND	3.0		µg/L	1	8/19/2021 12:59:00 AM	R80607

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	Value above quantitation range
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		

Analytical Report
Lab Order **2108941**
Date Reported: **8/25/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM **Client Sample ID:** MW-1
Project: Bruce R Sullivan 2 **Collection Date:** 8/17/2021 10:20:00 AM
Lab ID: 2108941-001 **Matrix:** AQUEOUS **Received Date:** 8/18/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**	
2-Butanone	ND	10		µg/L	1	8/19/2021 12:59:00 AM	R80607
Carbon disulfide	ND	10		µg/L	1	8/19/2021 12:59:00 AM	R80607
Carbon Tetrachloride	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Chlorobenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Chloroethane	ND	2.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Chloroform	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Chloromethane	ND	3.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
2-Chlorotoluene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
4-Chlorotoluene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
cis-1,2-DCE	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Dibromochloromethane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Dibromomethane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,1-Dichloroethane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,1-Dichloroethene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,2-Dichloropropane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,3-Dichloropropane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
2,2-Dichloropropane	ND	2.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,1-Dichloropropene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Hexachlorobutadiene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
2-Hexanone	ND	10		µg/L	1	8/19/2021 12:59:00 AM	R80607
Isopropylbenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
4-Isopropyltoluene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
4-Methyl-2-pentanone	ND	10		µg/L	1	8/19/2021 12:59:00 AM	R80607
Methylene Chloride	ND	3.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
n-Butylbenzene	ND	3.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
n-Propylbenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
sec-Butylbenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Styrene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
tert-Butylbenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
trans-1,2-DCE	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607

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	Value above quantitation range
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		

Analytical Report
Lab Order **2108941**
Date Reported: **8/25/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: ENSOLUM
Client Sample ID: MW-1
Project: Bruce R Sullivan 2
Collection Date: 8/17/2021 10:20:00 AM
Lab ID: 2108941-001 **Matrix:** AQUEOUS **Received Date:** 8/18/2021 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**	
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Trichlorofluoromethane	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Vinyl chloride	ND	1.0		µg/L	1	8/19/2021 12:59:00 AM	R80607
Xylenes, Total	17	1.5		µg/L	1	8/19/2021 12:59:00 AM	R80607
Surr: 1,2-Dichloroethane-d4	80.3	70-130		%Rec	1	8/19/2021 12:59:00 AM	R80607
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	8/19/2021 12:59:00 AM	R80607
Surr: Dibromofluoromethane	81.4	70-130		%Rec	1	8/19/2021 12:59:00 AM	R80607
Surr: Toluene-d8	92.1	70-130		%Rec	1	8/19/2021 12:59:00 AM	R80607

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	Value above quantitation range
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		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108941**
25-Aug-21

Client: ENSOLUM
Project: Bruce R Sullivan 2

Sample ID: **MB-62050** SampType: **MBLK** TestCode: **EPA Method 200.7: Metals**
Client ID: **PBW** Batch ID: **62050** RunNo: **80648**
Prep Date: **8/18/2021** Analysis Date: **8/19/2021** SeqNo: **2844988** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LLLCS-62050** SampType: **LCSLL** TestCode: **EPA Method 200.7: Metals**
Client ID: **BatchQC** Batch ID: **62050** RunNo: **80648**
Prep Date: **8/18/2021** Analysis Date: **8/19/2021** SeqNo: **2844990** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	107	50	150			
Magnesium	ND	1.0	0.5000	0	101	50	150			
Potassium	ND	1.0	0.5000	0	88.8	50	150			
Sodium	ND	1.0	0.5000	0	105	50	150			

Sample ID: **LCS-62050** SampType: **LCS** TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW** Batch ID: **62050** RunNo: **80648**
Prep Date: **8/18/2021** Analysis Date: **8/19/2021** SeqNo: **2844992** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.1	85	115			
Magnesium	50	1.0	50.00	0	99.6	85	115			
Potassium	50	1.0	50.00	0	99.1	85	115			
Sodium	50	1.0	50.00	0	99.5	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108941**
25-Aug-21

Client: ENSOLUM
Project: Bruce R Sullivan 2

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R80640**	RunNo: **80640**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2844707** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R80640**	RunNo: **80640**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2844715** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.4	90	110			
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	95.4	90	110			
Bromide	2.4	0.10	2.500	0	97.8	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.3	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.0	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A80673**	RunNo: **80673**
Prep Date:	Analysis Date: **8/20/2021**	SeqNo: **2845972** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A80673**	RunNo: **80673**
Prep Date:	Analysis Date: **8/20/2021**	SeqNo: **2845973** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108941**
25-Aug-21

Client: ENSOLUM
Project: Bruce R Sullivan 2

Sample ID: **100ng 8260 lcs** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **R80607** RunNo: **80607**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2843673** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	96.9	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	94.6	70	130			
Surr: 1,2-Dichloroethane-d4	8.3		10.00		83.1	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	8.6		10.00		86.4	70	130			
Surr: Toluene-d8	9.4		10.00		93.6	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **R80607** RunNo: **80607**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844681** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108941**
25-Aug-21

Client: ENSOLUM
Project: Bruce R Sullivan 2

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **R80607** RunNo: **80607**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844681** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108941**
25-Aug-21

Client: ENSOLUM
Project: Bruce R Sullivan 2

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **R80607** RunNo: **80607**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844681** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.2		10.00		81.8	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.9	70	130			
Surr: Dibromofluoromethane	8.4		10.00		84.4	70	130			
Surr: Toluene-d8	9.3		10.00		93.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108941**
25-Aug-21

Client: ENSOLUM
Project: Bruce R Sullivan 2

Sample ID: **lcs-1 98.7uS eC** SampType: **lcs** TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW** Batch ID: **R80675** RunNo: **80675**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846075** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	98.70	0	101	85	115			

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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108941**

25-Aug-21

Client: ENSOLUM

Project: Bruce R Sullivan 2

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R80675**	RunNo: **80675**							
Prep Date:	Analysis Date: **8/19/2021**	SeqNo: **2846009**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R80675**	RunNo: **80675**							
Prep Date:	Analysis Date: **8/19/2021**	SeqNo: **2846011**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.68	20.00	80.00	0	99.6	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R80675**	RunNo: **80675**							
Prep Date:	Analysis Date: **8/19/2021**	SeqNo: **2846049**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R80675**	RunNo: **80675**							
Prep Date:	Analysis Date: **8/19/2021**	SeqNo: **2846051**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.64	20.00	80.00	0	99.6	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
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108941**

25-Aug-21

Client: ENSOLUM

Project: Bruce R Sullivan 2

Sample ID: **MB-62125**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **62125**	RunNo: **80763**
Prep Date: **8/23/2021**	Analysis Date: **8/24/2021**	SeqNo: **2849366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-62125**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **62125**	RunNo: **80763**
Prep Date: **8/23/2021**	Analysis Date: **8/24/2021**	SeqNo: **2849367** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **ENSOLUM** Work Order Number: **2108941** RcptNo: **1**

Received By: **Cheyenne Cason** **8/18/2021 7:00:00 AM** Chad

Completed By: **Isaiah Ortiz** **8/18/2021 10:07:40 AM** I-OX

Reviewed By: SPA 8.18.21

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 (<2 or >12 unless noted)
Adjusted? NA
Checked by: JR 8/18/21

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	0.4	Good	Not Present			
2	4.8	Good	Not Present			

Chain-of-Custody Record

Client: Ensolum, LLC

Mailing Address: 606 S. Rio Grande, Suite A
Aztec, NM 87410

Phone #:

email or Fax#: KSummers@ensolum.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Bruce R Sullivan 2

Project #: 05A1226149

Project Manager: K. Summers

Sampler: L. Daniell

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): Sent Remark (°C)

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

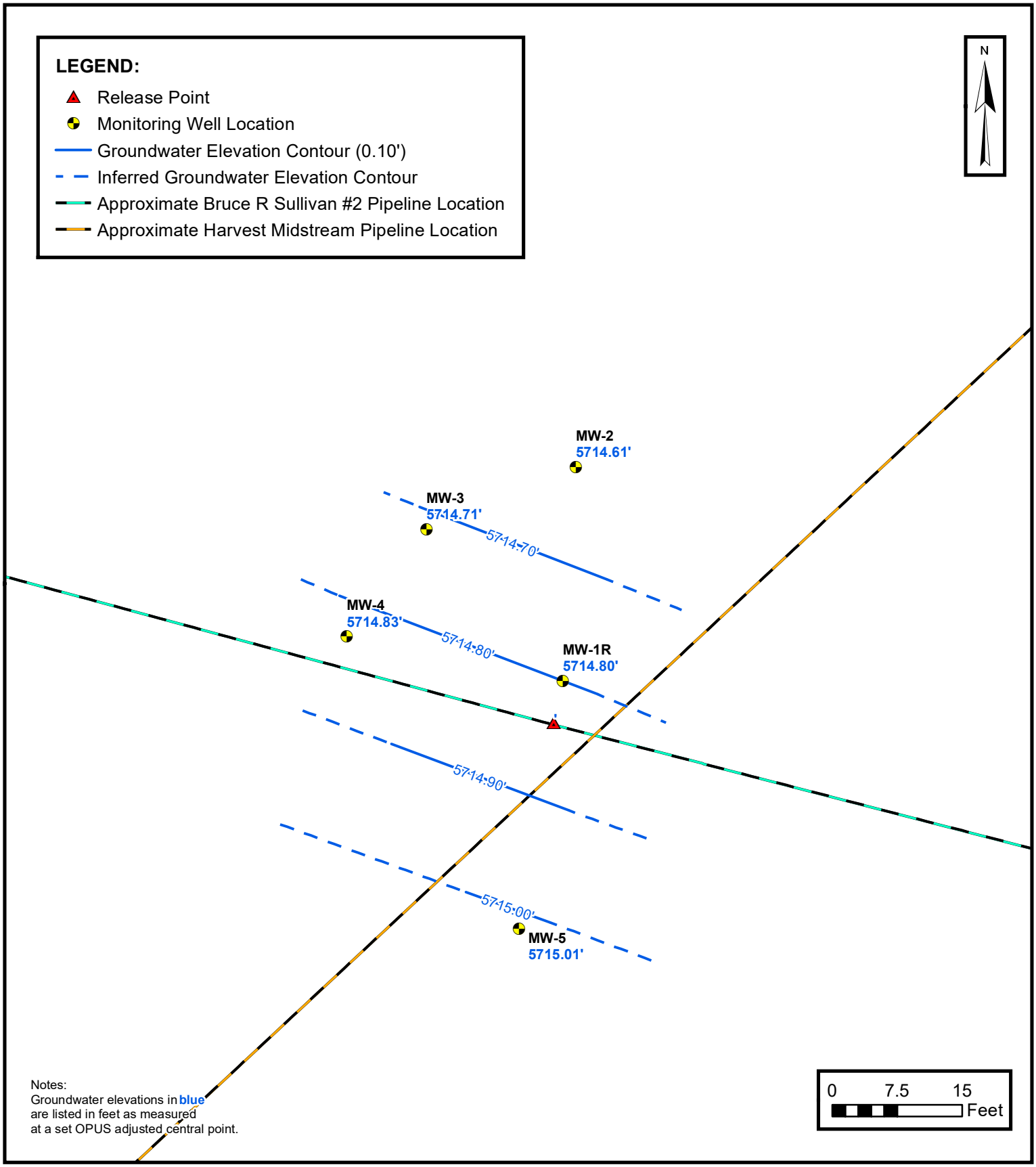
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108941	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA) Full List	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Cations and Anions					
8/17/21	10:20	W	MW-1	various	various	001								X			X					

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8/17/21	1130				8/17/21	1130
8/17/21	1753			courier	8/18/21	0700

Remarks:
0.5-0.1=0.4
4.9-0.1=4.8
PM Tom Long
Non AFE: N54659
Pay Key: RB21200
Anions and Cations 8260 - full suite

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.



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

GROUNDWATER GRADIENT MAP (AUGUST 2022)

ENTERPRISE FIELD SERVICES, LLC
2D-1 WELL TIE/BRUCE R SULLIVAN #2 (7/29/21)
Unit Letter I, S23 T28N R10W, San Juan County, New Mexico
36.644538° N, 107.857891° W

PROJECT NUMBER: 05A1226149

FIGURE
4E

ENSOLUM

TABLE 2
2D-1 Well Tie/Bruce R Sullivan #2 (7/29/21) Draft
GROUNDWATER ANALYTICAL SUMMARY - INORGANICS, PHYSICAL, AND CHEMICAL PROPERTIES

Sample I.D.	Sample Date	Fluoride (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate + Nitrite (mg/L)	Bromide (mg/L)	Phosphorus (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Total Dissolved Solids (mg/L)	Conductivity (µmhos/cm)	Total Alkalinity (mg/L Ca)
New Mexico Water Quality Control Commmission Human Health Standards and Domestic Water Supply Standards		**1.6**	**250**	**600**	**11**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**1,000**	**NE**	**NE**
Water Samples Collected from the Excavation (August 2021)														
EW-1*	8.11.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Water Samples Collected from the Temporary Sample Point (August 2021)														
MW-1	8.17.21	0.79	62	**4,000**	<1.00	<0.50	<2.5	530	78	13	1,300	**6,300**	7,200	427.2
Water Samples Collected from the Temporary Monitoring Wells														
MW-1R[A]	3.9.22	NA	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.13.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5.12.22	NA	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6.14.22	NA	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8.5.22	NA	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.5.22	NA	NA	**1,900**	NA	NA	NA	NA	NA	NA	NA	**3,210**	NA	NA
MW-2	3.9.22	NA	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.13.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5.12.22	NA	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6.14.22	NA	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8.5.22	NA	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.5.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	3.9.22	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.13.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5.12.22	NA	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6.14.22	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8.5.22	NA	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.5.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-4	3.9.22	NA	8.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.13.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5.12.22	NA	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6.14.22	NA	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8.5.22	NA	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.5.22	NA	NA	**680**	NA	NA	NA	NA	NA	NA	NA	**1,210**	NA	NA
MW-5	3.9.22	NA	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.13.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5.12.22	NA	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6.14.22	NA	42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8.5.22	NA	37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4.5.22	NA	NA	**4,400**	NA	NA	NA	NA	NA	NA	NA	**6,650**	NA	NA

Notes:

Concentrations in ***bold*** *and yellow exceed the applicable WQCC HHS or DWSS*

** = The sample collected from the excavation was only analyzed for benzene, toluene, ethlybenzene, and xylenes.*

[A] = During March 2022, temporary monitoring well MW-1R was completed to replace MW-1.

mg/L = milligram per liter

µmhos/cm = micromhos per centimeter

Ca = Calcium

NA = Not Analyzed

NE = Not Established

<1.0 = The numeral (in this case "1.0") identifies the laboratory reporting limit (RL) or practical quantitation limit (PQL).

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:	OGRID:
Enterprise Field Services, LLC PO Box 4324 Houston, TX 77210	241602
	Action Number: 337912
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	2D-1 Well Tie/Bruce R Sullivan #2, Incident ID No. NAPP2121054964 documents for Interim Characterization Report, Hydraulic Gradient and Potentiometric Surface Elevation, and lab analyses related to the incident have been accepted for the record.	4/26/2024