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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	nAPP2200760556
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Solaris Water Midstream	OGRID 371643
Contact Name Rob Kirk	Contact Telephone 575-300-5155
Contact email Rob.Kirk@ariswater.com	Incident # *(assigned by OCD)* nAPP2200760556
Contact mailing address 3305 Boyde DR. Carlsbad, NM 88220	

Location of Release Source

Latitude 32.012778 Longitude -103.71556
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Superman Frac Pond	Site Type Frac Ponds
Date Release Discovered 6 Jan 2022	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
K	30	26S	32E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☑ Produced Water	Volume Released (bbls) 22.8	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☑ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release A lay-flat hose coupling failed and released Produced Water at the COP Superman frac pond location		

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2200760556
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☑ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

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

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

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

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

Printed Name: Rob Kirk
Title: V.P Enviromental Compliance
Signature:
Date: 11 July 2023
email: Rob.Kirk@ariswater.com
Telephone: O:575-300-5155 M:469-978-5620

OCD Only

Received by: Shelly Wells
Date: 7/12/2023

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2200760556
District RP	
Facility ID	
Application ID	

Closure

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

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

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

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

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

☑ Description of remediation activities

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

Printed Name: Rob Kirk Title: V.P Enviromental Compliance

Signature: Date: 11 July 2023

email: Rob.Kirk@ariswater.com Telephone: O:575-300-5155 M:469-978-5620

OCD Only

Received by: Shelly Wells Date: 7/12/2023

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

Closure Approved by: Nelson Velez Date: 10/02/2023

Printed Name: Nelson Velez Title: Environmental Specialist - Adv

Operator did not meet 19.15.29.12D (1) NMAC. Forbearance given 10/02/2023. Release resolved.

June 30, 2023

Aris Water
3305 Boyd Dr.,
Carlsbad, NM 88220

Attn: Mr. Rob Kirk
Telephone: (469) 978-5620
Email: rob.kirk@ariswater.com

Re: Closure Documentation
Superman Frac Ponds (Conoco Pad)
32.0125743°, -103.7154456°
Lea County, New Mexico
Terracon Project No. AR227019

Dear Mr. Kirk:

On January 13, 2022, Terracon was requested to oversee the remediation of a reportable release at the Superman Frac Ponds (Conoco Pad) site. Terracon personnel was informed that a release of Produced Water of reportable quantity had taken place at the site. Surface ownership is held by the Bureau of Land Management (BLM). Since the release was greater than 5 barrels (bbls) the New Mexico Oil Conservation District (NMOCD) was notified and provided the incident number nAPP2200760556 for this release.

Regulatory Criteria

The nearest groundwater elevation data was obtained from the New Mexico Office of the State Engineer (NMOSE) website and indicated that depth to groundwater was measured at approximately 295 feet below grade surface (bgs) and the well was located 0.54 miles southeast of the site. A review of geospatial data obtained from the BLM Carlsbad Field Office website indicated that the site is within an area of mild risk for karst formations. The release was limited to the pad location that was constructed to support the Frac Ponds on-site and per New Mexico Administrative Code (NMAC) 19.15.29.12 remediation and closure criteria for a depth to groundwater of greater than 100 feet was utilized for this release.

Remedial Activities

On February 1, 2022, Terracon mobilized to the site to perform release investigation activities. The area surrounding the lay-flat pipeline repair was observed to have

minimal evidence of a produced water release, the release was noted to have stayed on the pad constructed to house the water retention ponds. A total of 3 discreet grab samples were collected from the surface to 2 feet below grade surface (bgs) within the inferred release area. All samples were placed in laboratory-provided sample containers, preserved with ice, and transported under chain of custody to Cardinal Laboratories in Hobbs, New Mexico for analysis of benzene, toluene, ethylbenzene, and total xylenes (collectively known as BTEX), total petroleum hydrocarbons (TPH), and chlorides. Field observations indicated all soil samples collected from the inferred release area were likely below the NMOCD remedial action level (RALs) for chloride 20,000 mg/kg for releases on production pads.

On February 9, 2022, Terracon received the Eurofins Laboratories soil sample analytical report. The Analytical report indicated that all samples collected during the initial remediation activities were below the applicable NMOCD RALs for Oil and Gas soil remediations and reclamation. One sample was above the NMOCD RAL for chloride releases on native soil of 600 mg/kg, and it was determined that remediation of the detected impact at soil sample HA-1 (0.5 to 1 ft bgs) would be beneficial for the continuing operation of the Superman Frac Ponds site.

On January 3, 2023, Terracon mobilized to the site to resample the inferred release area to determine the current level of chloride impacts before initiating remedial efforts. A total of five samples were collected, surface samples were collected in cardinal directions around the inferred release area and one confirmation sample was collected from within the inferred release area. All samples were analyzed by Eurofins Laboratories, and all samples were below the NMOCD RALs for Oil and Gas soil remediations and reclamations.

See Exhibit 1 for a depiction of the soil sample locations.

Analytical Results

All soil samples collected did not exhibit concentrations of BTEX above laboratory sample detection limits (SDLs).

Soil samples HA-1 (0.5 to 1 ft bgs) and CS-1 (0.5 to 1 ft bgs) did exhibit concentrations of TPH of 75.5 mg/kg and 75.4 mg/kg respectively, which are below the NMOCD RAL of 2,500 mg/kg.

All soil samples exhibited concentrations of chlorides above laboratory sample detection limits but below the applicable NMOCD RALs of 20,000 mg/kg. Detected concentrations of chloride ranged from 77.2 mg/kg to 867 mg/kg.

A summary of BTEX, chloride, and TPH concentrations of all collected soil samples is attached as Table 1 under Appendix B.

Conclusion

In accordance with NMAC 19.15.29.12, remediation of the remaining impacted material proximate to inferred release area is below the NMOCD RALs. Terracon recommends no further action be taken regarding the release that occurred on January 13, 2022, at the Superman Frac Pond (Conoco Pad).

Should you have any questions, please contact the undersigned at (806) 300 0140.

Sincerely,
Terracon

Prepared by:	Reviewed by:
Joseph Guesnier Office Manager Carlsbad	Erin Loyd, P.G. (TX) Senior Principal Office Manager – Lubbock

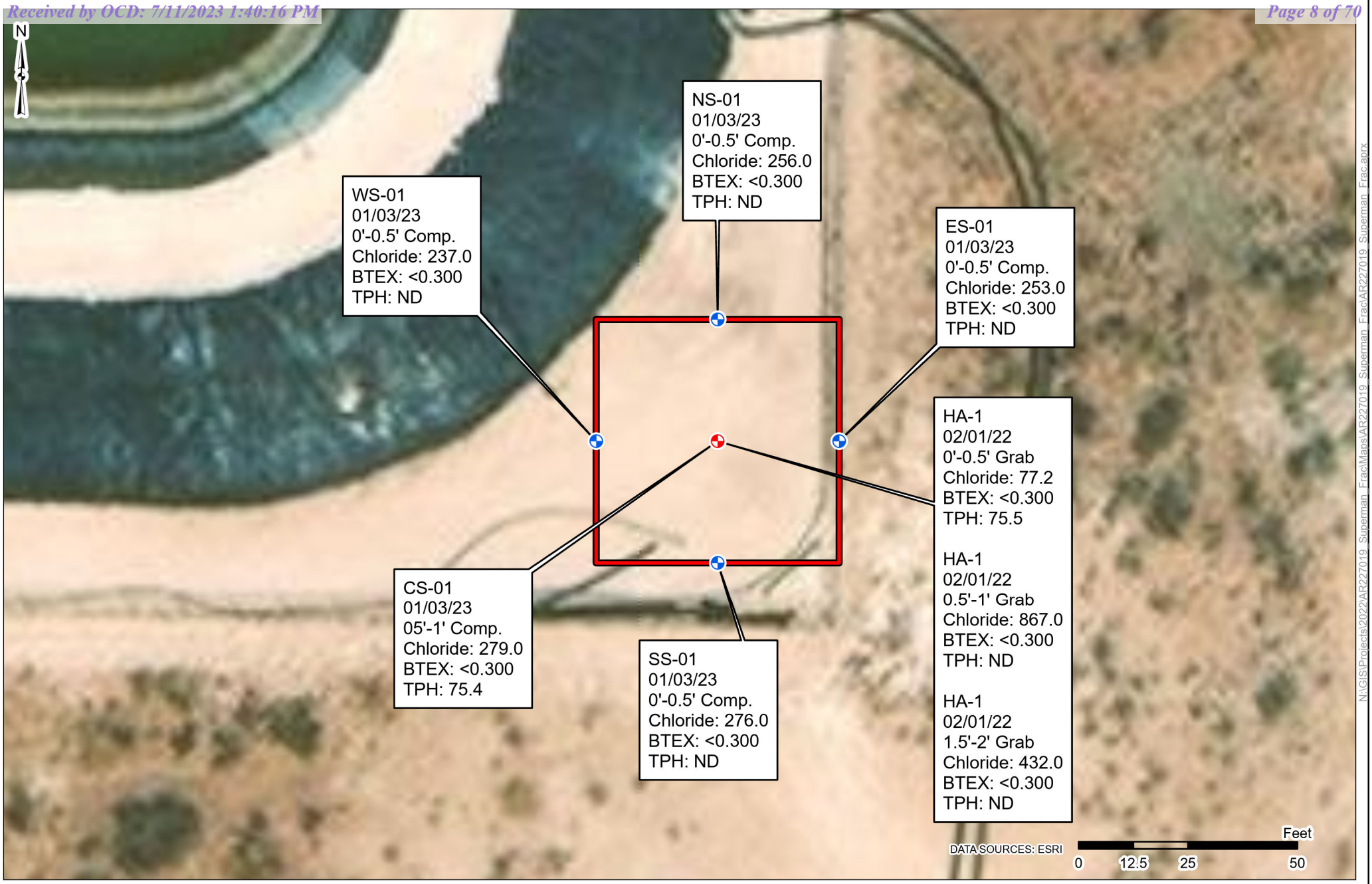
Attachments

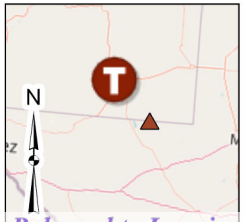
Appendix A – Exhibits
- Exhibit 1 – Topo Map
- Exhibit 2 – Site Map
- Exhibit 3 – Confirmation Soil Sampling Map
- Exhibit 4 – NMOSE POD Location Map
- Exhibit 5 – Cave Karst Public UCP Map
- Exhibit 6 – Designated Wetland Map
- Exhibit 7 – Photographic Log

Appendix B – Tables Procedures, and Figures
- Table 1 – Soil Sample Analytical Results – BTEX, Chloride, and TPH

Appendix C – Analytical Report and Chain of Custody

APPENDIX A – EXHIBITS





Excavation Boundary

Sample Location

Floor

Wall

Project No.:	AR227019
Date:	Jun 20 2023
Drawn By:	JWL
Reviewed By:	JRG

Terracon

4518 W Pierce St
Carlsbad, NM

PH. 806-300-0140 terracon.com

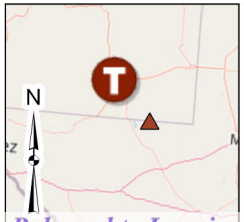
Site Sample Map

Superman Frac Pond
32.0125743° -103.7154456°
Lea County, New Mexico

Exhibit

3

N:\GIS\Projects\2022\AR227019_Superman_Frac\Maps\AR227019_Superman_Frac\AR227019_Superman_Frac.aprx



Site Location

NMOSE POD Location

Project No.:	AR227019
Date:	Jun 19 2023
Drawn By:	JWL
Reviewed By:	JRG

Terracon

4518 W Pierce St
Carlsbad, NM

PH. 806-300-0140 terracon.com

NMOSE POD Location Map

Superman Frac Pond
32.0125743° -103.7154456°
Lea County, New Mexico

Exhibit

4

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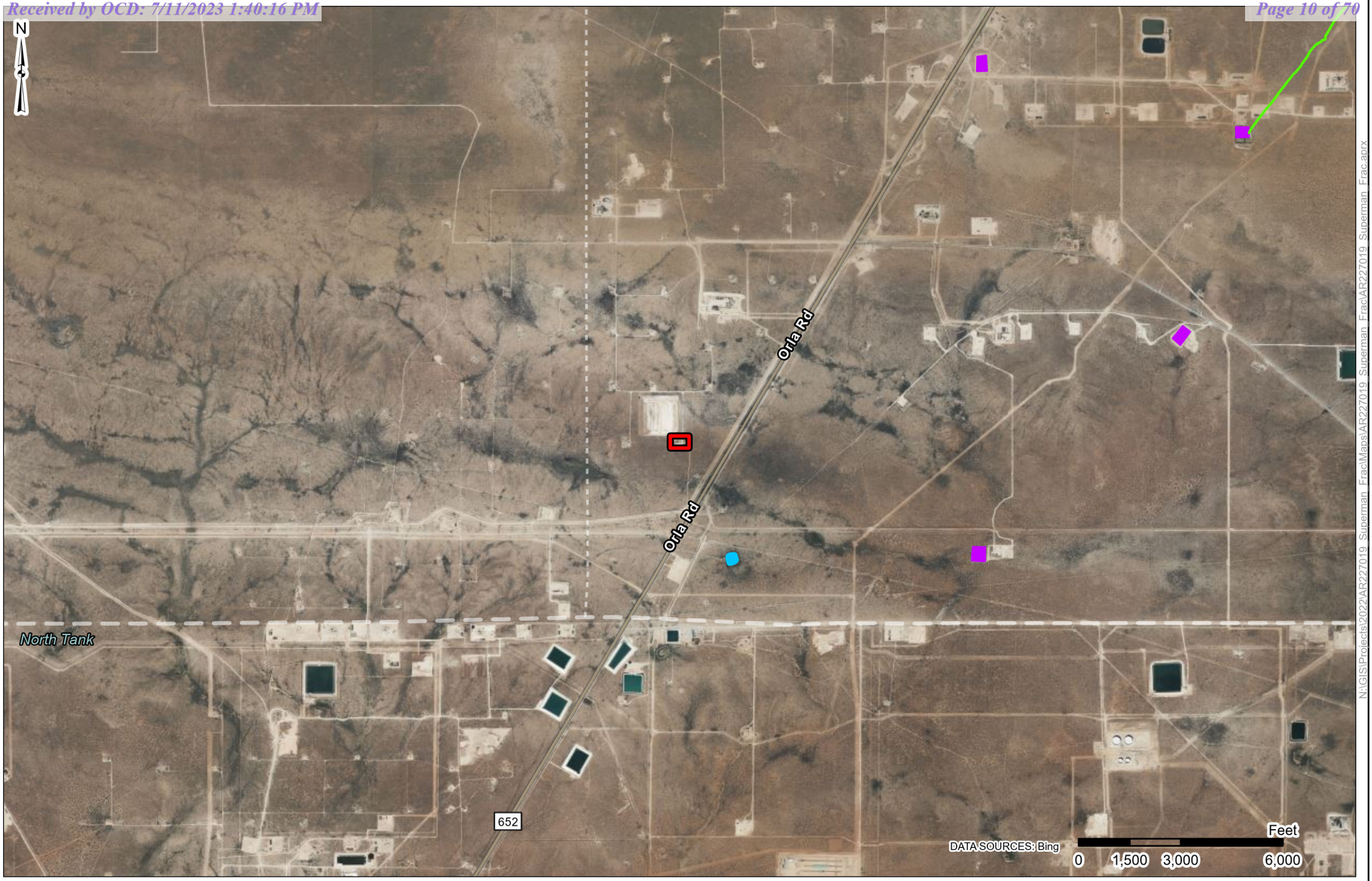


- Site Location
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Project No.:	AR227019
Date:	Jun 19 2023
Drawn By:	JWL
Reviewed By:	JRG

Terracon
4518 W Pierce St
Carlsbad, NM
PH. 806-300-0140 terracon.com

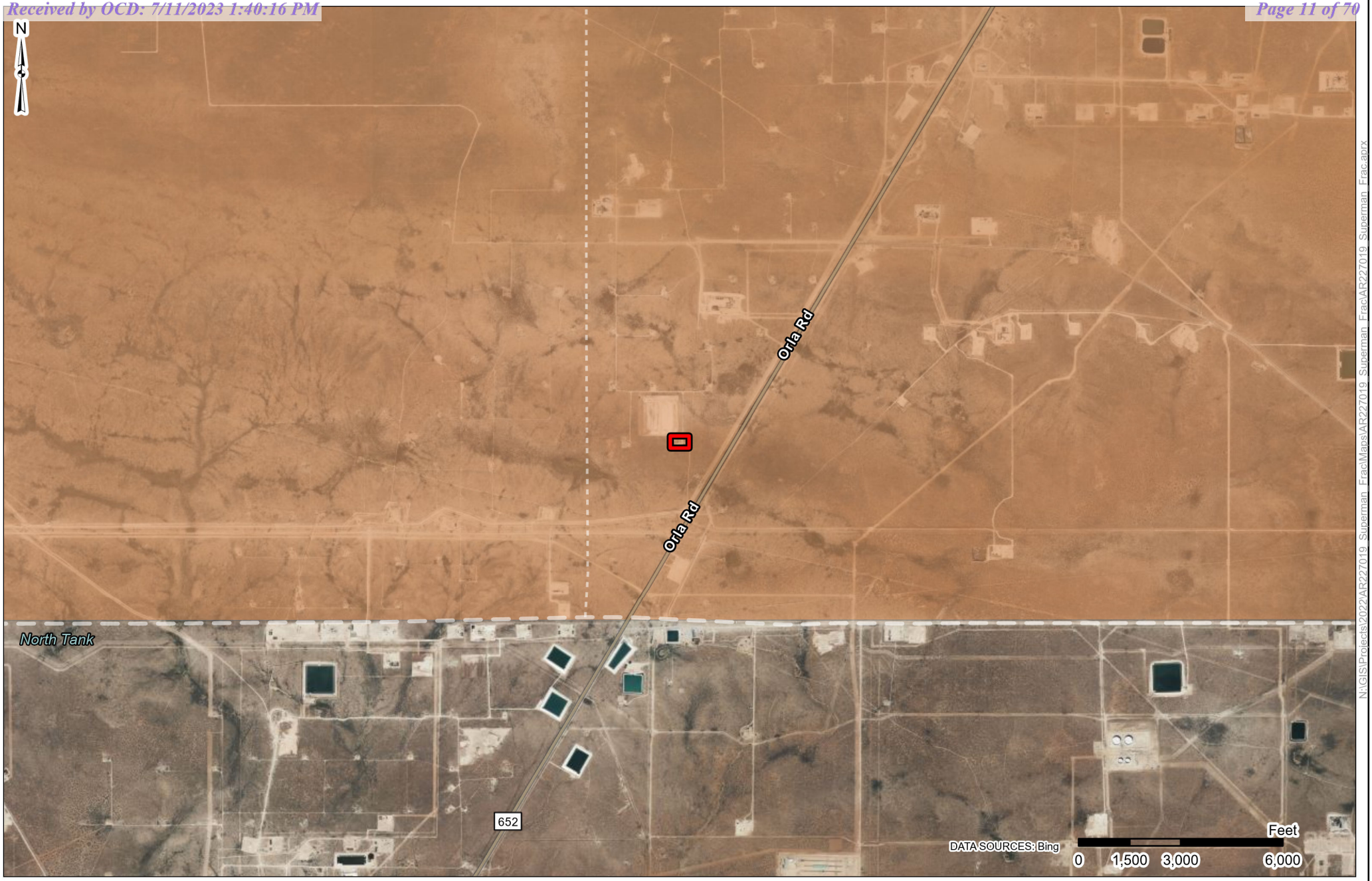
Designated Wetland Map

Superman Frac Pond
32.0125743° -103.7154456°
Lea County, New Mexico

Exhibit

5

N:\GIS\Projects\2022\AR227019_Superman_Frac\Maps\AR227019_Superman_Frac\AR227019_Superman_Frac.aprx



Site Location

Karst Potential

Low

Medium

High

Project No.:	AR227019
Date:	Jun 19 2023
Drawn By:	JWL
Reviewed By:	JRG

Terracon

4518 W Pierce St
Carlsbad, NM

PH. 806-300-0140 terracon.com

Cave Karst Public UCP Map

Superman Frac Pond
32.0125743° -103.7154456°
Lea County, New Mexico

Exhibit

6

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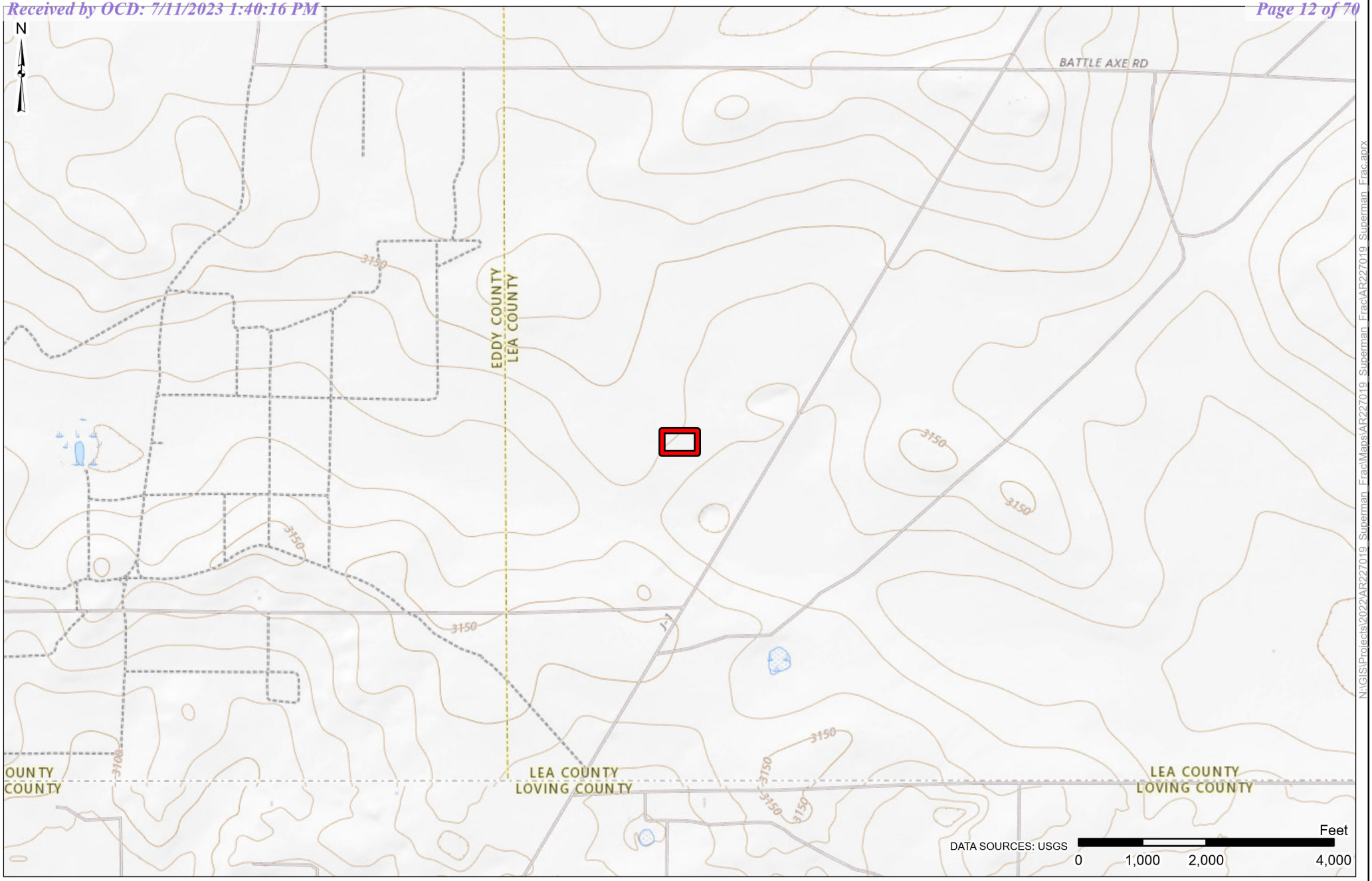
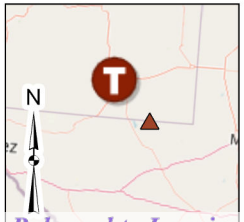




Site Location

Project No.:	AR227019
Date:	Jun 19 2023
Drawn By:	JWL
Reviewed By:	JRG

Terracon
4518 W Pierce St
Carlsbad, NM
PH. 806-300-0140 terracon.com

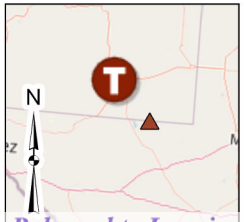
Topographic Map

Superman Frac Pond
32.0125743° -103.7154456°
Lea County, New Mexico

Exhibit

1

N:\GIS\Projects\2022\AR227019_Superman_Frac\Maps\AR227019_Superman_Frac\AR227019_Superman_Frac.aprx



Excavation Boundary

Project No.:	AR227019
Date:	Jun 20 2023
Drawn By:	JWL
Reviewed By:	JRG

Terracon
4518 W Pierce St
Carlsbad, NM
PH. 806-300-0140 terracon.com

Site Map

Superman Frac Pond
32.0125743° -103.7154456°
Lea County, New Mexico

Exhibit

2

PHOTO 1: View of inferred release area, facing West.

PHOTO 2: View of inferred release area, facing West.

PHOTO 3: View of area south of inferred release area facing west.

PHOTO 4: View of HA-1 sample location, facing West.

APPENDIX B – TABLES, PROCEDURES, AND FIGURES

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS - BTEX[1], Chloride[2], and TPH[3]
Superman Frac Pond (Conoco Pad)
Terracon Project No. AR227019

Sample I.D.	Sample Depth (ft. bgs)	Sample Type	Sample Date	BTEX (mg/kg)	Chloride (mg/kg)	TPH (8015M) (mg/kg)		
						GRO	DRO	EXT DRO
Delineation Samples (On Pad)								
HA-1	0 - 0.5	Grab	02/01/22	<SLDs	77.2	ND	75.5	ND
	0.5 - 1	Grab	02/01/22	<SLDs	867	ND	ND	ND
	1.5 - 2	Grab	02/01/22	<SLDs	432	ND	ND	ND
Confirmation Samples (On Pad)								
CS-01	0.5 - 1	Comp	01/03/23	<SLDs	279	ND	75.4	ND
ES-1	0 - 0.5	Comp	01/03/23	<SLDs	253	ND	ND	ND
NS-1	0 - 0.5	Comp	01/03/23	<SLDs	256	ND	ND	ND
SS-1	0 - 0.5	Comp	01/03/23	<SLDs	276	ND	ND	ND
WS-1	0 - 0.5	Comp	01/03/23	<SLDs	237	ND	ND	ND
NMOCD Reclamation Standards[4] (Applicable for Soils from the Surface to 4 ft. Below Grade Surface)				**Benzene - 10 Toluene - N/A Ethylbenzene - N/A Total Xylenes - N/A Total BTEX - 50**	**10,000**	**2,500**		
NMOCD Remediation and Delineation Standards[5] (Applicable for Soils at Depths Greater than 4 ft. Below Grade Surface)				**Benzene - 10 Toluene - N/A Ethylbenzene - N/A Total Xylenes - N/A Total BTEX - 50**	**10,000**	**2,500**		

1. BTEX = Benzene, toluene, ethylbenzene, total xylenes analyzed by EPA Method 8021B
2. Chloride = Chloride analyzed by EPA Method 300.
3. TPH = Total petroleum hydrocarbons analyzed by EPA Method 8015M (GRO/DRO/MRO)
4. New Mexico Administration Code (NMAC) Restoration, Reclamation, and Re-vegetation (19.15.29.13) New Mexico Administration Code (NMAC) – D (Reclamation of areas no longer in use) for soils extending to 4 ft. bgs
5. New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards are proposed in 19.15.29.12 NMAC - N, 8/14/2018

< = Constituent not detected above the indicated laboratory SDL

NA = Not Analyzed

N/A = Not Applicable

Bold and Highlight denotes concentrations that exceed the New Mexico Oil Conservation Division (NMOCD) Reclamation and/or Remediation and Delineation Standar

APPENDIX C – ANALYTICAL REPORT AND CHAIN OF CUSTODY

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Lubbock
6701 Aberdeen Ave.
Suite 8
Lubbock, TX 79424
Tel: (806)794-1296

Laboratory Job ID: 820-3295-1
Laboratory Sample Delivery Group: AR227019
Client Project/Site: Superman Frac Ponds

For:
Terracon Consulting Eng & Scientists
5847 50th St
Lubbock, Texas 79424

Attn: Joseph Guesnier

JKramer

Authorized for release by:
2/9/2022 6:27:27 PM

Jessica Kramer, Project Manager
(432)704-5440
jessica.kramer@eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD,and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments. QC data that exceed the upper limits and are associated with non-detect samples are qualified but no further narration is needed since the bias is high and does not change a non-detect result. Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Coliform MCLs
· Based on the EPA primary drinking water standard MCL for total coliforms, a water supply is considered bacteriologically “SAFE” if no coliform bacteria are detected. To be considered “SAFE” your report should indicate “<1 cfu/100mL” or “NEG” for the coliform test. If you report indicates a positive result “POS” or a value greater than or equal to one, then your supply is “UNSAFE FOR DRINKING” contact your local health department.

Warranties, Terms, and Conditions
· Analyses for Field Parameters are performed by EQC field staff. Locations and certifications are identified on the Chain of Custody as follows:

ERF = field staff performs tests under NJ State certification #02015
VL = field staff performs tests under NJ State certification #06005
WG = field staff performs tests under NJ State certification #PA001
H = field staff performs tests under NJ NELAP certification #PA093, PA NELAP certification # 46-05499

· Test results meet all TNI or other applicable regulatory agency requirements, including holding times and preservation, unless otherwise indicated.

· The report shall not be reproduced, except in full, without the written consent of the laboratory

· All samples are collected as “grab” samples unless otherwise identified.

· Reported results related only to the samples as tested. EQC is not responsible for sample integrity unless sampling has been performed by a member of our staff.

· EQC is not responsible for sampling and/or testing omissions. Note that regulatory authorities may assess substantial fines for testing omissions. Please track your sample collection schedules and results on a regular basis (e.g. weekly, monthly, or quarterly) to ensure compliance.

· Eurofins’ online data portal “TotalAccess” will provide you with real-time access to collection dates and testing results. Please contact Client Services for further information.

· The following personnel or their deputies have approved the results of the tests performed by EQC: Nicki Smith (Environmental Chemistry) and Jacqueline Gartner (Water Microbiology).

JKRAMER

Jessica Kramer
Project Manager
2/9/2022 6:27:27 PM

Table of Contents

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QC Association Summary 16
Lab Chronicle 18
Certification Summary 19
Method Summary 20
Sample Summary 21
Chain of Custody 22
Receipt Checklists 25

Definitions/Glossary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Qualifiers

GC/MS VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Job ID: 820-3295-1

Laboratory: Eurofins Lubbock

Narrative

Job Narrative
820-3295-1

Receipt
The samples were received on 2/2/2022 10:12 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was -13.1°C

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

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

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

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Client Sample ID: HA-1 (0-.5')

Lab Sample ID: 820-3295-1
Matrix: Soil

Date Collected: 02/01/22 12:00
Date Received: 02/02/22 10:12
Sample Depth: 0 - .5'

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000990	U	0.000990		mg/Kg		02/07/22 09:25	02/08/22 12:28	1
Toluene	<0.00495	U	0.00495		mg/Kg		02/07/22 09:25	02/08/22 12:28	1
Ethylbenzene	<0.000990	U	0.000990		mg/Kg		02/07/22 09:25	02/08/22 12:28	1
m,p-Xylenes	<0.00198	U	0.00198		mg/Kg		02/07/22 09:25	02/08/22 12:28	1
o-Xylene	<0.000990	U	0.000990		mg/Kg		02/07/22 09:25	02/08/22 12:28	1
Xylenes, Total	<0.00198	U	0.00198		mg/Kg		02/07/22 09:25	02/08/22 12:28	1
MTBE	<0.00495	U	0.00495		mg/Kg		02/07/22 09:25	02/08/22 12:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*56 - 150*	*02/07/22 09:25*	*02/08/22 12:28*	*1*
4-Bromofluorobenzene (Surr)	*102*		*68 - 152*	*02/07/22 09:25*	*02/08/22 12:28*	*1*
Dibromofluoromethane (Surr)	*104*		*53 - 142*	*02/07/22 09:25*	*02/08/22 12:28*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*	*02/07/22 09:25*	*02/08/22 12:28*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00198	U	0.00198		mg/Kg			02/08/22 14:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**75.5**		50.2		mg/Kg			02/08/22 17:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	50.2		mg/Kg		02/07/22 18:25	02/07/22 21:33	1
Diesel Range Organics (Over C10-C28)	**75.5**		50.2		mg/Kg		02/07/22 18:25	02/07/22 21:33	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2		mg/Kg		02/07/22 18:25	02/07/22 21:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane (Surr)	*95*		*65 - 130*	*02/07/22 18:25*	*02/07/22 21:33*	*1*
o-Terphenyl (Surr)	*79*		*65 - 130*	*02/07/22 18:25*	*02/07/22 21:33*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**77.2**		9.96		mg/Kg		02/08/22 20:33	02/09/22 05:43	1

Client Sample ID: HA-1 (.5'-1')

Lab Sample ID: 820-3295-2
Matrix: Soil

Date Collected: 02/01/22 12:05
Date Received: 02/02/22 10:12
Sample Depth: .5' - 1'

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00101	U	0.00101		mg/Kg		02/08/22 10:45	02/08/22 13:51	1
Toluene	<0.00503	U	0.00503		mg/Kg		02/08/22 10:45	02/08/22 13:51	1
Ethylbenzene	<0.00101	U	0.00101		mg/Kg		02/08/22 10:45	02/08/22 13:51	1
m,p-Xylenes	<0.00201	U	0.00201		mg/Kg		02/08/22 10:45	02/08/22 13:51	1
o-Xylene	<0.00101	U	0.00101		mg/Kg		02/08/22 10:45	02/08/22 13:51	1
Xylenes, Total	<0.00201	U	0.00201		mg/Kg		02/08/22 10:45	02/08/22 13:51	1

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Client Sample ID: HA-1 (.5'-1')

Lab Sample ID: 820-3295-2
Matrix: Soil

Date Collected: 02/01/22 12:05
Date Received: 02/02/22 10:12
Sample Depth: .5' - 1'

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	<0.00503	U	0.00503		mg/Kg		02/08/22 10:45	02/08/22 13:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*56 - 150*	*02/08/22 10:45*	*02/08/22 13:51*	*1*
4-Bromofluorobenzene (Surr)	*106*		*68 - 152*	*02/08/22 10:45*	*02/08/22 13:51*	*1*
Dibromofluoromethane (Surr)	*91*		*53 - 142*	*02/08/22 10:45*	*02/08/22 13:51*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*	*02/08/22 10:45*	*02/08/22 13:51*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00201	U	0.00201		mg/Kg			02/08/22 14:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.2	U	49.2		mg/Kg			02/08/22 17:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.2	U	49.2		mg/Kg		02/07/22 18:25	02/08/22 17:19	1
Diesel Range Organics (Over C10-C28)	<49.2	U	49.2		mg/Kg		02/07/22 18:25	02/08/22 17:19	1
Oil Range Organics (Over C28-C36)	<49.2	U	49.2		mg/Kg		02/07/22 18:25	02/08/22 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane (Surr)	*118*		*65 - 130*	*02/07/22 18:25*	*02/08/22 17:19*	*1*
o-Terphenyl (Surr)	*119*		*65 - 130*	*02/07/22 18:25*	*02/08/22 17:19*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**867**		10.1		mg/Kg		02/08/22 20:33	02/09/22 05:55	1

Client Sample ID: HA-1 (1.5'-2')

Lab Sample ID: 820-3295-3
Matrix: Soil

Date Collected: 02/01/22 12:10
Date Received: 02/02/22 10:12
Sample Depth: 1.5' - 2'

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100		mg/Kg		02/07/22 09:25	02/07/22 13:33	1
Toluene	<0.00502	U	0.00502		mg/Kg		02/07/22 09:25	02/07/22 13:33	1
Ethylbenzene	<0.00100	U	0.00100		mg/Kg		02/07/22 09:25	02/07/22 13:33	1
m,p-Xylenes	<0.00201	U	0.00201		mg/Kg		02/07/22 09:25	02/07/22 13:33	1
o-Xylene	<0.00100	U	0.00100		mg/Kg		02/07/22 09:25	02/07/22 13:33	1
Xylenes, Total	<0.00201	U	0.00201		mg/Kg		02/07/22 09:25	02/07/22 13:33	1
MTBE	<0.00502	U	0.00502		mg/Kg		02/07/22 09:25	02/07/22 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*56 - 150*	*02/07/22 09:25*	*02/07/22 13:33*	*1*
4-Bromofluorobenzene (Surr)	*95*		*68 - 152*	*02/07/22 09:25*	*02/07/22 13:33*	*1*
Dibromofluoromethane (Surr)	*85*		*53 - 142*	*02/07/22 09:25*	*02/07/22 13:33*	*1*

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Client Sample ID: HA-1 (1.5'-2')

Lab Sample ID: 820-3295-3
Matrix: Soil

Date Collected: 02/01/22 12:10
Date Received: 02/02/22 10:12
Sample Depth: 1.5' - 2'

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		70 - 130	02/07/22 09:25	02/07/22 13:33	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00201	U	0.00201		mg/Kg			02/08/22 09:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.5	U	49.5		mg/Kg			02/08/22 17:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.5	U	49.5		mg/Kg		02/07/22 18:25	02/08/22 17:38	1
Diesel Range Organics (Over C10-C28)	<49.5	U	49.5		mg/Kg		02/07/22 18:25	02/08/22 17:38	1
OII Range Organics (Over C28-C36)	<49.5	U	49.5		mg/Kg		02/07/22 18:25	02/08/22 17:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	122		65 - 130	02/07/22 18:25	02/08/22 17:38	1
o-Terphenyl (Surr)	124		65 - 130	02/07/22 18:25	02/08/22 17:38	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**432**		10.2		mg/Kg		02/08/22 20:33	02/09/22 06:06	1

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Soil — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(56-150)	(68-152)	(53-142)	(70-130)
820-3295-1	HA-1 (0-.5')	109	102	104	93
820-3295-1 MS	HA-1 (0-.5')	93	109	101	95
820-3295-2	HA-1 (.5'-1')	93	106	91	97
820-3295-3	HA-1 (1.5'-2')	90	95	85	103
820-3295-3 MS	HA-1 (1.5'-2')	90	98	89	97

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

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

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(56-150)	(68-152)	(53-142)	(70-130)
LCS 860-40432/3	Lab Control Sample	93	100	95	97
LCS 860-40610/3	Lab Control Sample	102	105	93	94
LCSD 860-40432/4	Lab Control Sample Dup	95	99	93	97
LCSD 860-40610/4	Lab Control Sample Dup	100	105	94	93
MB 860-40432/8	Method Blank	91	102	91	103
MB 860-40610/8	Method Blank	103	103	99	94

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

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

Matrix: Soil — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(65-130)	(65-130)
820-3295-1	HA-1 (0-.5')	95	79
820-3295-2 - RA	HA-1 (.5'-1')	118	119
820-3295-3 - RA	HA-1 (1.5'-2')	122	124

Surrogate Legend

1CO = 1-Chlorooctane (Surr)
OTPH = o-Terphenyl (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(65-130)	(65-130)
820-3297-A-8-C MS	Matrix Spike	99	83

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Job ID: 820-3295-1
Project/Site: Superman Frac Ponds
SDG: AR227019

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

Matrix: Solid
Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)									
		1CO1	OTPH1								
Lab Sample ID	Client Sample ID	(65-130)	(65-130)								
820-3297-A-8-D MSD	Matrix Spike Duplicate	94	78								
LCS 860-40569/2-A	Lab Control Sample	100	85								
LCSD 860-40569/3-A	Lab Control Sample Dup	99	83								
MB 860-40569/1-A	Method Blank	98	81								

Surrogate Legend

1CO = 1-Chlorooctane (Surr)

OTPH = o-Terphenyl (Surr)

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: 820-3295-1 MS — **Client Sample ID: HA-1 (0-.5')**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 40610 — **Prep Batch: 40424**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.000990	U	0.0504	0.04617		mg/Kg		92	71 - 119
Toluene	<0.00495	U	0.0504	0.04568		mg/Kg		91	74 - 122
Ethylbenzene	<0.000990	U	0.0504	0.04732		mg/Kg		94	80 - 123
m,p-Xylenes	<0.00198	U	0.0504	0.04484		mg/Kg		89	78 - 127
o-Xylene	<0.000990	U	0.0504	0.04690		mg/Kg		93	79 - 125
MTBE	<0.00495	U	0.0504	0.05188		mg/Kg		103	64 - 148

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*93*		*56 - 150*
4-Bromofluorobenzene (Surr)	*109*		*68 - 152*
Dibromofluoromethane (Surr)	*101*		*53 - 142*
Toluene-d8 (Surr)	*95*		*70 - 130*

Lab Sample ID: 820-3295-3 MS — **Client Sample ID: HA-1 (1.5'-2')**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 40432 — **Prep Batch: 40424**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00100	U	0.0502	0.04042		mg/Kg		81	71 - 119
Toluene	<0.00502	U	0.0502	0.04258		mg/Kg		85	74 - 122
Ethylbenzene	<0.00100	U	0.0502	0.04742		mg/Kg		94	80 - 123
m,p-Xylenes	<0.00201	U	0.0502	0.04700		mg/Kg		94	78 - 127
o-Xylene	<0.00100	U	0.0502	0.04795		mg/Kg		96	79 - 125
MTBE	<0.00502	U	0.0502	0.03741		mg/Kg		75	64 - 148

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*90*		*56 - 150*
4-Bromofluorobenzene (Surr)	*98*		*68 - 152*
Dibromofluoromethane (Surr)	*89*		*53 - 142*
Toluene-d8 (Surr)	*97*		*70 - 130*

Lab Sample ID: MB 860-40432/8 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 40432

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100		mg/Kg			02/07/22 13:09	1
Toluene	<0.00500	U	0.00500		mg/Kg			02/07/22 13:09	1
Ethylbenzene	<0.00100	U	0.00100		mg/Kg			02/07/22 13:09	1
m,p-Xylenes	<0.00200	U	0.00200		mg/Kg			02/07/22 13:09	1
o-Xylene	<0.00100	U	0.00100		mg/Kg			02/07/22 13:09	1
Xylenes, Total	<0.00200	U	0.00200		mg/Kg			02/07/22 13:09	1
MTBE	<0.00500	U	0.00500		mg/Kg			02/07/22 13:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*56 - 150*		*02/07/22 13:09*	*1*
4-Bromofluorobenzene (Surr)	*102*		*68 - 152*		*02/07/22 13:09*	*1*

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 860-40432/8
Matrix: Solid
Analysis Batch: 40432

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	91		53 - 142		02/07/22 13:09	1
Toluene-d8 (Surr)	103		70 - 130		02/07/22 13:09	1

Lab Sample ID: LCS 860-40432/3
Matrix: Solid
Analysis Batch: 40432

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.04273		mg/Kg		85	66 - 142
Toluene	0.0500	0.04409		mg/Kg		88	74 - 130
Ethylbenzene	0.0500	0.04836		mg/Kg		97	80 - 130
m,p-Xylenes	0.0500	0.04829		mg/Kg		97	78 - 130
o-Xylene	0.0500	0.05106		mg/Kg		102	79 - 130
MTBE	0.0500	0.04312		mg/Kg		86	64 - 148

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		56 - 150
4-Bromofluorobenzene (Surr)	100		68 - 152
Dibromofluoromethane (Surr)	95		53 - 142
Toluene-d8 (Surr)	97		70 - 130

Lab Sample ID: LCSD 860-40432/4
Matrix: Solid
Analysis Batch: 40432

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0500	0.04303		mg/Kg		86	66 - 142	1	25
Toluene	0.0500	0.04422		mg/Kg		88	74 - 130	0	25
Ethylbenzene	0.0500	0.04881		mg/Kg		98	80 - 130	1	25
m,p-Xylenes	0.0500	0.04890		mg/Kg		98	78 - 130	1	25
o-Xylene	0.0500	0.05066		mg/Kg		101	79 - 130	1	25
MTBE	0.0500	0.04394		mg/Kg		88	64 - 148	2	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		56 - 150
4-Bromofluorobenzene (Surr)	99		68 - 152
Dibromofluoromethane (Surr)	93		53 - 142
Toluene-d8 (Surr)	97		70 - 130

Lab Sample ID: MB 860-40610/8
Matrix: Solid
Analysis Batch: 40610

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100		mg/Kg			02/08/22 12:07	1
Toluene	<0.00500	U	0.00500		mg/Kg			02/08/22 12:07	1
Ethylbenzene	<0.00100	U	0.00100		mg/Kg			02/08/22 12:07	1
m,p-Xylenes	<0.00200	U	0.00200		mg/Kg			02/08/22 12:07	1

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 860-40610/8
Matrix: Solid
Analysis Batch: 40610

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	<0.00100	U	0.00100		mg/Kg			02/08/22 12:07	1
Xylenes, Total	<0.00200	U	0.00200		mg/Kg			02/08/22 12:07	1
MTBE	<0.00500	U	0.00500		mg/Kg			02/08/22 12:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*56 - 150*		*02/08/22 12:07*	*1*
4-Bromofluorobenzene (Surr)	*103*		*68 - 152*		*02/08/22 12:07*	*1*
Dibromofluoromethane (Surr)	*99*		*53 - 142*		*02/08/22 12:07*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*02/08/22 12:07*	*1*

Lab Sample ID: LCS 860-40610/3
Matrix: Solid
Analysis Batch: 40610

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.04954		mg/Kg		99	66 - 142
Toluene	0.0500	0.04690		mg/Kg		94	74 - 130
Ethylbenzene	0.0500	0.05016		mg/Kg		100	80 - 130
m,p-Xylenes	0.0500	0.04629		mg/Kg		93	78 - 130
o-Xylene	0.0500	0.04977		mg/Kg		100	79 - 130
MTBE	0.0500	0.06090		mg/Kg		122	64 - 148

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*56 - 150*
4-Bromofluorobenzene (Surr)	*105*		*68 - 152*
Dibromofluoromethane (Surr)	*93*		*53 - 142*
Toluene-d8 (Surr)	*94*		*70 - 130*

Lab Sample ID: LCSD 860-40610/4
Matrix: Solid
Analysis Batch: 40610

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0500	0.05170		mg/Kg		103	66 - 142	4	25
Toluene	0.0500	0.04915		mg/Kg		98	74 - 130	5	25
Ethylbenzene	0.0500	0.05128		mg/Kg		103	80 - 130	2	25
m,p-Xylenes	0.0500	0.04814		mg/Kg		96	78 - 130	4	25
o-Xylene	0.0500	0.05125		mg/Kg		103	79 - 130	3	25
MTBE	0.0500	0.05721		mg/Kg		114	64 - 148	6	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*56 - 150*
4-Bromofluorobenzene (Surr)	*105*		*68 - 152*
Dibromofluoromethane (Surr)	*94*		*53 - 142*
Toluene-d8 (Surr)	*93*		*70 - 130*

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

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

Lab Sample ID: MB 860-40569/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 40453 — **Prep Batch: 40569**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		02/07/22 18:25	02/07/22 19:13	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/07/22 18:25	02/07/22 19:13	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/07/22 18:25	02/07/22 19:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane (Surr)	*98*		*65 - 130*	*02/07/22 18:25*	*02/07/22 19:13*	*1*
o-Terphenyl (Surr)	*81*		*65 - 130*	*02/07/22 18:25*	*02/07/22 19:13*	*1*

Lab Sample ID: LCS 860-40569/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 40453 — **Prep Batch: 40569**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	994	1053		mg/Kg		106	70 - 135
Diesel Range Organics (Over C10-C28)	996	939.6		mg/Kg		94	70 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane (Surr)	*100*		*65 - 130*
o-Terphenyl (Surr)	*85*		*65 - 130*

Lab Sample ID: LCSD 860-40569/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 40453 — **Prep Batch: 40569**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	994	1054		mg/Kg		106	70 - 135	0	35
Diesel Range Organics (Over C10-C28)	996	950.9		mg/Kg		95	70 - 135	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane (Surr)	*99*		*65 - 130*
o-Terphenyl (Surr)	*83*		*65 - 130*

Lab Sample ID: 820-3297-A-8-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 40453 — **Prep Batch: 40569**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	994	1063		mg/Kg		107	70 - 135
Diesel Range Organics (Over C10-C28)	<49.6	U	996	967.1		mg/Kg		97	70 - 135

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

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

Lab Sample ID: 820-3297-A-8-C MS
Matrix: Solid
Analysis Batch: 40453

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 40569

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane (Surr)	99		65 - 130
o-Terphenyl (Surr)	83		65 - 130

Lab Sample ID: 820-3297-A-8-D MSD
Matrix: Solid
Analysis Batch: 40453

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 40569

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	996	1022		mg/Kg		103	70 - 135	4	35
Diesel Range Organics (Over C10-C28)	<49.6	U	998	936.2		mg/Kg		94	70 - 135	3	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane (Surr)	94		65 - 130
o-Terphenyl (Surr)	78		65 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 860-40750/1-A
Matrix: Solid
Analysis Batch: 40597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 40750

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<10.0	U	10.0		mg/Kg		02/08/22 20:33	02/08/22 23:52	1

Lab Sample ID: LCS 860-40750/2-A
Matrix: Solid
Analysis Batch: 40597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 40750

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	98.76		mg/Kg		99	80 - 120

Lab Sample ID: LCSD 860-40750/3-A
Matrix: Solid
Analysis Batch: 40597

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 40750

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	98.12		mg/Kg		98	80 - 120	1	20

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

GC/MS VOA

Prep Batch: 40424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-1	HA-1 (0-.5')	Total/NA	Soil	5035	
820-3295-3	HA-1 (1.5'-2')	Total/NA	Soil	5035	
820-3295-1 MS	HA-1 (0-.5')	Total/NA	Soil	5035	
820-3295-3 MS	HA-1 (1.5'-2')	Total/NA	Soil	5035	

Analysis Batch: 40432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-3	HA-1 (1.5'-2')	Total/NA	Soil	8260C	40424
MB 860-40432/8	Method Blank	Total/NA	Solid	8260C	
LCS 860-40432/3	Lab Control Sample	Total/NA	Solid	8260C	
LCSD 860-40432/4	Lab Control Sample Dup	Total/NA	Solid	8260C	
820-3295-3 MS	HA-1 (1.5'-2')	Total/NA	Soil	8260C	40424

Analysis Batch: 40610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-1	HA-1 (0-.5')	Total/NA	Soil	8260C	40424
820-3295-2	HA-1 (.5'-1')	Total/NA	Soil	8260C	40647
MB 860-40610/8	Method Blank	Total/NA	Solid	8260C	
LCS 860-40610/3	Lab Control Sample	Total/NA	Solid	8260C	
LCSD 860-40610/4	Lab Control Sample Dup	Total/NA	Solid	8260C	
820-3295-1 MS	HA-1 (0-.5')	Total/NA	Soil	8260C	40424

Analysis Batch: 40623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-3	HA-1 (1.5'-2')	Total/NA	Soil	Total BTEX	

Prep Batch: 40647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-2	HA-1 (.5'-1')	Total/NA	Soil	5035	

Analysis Batch: 40702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-1	HA-1 (0-.5')	Total/NA	Soil	Total BTEX	
820-3295-2	HA-1 (.5'-1')	Total/NA	Soil	Total BTEX	

GC Semi VOA

Analysis Batch: 37733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-1	HA-1 (0-.5')	Total/NA	Soil	8015 NM	
820-3295-2	HA-1 (.5'-1')	Total/NA	Soil	8015 NM	
820-3295-3	HA-1 (1.5'-2')	Total/NA	Soil	8015 NM	

Analysis Batch: 40453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-1	HA-1 (0-.5')	Total/NA	Soil	8015B NM	40569
MB 860-40569/1-A	Method Blank	Total/NA	Solid	8015B NM	40569
LCS 860-40569/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	40569
LCSD 860-40569/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	40569
820-3297-A-8-C MS	Matrix Spike	Total/NA	Solid	8015B NM	40569
820-3297-A-8-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	40569

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

GC Semi VOA

Prep Batch: 40569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-1	HA-1 (0-.5')	Total/NA	Soil	8015NM Prep	
820-3295-2 - RA	HA-1 (.5'-1')	Total/NA	Soil	8015NM Prep	
820-3295-3 - RA	HA-1 (1.5'-2')	Total/NA	Soil	8015NM Prep	
MB 860-40569/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 860-40569/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 860-40569/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
820-3297-A-8-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
820-3297-A-8-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 40619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-2 - RA	HA-1 (.5'-1')	Total/NA	Soil	8015B NM	40569
820-3295-3 - RA	HA-1 (1.5'-2')	Total/NA	Soil	8015B NM	40569

HPLC/IC

Analysis Batch: 40597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-1	HA-1 (0-.5')	Total/NA	Soil	300.0	40750
820-3295-2	HA-1 (.5'-1')	Total/NA	Soil	300.0	40750
820-3295-3	HA-1 (1.5'-2')	Total/NA	Soil	300.0	40750
MB 860-40750/1-A	Method Blank	Total/NA	Solid	300.0	40750
LCS 860-40750/2-A	Lab Control Sample	Total/NA	Solid	300.0	40750
LCSD 860-40750/3-A	Lab Control Sample Dup	Total/NA	Solid	300.0	40750

Prep Batch: 40750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-3295-1	HA-1 (0-.5')	Total/NA	Soil	300_Prep	
820-3295-2	HA-1 (.5'-1')	Total/NA	Soil	300_Prep	
820-3295-3	HA-1 (1.5'-2')	Total/NA	Soil	300_Prep	
MB 860-40750/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 860-40750/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
LCSD 860-40750/3-A	Lab Control Sample Dup	Total/NA	Solid	300_Prep	

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Client Sample ID: HA-1 (0-.5')

Lab Sample ID: 820-3295-1
Date Collected: 02/01/22 12:00
Matrix: Soil
Date Received: 02/02/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	40424	02/07/22 09:25	CSP	XEN STF
Total/NA	Analysis	8260C		1	5 mL	5 mL	40610	02/08/22 12:28	CSP	XEN STF
Total/NA	Analysis	Total BTEX		1			40702	02/08/22 14:41	CSP	XEN STF
Total/NA	Analysis	8015 NM		1			37733	02/08/22 17:33	DD	XEN STF
Total/NA	Prep	8015NM Prep			9.96 g	10 mL	40569	02/07/22 18:25	SAR	XEN STF
Total/NA	Analysis	8015B NM		1			40453	02/07/22 21:33	T1S	XEN STF
Total/NA	Prep	300_Prep			5.02 g	50 mL	40750	02/08/22 20:33	ANP	XEN STF
Total/NA	Analysis	300.0		1			40597	02/09/22 05:43	ANP	XEN STF

Client Sample ID: HA-1 (.5'-1')

Lab Sample ID: 820-3295-2
Date Collected: 02/01/22 12:05
Matrix: Soil
Date Received: 02/02/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	40647	02/08/22 10:45	KLV	XEN STF
Total/NA	Analysis	8260C		1	5 mL	5 mL	40610	02/08/22 13:51	CSP	XEN STF
Total/NA	Analysis	Total BTEX		1			40702	02/08/22 14:41	CSP	XEN STF
Total/NA	Analysis	8015 NM		1			37733	02/08/22 17:33	DD	XEN STF
Total/NA	Prep	8015NM Prep	RA		10.17 g	10 mL	40569	02/07/22 18:25	SAR	XEN STF
Total/NA	Analysis	8015B NM	RA	1			40619	02/08/22 17:19	T1S	XEN STF
Total/NA	Prep	300_Prep			4.97 g	50 mL	40750	02/08/22 20:33	ANP	XEN STF
Total/NA	Analysis	300.0		1			40597	02/09/22 05:55	ANP	XEN STF

Client Sample ID: HA-1 (1.5'-2')

Lab Sample ID: 820-3295-3
Date Collected: 02/01/22 12:10
Matrix: Soil
Date Received: 02/02/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	40424	02/07/22 09:25	CSP	XEN STF
Total/NA	Analysis	8260C		1	5 mL	5 mL	40432	02/07/22 13:33	CSP	XEN STF
Total/NA	Analysis	Total BTEX		1			40623	02/08/22 09:25	EM	XEN STF
Total/NA	Analysis	8015 NM		1			37733	02/08/22 17:33	DD	XEN STF
Total/NA	Prep	8015NM Prep	RA		10.11 g	10 mL	40569	02/07/22 18:25	SAR	XEN STF
Total/NA	Analysis	8015B NM	RA	1			40619	02/08/22 17:38	T1S	XEN STF
Total/NA	Prep	300_Prep			4.90 g	50 mL	40750	02/08/22 20:33	ANP	XEN STF
Total/NA	Analysis	300.0		1			40597	02/09/22 06:06	ANP	XEN STF

Laboratory References:

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Accreditation/Certification Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Laboratory: Eurofins Houston

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704215-21-44	06-30-22

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Soil	Total TPH
8015B NM	8015NM Prep	Soil	Diesel Range Organics (Over C10-C28)
8015B NM	8015NM Prep	Soil	Gasoline Range Organics (GRO)-C6-C10
8015B NM	8015NM Prep	Soil	Oil Range Organics (Over C28-C36)
Total BTEX		Soil	Total BTEX

Method Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	XEN STF
Total BTEX	Total BTEX Calculation	TAL SOP	XEN STF
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN STF
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN STF
300.0	Anions, Ion Chromatography	MCAWW	XEN STF
300_Prep	Anions, Ion Chromatography, 10% Wt/Vol	MCAWW	XEN STF
5035	Closed System Purge and Trap	SW846	XEN STF
8015NM Prep	Microextraction	SW846	XEN STF

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-3295-1
SDG: AR227019

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
820-3295-1	HA-1 (0-.5')	Soil	02/01/22 12:00	02/02/22 10:12	0 - .5'
820-3295-2	HA-1 (.5'-1')	Soil	02/01/22 12:05	02/02/22 10:12	.5' - 1'
820-3295-3	HA-1 (1.5'-2')	Soil	02/01/22 12:10	02/02/22 10:12	1.5' - 2'

Loc: 820
3295

820-3295 Chain of Custody

CHAIN OF C

Terracon

Laboratory: Xenco Laboratories
Address: 6701 Aberdeen Avenue, Suite 9
Lubbock, TX 79424

Phone: (806) 794-1296
Contact:
PO/SO #:

Office Location Lubbock

Project Manager: J. Guesnier

Sampler's Name: Aaron Adams

Sampler's Signature

Project Number: AR227019

Project Name: Superman Frac Ponds

ANALYSIS REQUESTED

DUE DATE:

TEMP OF COOLER WHEN RECEIVED (°C) -13 / -13.1

Page 1 of 1

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No. Type of Containers: 4 oz Glass				Chloride (EPA Method 300)	BTEX/MTBE (EPA Method 8260B)	TPH 8015 extended					Lab Sample ID
S	02/01/22	12:00		X	HA-1 (0-.5')	0	.5'	1				X	X	X					
S	02/01/22	12:05		X	HA-1 (.5'-1')	.5'	1'	1				X	X	X					
S	02/01/22	12:10		X	HA-1 (1.5'-2')	1.5'	2'	1				X	X	X					

TURNAROUND TIME ☒ Normal ☐ 48-Hour Rush ☐ 24-Hour Rush

TRRP Laboratory Review Checklist ☐ Yes ☐ No

Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
	2-2-2022	8:55am		2-2-22	8:55am
	2-2-22	10:12	Ashley J. Ruggler	2/2/22	10:12

NOTES:

E-MAIL RESULTS TO:
1. ERIN.LOYD@TERRACON.COM
2. JRGUESNIER@TERRACON.COM

Matrix: WW-Wastewater, W - Water, S - Soil, L - Liquid, A - Air Bag, C - Charcoal tube, SL - Sludge

Container: VOA - 40 ml vial, A/G - Amber Glass 1L, 250 ml = Glass wide mouth, P/O - Plastic or other _____

Eurofins Lubbock
6701 Aberdeen Ave. Suite 8
Lubbock, TX 79424
Phone: 806-794-1296

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer Jessica	Carrier Tracking No(s):	COC No: 820-3083.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jessica.kramer@eurofinset.com	State of Origin: Texas	Page: Page 1 of 1
Company: Eurofins Environment Testing South Centr		Accreditations Required (See note): NELAP Texas		Job #: 820-3295-1
Address: 4145 Greenbriar Dr	Due Date Requested: 2/8/2022			
City: Stafford	TAT Requested (days):			
State, Zip: TX, 77477				
Phone: 281-240-4200(Tel)	PO #:			
Email:	WO #:			
Project Name: Superman Frac Ponds	Project #: 82000340			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Z other (specify)
Other

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	8015MOD_NM/8015NM_S_Prep (MOD) Full TPH	8015MOD_Calc	300_ORGFM_28D/300_Prep Chloride	Total_BTEX	8260C/5035FP_Calc BTEX and MTBE	Special Instructions/Note:
HA-1 (0-.5') (820-3295-1)	2/1/22	12:00 Central		Solid		X	X	X	X	X	
HA-1 (.5'-1') (820-3295-2)	2/1/22	12:05 Central		Solid		X	X	X	X	X	
HA-1 (1.5'-2') (820-3295-3)	2/1/22	12:10 Central		Solid		X	X	X	X	X	

Temp C/F -0 1 1.4 IR ID:HOU-223
Corrected Temp: 1.3

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I II III, IV Other (specify) Primary Deliverable Rank. 2	Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Ashley Kuegler	2/4/22 1700		FedEx		
FedEx				2/5/2022 11 19	EX

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks:

Ver 06/08/2021

Eurofins Lubbock
6701 Aberdeen Ave. Suite 8
Lubbock, TX 79424
Phone: 806-794-1296

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kramer, Jessica	Carrier Tracking No(s):	COC No: 820-3084.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jessica.kramer@eurofinset.com	State of Origin: Texas	Page: Page 1 of 1
Company: Eurofins Environment Testing South Centr		Accreditations Required (See note): NELAP Texas		Job #: 820-3296-1
Address: 4145 Greenbriar Dr	Due Date Requested: 2/8/2022			
City: Stafford	TAT Requested (days):			
State, Zip: TX, 77477				
Phone: 281-240-4200(Tel)	PO #:			
Email:	WO #:			
Project Name: Noose Federal #10H	Project #: 82000340			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Z other (specify)

Other:

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	8015MOD_NM/8015NM_S_Prep (MOD) Full TPH	8015MOD_Calc	300_ORGFM_28D/300_Prep Chloride	8260C/5035FP_Calc (MOD) BTEX	Total_BTEX	Special Instructions/Note:
S-2 (0-0.5) (820-3296-1)	2/1/22	12:30 Central		Solid	X	X	X	X	X	
S-2 (0.5-1) (820-3296-2)	2/1/22	12:35 Central		Solid	X	X	X	X	X	
S-2 (2.5-2) (820-3296-3)	2/1/22	12:40 Central		Solid	X	X	X	X	X	
S-3 (1.5-2) (820-3296-4)	2/1/22	12:45 Central		Solid	X	X	X	X	X	
S-4 (2.5-3) (820-3296-5)	2/1/22	12:50 Central		Solid	X	X	X	X	X	
S-5 (1 5-2) (820-3296-6)	2/1/22	12:55 Central		Solid	X	X	X	X	X	

Temp: 1.4 IR ID HOU-223
C/F: -0 1
Corrected Temp: 1.3

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification *Unconfirmed*			***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*		
Deliverable Requested: I II, III, IV Other (specify)	Primary Deliverable Rank: 2		Special Instructions/QC Requirements:		
Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by: Ashley Y Ruggles	Date/Time: 2/4/22 17 00	Company	Received by: FedEx	Date/Time:	Company
Relinquished by: FedEx	Date/Time:	Company	Received by:	Date/Time: 2/5/2022 11 19	Company EX
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.		Cooler Temperature(s) °C and Other Remarks:		

Ver 06/08/2021

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-3295-1
SDG Number: AR227019

Login Number: 3295
List Number: 1
Creator: Ruggles, Ashley

List Source: Eurofins Lubbock

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

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-3295-1
SDG Number: AR227019

Login Number: 3295
List Number: 2
Creator: Milone, Jeancarlo

List Source: Eurofins Houston
List Creation: 02/05/22 12:30 PM

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

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ANALYTICAL REPORT

PREPARED FOR

Attn: Joseph Guesnier
Terracon Consulting Eng & Scientists
5847 50th St
Lubbock, Texas 79424

Generated 6/16/2023 12:01:29 PM Revision 1

JOB DESCRIPTION

Superman Frac Ponds
SDG NUMBER AR227019

JOB NUMBER

820-7012-1

Eurofins Lubbock
6701 Aberdeen Ave.
Suite 8
Lubbock TX 79424

See page two for job notes and contact information.

Eurofins Lubbock

Job Notes

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

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

JKRAMER

Generated
6/16/2023 12:01:29 PM
Revision 1

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

Eurofins Lubbock

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD,and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments. QC data that exceed the upper limits and are associated with non-detect samples are qualified but no further narration is needed since the bias is high and does not change a non-detect result. Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Coliform MCLs
· Based on the EPA primary drinking water standard MCL for total coliforms, a water supply is considered bacteriologically "SAFE" if no coliform bacteria are detected. To be considered "SAFE" your report should indicate "<1 cfu/100mL" or "NEG" for the coliform test. If you report indicates a positive result "POS" or a value greater than or equal to one, then your supply is "UNSAFE FOR DRINKING" contact your local health department.

Warranties, Terms, and Conditions
· Analyses for Field Parameters are performed by Eurofins Philadelphia field staff. Locations and certifications are identified on the Chain of Custody as follows:

ERF = field staff performs tests under NJ State certification #02015
VL = field staff performs tests under NJ State certification #06005
WG = field staff performs tests under NJ State certification #PA001
H = field staff performs tests under NJ NELAP certification #PA093, PA NELAP certification # 46-05499

· Test results meet all TNI or other applicable regulatory agency requirements, including holding times and preservation, unless otherwise indicated.

· The report shall not be reproduced, except in full, without the written consent of the laboratory

· All samples are collected as "grab" samples unless otherwise identified.

· Reported results related only to the samples as tested. Eurofins Philadelphia is not responsible for sample integrity unless sampling has been performed by a member of our staff.

· Eurofins Philadelphia is not responsible for sampling and/or testing omissions. Note that regulatory authorities may assess substantial fines for testing omissions. Please track your sample collection schedules and results on a regular basis (e.g. weekly, monthly, or quarterly) to ensure compliance.

· Eurofins' online data portal "TotalAccess" will provide you with real-time access to collection dates and testing results. Please contact Client Services for further information.

· The following personnel or their deputies have approved the results of the tests performed by Eurofins Philadelphia : Nicki Smith (Environmental Chemistry) and Jacqueline Gartner (Water Microbiology).

JKRAMER

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Definitions/Glossary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

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

Case Narrative

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Job ID: 820-7012-1

Laboratory: Eurofins Lubbock

Narrative

Job Narrative
820-7012-1

REVISION

The report being provided is a revision of the original report sent on 1/9/2023. The report (revision 1) is being revised due to Per client email, requesting CS-1 (0-0.5) be removed from report. This was not supposed to be ran.

Receipt
The samples were received on 1/5/2023 4:44 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C

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

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-43343 and analytical batch 880-43315 was outside the upper control limits.

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-43380 and analytical batch 880-43416 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Client Sample ID: NS-1 (0-0.5)

Lab Sample ID: 820-7012-1
Matrix: Soil

Date Collected: 01/03/23 08:00
Date Received: 01/05/23 16:44

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		01/06/23 16:33	01/09/23 11:32	1
Toluene	<0.00201	U	0.00201		mg/Kg		01/06/23 16:33	01/09/23 11:32	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		01/06/23 16:33	01/09/23 11:32	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		01/06/23 16:33	01/09/23 11:32	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		01/06/23 16:33	01/09/23 11:32	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		01/06/23 16:33	01/09/23 11:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*	*01/06/23 16:33*	*01/09/23 11:32*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*01/06/23 16:33*	*01/09/23 11:32*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			01/09/23 14:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			01/09/23 11:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 16:54	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 16:54	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 16:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*01/06/23 08:58*	*01/06/23 16:54*	*1*
o-Terphenyl	*113*		*70 - 130*	*01/06/23 08:58*	*01/06/23 16:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**256**	**F1**	5.02		mg/Kg			01/06/23 18:57	1

Client Sample ID: WS-1 (0-0.5)

Lab Sample ID: 820-7012-2
Matrix: Soil

Date Collected: 01/03/23 08:05
Date Received: 01/05/23 16:44

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 11:52	1
Toluene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 11:52	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 11:52	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		01/06/23 16:33	01/09/23 11:52	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 11:52	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		01/06/23 16:33	01/09/23 11:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*	*01/06/23 16:33*	*01/09/23 11:52*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*	*01/06/23 16:33*	*01/09/23 11:52*	*1*

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Client Sample ID: WS-1 (0-0.5)

Lab Sample ID: 820-7012-2
Matrix: Soil

Date Collected: 01/03/23 08:05
Date Received: 01/05/23 16:44

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			01/09/23 14:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			01/09/23 11:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 17:16	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 17:16	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*01/06/23 08:58*	*01/06/23 17:16*	*1*
o-Terphenyl	*107*		*70 - 130*	*01/06/23 08:58*	*01/06/23 17:16*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**237**		4.97		mg/Kg			01/06/23 19:15	1

Client Sample ID: ES-1 (0-0.5)

Lab Sample ID: 820-7012-3
Matrix: Soil

Date Collected: 01/03/23 08:10
Date Received: 01/05/23 16:44

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 12:13	1
Toluene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 12:13	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 12:13	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		01/06/23 16:33	01/09/23 12:13	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 12:13	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		01/06/23 16:33	01/09/23 12:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*01/06/23 16:33*	*01/09/23 12:13*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*	*01/06/23 16:33*	*01/09/23 12:13*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			01/09/23 14:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			01/09/23 11:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 17:38	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 17:38	1

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Client Sample ID: ES-1 (0-0.5)

Lab Sample ID: 820-7012-3
Date Collected: 01/03/23 08:10
Matrix: Soil
Date Received: 01/05/23 16:44

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 17:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*101*		*70 - 130*	*01/06/23 08:58*	*01/06/23 17:38*	*1*
o-Terphenyl	*111*		*70 - 130*	*01/06/23 08:58*	*01/06/23 17:38*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**253**		4.99		mg/Kg			01/06/23 19:21	1

Client Sample ID: SS-1 (0-0.5)

Lab Sample ID: 820-7012-4
Date Collected: 01/03/23 08:15
Matrix: Soil
Date Received: 01/05/23 16:44

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		01/06/23 16:33	01/09/23 12:33	1
Toluene	<0.00200	U	0.00200		mg/Kg		01/06/23 16:33	01/09/23 12:33	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		01/06/23 16:33	01/09/23 12:33	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		01/06/23 16:33	01/09/23 12:33	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		01/06/23 16:33	01/09/23 12:33	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		01/06/23 16:33	01/09/23 12:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*01/06/23 16:33*	*01/09/23 12:33*	*1*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*	*01/06/23 16:33*	*01/09/23 12:33*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399		mg/Kg			01/09/23 14:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			01/09/23 11:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		01/06/23 08:58	01/06/23 17:59	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		01/06/23 08:58	01/06/23 17:59	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		01/06/23 08:58	01/06/23 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*01/06/23 08:58*	*01/06/23 17:59*	*1*
o-Terphenyl	*113*		*70 - 130*	*01/06/23 08:58*	*01/06/23 17:59*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**276**		5.05		mg/Kg			01/06/23 19:28	1

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Client Sample ID: CS-1 (1.5-2)

Date Collected: 01/03/23 08:20
Date Received: 01/05/23 16:44

Lab Sample ID: 820-7012-6

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 13:14	1
Toluene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 13:14	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 13:14	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		01/06/23 16:33	01/09/23 13:14	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		01/06/23 16:33	01/09/23 13:14	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		01/06/23 16:33	01/09/23 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*	*01/06/23 16:33*	*01/09/23 13:14*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*01/06/23 16:33*	*01/09/23 13:14*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			01/09/23 14:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**75.4**		50.0		mg/Kg			01/09/23 11:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 18:42	1
Diesel Range Organics (Over C10-C28)	**75.4**		50.0		mg/Kg		01/06/23 08:58	01/06/23 18:42	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		01/06/23 08:58	01/06/23 18:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*98*		*70 - 130*	*01/06/23 08:58*	*01/06/23 18:42*	*1*
o-Terphenyl	*109*		*70 - 130*	*01/06/23 08:58*	*01/06/23 18:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**279**		25.0		mg/Kg			01/06/23 19:52	5

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
820-7012-1	NS-1 (0-0.5)	88	95
820-7012-2	WS-1 (0-0.5)	97	97
820-7012-3	ES-1 (0-0.5)	96	87
820-7012-4	SS-1 (0-0.5)	96	92
820-7012-6	CS-1 (1.5-2)	94	93

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
820-7012-1	NS-1 (0-0.5)	104	113
820-7012-2	WS-1 (0-0.5)	99	107
820-7012-3	ES-1 (0-0.5)	101	111
820-7012-4	SS-1 (0-0.5)	108	113
820-7012-6	CS-1 (1.5-2)	98	109

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-43439/5-A
Matrix: Solid
Analysis Batch: 43469

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 43439

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		01/06/23 16:33	01/09/23 11:10	1
Toluene	<0.00200	U	0.00200		mg/Kg		01/06/23 16:33	01/09/23 11:10	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		01/06/23 16:33	01/09/23 11:10	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		01/06/23 16:33	01/09/23 11:10	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		01/06/23 16:33	01/09/23 11:10	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		01/06/23 16:33	01/09/23 11:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*	*01/06/23 16:33*	*01/09/23 11:10*	*1*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*	*01/06/23 16:33*	*01/09/23 11:10*	*1*

Lab Sample ID: LCS 880-43439/1-A
Matrix: Solid
Analysis Batch: 43469

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 43439

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1002		mg/Kg		100	70 - 130
Toluene	0.100	0.1030		mg/Kg		103	70 - 130
Ethylbenzene	0.100	0.08917		mg/Kg		89	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.1033		mg/Kg		103	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 880-43439/2-A
Matrix: Solid
Analysis Batch: 43469

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 43439

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09637		mg/Kg		96	70 - 130	4	35
Toluene	0.100	0.1021		mg/Kg		102	70 - 130	1	35
Ethylbenzene	0.100	0.09727		mg/Kg		97	70 - 130	9	35
m-Xylene & p-Xylene	0.200	0.2121		mg/Kg		106	70 - 130	12	35
o-Xylene	0.100	0.1167		mg/Kg		117	70 - 130	12	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: 820-7012-1 MS
Matrix: Soil
Analysis Batch: 43469

Client Sample ID: NS-1 (0-0.5)
Prep Type: Total/NA
Prep Batch: 43439

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.100	0.08667		mg/Kg		87	70 - 130
Toluene	<0.00201	U	0.100	0.08297		mg/Kg		83	70 - 130

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

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

Lab Sample ID: 820-7012-1 MS — **Client Sample ID: NS-1 (0-0.5)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 43469 — **Prep Batch: 43439**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.100	0.07032		mg/Kg		70	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1435		mg/Kg		72	70 - 130
o-Xylene	<0.00201	U	0.100	0.07855		mg/Kg		78	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

Lab Sample ID: 820-7012-1 MSD — **Client Sample ID: NS-1 (0-0.5)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 43469 — **Prep Batch: 43439**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0998	0.08281		mg/Kg		83	70 - 130	5	35
Toluene	<0.00201	U	0.0998	0.08463		mg/Kg		85	70 - 130	2	35
Ethylbenzene	<0.00201	U	0.0998	0.07402		mg/Kg		74	70 - 130	5	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1517		mg/Kg		76	70 - 130	6	35
o-Xylene	<0.00201	U	0.0998	0.08272		mg/Kg		83	70 - 130	5	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

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

Lab Sample ID: MB 880-43343/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 43315 — **Prep Batch: 43343**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		01/06/23 08:18	01/06/23 08:29	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		01/06/23 08:18	01/06/23 08:29	1
OIl Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		01/06/23 08:18	01/06/23 08:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*150*	*S1+*	*70 - 130*	*01/06/23 08:18*	*01/06/23 08:29*	*1*
o-Terphenyl	*137*	*S1+*	*70 - 130*	*01/06/23 08:18*	*01/06/23 08:29*	*1*

Lab Sample ID: LCS 880-43343/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 43315 — **Prep Batch: 43343**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1055		mg/Kg		106	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1009		mg/Kg		101	70 - 130

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

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

Lab Sample ID: LCS 880-43343/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 43315 — **Prep Batch: 43343**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	128		70 - 130
o-Terphenyl	117		70 - 130

Lab Sample ID: LCSD 880-43343/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 43315 — **Prep Batch: 43343**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	994.1		mg/Kg		99	70 - 130	6	20
Diesel Range Organics (Over C10-C28)			1000	1020		mg/Kg		102	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	125		70 - 130
o-Terphenyl	123		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-43380/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 43416

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			01/06/23 18:38	1

Lab Sample ID: LCS 880-43380/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 43416

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	243.3		mg/Kg		97	90 - 110		

Lab Sample ID: LCSD 880-43380/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 43416

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	253.3		mg/Kg		101	90 - 110	4	20

Lab Sample ID: 820-7012-1 MS — **Client Sample ID: NS-1 (0-0.5)**
Matrix: Soil — **Prep Type: Soluble**
Analysis Batch: 43416

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	256	F1	251	558.7	F1	mg/Kg		120	90 - 110		

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 820-7012-1 MSD
Matrix: Soil
Analysis Batch: 43416

Client Sample ID: NS-1 (0-0.5)
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	256	F1	251	527.5		mg/Kg		108	90 - 110	6	20

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

GC VOA

Prep Batch: 43439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-7012-1	NS-1 (0-0.5)	Total/NA	Soil	5035	
820-7012-2	WS-1 (0-0.5)	Total/NA	Soil	5035	
820-7012-3	ES-1 (0-0.5)	Total/NA	Soil	5035	
820-7012-4	SS-1 (0-0.5)	Total/NA	Soil	5035	
820-7012-6	CS-1 (1.5-2)	Total/NA	Soil	5035	

Analysis Batch: 43469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-7012-1	NS-1 (0-0.5)	Total/NA	Soil	8021B	43439
820-7012-2	WS-1 (0-0.5)	Total/NA	Soil	8021B	43439
820-7012-3	ES-1 (0-0.5)	Total/NA	Soil	8021B	43439
820-7012-4	SS-1 (0-0.5)	Total/NA	Soil	8021B	43439
820-7012-6	CS-1 (1.5-2)	Total/NA	Soil	8021B	43439

Analysis Batch: 43557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-7012-1	NS-1 (0-0.5)	Total/NA	Soil	Total BTEX	
820-7012-2	WS-1 (0-0.5)	Total/NA	Soil	Total BTEX	
820-7012-3	ES-1 (0-0.5)	Total/NA	Soil	Total BTEX	
820-7012-4	SS-1 (0-0.5)	Total/NA	Soil	Total BTEX	
820-7012-6	CS-1 (1.5-2)	Total/NA	Soil	Total BTEX	

GC Semi VOA

Analysis Batch: 43315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-7012-1	NS-1 (0-0.5)	Total/NA	Soil	8015B NM	43343
820-7012-2	WS-1 (0-0.5)	Total/NA	Soil	8015B NM	43343
820-7012-3	ES-1 (0-0.5)	Total/NA	Soil	8015B NM	43343
820-7012-4	SS-1 (0-0.5)	Total/NA	Soil	8015B NM	43343
820-7012-6	CS-1 (1.5-2)	Total/NA	Soil	8015B NM	43343

Prep Batch: 43343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-7012-1	NS-1 (0-0.5)	Total/NA	Soil	8015NM Prep	
820-7012-2	WS-1 (0-0.5)	Total/NA	Soil	8015NM Prep	
820-7012-3	ES-1 (0-0.5)	Total/NA	Soil	8015NM Prep	
820-7012-4	SS-1 (0-0.5)	Total/NA	Soil	8015NM Prep	
820-7012-6	CS-1 (1.5-2)	Total/NA	Soil	8015NM Prep	

Analysis Batch: 43521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-7012-1	NS-1 (0-0.5)	Total/NA	Soil	8015 NM	
820-7012-2	WS-1 (0-0.5)	Total/NA	Soil	8015 NM	
820-7012-3	ES-1 (0-0.5)	Total/NA	Soil	8015 NM	
820-7012-4	SS-1 (0-0.5)	Total/NA	Soil	8015 NM	
820-7012-6	CS-1 (1.5-2)	Total/NA	Soil	8015 NM	

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

HPLC/IC

Leach Batch: 43380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-7012-1	NS-1 (0-0.5)	Soluble	Soil	DI Leach	
820-7012-2	WS-1 (0-0.5)	Soluble	Soil	DI Leach	
820-7012-3	ES-1 (0-0.5)	Soluble	Soil	DI Leach	
820-7012-4	SS-1 (0-0.5)	Soluble	Soil	DI Leach	
820-7012-6	CS-1 (1.5-2)	Soluble	Soil	DI Leach	

Analysis Batch: 43416

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-7012-1	NS-1 (0-0.5)	Soluble	Soil	300.0	43380
820-7012-2	WS-1 (0-0.5)	Soluble	Soil	300.0	43380
820-7012-3	ES-1 (0-0.5)	Soluble	Soil	300.0	43380
820-7012-4	SS-1 (0-0.5)	Soluble	Soil	300.0	43380
820-7012-6	CS-1 (1.5-2)	Soluble	Soil	300.0	43380

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Client Sample ID: NS-1 (0-0.5)
Date Collected: 01/03/23 08:00
Date Received: 01/05/23 16:44

Lab Sample ID: 820-7012-1
Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	43439	01/06/23 16:33	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	43469	01/09/23 11:32	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			43557	01/09/23 14:22	AJ	EET MID
Total/NA	Analysis	8015 NM		1			43521	01/09/23 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	43343	01/06/23 08:58	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	43315	01/06/23 16:54	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	43380	01/06/23 12:44	KS	EET MID
Soluble	Analysis	300.0		1			43416	01/06/23 18:57	CH	EET MID

Client Sample ID: WS-1 (0-0.5)
Date Collected: 01/03/23 08:05
Date Received: 01/05/23 16:44

Lab Sample ID: 820-7012-2
Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	43439	01/06/23 16:33	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	43469	01/09/23 11:52	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			43557	01/09/23 14:22	AJ	EET MID
Total/NA	Analysis	8015 NM		1			43521	01/09/23 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	43343	01/06/23 08:58	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	43315	01/06/23 17:16	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	43380	01/06/23 12:44	KS	EET MID
Soluble	Analysis	300.0		1			43416	01/06/23 19:15	CH	EET MID

Client Sample ID: ES-1 (0-0.5)
Date Collected: 01/03/23 08:10
Date Received: 01/05/23 16:44

Lab Sample ID: 820-7012-3
Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	43439	01/06/23 16:33	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	43469	01/09/23 12:13	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			43557	01/09/23 14:22	AJ	EET MID
Total/NA	Analysis	8015 NM		1			43521	01/09/23 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	43343	01/06/23 08:58	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	43315	01/06/23 17:38	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	43380	01/06/23 12:44	KS	EET MID
Soluble	Analysis	300.0		1			43416	01/06/23 19:21	CH	EET MID

Client Sample ID: SS-1 (0-0.5)
Date Collected: 01/03/23 08:15
Date Received: 01/05/23 16:44

Lab Sample ID: 820-7012-4
Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	43439	01/06/23 16:33	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	43469	01/09/23 12:33	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			43557	01/09/23 14:22	AJ	EET MID

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Client Sample ID: SS-1 (0-0.5)

Lab Sample ID: 820-7012-4
Matrix: Soil

Date Collected: 01/03/23 08:15
Date Received: 01/05/23 16:44

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			43521	01/09/23 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	43343	01/06/23 08:58	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	43315	01/06/23 17:59	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	43380	01/06/23 12:44	KS	EET MID
Soluble	Analysis	300.0		1			43416	01/06/23 19:28	CH	EET MID

Client Sample ID: CS-1 (1.5-2)

Lab Sample ID: 820-7012-6
Matrix: Soil

Date Collected: 01/03/23 08:20
Date Received: 01/05/23 16:44

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	43439	01/06/23 16:33	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	43469	01/09/23 13:14	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			43557	01/09/23 14:22	AJ	EET MID
Total/NA	Analysis	8015 NM		1			43521	01/09/23 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	43343	01/06/23 08:58	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	43315	01/06/23 18:42	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	43380	01/06/23 12:44	KS	EET MID
Soluble	Analysis	300.0		5			43416	01/06/23 19:52	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-25	06-30-23

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

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

Method Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

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

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Superman Frac Ponds

Job ID: 820-7012-1
SDG: AR227019

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
820-7012-1	NS-1 (0-0.5)	Soil	01/03/23 08:00	01/05/23 16:44
820-7012-2	WS-1 (0-0.5)	Soil	01/03/23 08:05	01/05/23 16:44
820-7012-3	ES-1 (0-0.5)	Soil	01/03/23 08:10	01/05/23 16:44
820-7012-4	SS-1 (0-0.5)	Soil	01/03/23 08:15	01/05/23 16:44
820-7012-6	CS-1 (1.5-2)	Soil	01/03/23 08:20	01/05/23 16:44

Loc: 820
7012

820-7012 Chain of Custody

CHAIN OF CUSTODY RECORD

Terracon

Laboratory:
Address:

Office Location
Phone:
Contact:
Project Manager J. Guesnier
SRS #:
Sampler's Name J. Guesnier
Sampler's Signature

ANALYSIS REQUESTED

LAB USE ONLY
DUE DATE:
TEMP OF COOLER WHEN RECEIVED (°C) 0.9 | 0.8°C

Page _1_ of _1_

Project Number AR227019
Project Name Superman Frac Ponds

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No. Type of Containers: 4 oz Glass				TPH Extended 8015	BTEX (EPA Method 8021B)	Chloride (EPA Method 300)	Hold				Lab Sample ID
S	1/3/2022	8:00		X	NS-1(0-0.5)	0'	0.5'	X				X	X	X					
S	1/3/2022	8:05		X	WS-1(0-0.5)	0'	0.5'	X				X	X	X					
S	1/3/2022	8:10		X	ES-1(0-0.5)	0'	0.5'	X				X	X	X					
S	1/3/2022	8:15		X	SS-1 (0-0.5)	0'	0.5'	X				X	X	X					
S	1/3/2022	8:20		X	CS-1 (0.5-1)	0.5'	1'	X				X	X	X					
S	1/3/2022	8:20		X	CS-1 (1.5-2)	1.5'	2'	X				X	X	X					

TURNAROUND TIME ☐ Normal ☐ 48-Hour Rush ☑ 24-Hour Rush TRRP Laboratory Review Checklist ☐ Yes ☐ No

Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
[signature]	1-5-22	16:44	Ashley M Ruggles	1/5/22	16:44

Bill To: Solaris Water Midstream

e-mail results to:
joseph.guesnier@terraconc.om
travis.casey@terracon.com

Matrix: WW-Wastewater, W - Water, S - Soil, L - Liquid, A - Air Bag, C - Charcoal tube, SL - Sludge
Container: VOA - 40 ml vial, A/G - Amber Glass 1L, 250 ml = Glass wide mouth, P/O - Plastic or other _____

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-7012-1
SDG Number: AR227019

Login Number: 7012
List Number: 1
Creator: Ruggles, Ashley

List Source: Eurofins Lubbock

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

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-7012-1
SDG Number: AR227019

Login Number: 7012
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 01/06/23 11:27 AM

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

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

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

CONDITIONS

Action 238644

CONDITIONS

Operator: SOLARIS WATER MIDSTREAM, LLC 907 Tradewinds Blvd, Suite B Midland, TX 79706	OGRID: 371643
	Action Number: 238644
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Operator did not meet 19.15.29.12D (1) NMAC. Forbearance given 10/02/2023. Release resolved.	10/2/2023