

Incident ID	nAPP2302727428
District RP	
Facility ID	
Application ID	

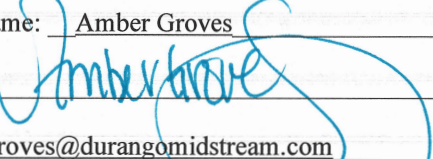
## Closure

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**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

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Printed Name: Amber Groves Title: Sr. Environmental Specialist  
Signature:  Date: 3/15/2023  
email: agroves@durangomidstream.com Telephone: 575-703-7992

**OCD Only**

Received by: Jocelyn Harimon Date: 03/20/2023

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: Robert Hamlet Date: 7/28/2023  
Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced

Incident ID	nAPP2302727428
District RP	
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Application ID	

## Site Assessment/Characterization

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

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

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

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

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody


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



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Printed Name: Amber Groves Title: Sr. Environmental Specialist

Signature:  Date: 3/15/2023

email: agroves@durangomidstream.com Telephone: (575)703-7992

**OCD Only**

Received by: Jocelyn Harimon Date: 03/20/2023

Incident ID	nAPP2302727428 <i>Page 4 of 56</i>
District RP	
Facility ID	
Application ID	

## Remediation Plan

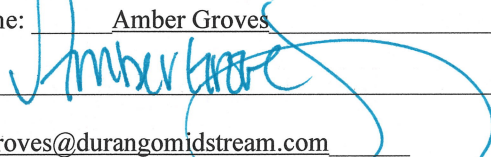
**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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Printed Name: Amber Groves Title: Sr. Environmental Specialist  
Signature:  Date: 3/15/2023  
email: agroves@durangomidstream.com Telephone: (575)703-7992

**OCD Only**

Received by: Jocelyn Harimon Date: 03/20/2023

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



Incident ID	nAPP2302727428
District RP	
Facility ID	
Application ID	

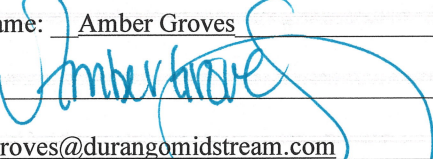
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Printed Name: Amber Groves Title: Sr. Environmental Specialist  
Signature:  Date: 3/15/2023  
email: agroves@durangomidstream.com Telephone: 575-703-7992

**OCD Only**

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Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Incident ID	nAPP2304840176
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

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What is the shallowest depth to groundwater beneath the area affected by the release?	<u>undetermined</u> (ft bgs)
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## Oil Conservation Division

Incident ID	nAPP2304840170
District RP	
Facility ID	
Application ID	

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Printed Name: Amber GrovesTitle: Sr. Environmental SpecialistSignature: Date: 3/15/2023email: agroves@durangomidstream.comTelephone: (575)703-7992**OCD Only**

Received by: \_\_\_\_\_

Date: \_\_\_\_\_

Incident ID	nAPP2304840170
District RP	
Facility ID	
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## Remediation Plan

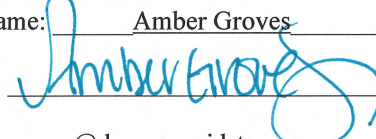
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Printed Name: Amber Groves Title: Sr. Environmental Specialist  
Signature:  Date: 3/15/2023  
email: agroves@durangomidstream.com Telephone: (575)703-7992

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



Incident ID	nAPP2304840178
District RP	
Facility ID	
Application ID	

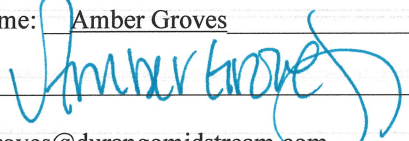
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Signature:  Date: 3/15/2023  
email: agroves@durangomidstream.com Telephone: 575-703-7992

### OCD Only

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Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

**Frontier Field Services, LLC**

8" Santo Nino Steel Line

32.72646°, -103.98410°

NMOCD Reference # nAPP2302727428, nAPP2304840170

Terracon Project # KH237010



Attn: New Mexico Oil Conservation Division

1220 South St. Francis Drive

Santa Fe, NM 87505

**RE: Release Investigation, and Closure Report**

8" Santo Nino Steel Line

Unit M, Section 21, Township 18 South, Range 30 East

32.72646°, -103.98410°

Eddy County, New Mexico

Terracon Project No. KH23010

To Whom it May Concern:

Terracon Consultants, Inc. (Terracon) is pleased to submit our Release Investigation and Closure Report for the site referenced above. The scope of services was developed in accordance with the New Mexico Oil Conservation Division (NMOCD) regulations concerning clean-up actions required for releases of crude oil and produced water. The investigative response actions resulted from two separate natural gas releases along a suspected corroded lateral line. The below sections detail Terracon's assessment and remediation actions in response to the noted release events.

**Action Items****Completed Actions**

- 1) Initial site assessment and sampling events completed.
- 2) All conditions needed for approval of closure have been met.
- 3) All Maps and associated data for approval has been provided
- 4) Conducted an initial site assessment and a series of sampling events.
- 5) Soil samples collected from the excavation were submitted to an approved Lab to determine levels of impact vertically and horizontally.
- 6) Excavation of the inferred release area was completed with the intent to remove impacted soil as determined by the Closure Criteria set by NMOCD.
- 7) Soil stockpiles were placed on plastic and bermed around the edges to reduce loss.
- 8) Confirmation samples were collected every 200 sq. ft.
- 9) Remedial activities were terminated when confirmation sample concentrations did not exhibit above the NMOCD RALs.

Explore with us



**Frontier Field Services, LLC**

8" Santo Nino Steel Line

32.72646°, -103.98410°

NMOCD Reference # nAPP2302727428, nAPP2304840170

Terracon Project # KH237010




**Anticipated Actions**

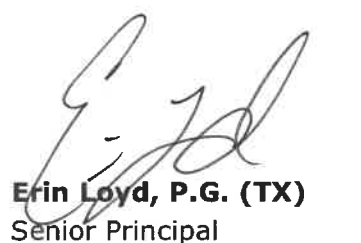
- 
- 1) Following the completion of remedial activities, excavated areas are to be backfilled and brought to the surrounding grade, and reseeded.
  - 2) Approval by the NMOCD.
- 

Terracon appreciates this opportunity to provide environmental services to Frontier Field Services, LLC. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,

**Terracon Consultants, Inc.**

  
**Travis Casey**  
Senior Staff Scientist  
Carlsbad

  
**Erin Loyd, P.G. (TX)**  
Senior Principal  
Office Manager – Lubbock

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**Attachments:****Appendix A – Exhibits**

- Exhibit 1 – Topographic Map
- Exhibit 2 – Site Map
- Exhibit 3 – Site Sample Map
- Exhibit 4 – NMOSE POD Location Map
- Exhibit 5 – Designated Wetland Map
- Exhibit 6 – Cave Karst Public UCP Map

**Appendix B – Tables, Procedures, and Figures**

- Table 1 – Soil Sample Analytical Results

**Appendix C – Photographic Log****Appendix D – Analytical Report and Chain of Custody****Appendix E – Initial Form C-141****Appendix F – Terracon Standard of Care, Limitation, and Reliance**

**Frontier Field Services, LLC**

8" Santo Nino Steel Line

32.72646°, -103.98410°

NMOCD Reference # nAPP2302727428, nAPP2304840170

Terracon Project # KH237010

**Section 1 – Incident Information**

The following table provides detailed information regarding the October 14, 2022, natural gas and petroleum liquid release at the 8" Santo Nino Steel Line (Santo Nino) site in Eddy County, New Mexico:

Required Information	Site and Release information	
Responsible party	The pipeline is operated by Frontier Field Services LLC	
Local contact	Contact: Ms. Amber Groves	P: (575)-703-7992 E: <a href="mailto:agroves@durangomidstream.com">agroves@durangomidstream.com</a>
NMOCD Notification	Notice of the release was provided to the NMOCD District 2 Artesia Office by Ms. Amber Groves on January 27, 2023. NMOCD Reference ID: nAPP2302727428, nAPP2304840170	
Facility Description	Santo Nino is in Eddy County, New Mexico. It is an area located within Unit M, Section 21, Township 18 South, Range 30 East, approximately 25.33 miles southeast of Artesia, New Mexico. The site is predominantly developed oil and gas Right of Way (ROW). The release occurred on native pastureland owned by The Bureau of Land Management (BLM).	
Time of incident	<b>nAPP2303737428:</b> January 26, 2023, discovered during daily operations. <b>nAPP2304840170:</b> February 16, 2023, discovered during remedial operations.	
Discharge event	The natural gas pipeline leaks were caused by corrosion of the steel line and liquid was discovered leaking to the surface during normal field inspections and remedial efforts. The Site is illustrated in Exhibits 1 and 2 of Appendix A	
Type of discharge	The documented natural gas releases occurred in an open right-of-way (ROW), BLM-owned, native pastureland area. Soils at the site were affected at the surface and surrounding the pipeline.	
Quantity of spilled material	Total Fluids: 12.4 bbls	Natural Gas: 124.52 Mcf



**Frontier Field Services, LLC**

8" Santo Nino Steel Line

32.72646°, -103.98410°

NMOCD Reference # nAPP2302727428, nAPP2304840170

Terracon Project # KH237010



Required Information	Site and Release information
Site characteristics	Relatively flat with drainage following the natural ground surface; very gently sloping to the southeast.
Immediate corrective actions	The leaking pipeline was closed in at the nearest isolation valve, blown down, and clamped. A backhoe was utilized to excavate soils to discover the source of the release.

## Section 2 – General Site Characteristics

Physical Characteristic	Site Ranking Characteristics
<b>Groundwater</b> NMOSE POD Location Map – (Exhibit 6 in Appendix A)	<u>POD Number:</u> (CP-00626 POD1) <u>Depth to Groundwater:</u> 247 ft. bgs <u>Distance to Well:</u> 5.01 miles to the northwest <u>Date Drilled:</u> February 13, 1981 <u>Last Date Meter Reading:</u> August 12, 2019 <u>Groundwater Quality:</u> Groundwater quality at the site is predominately used for livestock production.
<b>Surface Water</b> NM Wetland Map – (Exhibit 7 in Appendix A)	Salt Lake (unnamed), approximately 4.08 miles to the southeast.
<b>100-Year Flood Plain</b>	This site is not located within the 100-year flood plain of the Pecos River.
<b>Soil Characteristics</b>	Soils at the site are mapped as Kermit-Berino Fine Sand series soils, 0 to 3 percent slopes, well-drained, 4 to 12 inches single-grained; loose; few fine roots; very porous; few dark organic stains; noncalcareous; neutral; gradual smooth boundary. (6 to 12 inches thick). The formation is categorized with a very high runoff classification.

**Frontier Field Services, LLC**

8" Santo Nino Steel Line

32.72646°, -103.98410°

NMOCD Reference # nAPP2302727428, nAPP2304840170

Terracon Project # KH237010



Physical Characteristic	Site Ranking Characteristics
<b>Karst Characterization</b> Cave Karst Public UCP Map – (Exhibit 8 in Appendix A)	Terracon evaluated data from the NMOCD Public FTP Site, Karst map designations in reference to the site location. The site appears to be within a low-level Karst risk area. Based on on-site observations within the extent of the release margins the potential for Karst formations in this specific area are of low potential. Restrictive features were not encountered from surface to 168 inches below grade surface (bgs) within the release margins. The full extent of release quantities and excavation activities did not extend greater than 168 inches bgs.

### Section 3 – Regulatory Framework and Response Action Levels

Oil and gas exploration and production facilities in New Mexico are generally regulated by the New Mexico Oil Conservation Division (NMOCD). The NMOCD has issued the *Closure Criteria for Soils Impacted by a Release, on June 21, 2018, and Restoration, Reclamation, and Re-vegetation (19.15.29.13) NMAC – D (Reclamation of areas no longer in use)* as guidance documents for the remediation and reclamation of sites impacted by releases from oil and gas exploration and production activities. Sections detailed below the applicability of these guidance documents to the site-specific characteristics associated with the Santo Nino.

#### Section 3.1 – Reclamation Levels (Surface to 4 ft. bgs)

The below Reclamation Limits for chlorides, TPH (GRO+DRO+MRO), BTEX (includes benzene, toluene, ethylbenzene, and xylenes), and benzene are defined within the 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.:

Constituent	Remediation Limits
Chloride	600 mg/kg
TPH (GRO+DRO+MRO)	100 mg/kg
BTEX	50 mg/kg
Benzene	10 mg/kg



**Frontier Field Services, LLC**

8" Santo Nino Steel Line

32.72646°, -103.98410°

NMOCD Reference # nAPP2302727428, nAPP2304840170

Terracon Project # KH237010

**Section 3.2 – Remediation Levels (> 4 ft. bgs)**

Based on the site-specific characteristics, the applicable NMOCD remediation levels for Total BTEX, chloride, and TPH within soils, exclusive of the Reclamation Zone (surface to 4 ft. bgs), are as follows:

Constituent	Remediation Limit
Chloride	600 mg/kg
TPH (GRO+DRO+MRO)	100 mg/kg
BTEX	50 mg/kg
Benzene	10 mg/kg

**Section 4 – Remediation Activities**

On February 15<sup>th</sup>, 16<sup>th</sup>, and 20<sup>th</sup> of 2023, Terracon mobilized to the site to meet Gandy Corporation (Gandy) personnel, who were to perform soil remediation activities. Areas exhibiting visual impact were excavated to a depth of approximately 8 to 14 feet bgs. During our remedial activities on February 16, 2023, the second release occurred and was contained within the original excavation.

Approximately 3,700 cubic yards of soil were excavated and stockpiled atop a polyethylene liner pending waste characterization and disposal under an approved Form C-138. Excavation efforts ceased based on the results of removing visual impacts. Excavated materials were disposed of at Lea Land Landfill.

**Section 5 - Remediation Confirmation Assessment**

A total of 12 composite soil samples including sidewall (SW) samples and floor (FS) samples, (N-SW01-02, S-SW01-02, E-SW01-02, W-SW01-02, and FS-01 through FS-04) were collected every 200 sq. ft, from the excavation, placed in the laboratory provided sample containers, preserved with ice, and transported under chain of custody to Cardinal Laboratories in Hobbs, New Mexico for analysis of BTEX, TPH, and chlorides.

**Section 6 – Analytical Results**

Composite soil samples collected on February 17 and 20, 2023 did not exhibit concentrations of BTEX or TPH (EPA Method 8015M) above laboratory sample detection limits (SDLs).

**Frontier Field Services, LLC**

8" Santo Nino Steel Line

32.72646°, -103.98410°

NMOCD Reference # nAPP2302727428, nAPP2304840170

Terracon Project # KH237010



Six of the soil samples collected from the excavation area exhibited concentrations of chloride above laboratory SDLs and ranging from 32.0 mg/kg in S-SW01 (0-9 feet) to 208.0 mg/kg in FS-03 (5-6 feet). Chloride concentrations generally decrease with sample depth as exhibited in samples FS-03 and FS-04. Sample FS-03 contained a chloride concentration of 208.0 mg/kg at 5-6 feet and FS-04 contained a chloride concentration of 80.0 mg/kg at the 11-12 feet.

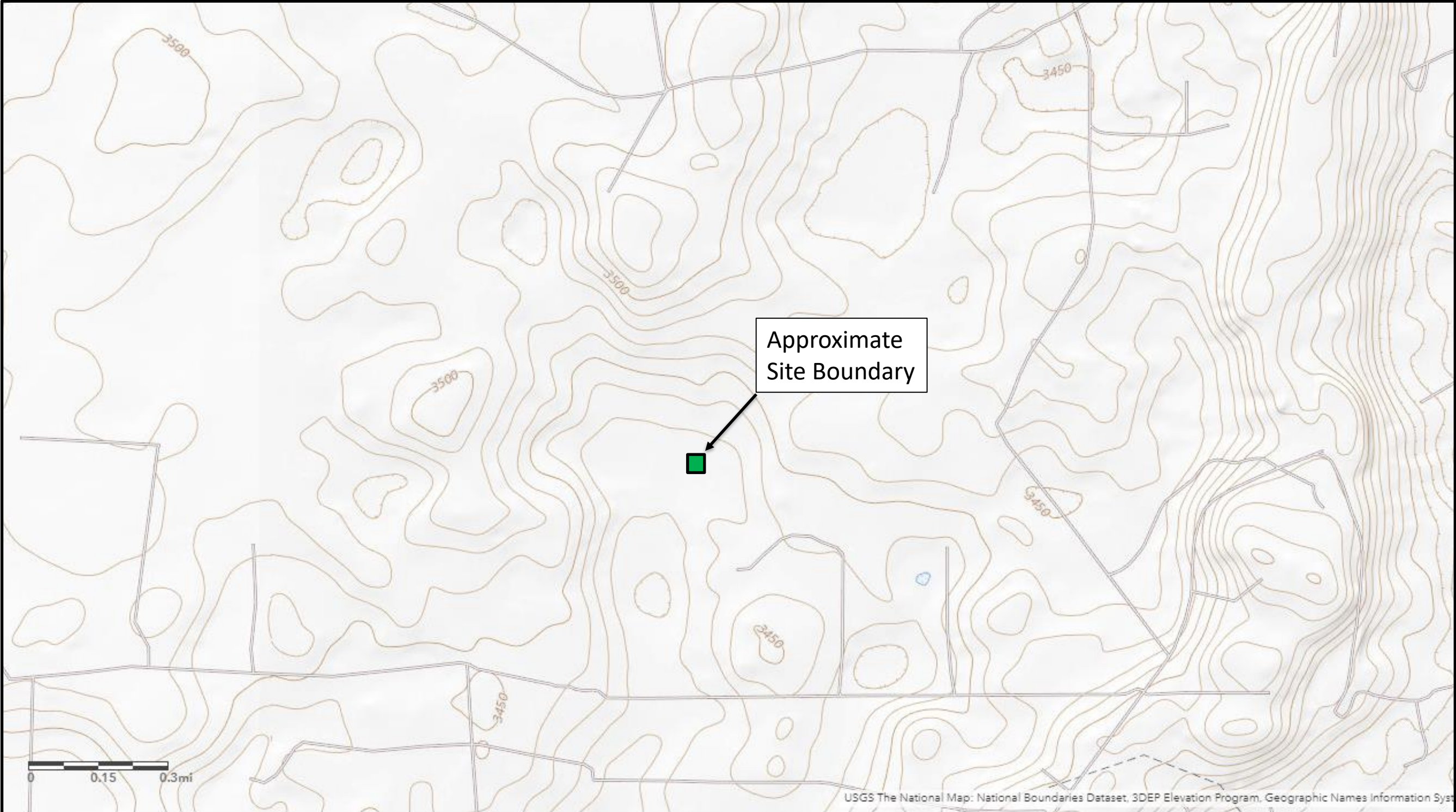
A summary of BTEX, chloride and TPH concentrations of all collected soil samples is attached as Table 1.

**Section 7 – Conclusion and Closure Request**

In accordance with NMAC 19.15.29.12, remediation of the impacted material is complete, and Terracon along with Frontier Field Services respectfully requests closure of the incidents nAPP2302727428 and nAPP2304840170.

## **APPENDIX A – EXHIBITS**






TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY  DIAGRAM IS FOR GENERAL LOCATION ONLY AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES	Project Manager: Travis Casey	Project No. KH237010	<div> Explore with us 4518 W. Pierce St. Carlsbad, NM 88220 PH. (575)689-4020 FAX. (806) 797 0947</div>	Exhibit 1 – Topographic Map	
	Drawn by: Gus Sanchez	Scale: On map		Santa Nino Steel Line 8 in	
	Checked by: Travis Casey	File Name: Topo		32.72646°, -103.98410°	
	Approved by: Travis Casey	Date: 03-14-23		Eddy County, New Mexico	

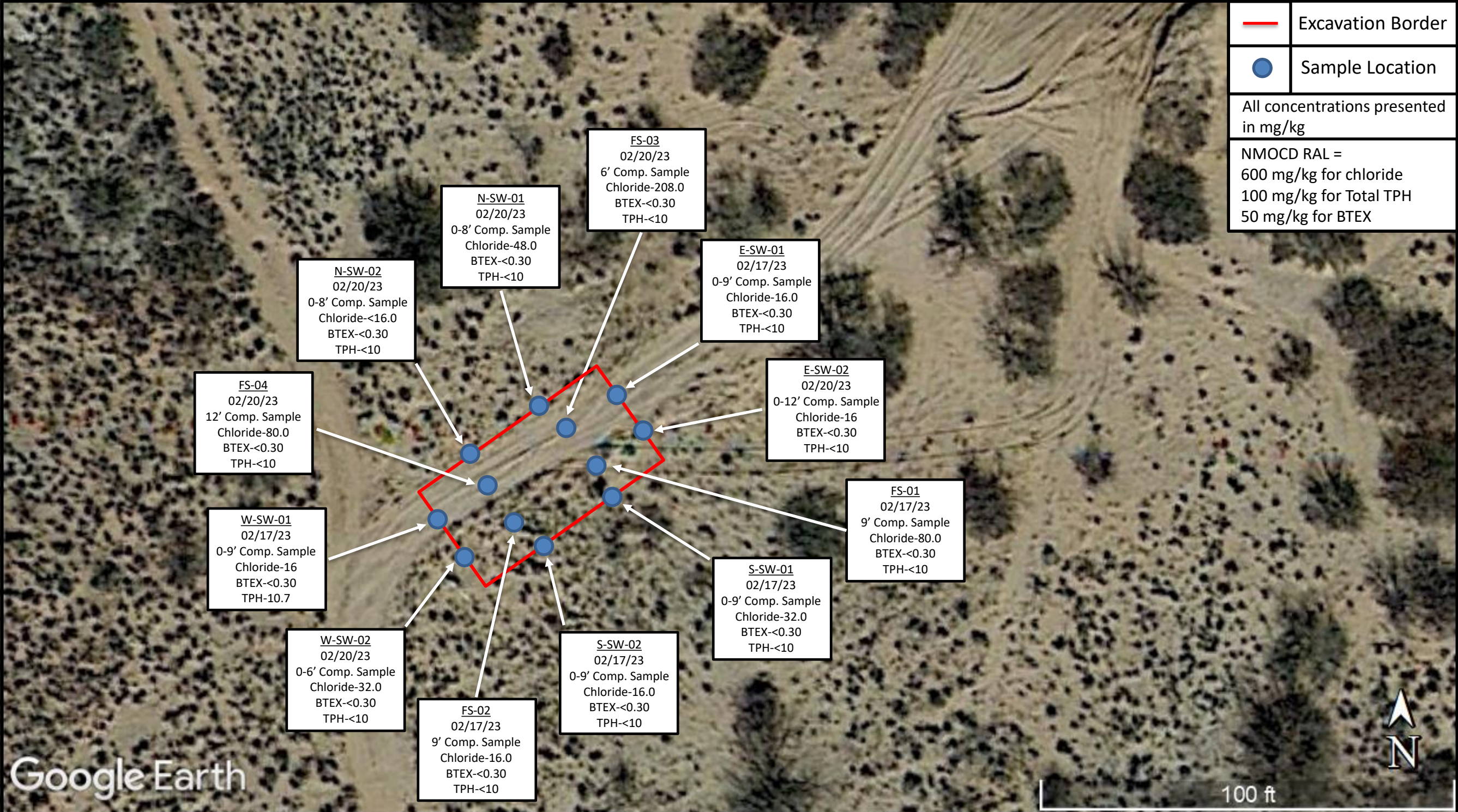




— Excavation


Project No.	KH237010	 Explore with us 4518 W. Pierce St. Carlsbad, NM 88220 PH. (575)689-4020 FAX. (806) 797 0947	Exhibit 2 - Site Map
Scale:	As Shown		Santa Nino Steel Line 8"
Source:	Google Earth		32.72646,-103.98410
Date:	03/14/2023		Eddy County, New Mexico





	Excavation Border
	Sample Location
All concentrations presented in mg/kg	
NMOCD RAL = 600 mg/kg for chloride 100 mg/kg for Total TPH 50 mg/kg for BTEX	

Project No.	KH237010
Scale:	As Shown
Source:	Google Earth
Date:	03/14/2023



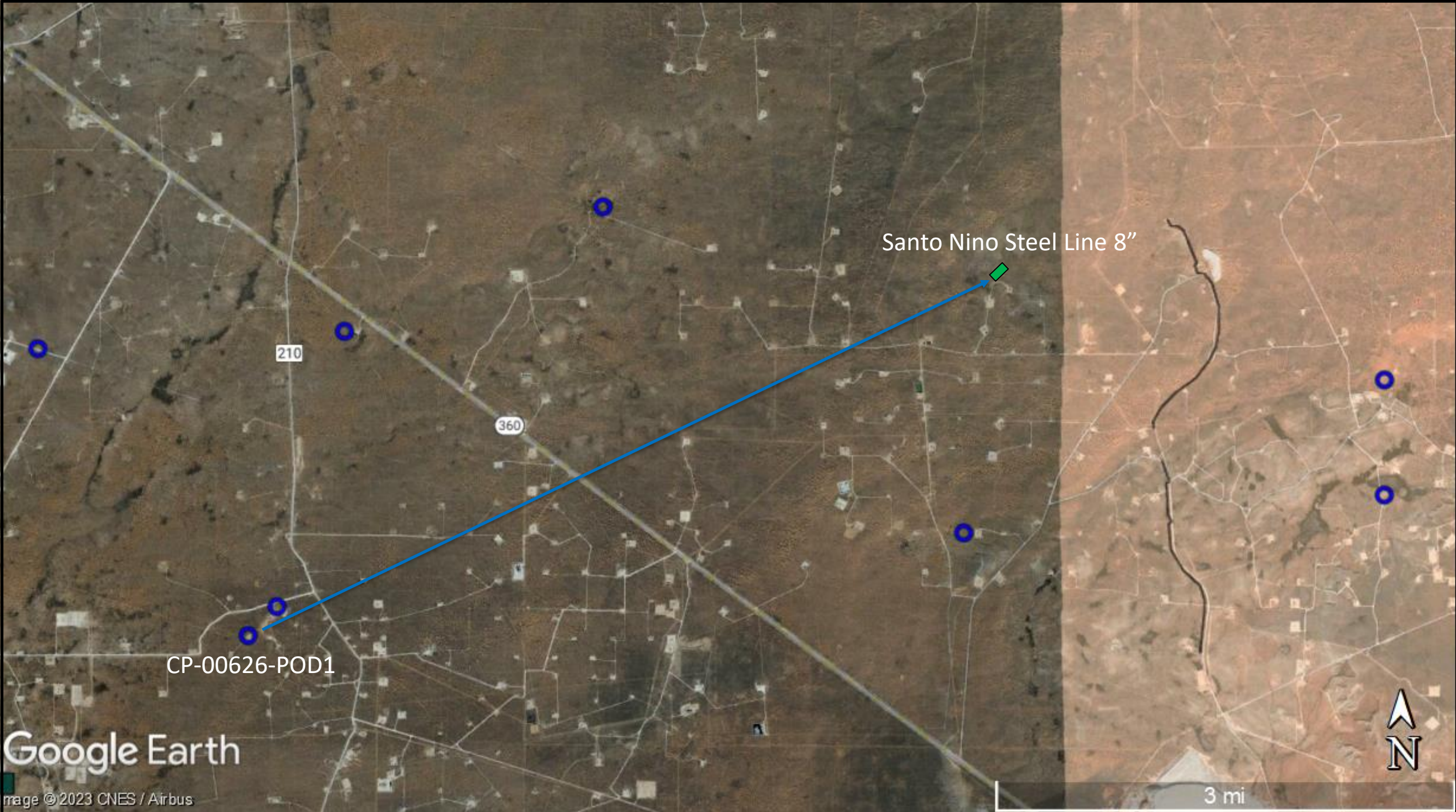
**Terracon**  
Explore with us

4518 W. Pierce St.  
PH. (575)689-4020

Carlsbad, NM 88220  
FAX. (806) 797 0947

Exhibit 3 – Site Sample Map
Santo Nino Steel Line 8” 32.72646°, -103.98410° Eddy County, New Mexico





Project No.	KH237010
Scale:	As Shown
Source:	Google Earth
Date:	03/14/2023



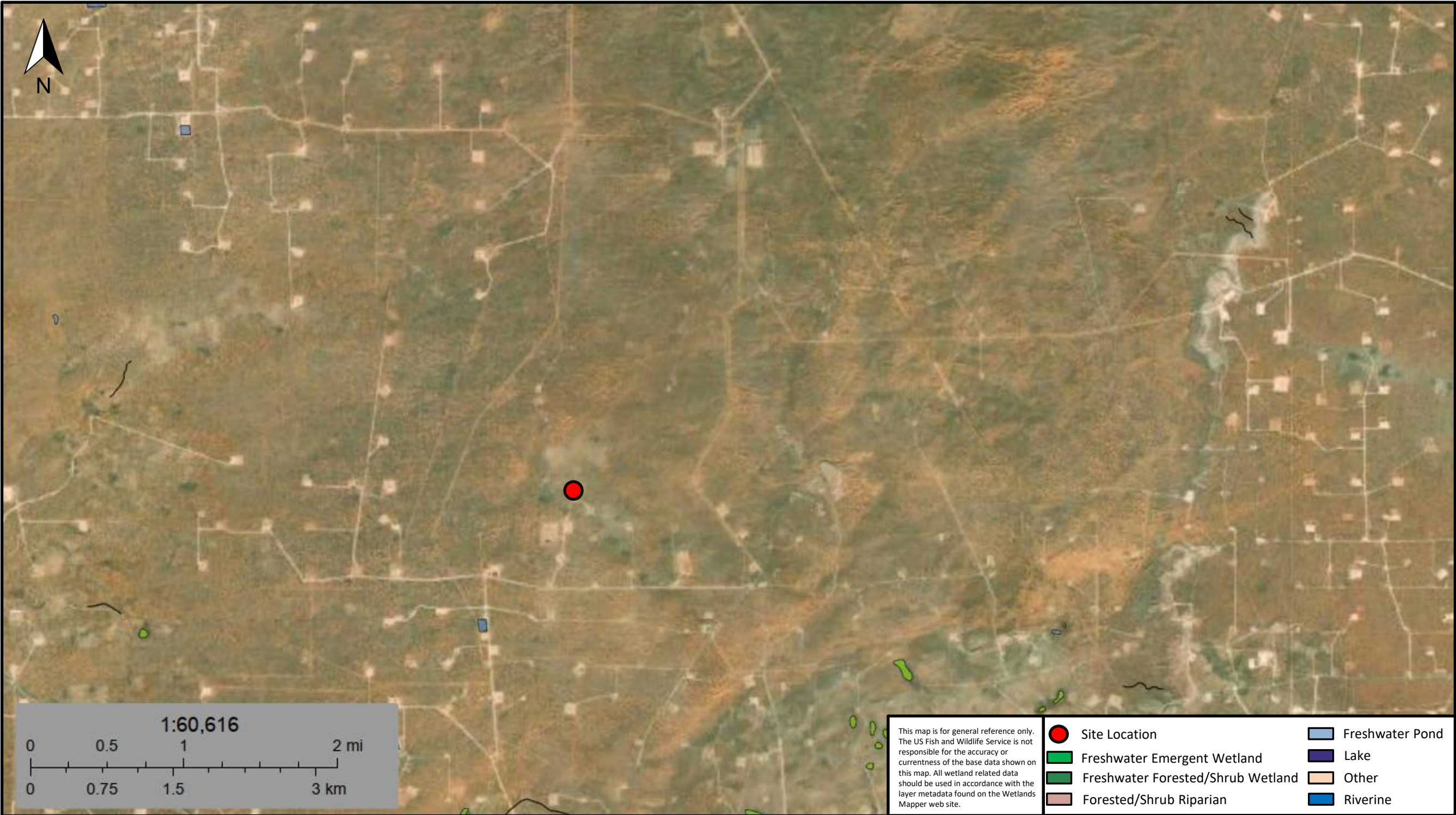
Explore with us

4518 W. Pierce St.  
PH. (575)689-4020

Carlsbad, NM 88220  
FAX. (806) 797 0947

Exhibit 4 – NMOSE POD Location Map
Santo Nino Steel Line 8 inch 32.72646°, -103.98410° Eddy County, New Mexico





Project No.	KH237010	 <div>Explore with us</div> <div>4518 W. Pierce St. Carlsbad, NM 88220 PH. (575)689-4020 FAX. (806) 797 0947</div>	Exhibit 5 – Designated Wetland Map	
Scale:	1:60,616		Santo Nino Steel Line 8”	
Source:	National Wetland Inventory		32.72646°, -103.98410°	
Date:	03/14/2023		Eddy County, New Mexico	





Project No.	KH237010	Exhibit 6 – Cave Karst Map Public UPC Map	
Scale:	As Shown	Santo Nino Steel Line 8"	
Source:	Google Earth	32.72646°, -103.98410°	
Date:	03/14/2023	Eddy County, New Mexico	
 4518 W. Pierce St. Carlsbad, NM 88220 PH. (575)689-4020 FAX. (806) 797 0947			

## **APPENDIX B – TABLES, PROCEDURES, AND FIGURES**



TABLE 1 SOIL SAMPLE ANALYTICAL RESULTS - BTEX <sup>1</sup> , Chloride <sup>2</sup> , and TPH <sup>3</sup> Santa Nino 8" Terracon Project No. KH237010								
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
Confirmation Samples (Off Pad)								
N-SW01	0-8	Comp	02/20/23	Benzene - <0.050 Total BTEX - <0.300	48.0	<10.0	<10.0	<10.0
N-SW02	0-8	Comp	02/20/23	Benzene - <0.050 Total BTEX - <0.300	<16.0	<10.0	<10.0	<10.0
S-SW01	0-9	Comp	02/17/23	Benzene - <0.050 Total BTEX - <0.300	32.0	<10.0	<10.0	<10.0
S-SW02	0-9	Comp	02/17/23	Benzene - <0.050 Total BTEX - <0.300	<16.0	<10.0	<10.0	<10.0
E-SW-01	0-9	Comp	02/17/23	Benzene - <0.050 Total BTEX - <0.300	<16.0	<10.0	<10.0	<10.0
E-SW-02	0-12	Comp	02/20/23	Benzene - <0.050 Total BTEX - <0.300	<16.0	<10.0	<10.0	<10.0
W-SW01	0-9	Comp	02/17/23	Benzene - <0.050 Total BTEX - <0.300	<16.0	<10.0	10.7	<10.0
W-SW02	0-6	Comp	02/20/23	Benzene - <0.050 Total BTEX - <0.300	32.0	<10.0	<10.0	<10.0
FS-01	9	Comp	02/17/23	Benzene - <0.050 Total BTEX - <0.300	80.0	<10.0	<10.0	<10.0
FS-02	9	Comp	02/17/23	Benzene - <0.050 Total BTEX - <0.300	<16.0	<10.0	<10.0	<10.0
FS-03	6	Comp	02/20/23	Benzene - <0.050 Total BTEX - <0.300	208.0	<10.0	<10.0	<10.0
FS-04	12	Comp	02/20/23	Benzene - <0.050 Total BTEX - <0.300	80.0	<10.0	<10.0	<10.0
NMOCD Reclamation Standards <sup>4</sup> (Applicable for Soils from the Surface to 4 ft. Below Grade Surface)				Benzene - 10 Total BTEX - 50	600	100		
NMOCD Remediation and Delineation Standards <sup>5</sup> (Applicable for Soils at Depths Greater than 4 ft. Below Grade Surface)				Benzene - 10 Total BTEX - 50	600	100		
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 Standards.								

## **APPENDIX C – PHOTOGRAPHIC LOG**



Santo Nino Steel Line 8" Release ■ Eddy County, New Mexico



March 14, 2023 ■ Terracon Project No. KH237010



**PHOTO 1:** View of the area prior to excavation from the southwest facing northeast.

Responsive ■ Resourceful ■ Reliable



Santo Nino Steel Line 8" Release ■ Eddy County, New Mexico



March 14, 2023 ■ Terracon Project No. KH237010



**PHOTO 2:** View of the area prior to excavation from the southwest facing northeast.

Responsive ■ Resourceful ■ Reliable



Santo Nino Steel Line 8" Release ■ Eddy County, New Mexico



March 14, 2023 ■ Terracon Project No. KH237010



**PHOTO 3:** View of the area prior to excavation from the southwest facing northeast.

Responsive ■ Resourceful ■ Reliable



Santo Nino Steel Line 8" Release ■ Eddy County, New Mexico



March 14, 2023 ■ Terracon Project No. KH237010



PHOTO 4: View of the area prior to excavation from the northwest facing southeast.



PHOTO 5: View of the area prior to excavation from the northeast facing southwest.

Responsive ■ Resourceful ■ Reliable



## **APPENDIX D – ANALYTICAL REPORT AND CHAIN OF CUSTODY**



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

---

February 23, 2023

JOSEPH GUESNIER

TERRACON CONSULTANTS

5827 50TH ST. SUITE 1

LUBBOCK, TX 79424

RE: SANTA NINO

Enclosed are the results of analyses for samples received by the laboratory on 02/20/23 11:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/20/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - LEA CO NM

Sampling Date: 02/17/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SSW 01 (H230773-01)**

BTX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/22/2023	ND	2.17	109	2.00	10.3	
Toluene*	<0.050	0.050	02/22/2023	ND	2.45	123	2.00	19.1	
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	2.03	102	2.00	2.35	
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.36	106	6.00	3.50	
Total BTX	<0.300	0.300	02/22/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/21/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	224	112	200	0.363	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	230	115	200	0.0517	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 111 % 48.2-134

Surrogate: 1-Chlorooctadecane 119 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/20/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - LEA CO NM

Sampling Date: 02/17/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: WSW 01 (H230773-02)**

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/22/2023	ND	2.17	109	2.00	10.3		
Toluene*	<0.050	0.050	02/22/2023	ND	2.45	123	2.00	19.1		
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	2.03	102	2.00	2.35		
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.36	106	6.00	3.50		
Total BTEx	<0.300	0.300	02/22/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	02/21/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	186	93.0	200	2.11	
<b>DRO &gt;C10-C28*</b>	<b>10.7</b>	10.0	02/21/2023	ND	195	97.4	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 108 % 48.2-134

Surrogate: 1-Chlorooctadecane 125 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/20/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - LEA CO NM

Sampling Date: 02/17/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: ESW 01 (H230773-03)**

BTX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/22/2023	ND	2.17	109	2.00	10.3	
Toluene*	<0.050	0.050	02/22/2023	ND	2.45	123	2.00	19.1	
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	2.03	102	2.00	2.35	
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.36	106	6.00	3.50	
Total BTX	<0.300	0.300	02/22/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	02/21/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	186	93.0	200	2.11	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	195	97.4	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 97.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 112 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/20/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - LEA CO NM

Sampling Date: 02/17/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SSW 02 (H230773-04)**

BTX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/22/2023	ND	2.17	109	2.00	10.3	
Toluene*	<0.050	0.050	02/22/2023	ND	2.45	123	2.00	19.1	
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	2.03	102	2.00	2.35	
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.36	106	6.00	3.50	
Total BTX	<0.300	0.300	02/22/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	02/21/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	186	93.0	200	2.11	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	195	97.4	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 110 % 48.2-134

Surrogate: 1-Chlorooctadecane 126 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/20/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - LEA CO NM

Sampling Date: 02/17/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: FS 01 (H230773-05)**

BTX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/22/2023	ND	2.17	109	2.00	10.3	
Toluene*	<0.050	0.050	02/22/2023	ND	2.45	123	2.00	19.1	
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	2.03	102	2.00	2.35	
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.36	106	6.00	3.50	
Total BTX	<0.300	0.300	02/22/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	02/21/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	186	93.0	200	2.11	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	195	97.4	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 90.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 104 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/20/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - LEA CO NM

Sampling Date: 02/17/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: FS 02 (H230773-06)**

BTEx 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/22/2023	ND	2.17	109	2.00	10.3	
Toluene*	<0.050	0.050	02/22/2023	ND	2.45	123	2.00	19.1	
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	2.03	102	2.00	2.35	
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.36	106	6.00	3.50	
Total BTEx	<0.300	0.300	02/22/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	02/21/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	186	93.0	200	2.11	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	195	97.4	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 93.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 107 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



---

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---

### Notes and Definitions

QR-04	The RPD for the BS/BSD was outside of historical limits.
BS-3	Blank spike recovery outside of lab established statistical limits, but still within method limits. Data is not adversely affected.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager





## Page 9 of 9

† Cardinal cannot accept verbal changes. Please email changes to [celey.keene@cardinallabsnm.com](mailto:celey.keene@cardinallabsnm.com)



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

February 23, 2023

JOSEPH GUESNIER

TERRACON CONSULTANTS

5827 50TH ST. SUITE 1

LUBBOCK, TX 79424

RE: SANTA NINO

Enclosed are the results of analyses for samples received by the laboratory on 02/21/23 12:08.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/21/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - EDDY CO NM

Sampling Date: 02/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: N-SW-02 (H230804-01)**

BTX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/22/2023	ND	2.24	112	2.00	11.8	
Toluene*	<0.050	0.050	02/22/2023	ND	2.37	119	2.00	17.1	
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	1.99	99.7	2.00	2.40	
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.08	101	6.00	3.24	
Total BTX	<0.300	0.300	02/22/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	02/21/2023	ND	384	96.0	400	8.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	189	94.7	200	7.74	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	189	94.7	200	5.06	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 115 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/21/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - EDDY CO NM

Sampling Date: 02/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: N-SW-01 (H230804-02)**

BTEx 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/22/2023	ND	2.24	112	2.00	11.8	
Toluene*	<0.050	0.050	02/22/2023	ND	2.37	119	2.00	17.1	
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	1.99	99.7	2.00	2.40	
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.08	101	6.00	3.24	
Total BTEx	<0.300	0.300	02/22/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	02/21/2023	ND	384	96.0	400	8.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	189	94.7	200	7.74	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	189	94.7	200	5.06	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 86.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 93.9 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/21/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - EDDY CO NM

Sampling Date: 02/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: E-SW-02 (H230804-03)**

BTEx 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/22/2023	ND	2.24	112	2.00	11.8	
Toluene*	<0.050	0.050	02/22/2023	ND	2.37	119	2.00	17.1	
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	1.99	99.7	2.00	2.40	
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.08	101	6.00	3.24	
Total BTEx	<0.300	0.300	02/22/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	02/21/2023	ND	384	96.0	400	8.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	189	94.7	200	7.74	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	189	94.7	200	5.06	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 98.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 108 % 49.1-148

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**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/21/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - EDDY CO NM

Sampling Date: 02/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: FS-03 (H230804-04)**

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/22/2023	ND	2.24	112	2.00	11.8		
Toluene*	<0.050	0.050	02/22/2023	ND	2.37	119	2.00	17.1		
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	1.99	99.7	2.00	2.40		
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.08	101	6.00	3.24		
Total BTEX	<0.300	0.300	02/22/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	208	16.0	02/21/2023	ND	384	96.0	400	8.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	189	94.7	200	7.74	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	189	94.7	200	5.06	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 93.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 103 % 49.1-148

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**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/21/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - EDDY CO NM

Sampling Date: 02/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: W-SW-02 (H230804-05)**

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/22/2023	ND	2.08	104	2.00	0.0650	
Toluene*	<0.050	0.050	02/22/2023	ND	2.06	103	2.00	0.584	
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	1.99	99.5	2.00	1.10	
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.10	102	6.00	1.82	
Total BTEx	<0.300	0.300	02/22/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/21/2023	ND	384	96.0	400	8.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	189	94.7	200	7.74	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	189	94.7	200	5.06	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 95.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 106 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TERRACON CONSULTANTS  
 JOSEPH GUESNIER  
 5827 50TH ST. SUITE 1  
 LUBBOCK TX, 79424  
 Fax To:

Received: 02/21/2023  
 Reported: 02/23/2023  
 Project Name: SANTA NINO  
 Project Number: KH237010  
 Project Location: DURANGO - EDDY CO NM

Sampling Date: 02/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: FS-04 (H230804-06)**

BTX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/22/2023	ND	2.08	104	2.00	0.0650		
Toluene*	<0.050	0.050	02/22/2023	ND	2.06	103	2.00	0.584		
Ethylbenzene*	<0.050	0.050	02/22/2023	ND	1.99	99.5	2.00	1.10		
Total Xylenes*	<0.150	0.150	02/22/2023	ND	6.10	102	6.00	1.82		
Total BTX	<0.300	0.300	02/22/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	02/21/2023	ND	384	96.0	400	8.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/21/2023	ND	189	94.7	200	7.74	
DRO >C10-C28*	<10.0	10.0	02/21/2023	ND	189	94.7	200	5.06	
EXT DRO >C28-C36	<10.0	10.0	02/21/2023	ND					

Surrogate: 1-Chlorooctane 79.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 87.2 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

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### Notes and Definitions

QR-04	The RPD for the BS/BSD was outside of historical limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

\*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Terracon		<b>BILL TO</b>		P.O. #: KH237010		ANALYSIS REQUEST	
Project Manager: Joseph Guesnier		Company: Durango		Attn: Amber Greaves			
Address: 4518 W. Perice Street		City: Carlsbad		State: NM Zip: 88220			
Phone #: 8065077057		Fax #:		Address: 47 Canonco Rd			
Project #: KH237010		Project Owner: Durango		City: Moriama			
Project Name: Santa Rosa		State: NM Zip: 88264		Phone #: 575-703-7492			
Project Location: Edley		Fax #:					
Sampler Name: Travis Casey							

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	Chloride (EPA Method 4500)	TPH Extended 8015	BTEX (EPA Method 8021B)	ANALYSIS REQUEST			
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :						ACID/BASE:	ICE / COOL	OTHER :	
H230804	N-SW-02	C	1															
	N-SW-01	C	1															
	E-SW-02	C	1															
	FS-03	C	1															
	SW-SW-02	C	2															
	FS-04	C	1															

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Barry Wheeler	Date: 2-21-23	Received By: [Signature]	Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Phone #:
Relinquished By: [Signature]	Date: 1/30/8	Received By: [Signature]	All Results are emailed. Please provide Email address:

Delivered By: (Circle One)	Observed Temp.: °C 5.5	Sample Condition	CHECKED BY: (Initials)	Turnaround Time:	Standard	Bacteria (only) Sample Condition
Sampler - UPS - Bus - Other:	Corrected Temp.: °C 4.9	Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Thermometer ID #113 Correction Factor -0.5°C	<input checked="" type="checkbox"/> Rush	Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>

REMARKS: joseph.guesnier@terracon.com; travis.casey@terracon.com; austin.worley@terracon.com; michael.adams@terracon.com

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



## **APPENDIX E – INITIAL C-141**

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

State of New Mexico  
Energy Minerals and Natural  
Resources Department

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

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

Incident ID	nAPP2304840170
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party Frontier Field Services, LLC	OGRID 221115
Contact Name Amber Groves	Contact Telephone 575-703-7992
Contact email <a href="mailto:agroves@durangomidstream.com">agroves@durangomidstream.com</a>	Incident # (assigned by OCD)
Contact mailing address 47 Conoco Rd, Maljamar NM 88264	

### Location of Release Source

Latitude 32.72646 Longitude -103.98410  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name 8" Santo Nino Steel Line	Site Type Pipeline
Date Release Discovered 2/16/2023	API# (if applicable)

Unit Letter	Section	Township	Range	County
M	21	18S	30E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

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

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Natural Gas	Volume Released (Mcf) 124.52	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

External & Internal corrosion.

State of New Mexico  
Oil Conservation Division

Incident ID	nAPP2304840170
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?

**Initial Response**

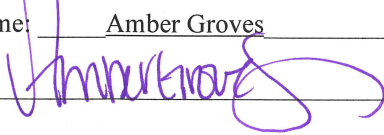
*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

- ☒ 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: Amber Groves Title: Senior Environmental Specialist  
Signature:  Date: 2/17/2023  
email: agroves@durangomidstream.com Telephone: (575)703-7992

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_





## Gas Volume Release Report

Gas Release Volume Calculator		
Date:	2/16/2023	
Site or Line Name:	MAL-Santo Nino 8" Steel Line LP	
Area of Hole in Pipe:	0.25	square inches
Absolute Pressure:	72.5	psia - absolute pressure (psia = psig gauge pressure + 14.7)
Duration of Release:	60.00	minutes
Actual Temperature:	41	Degrees F
Representative Gas Analysis	Please attach or email a representative gas analysis	
Constants		
Temperature at standard conditions:	60	Deg. F
Pressure at standard conditions:	14.7	PSIA
Volume of Gas - ACF	24.32	MACF
Volume of Gas - SCF	124.52	MSCF
Notes		
Entered by user		
Calculated Value		
Constant		

## **APPENDIX F – TERRACON STANDARD OF CARE, LIMITATION, AND RELIANCE**

### **Standard of Care**

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These services were performed in accordance with the scope of work agreed with you, Durango Midstream LLC, as reflected in our proposal (PKH237010).

### **Additional Scope Limitations**

The development of this Amended RAP is based upon information provided by the Client and Terracon's remediation and construction services line. Such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services. We cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those by information provided by the Client. The data, interpretations, findings, and recommendations are based solely upon reformation executed within the scope of these services.

### **Reliance**

This report has been prepared for the exclusive use of Durango Midstream LLC, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of Durango Midstream LLC and Terracon. Any unauthorized distribution or reuse is at Durango Midstream LLC sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal and Durango Midstream LLC and Terracon's Master Services Agreement. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to Durango Midstream LLC and all relying parties unless otherwise agreed in writing.

**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 198124

CONDITIONS

Operator: FRONTIER FIELD SERVICES, LLC 10077 Grogans Mill Rd. The Woodlands, TX 77380	OGRID: 221115
	Action Number: 198124
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your closure report and final C-141 for Incident #NAPP2302727428 SANTO NINO 8" STEEL LINE, thank you. This closure is approved.	7/28/2023