September 13, 2019,

Re: 2RP-5324 Stella Blue Flowback Line Release

Please find attached an updated “Amended Release Investigation and Remedial Action Plan” with the attachments that were inadvertently left off previously upon document uploading.

Rob Kirk

General Manager, HSE and Compliance

Solaris Water Midstream

907 Tradewinds Blvd., Suite B

Midland, TX 79706

O TX: (432) 203-9020

D TX: (432) 217-5074

C: (469) 978-5620

3305 Boyd Drive

Carlsbad, NM 88220

O NM (575) 300-5155

O32E9-190913-C-1410

State of New Mexico
Oil Conservation Division

Incident ID	NAB 1909136893
District RP	2RP-5324
Facility ID	fAB 1909136494
Application ID	pAB 1909136607

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

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

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

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

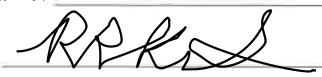
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods,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

State of New Mexico
Oil Conservation Division

Incident ID	NAB 1909136893
District RP	2RP-5324
Facility ID	fAB 1909136494
Application ID	pAB 1909136607

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: General Manager, HSE and Compliance

Signature:  Date: August 29, 2019

email: rob.kirk@solarismidstream.com Telephone: 432-203-9020

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NAB 1909136893
District RP	2RP-5324
Facility ID	fAB 1909136494
Application ID	pAB 1909136607

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.

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: General Manager, HSE and Compliance

Signature: RPK Date: August 29, 2019

email: rob.kirk@solarismidstream.com Telephone: 432-203-9020

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

Amended Release Investigation and Remedial Action Plan

General Site Information

Stella Blue Produced Water Release
NMOCD Reference No. 2RP-5324
Terracon Project No. AR197123

Site Contact

Mr. Rob Kirk, Solaris Water Midstream, LLC
907 Tradewinds Blvd., Suite B, Midland, Texas 79706
(432) 203-9020

Depth to Ground Water

Greater than 100 feet below grade surface

Distance to Nearest Surface Water

Red Bluff Reservoir (North-western Loving County, TX), approximately 6.1 miles to the Southwest

Driving Directions

From Hwy 128, South on Hwy 1 15.2 miles, West on State Line road 6.52 miles, North 0.05 mile, to release location.

Legal Description

Unit M, Section 30, T26S, R31E, Eddy County, New Mexico

Prepared for:

Solaris Water Midstream, LLC
Midland, Texas

Prepared by:

Terracon Consultants, Inc.
Lubbock, Texas
TBPG Firm No. 50058

September 10, 2019

Solaris Water Midstream LLC
907 Tradewinds Blvd., Suite B
Midland, Texas 79706

Attn: Mr. Rob Kirk
P: (432) 203-9020
E: rob.kirk@solarismidstream.com

RE: **Amended Release Investigation and Remedial Action Plan**
Stella Blue Produced Water Release
Unit M, Section 30, Township 26 South, Range 31 East
Eddy County, New Mexico
NMOCD Reference No. 2RP-5324
Terracon Project No. AR197123

Dear Mr. Kirk,

This Release Investigation and Remedial Action Plan has been amended by Terracon Consultants, Inc. (Terracon) in accordance with the New Mexico Oil Conservation Division (NMOCD) regulation concerning Restoration, Reclamation, and Re-vegetation (19.15.29.13 NMAC – D (Reclamation of areas no longer in use)). The amended RAP addresses changes to Terracon's proposed remediation of contaminated soils in Section 9.0, Subsection 9.1, of the report, to state:

- Soils within the release margins, illustrated on Figure 2 of Appendix A, will be excavated to remove as much as possible waste containing, contaminated, earthen material with chloride concentrations greater than 600 mg/kg. If a restrictive barrier is encountered at a depth of less than 4-feet below ground surface, heavy equipment will be utilized to dig an appropriate number of trenches across the release area to 4-feet below ground surface to collect a bottom confirmation grab sample to demonstrate that impacted materials have been sufficiently mitigated.
- If impacted materials have not been sufficiently mitigated, a 20-mil liner will either be installed at the top of the restrictive barrier or at 4-feet (if no restrictive barrier encountered) below ground surface to encapsulate the remaining impacted soil at depth.
- Prior to liner installation, composite (if applicable) confirmation bottom samples will be collected to establish remaining BTEX, TPH, and Chloride concentration levels. In addition, composite confirmation wall samples will also be collected to establish horizontal

delineation and to determine that BTEX, TPH and Chloride concentrations are acceptable for requesting backfilling and restoration of the excavated area.

Terracon appreciates this opportunity to provide environmental services to Solaris Water Midstream. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon Consultants, Inc.

Joseph Guesnier
Staff Scientist
Lubbock

Erin Loyd, P.G.
Principal
Office Manager - Lubbock

TABLE OF CONTENTS

1.0 SITE DESCRIPTION 1
2.0 SCOPE OF SERVICES 1
3.0 INTRODUCTION AND NOTIFICATION 1
4.0 INITIAL RESPONSE ACTIONS 3
4.1 Source Elimination and Site Security 3
4.2 Containment and Site Stabilization 3
5.0 GENERAL SITE CHARACTERISTICS 3
5.1 Depth to Groundwater 3
5.2 Distance to Nearest Potable Water Well 3
5.3 Distance to Nearest Surface Water 3
5.4 Soil Characteristics 3
5.5 Groundwater Quality 4
6.0 SOIL REMEDIAL ACTION LEVELS 4
6.1 Reclamation Levels 5
7.0 SOIL SAMPLING PROCEDURES 6
7.1 Soil Sampling Procedures for Laboratory Analysis 6
8.0 RELEASE INVESTIGATION DATA EVALUATION 6
8.1 Background Data Evaluation 7
8.2 Release Margins Data Evaluation 7
8.3 Release Investigation Data Summary 8
9.0 SOIL REMEDIATION & RECLAMATION 8
9.1 Contaminated Soils 8
9.2 Soil Management 9
10.0 TERMINATION OF REMEDIAL ACTIONS, FINAL CLOSURE AND REPORTING 9
10.1 Termination of Remedial Action 9
10.2 Final Closure 9
10.3 Final Report 9

APPENDIX A – Exhibits

Exhibit 1 – Topographic Map
Exhibit 2 – Site Diagram
Exhibit 3 – Soil Contaminant Concentration Map
Exhibit 4 – NMOSE POD Location Map

APPENDIX B – Tables

Table 1 – Soil Sample Analytical Data Summary

APPENDIX C – Photographic Documentation

Photographic Log – 03/21/2019

APPENDIX D – Certified Laboratory Reports and Chain of Custody

APPENDIX E – Standard of Care, Limitations, and Reliance Policies

Amended Release Investigation and Remedial Action Plan
Stella Blue Produced Water Release
Unit M, Section 30, Township 26 South, Range 31 East
Eddy County, New Mexico
Terracon Project No. AR197123
September 10, 2019

1.0 SITE DESCRIPTION

The site is comprised of a meandered 1.5-mile long release with widths varying between 4 and 15 ft. wide along its extent within the Unit Letter M, Section 30, Township 26 South, Range 31 East, Eddy County, New Mexico and extending into Loving County, Texas (hereinafter, the site). The site consists primarily of rights-of-way for pipelines, lease roads and pipeline crossings with the origin of the release being a 6-inch pipeline fusion coupling that became detached at a connection. A Topographic Map illustrating the site location is included as Exhibit 1 and a Site Diagram illustrating soil sample locations is included as Exhibit 2 in Appendix A. A water well record search is also included as New Mexico Office of the State Engineer (NMOSE) Point of Diversion (POD) Location Map as Exhibit 3 in Appendix A.

2.0 SCOPE OF SERVICES

Terracon Consultants Inc. (Terracon) scope of services is to investigate the magnitude and extent of the documented release and develop a Release Investigation and Remedial Action Plan (RAP) in accordance with the New Mexico Oil Conservation Division (NMOCD) and Bureau of Land Management (BLM) requirements that detail site closure activities to be completed. This RAP addresses the March 20, 2019 release of approximately 990 barrels (bbls) of produced water which contained an estimated 10 bbls of crude originating from a detached fusion coupling on a 6-inch pipeline connection on a Solaris Water Midstream LLC (Solaris) pipeline.

3.0 INTRODUCTION AND NOTIFICATION

A release of approximately 990 bbls of produced water which contained an estimated 10 bbls of crude oil occurred on March 20, 2019 at the Stella Blue site in Eddy County, New Mexico. The site is operated by Solaris Water Midstream LLC, and is comprised of an approximate 3-acre undeveloped area, approximately 21 miles southeast of Malaga, New Mexico. Incident information is provided in the following table:

Incident information is provided in the following table:

Required Information	Site and Release information	
Responsible Party Local Contact	The Produced Water Line is operated by Solaris Water Midstream LLC	
	Contact: Mr. Rob Kirk	P: (469) 978-5620 E: rob.kirk@solarismidstream.com
NMOCD Notification	Notice of the release was provided to Jim Griswold, Bureau Chief of the NMOCD. Rob Kirk (Solaris) notified Brad Billings, District 2 Artesia Hydrologist on March 20, 2019.	
Facility Description	The Stella Blue transfer line is in Eddy County, New Mexico. It is an approximate 3-acre area located within Unit M, Section 30, Township 26 South, Range 31 East, approximately 21 miles southeast of Malaga, New Mexico. The site is being developed as an area for a transfer line.	
Time of Incident	March 20, 2019, discovered at 11:00 a.m.	
Discharge Event	A 6-inch pipeline fusing coupling detached at a connection allowing produced water to be released. At the release point, released fluid saturated proximal surface soil before pooling, then flowing west down the pipeline ROW until encountering a drainage channel which trends to the south-southwest and crosses State Line Road. After crossing State Line Road, released fluid continued to flow down the drainage channel to the south-southwest before terminating in rural pasture land. The release margins are illustrated on Figure 2 of Appendix A	
Type of Discharge	The documented fluids release occurred at the surface and appears to be limited to near surface soils.	
Quantity of Spilled Material	Total Fluids Released: 990 bbls	Produced Water: 990 bbls which contained an estimated 10 bbls of crude oil
	Total Fluids Recovered: 120 bbls	Produced Water: 118 bbls Crude Oil: 2 bbls
Site Characteristics	Relatively flat topography with the native ground surface very gently sloping to the southwest.	
Immediate Corrective Actions	Pipeline was shut in, and an onsite Solaris Contractor (C2) scraped the affected area proximate to the release origin.	

4.0 INITIAL RESPONSE ACTIONS

4.1 Source Elimination and Site Security

Initial source elimination was accomplished by the Solaris Water Midstream foreman shutting in the leaking line and repairing the malfunctioning poly line with a saddle fusion. Solaris Water Midstream deployed C2 Oilfield Services (C2), an on-site contractor, to secure the site and perform containment and site stabilization activities.

4.2 Containment and Site Stabilization

C2 Oilfield Services hydro vacuumed and trenched at the poly line to repair and scraped up and dusted up the affected soil proximate to the release origin, comprising an area measuring approximately 3,000 square feet (sf). From this area, C2 scraped affected materials totaling an estimated 50 yards (cy). Following consolidation of these materials, another Solaris contractor, M&J fenced off the area to deter inadvertent contact with the materials.

5.0 GENERAL SITE CHARACTERISTICS

5.1 Depth to Groundwater

A water well record search of the NMOSE POD Geographic Information System (GIS) data portal identified one registered well (C-02165) within 1.8 miles of the site. The depth to groundwater at the site is anticipated to be over 100 feet bgs. NMOSE registered wells within a 5-mile radius of the site have an average depth to groundwater of 266 feet bgs, with a minimum reported groundwater depth of 180 feet bgs (Exhibit 3 of Appendix A).

5.2 Distance to Nearest Potable Water Well

Based on review of the NMSEO database, registered potable water wells were not present within 0.5 miles of the site.

5.3 Distance to Nearest Surface Water

The Red Bluff Reservoir is located approximately 6.1 miles southwest of the site.

5.4 Soil Characteristics

Soils at the site are mapped as Pajarito loamy, fine sand, 0 to 3 percent slopes, eroded. This soil has a surface layer of fine- to coarse-grained sand. While the Pajarito is comprised of fine- to

coarse-grained sands at the surface depth to restrictive features, are greater than 80 inches bgs resulting in the formation being categorized with a very low runoff classification.

5.5 Groundwater Quality

Groundwater quality is unknown at the site. As stated previously, there are no wells registered with the NMSEO website within 0.5 miles of the site.

6.0 SOIL REMEDIAL ACTION LEVELS

Produced water facilities in New Mexico are generally regulated by the NMOCD. Terracon proposes to remediate produced flowback water impacted soil from the Eddy State Gathering Line Produced Water Release consistent with the remediation/abatement goals and objectives set forth in the New Mexico Oil Conservation Division (NMOCD) *Closure Criteria for Soils Impacted by a Release, June 21, 2018.*

The guidance document provides direction for initial response actions, site assessment, sampling procedures and provides a total ranking score based on the depth to groundwater, distance to private and domestic water sources, and the distance to the nearest surface water body as follows:

Table 1

NMOCD Closure Criteria for Soils Impacted by a Release

Minimum depth below any point within the horizontal boundary of the release to ground water less than 10,000 mg/L TDS	Constituent	Method*	Limit**
≤50 feet	Chloride***	EPA 300.0 or SM4500 Cl B	600 milligram per kilogram (mg/kg)
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015 M	100 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	50 mg/kg
51 feet-100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	10,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015 M	2,500 mg/kg

	GRO+DRO	EPA SW-846 Method 8015 M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg
>100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	20,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015 M	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015 M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg

**Or other methods approved by the division*
***Numerical limits or natural background level, whichever is greater*
****This applies to releases of produced water or other fluids, which may contain chloride*

6.1 Reclamation Levels

NMOCD remediation action limits for Chlorides, TPH (GRO+DRO+MRO), GRO+DRO, BTEX (includes benzene, toluene, ethylbenzene and xylenes), and Benzene are selected based on the minimum depth below any point within the horizontal boundary of the release to ground water of being ≤50 feet: (NMOCD) regulation concerning Restoration, Reclamation, and Re-vegetation (19.15.29.13 NMAC – D (Reclamation of areas no longer in use)).

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

7.0 SOIL SAMPLING PROCEDURES

Soil sampling procedures are detailed as follows:

7.1 Soil Sampling Procedures for Laboratory Analysis

Soil Sampling Procedures

The collection of soil sampling for laboratory analysis were conducted in accordance with to NMOCD-approved industry standards or other NMOCD-approved procedures. Accepted NMOCD soil sampling procedures and laboratory analytical methods are as follows:

- Collect samples in clean, air-tight glass jars supplied by the laboratory which will conduct the analysis or from a reliable laboratory equipment supplier.
- Label the samples with a unique code for each sample.
- Cool and store samples with cold packs or on ice.
- Promptly ship sample to the lab for analysis following chain of custody procedures.
- All samples must be analyzed within the holding times for the laboratory analytical method specified by EPA.

Analytical Methods

All soil samples must be analyzed using EPA methods, or by other NMOCD-approved methods and must be analyzed within the holding time specified by the method. Below are laboratory analytical methods the selected laboratory will use for analysis of soil samples analyzed for petroleum related constituents.

- Chloride – EPA Method 300.0
- Total Petroleum Hydrocarbons - TPH (GRO+DRO+MRO) – EPA Method 8015M
- Benzene, toluene, ethylbenzene and total xylenes (BTEX) – EPA Method 8021B
- Benzene – EPA Method 8021B

8.0 RELEASE INVESTIGATION DATA EVALUATION

During Terracon's March 25, 2019 release investigation activities, a total of 34 soil samples were collected from the site and analyzed for BTEX, chloride, and/or TPH. Twenty-six samples were collected from within the release margins; eight samples were collected outside of the impacted area to evaluate background concentrations. A Soil Contaminant Concentration Map illustrating the soil sample locations and contaminant concentrations is included as Exhibit 4 in Appendix A.

8.1 Background Data Evaluation

One of eight background samples analyzed for Benzene exhibited concentrations above applicable laboratory sample detection limits (SDLs). Soil sample BG-3 (Surface to 0.5 ft. bgs) contained a Benzene concentration above the SDL estimated at 0.000575 mg/kg.

One of eight background samples analyzed for Total BTEX exhibited concentrations above applicable laboratory SDLs. Soil sample BG-3 (Surface to 0.5 ft. bgs) contained an estimated total BTEX concentration of 0.00105J mg/kg.

Chloride was detected above applicable laboratory SDLs in each of the analyzed background samples. The chloride concentrations ranged from 1.85 mg/kg in soil sample BG-3 (Surface to 0.5 ft. bgs) to 26.3 mg/kg in soil sample BG-1 (surface to 0.5 ft. bgs).

The background samples analyzed for Total TPH did not exhibit concentrations above applicable SDLs.

Detected concentrations for BTEX, chloride, and TPH in background samples did not exceed NMOCD Action Levels based on the criteria ranking parameters. Based on the analytical results of the background samples, NMOCD Action Levels will continue to be utilized as the applicable Remedial Action Levels (RALs) for the site.

8.2 Release Margins Data Evaluation

Benzene was not detected above applicable laboratory SDLs in the 20 soil samples analyzed within the release margins. The detected benzene concentrations did not exceed the applicable NMOCD RAL for benzene of 10 mg/kg, as summarized in Table 1.

Total BTEX was detected above applicable laboratory SDLs in 3 of the 20 soil samples analyzed within the release margins. The Total BTEX concentrations ranged from 0.000467 mg/kg in soil sample HA-6 (surface to 0.5 ft. bgs) to 0.0294 mg/kg in soil sample HA-2 (Surface to 0.5 ft. bgs). The detected Total BTEX concentrations did not exceed the applicable NMOCD RAL for Total BTEX of 120 mg/kg, as summarized in Table 1.

Chloride was detected above applicable laboratory SDLs in each of the 24 soil samples analyzed within the release margins. The chloride concentrations ranged from 68.2 mg/kg in soil sample HA-1 (Surface to 0.5 ft. bgs) to 2,820 mg/kg in soil sample HA-4 (Surface to 0.5 ft. bgs). The soil samples analyzed within the release margins did not exhibit chloride concentrations exceeding the applicable NMOCD RAL for chloride of 20,000 mg/kg, as summarized in Table 1.

DRO was detected above applicable laboratory SDLs in 21 of the 26 soil samples analyzed within the release margins. The DRO concentrations ranged from 11.2 mg/kg in soil sample HA-6 (1.5

ft. bgs to 2.0 ft. bgs) to 1,990 mg/kg in soil sample HA-2 (surface to 0.5 ft. bgs). The soil samples analyzed within the release margins did not exhibit DRO concentrations above NMOCD RAL of 1,000 mg/kg for DRO, with soil sample HA-2 (surface to 0.5 ft. bgs) being the exception, as summarized in Table 1

Total TPH was detected above applicable laboratory SDLs in 21 of the 23 soil samples analyzed within the release margins. The Total TPH concentrations ranged from 11.2 mg/kg in soil sample HA-6 (1.5 ft. bgs to 2.0 ft. bgs) to 2,200 mg/kg in soil sample HA-2 (surface to 0.5 ft. bgs). The soil samples analyzed within the release margins did not exhibit Total TPH concentrations above the NMOCD RAL of 2,500 mg/kg for Total TPH, as summarized in Table 1.

8.3 Release Investigation Data Summary

Based on the review of the above release investigation analytical results, the areas within the release margins exhibit concentrations of benzene, Total BTEX, chloride and Total TPH in multiple locations. Based on these exceedances above NMOCD RALs, Sections 9.0 and subsequent detail recommended remedial response actions to be implemented at the site.

9.0 SOIL REMEDIATION & RECLAMATION

Contaminated soil will be remediated, reclamated and managed according to the criteria described below which will remove contaminants to protect fresh waters, public health and the environment.

9.1 Contaminated Soils

Soils exceeding the designated NMOCD RALs described in Section 6 will be remediated as follows:

- Soils within the release margins, illustrated on Figure 2 of Appendix A, will be excavated to remove as much as possible waste containing, contaminated, earthen material with chloride concentrations greater than 600 mg/kg. If a restrictive barrier is encountered at a depth of less than 4-feet below ground surface, heavy equipment will be utilized to dig an appropriate number of trenches across the release area to 4-feet below ground surface to collect a bottom confirmation grab sample to demonstrate that impacted materials have been sufficiently mitigated.
- If impacted materials have not been sufficiently mitigated, a 20-mil liner will either be installed at the top of the restrictive barrier or at 4-feet (if no restrictive barrier encountered) below ground surface to encapsulate the remaining impacted soil at depth.
- Prior to liner installation, composite (if applicable) confirmation bottom samples will be collected to establish remaining BTEX, TPH, and Chloride concentration levels.

In addition, composite confirmation wall samples will also be collected to establish horizontal delineation and to determine that BTEX, TPH and Chloride concentrations are acceptable for requesting backfilling and restoration of the excavated area.

9.2 Soil Management

The selected method of soil management is removal and disposal at a NMOCD-approved facility. Excavated soils will be transported by truck (20 cubic yard capacity) and disposed of at the R360 Disposal Facility operated by R360 Environmental Solutions, Inc., located in Halfway, New Mexico.

10.0 TERMINATION OF REMEDIAL ACTIONS, FINAL CLOSURE AND REPORTING

10.1 Termination of Remedial Action

Remedial action of soils at the site will be terminated when the following criteria have been met. Contaminated soils will be removed from the site. Sufficient contaminated soil will be removed so that residual contaminant concentrations are below the soil remediation action levels.
If soil action levels cannot practicably be attained, an evaluation of risk will be performed and provided to NMOCD for approval showing that the remaining contaminants will not pose a threat to present or foreseeable beneficial use of fresh water, public health and the environment.

10.2 Final Closure

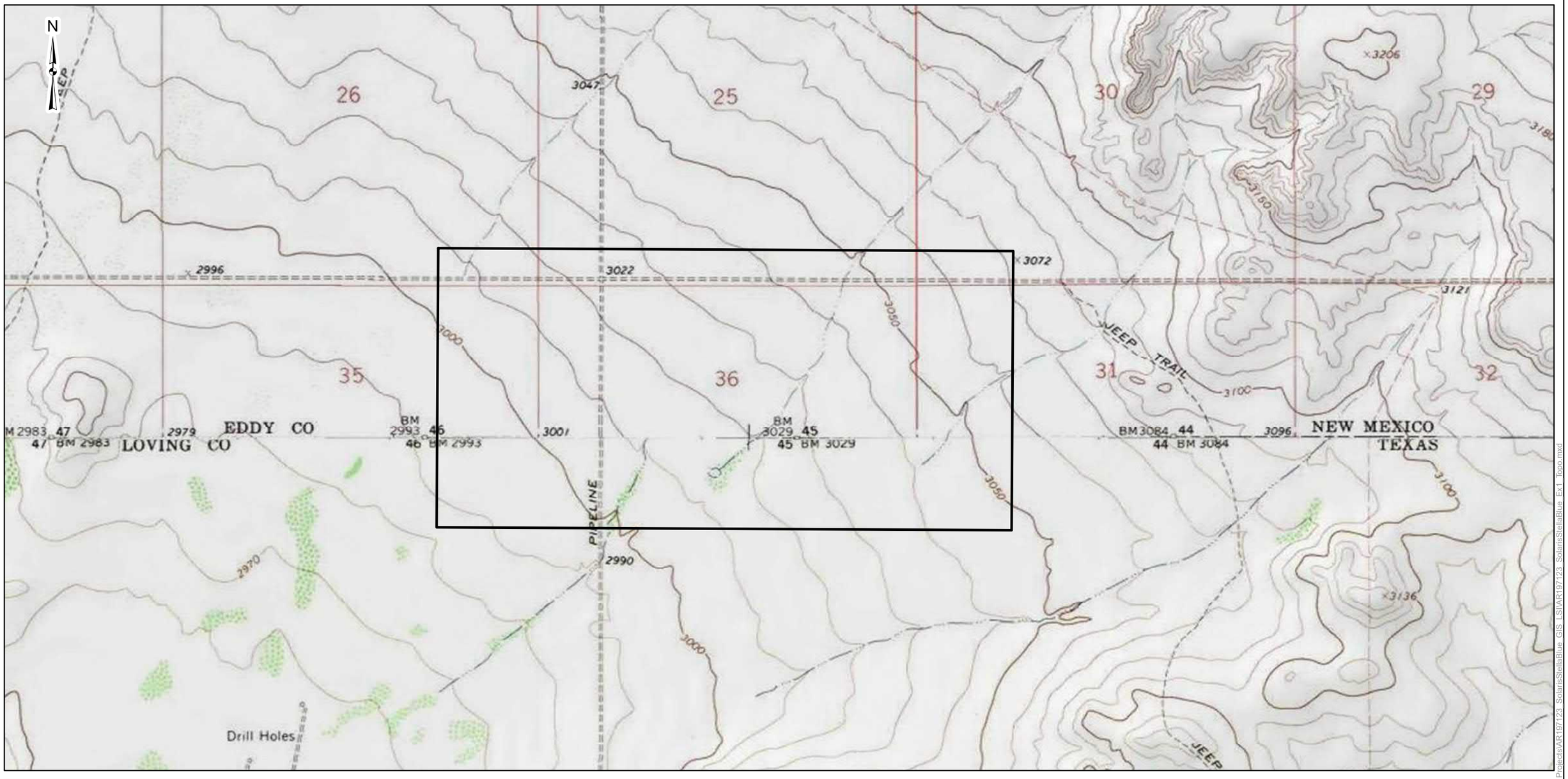
Upon termination of remedial actions (Sections 6 and 9) the area of the release will be closed by backfilling the excavated area, contouring to surrounding area topography and reseeding the area with approved-native vegetative seed.

10.3 Final Report

Upon completion of remedial activities, a final report summarizing all actions taken to mitigate environmental damage related to the release will be provided to NMOCD for approval.

APPENDIX A – Exhibits

Exhibit 1 – Topographic Map
Exhibit 2 – Site Diagram
Exhibit 3 – Soil Contaminant Concentration Map
Exhibit 4 – NMOE POD Location Map



Soil Delineation

Site Boundary

Notes:
-Exhibit is for general location only, is not indended for construction purposes, and should not be used separately from original report.

Feet
0 5,000 10,000 20,000

Fractional Scale: 1:19,375

DATA SOURCES:
Bing Maps - Aerial Imagery, World Street Map

Project No.:	AR197123
Date:	Jun 2019
Drawn By:	SW
Reviewed By:	ELL

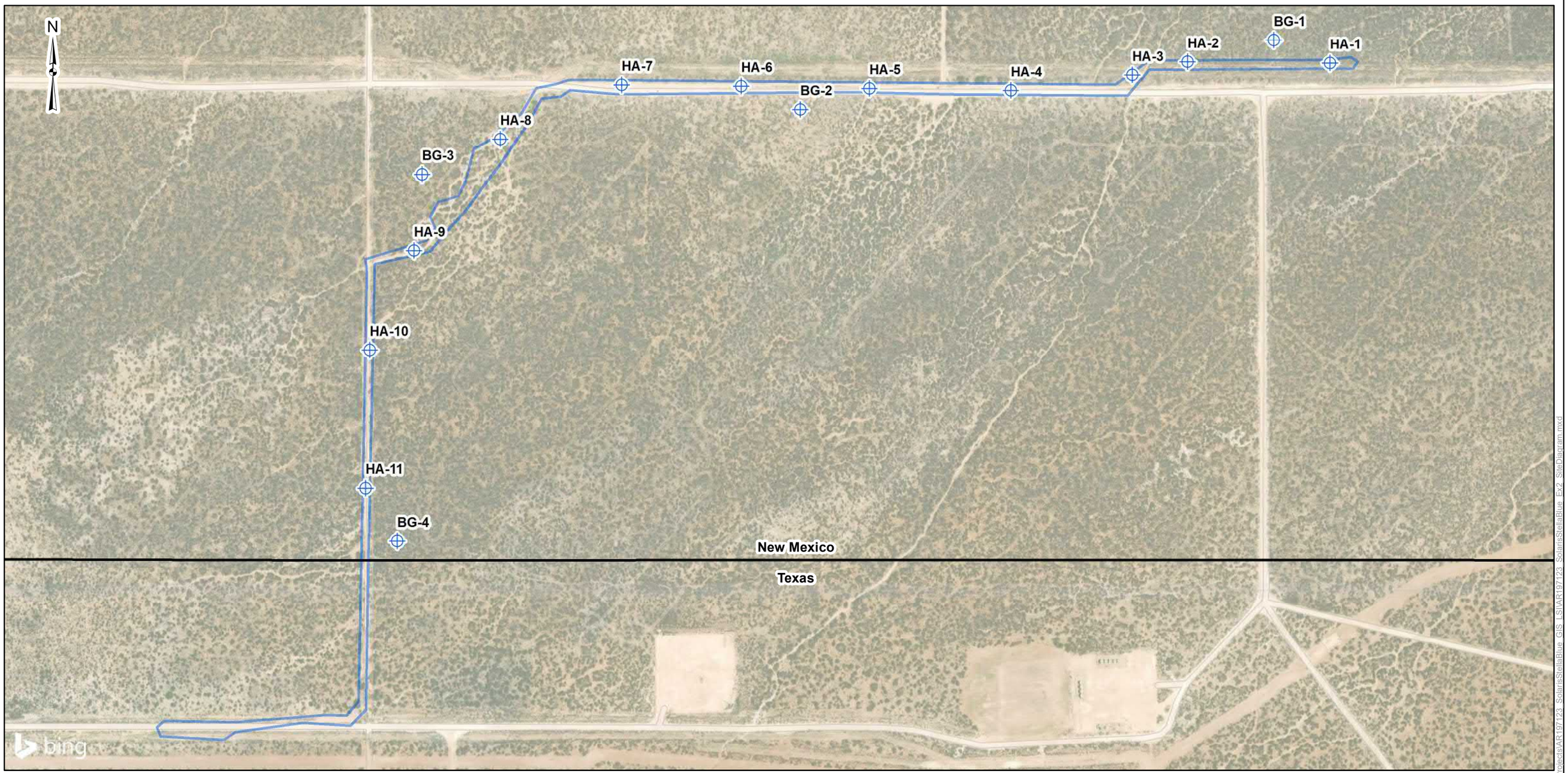
Terracon
5827 50th St. Suite 1 Lubbock, TX 79424
PH. (806) 300-0104 terracon.com

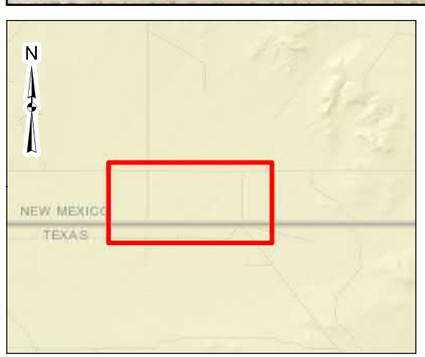
Topographic Map

Solaris - Stella Blue
Eddy County, New Mexico
Unit M, Section 30, Township 26 South,
Range 31 East
GPS: 32.005069°, -103.839061°

Exhibit

1





Soil Delineation

- Soil Boring (HA, BG)
- Affected Area
- New Mexico - Texas Border

Notes:
-Exhibit is for general location only, is not indended for construction purposes, and should not be used separately from original report.

0 300 600 1,200 Feet

Fractional Scale: 1:6,124

DATA SOURCES:
Bing Maps - Aerial Imagery, World Street Map

Project No.:	AR197123
Date:	Jun 2019
Drawn By:	SW
Reviewed By:	ELL

Terracon
5827 50th St. Suite 1 Lubbock, TX 79424
PH. (806) 300-0104 terracon.com

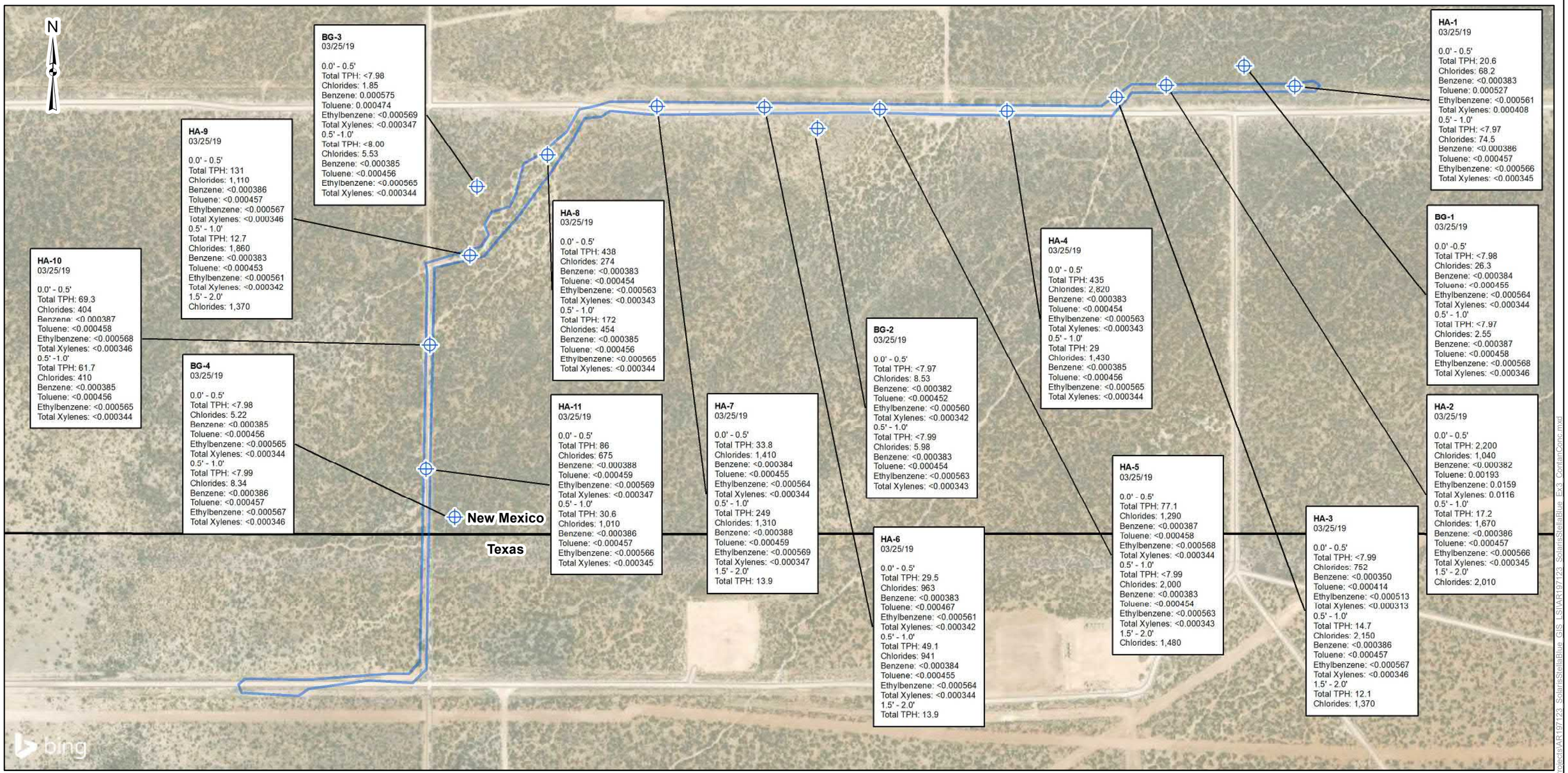
Site Diagram

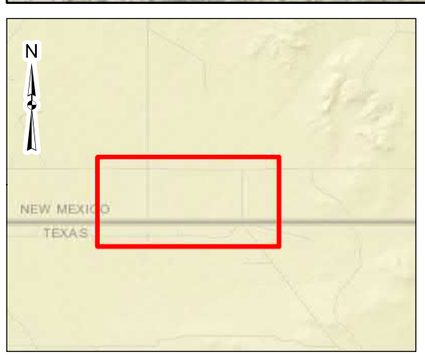
Solaris - Stella Blue
Eddy County, New Mexico
Unit M, Section 30, Township 26 South, Range 31 East
GPS: 32.005069°, -103.839061°

Exhibit

2

C:\Users\swayne\Desktop\GIS Midland Projects\SI GIS Projects\AR197123 SolarisStellaBlue GIS LSI\AR197123 SolarisStellaBlue Ex2 SiteDiagram.mxd





Soil Delineation

- Soil Boring (HA, BG)
- Affected Area
- New Mexico - Texas Border

New Mexico - Oil Conservation Division (NMOCD) Criteria:
- Total TPH - 2,500 mg/kg
- Benzene - 10 mg/kg
- Total BTEX - 120 mg/kg
- Chloride: 20,000 mg/kg
- **Bold** concentrations exceeded the applicable NMOCD criteria.
- Exhibit is for general location only, is not indended for construction purposes, and should not be used separately from original report.
- Sample depths reported in feet below grade surface (bgs).

Feet
0 5,000 10,000 20,000

Fractional Scale: 1:6,800

DATA SOURCES:
Bing Maps - Aerial Imagery, World Street Map

Project No.:	AR197123
Date:	Jun 2019
Drawn By:	SW
Reviewed By:	ELL

Terracon
5827 50th St. Suite 1 Lubbock, TX 79424
PH. (806) 300-0104 terracon.com

Soil Contaminant Concentration Map

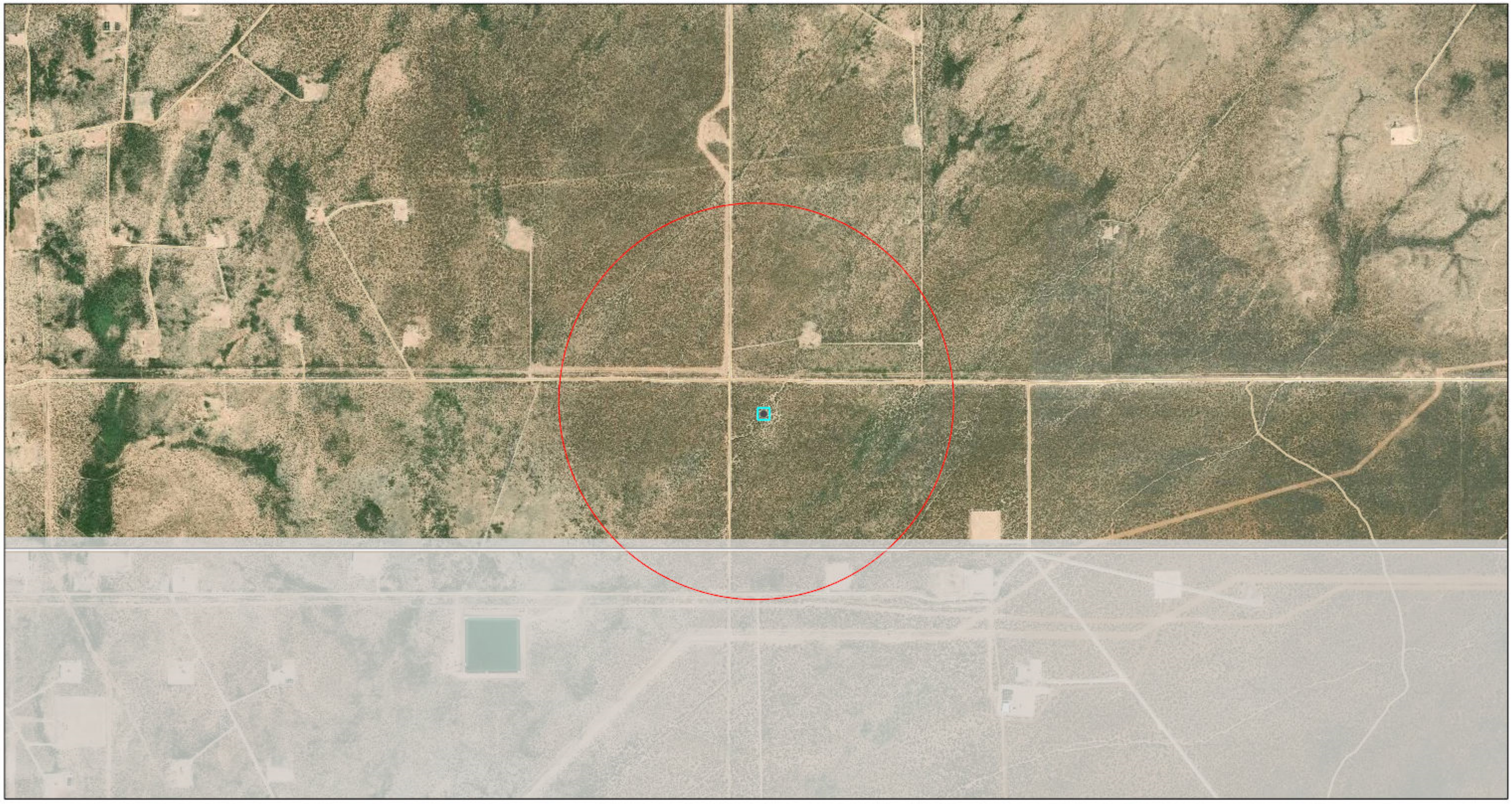
Solaris - Stella Blue
Eddy County, New Mexico
Unit M, Section 30, Township 26 South,
Range 31 East
GPS: 32.005069°, -103.839061°

Exhibit

3

C:\Users\swagner\Desktop\GIS Midland Projects\ST GIS Projects\AR197123 Solaris\Stella Blue GIS <STAR197123 Solaris\Stella Blue EX3 ContamConc.mxd

Exhibit 4 - NMOE POD Location Map



9/10/2019 3:54:24 PM

OSE District Boundary

OSE Conveyances

- Acequia
- Acequia Tunnel
- Arroyo
- Canal
- Channel
- Closed Drain
- Community Ditch
- Connector
- Creek
- Culvert
- Ditch
- Diversion Weir
- Drain
- Feeder
- Interior Drain
- Lateral
- Pipe
- River
- Unknown
- Wash
- Wasteway

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, OSE GIS, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and

Printed from Public Web Map
Unofficial Map from OSE POD Locations Web Application

New Mexico Office of the State Engineer
Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64 Q16 Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	C 02165		24	26S	30E	610036	3544121*

Driller License:	421	**Driller Company:**	GLENN'S WATER WELL SERVICE		
Driller Name:	CORKY GLENN				
Drill Start Date:	05/02/1988	**Drill Finish Date:**	05/02/1988	**Plug Date:**	
Log File Date:	05/05/1988	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	75 GPM
Casing Size:	6.63	**Depth Well:**	440 feet	**Depth Water:**	180 feet

Water Bearing Stratifications:	Top	Bottom	Description
	318	432	Other/Unknown

Casing Perforations:	Top	Bottom
	296	440

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

5/30/19 10:33 AM POINT OF DIVERSION SUMMARY

APPENDIX B – Tables

Table 1 – Soil Sample Analytical Data Summary

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS - BTEX[1], Chloride[2], and TPH[3]
Stella Blue
Terracon Project No. AR197123

Sample I.D.	Sample Depth (bgs)	Sample Type	Sample Date	BTEX (mg/kg)	Chloride (mg/kg)	TPH (8015M) (mg/kg)			
						GRO	DRO	MRO	TOTAL
New Mexico Release Margin Samples									
HA-1	0 - 0.5'	Grab	03/25/19	Benzene - <0.000383 Toluene - 0.000527 Ethylbenzene - <0.000561 Total Xylenes - 0.000408 Total BTEX - 0.000935	68.2	<7.98	20.6	<8.10	20.6
HA-1	0.5' - 1'	Grab	03/25/19	Benzene - <0.000386 Toluene - <0.000457 Ethylbenzene - <0.000566 Total Xylenes - <0.000345 Total BTEX - <0.000345	74.5	<7.97	<8.10	<8.10	<7.97
HA-2	0 - 0.5'	Grab	03/25/19	Benzene - <0.000382 Toluene - 0.00193 Ethylbenzene - 0.0159 Total Xylenes - 0.0116 Total BTEX - 0.0294	**1,040**	55.7	1,990	158	**2,200**
HA-2	0.5' - 1'	Grab	03/25/19	Benzene - <0.000386 Toluene - <0.000457 Ethylbenzene - <0.000566 Total Xylenes - <0.000345 Total BTEX - <0.000345	**1,670**	<7.99	17.2	<8.11	17.2
HA-2	1.5' - 2'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	**2,010**	NA	NA	NA	NA
HA-3	0 - 0.5'	Grab	03/25/19	Benzene - <0.000350 Toluene - <0.000414 Ethylbenzene - <0.000513 Total Xylenes - <0.000313 Total BTEX - <0.000313	**752**	<7.99	<8.11	<8.11	<7.99
HA-3	0.5' - 1'	Grab	03/25/19	Benzene - <0.000386 Toluene - <0.000457 Ethylbenzene - <0.000567 Total Xylenes - <0.000346 Total BTEX - <0.000346	**2,150**	<7.98	14.7	<8.10	14.7
HA-3	1.5' - 2'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	**1,370**	<7.98	12.1	<8.10	12.1
HA-4	0 - 0.5'	Grab	03/25/19	Benzene - <0.000383 Toluene - <0.000454 Ethylbenzene - <0.000563 Total Xylenes - <0.000343 Total BTEX - <0.000343	**2,820**	<7.99	387	47.8	**435**
HA-4	0.5' - 1'	Grab	03/25/19	Benzene - <0.000385 Toluene - <0.000456 Ethylbenzene - <0.000565 Total Xylenes - <0.000344 Total BTEX - <0.000344	**1,430**	<8.00	29.0	<8.13	29.0
HA-5	1.5' - 2'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	**1,480**	NA	NA	NA	NA
New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards*				**Benzene - 10** **Toluene - N/A** **Ethylbenzene - N/A** **Total Xylenes - N/A** **Total BTEX - 50**	**600**	**N/A**			**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/ORO)
* = 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= No Applicable reporting standards
Bold and highlighted denotes concentrations that exceed the New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards.

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS - BTEX[1], Chloride[2], and TPH[3]
Stella Blue
Terracon Project No. AR197123

Sample I.D.	Sample Depth (bgs)	Sample Type	Sample Date	BTEX (mg/kg)	Chloride (mg/kg)	TPH (8015M) (mg/kg)			
						GRO	DRO	MRO	TOTAL
HA-6	0 - 0.5'	Grab	03/25/19	Benzene - <0.000383 Toluene - 0.000467 Ethylbenzene - <0.000561 Total Xylenes - <0.000342 Total BTEX - 0.000467	**963**	<7.97	29.5	<8.10	29.5
HA-6	0.5' - 1'	Grab	03/25/19	Benzene - <0.000384 Toluene - <0.000455 Ethylbenzene - <0.000564 Total Xylenes - <0.000344 Total BTEX - <0.000344	**941**	<7.99	49.1	<8.11	49.1
HA-6	1.5' - 2'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	NA	<7.99	11.2	<8.12	11.2
HA-7	0 - 0.5'	Grab	03/25/19	Benzene - <0.000384 Toluene - <0.000455 Ethylbenzene - <0.000564 Total Xylenes - <0.000344 Total BTEX - <0.000344	**1,410**	<7.99	33.8	<8.12	33.8
HA-7	0.5' - 1'	Grab	03/25/19	Benzene - <0.000388 Toluene - <0.000459 Ethylbenzene - <0.000569 Total Xylenes - <0.000347 Total BTEX - <0.000347	**1,310**	<7.97	223	26.4	**249**
HA-7	1.5' - 2'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	NA	<8.00	13.9	<8.13	13.9
HA-8	0 - 0.5'	Grab	03/25/19	Benzene - <0.000383 Toluene - <0.000454 Ethylbenzene - <0.000563 Total Xylenes - <0.000343 Total BTEX - <0.000343	274	<7.98	390	48.1	**438**
HA-8	0.5' - 1'	Grab	03/25/19	Benzene - <0.000385 Toluene - <0.000456 Ethylbenzene - <0.000565 Total Xylenes - <0.000344 Total BTEX - <0.000344	454	<7.99	154	17.6	**172**
HA-9	0 - 0.5'	Grab	03/25/19	Benzene - <0.000386 Toluene - <0.000457 Ethylbenzene - <0.000567 Total Xylenes - <0.000346 Total BTEX - <0.000346	**1,110**	<7.99	119	12.4	**131**
HA-9	0.5' - 1'	Grab	03/25/19	Benzene - <0.000383 Toluene - <0.000453 Ethylbenzene - <0.000561 Total Xylenes - <0.000342 Total BTEX - <0.000342	**1,860**	<7.98	12.7	<8.10	12.7
HA-9	1.5' - 2'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	**1,370**	NA	NA	NA	NA
New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards*				**Benzene - 10** **Toluene - N/A** **Ethylbenzene - N/A** **Total Xylenes - N/A** **Total BTEX - 120**	**20,000**	**1,000**		**N/A**	**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/ORO)

* = 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= No Applicable reporting standards

Bold and highlighted denotes concentrations that exceed the New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards.

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS - BTEX[1], Chloride[2], and TPH[3]
Stella Blue
Terracon Project No. AR197123

Sample I.D.	Sample Depth (bgs)	Sample Type	Sample Date	BTEX (mg/kg)	Chloride (mg/kg)	TPH (8015M) (mg/kg)			
						GRO	DRO	MRO	TOTAL
HA-10	0 - 0.5'	Grab	03/25/19	Benzene - <0.000387 Toluene - <0.000458 Ethylbenzene - <0.000568 Total Xylenes - <0.000346 Total BTEX - <0.000346	404	<7.99	69.3	<8.11	69.3
HA-10	0.5' - 1'	Grab	03/25/19	Benzene - <0.000385 Toluene - <0.000456 Ethylbenzene - <0.000565 Total Xylenes - <0.000344 Total BTEX - <0.000344	410	<7.99	61.7	<8.11	61.7
HA-11	0 - 0.5'	Grab	03/25/19	Benzene - <0.000388 Toluene - <0.000459 Ethylbenzene - <0.000569 Total Xylenes - <0.000347 Total BTEX - <0.000347	**675**	<8.00	77.8	8.15	86.0
HA-11	0.5' - 1'	Grab	03/25/19	Benzene - <0.000386 Toluene - <0.000457 Ethylbenzene - <0.000566 Total Xylenes - <0.000345 r <0.000345	**1,010**	<7.99	30.6	<8.11	30.6
New Mexico Background Samples									
BG-1	0 - .5'	Grab	03/25/19	Benzene - <0.000384 Toluene - <0.000455 Ethylbenzene - <0.000564 Total Xylenes - <0.000344 Total BTEX - <0.000344	26.3	<7.98	<8.10	<8.10	<7.98
BG-1	0.5' - 1'	Grab	03/25/19	Benzene - <0.000387 Toluene - <0.000458 Ethylbenzene - <0.000568 Total Xylenes - <0.000346 Total BTEX - <0.000346	2.55	<7.97	<8.10	<8.10	<7.97
BG-2	0 - .5'	Grab	03/25/19	Benzene - <0.000382 Toluene - <0.000452 Ethylbenzene - <0.000560 Total Xylenes - <0.000342 Total BTEX - <0.000342	8.53	<7.97	<8.10	<8.10	<7.97
BG-2	.5' - 1'	Grab	03/25/19	Benzene - <0.000383 Toluene - <0.000454 Ethylbenzene - <0.000563 Total Xylenes - <0.000343 Total BTEX - <0.000343	5.98	<7.99	<8.12	<8.12	<7.99
BG-3	0 - .5'	Grab	03/25/19	Benzene - 0.000575 Toluene - 0.000474 Ethylbenzene - <0.000569 Total Xylenes - <0.000347 Total BTEX - 0.00105	1.85	<7.98	<8.10	<8.10	<7.98
BG-3	.5' - 1'	Grab	03/25/19	Benzene - <0.000385 Toluene - <0.000456 Ethylbenzene - <0.000565 Total Xylenes - <0.000344 Total BTEX - <0.000344	5.53	<8.00	<8.13	<8.13	<8.00
BG-4	0 - .5'	Grab	03/25/19	Benzene - <0.000385 Toluene - <0.000456 Ethylbenzene - <0.000565 Total Xylenes - <0.000344 Total BTEX - <0.000344	5.22	<7.98	<8.10	<8.10	<7.98
BG-4	.5' - 1'	Grab	03/25/19	Benzene - <0.000386 Toluene - <0.000457 Ethylbenzene - <0.000567 Total Xylenes - <0.000346 Total BTEX - <0.000346	8.34	<7.99	<8.12	<8.12	<7.99
New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards*				**Benzene - 10** **Toluene - N/A** **Ethylbenzene - N/A** **Total Xylenes - N/A** **Total BTEX - 120**	**20,000**	**1,000**		**N/A**	**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/ORO)
* = 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= No Applicable reporting standards
Bold and highlighted denotes concentrations that exceed the New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards.

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS - BTEX[1], Chloride[2], and TPH[3]
Stella Blue
Terracon Project No. AR197123

Sample I.D.	Sample Depth (bgs)	Sample Type	Sample Date	BTEX (mg/kg)	Chloride (mg/kg)	TPH (8015M) (mg/kg)			
						GRO	DRO	MRO	TOTAL
Texas Release Margin Samples									
HA-12	0 - .5'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	895	<7.98	455	<8.10	455
HA-12	.5' - 1'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	1,340	<7.99	94.8	<8.11	94.8
HA-12	1.5' - 2'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	1,960	<7.98	<8.10	<8.10	<7.98
HA-13	0 - .5'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	868	<8.0	17.6	<8.13	17.6
HA-13	.5' - 1'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	941	<8.0	95.6	<8.13	95.6
HA-13	1.5' - 2'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	1,780	<7.97	<8.10	<8.10	<7.97
HA-14	0 - .5'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	1,180	<7.98	64.6	<8.10	64.6
HA-14	.5' - 1'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	1,060	<7.97	15.9	<8.10	15.9
Texas Background Samples									
BG-5	0 - .5'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	9.31	<7.98	18.4	<8.10	18.4
BG-5	.5' - 1'	Grab	03/25/19	Benzene - NA Toluene - NA Ethylbenzene - NA Total Xylenes - NA Total BTEX - NA	4.02	<7.98	22.0	<8.10	22.0
Railroad Commision of Texas Remediation and Delineation Standards*				**Benzene - N/A** **Toluene - N/A** **Ethylbenzene - N/A** **Total Xylenes - N/A** **Total BTEX - N/A**	**3,000**	**10,000**			

1. Chloride = Chloride analyzed by EPA Method 300.

2. TPH = Total petroleum hydrocarbons anyalyzed by TCEQ Method TX1005.

*= Remediation and Delineation Standards for chlorides have not been formally issued; however, 3,000 mg/kg was referenced as a maximum concentration standard based on the leachability of chlorides from soils as noted in the "Field Guide for the Assesment and Cleanup of Produced Water Releases", dated Draft on February 17, 2006, by the Texas Railroad Commission.

Bold denotes concentrations that exceed the Texas RRC Remediation and Delineation Standards.

APPENDIX C

Photographic Log – 03/21/2019

PHOTO 1: View of release origin, east. 3/21/2019 / **TIME**: 2:05PM / **GPS**: 32.0066, -103.8266

PHOTO 2: View of impact on pipeline, facing east. 3/21/2019 / **TIME**: 2:01PM / **GPS**: 32.0067, -103.8292

PHOTO 3: View of release going to bar ditch, facing south. 3/21/2019 / **TIME**: 2:01PM / **GPS**: 32.0067, -103.8292

PHOTO 4: View of release in ditch, facing east. 3/21/2019 / **TIME**: 1:13PM / **GPS**: 32.0063, -103.8376

PHOTO 5: View of release in ditch, facing west. 3/21/2019 / **TIME**: 1:57PM / **GPS**: 32.0062, -103.8323

PHOTO 6: View of release crossing lease road, facing west. 3/21/2019 / **TIME**: 1:13PM / **GPS**: 32.0063, -103.8376

PHOTO 7: View of release in eroded area, facing southeast. 3/21/2019 / **TIME**: 1:18PM / **GPS**: 32.0047, -103.8393

PHOTO 8: View of release in eroded lease road, facing north. 3/21/2019 / **TIME**: 1:44PM / **GPS**: 32.0039, -103.8405

PHOTO 9: View of release following eroded lease road, facing south. 3/21/2019 / **TIME**: 1:25PM / **GPS**: 32.0005, -103.8405

PHOTO 10: View of release end of eroded lease road, facing southwest. 3/21/2019 / **TIME**: 1:28PM / **GPS**: 31.9986, -103.8405

PHOTO 11: View of release end crossing last lease road, facing west. 3/21/2019 / **TIME**: 1:30PM / **GPS**: 31.9984, -103.8419

PHOTO 12: View of HA-1, facing east. 3/25/2019 / **TIME**: 2:15PM / **GPS**: 32.0065, -103.8267

PHOTO 13: View of HA-2, facing west. 3/25/2019 / **TIME**: 2:26PM / **GPS**: 32.0066, -103.8281

PHOTO 14: View of HA-3, facing north. 3/25/2019 / **TIME**: 2:34PM / **GPS**: 32.0064, -103.8239

PHOTO 15: View of HA-4, facing east. 3/25/2019 / **TIME**: 2:48PM / **GPS**: 32.0063, -103.8315

PHOTO 16: View of HA-6, facing east. 3/25/2019 / **TIME**: 3:01PM / **GPS**: 32.0063, -103.8339

PHOTO 17: View of HA-7, facing east. 3/25/2019 / **TIME**: 3:10PM / **GPS**: 32.0063, -103.8354

PHOTO 18: View of HA-8, facing southwest. 3/25/2019 / **TIME**: 3:24PM / **GPS**: 32.0055, -103.8387

PHOTO 19: View of HA-9, facing west. 3/25/2019 / **TIME**: 3:33PM / **GPS**: 32.0042, -103.8401

PHOTO 20: View of HA-10, facing south. 3/25/2019 / **TIME**: 3:53PM / **GPS**: 32.0030, -103.8405

PHOTO 21: View of HA-11, facing south. 3/25/2019 / **TIME**: 4:00PM / **GPS**: 32.0013, -103.8406

APPENDIX D

Certified Laboratory Analytical Report and Chain of Custody

Analytical Report 618908

for

Terracon-Lubbock

Project Manager: John Fergerson

Stella Blue

AR197123

04.09.2019

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)

04.09.2019

Project Manager: **John Fergerson**
Terracon-Lubbock
5827 50th st, Suite 1
Lubbock, TX 79424

Reference: XENCO Report No(s): **618908**
Stella Blue
Project Address:

John Fergerson:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 618908. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 618908 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Debbie Simmons

Debbie Simmons
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Sample Cross Reference 618908

Terracon-Lubbock, Lubbock, TX

Stella Blue

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BG-5 (0-.5)	S	03.25.2019 16:00	0 - 5 ft	618908-001
BG-5 (.5-1)	S	03.25.2019 16:02	.5 - 1 ft	618908-002
HA-12 (0-.5)	S	03.25.2019 15:56	0 - .5 ft	618908-005
HA-12 (.5-1)	S	03.25.2019 15:58	.5 - 1 ft	618908-006
HA-12 (1.5-2)	S	03.25.2019 16:00	1.5 - 2 ft	618908-007
HA-13 (0-.5)	S	03.25.2019 16:10	0 - .5 ft	618908-009
HA-13 (.5-1)	S	03.25.2019 16:12	.5 - 1 ft	618908-010
HA-13(1.5-2)	S	03.25.2019 16:14	1.5 - 2 ft	618908-011
HA-14 (0-.5)	S	03.25.2019 16:20	0 - .5 ft	618908-012
HA-14 (.5-1)	S	03.25.2019 16:22	.5 - 1 ft	618908-013
BG-5 (1.5-2)	S	03.25.2019 16:04	1.5 - 2 ft	Not Analyzed
BG-5 (3-3.5)	S	03.25.2019 16:06	3 - 3.5 ft	Not Analyzed
HA-12 (3-3.5)	S	03.25.2019 16:02	3 - 3.5 ft	Not Analyzed
HA-14 (1.5-2)	S	03.25.2019 16:24	1.5 - 2 ft	Not Analyzed
HA-14 (3-3.5)	S	03.25.2019 16:26	3 - 3.5 ft	Not Analyzed

CASE NARRATIVE

Client Name: Terracon-Lubbock

Project Name: Stella Blue

Project ID: *AR197123*
Work Order Number(s): *618908*

Report Date: *04.09.2019*
Date Received: *03.26.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Sample receipt non conformances and comments:

04/02/2019: per Joseph Guesnier, additional analyses request for this report on a 2 Day TAT.

HA-12 (1.5-2) - Chlorides
HA-13 (1.5-2) - Chlorides and TPH

Report revised 4/9/19 to include these results.

Sample receipt non conformances and comments per sample:

None

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-5 (0-.5)** Matrix: Soil Sample Depth: 0 - 5 ft

Lab Sample Id: 618908-001 Date Collected: 03.25.2019 16:00 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**9.31**	4.96	0.852	mg/kg	03.26.2019 19:27		1

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083501 Date Prep: 03.26.2019 17:00

Prep seq: 7674393

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<7.98	24.9	7.98	mg/kg	03.26.2019 22:44	U	1
C12-C28 Range Hydrocarbons	PHCG1228	**18.4**	24.9	8.10	mg/kg	03.26.2019 22:44	J	1
C28-C35 Range Hydrocarbons	PHCG2835	<8.10	24.9	8.10	mg/kg	03.26.2019 22:44	U	1
Total TPH	PHC635	**18.4**		7.98	mg/kg	03.26.2019 22:44	J	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	79	70 - 130	%		
1-Chlorooctane	81	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-5 (.5-1)** Matrix: Soil Sample Depth: .5 - 1 ft

Lab Sample Id: 618908-002 Date Collected: 03.25.2019 16:02 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**4.02**	4.99	0.857	mg/kg	03.26.2019 19:33	J	1

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083501 Date Prep: 03.26.2019 17:00

Prep seq: 7674393

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<7.98	24.9	7.98	mg/kg	03.26.2019 23:00	U	1
C12-C28 Range Hydrocarbons	PHCG1228	**22.0**	24.9	8.10	mg/kg	03.26.2019 23:00	J	1
C28-C35 Range Hydrocarbons	PHCG2835	<8.10	24.9	8.10	mg/kg	03.26.2019 23:00	U	1
Total TPH	PHC635	**22.0**		7.98	mg/kg	03.26.2019 23:00	J	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	85	70 - 130	%		
1-Chlorooctane	92	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **HA-12 (0-.5)** Matrix: Soil Sample Depth: 0 - .5 ft

Lab Sample Id: 618908-005 Date Collected: 03.25.2019 15:56 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**895**	5.00	0.858	mg/kg	03.26.2019 19:38		1

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083501 Date Prep: 03.26.2019 17:00

Prep seq: 7674393

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<7.98	24.9	7.98	mg/kg	03.26.2019 23:15	U	1
C12-C28 Range Hydrocarbons	PHCG1228	**455**	24.9	8.10	mg/kg	03.26.2019 23:15		1
C28-C35 Range Hydrocarbons	PHCG2835	<8.10	24.9	8.10	mg/kg	03.26.2019 23:15	U	1
Total TPH	PHC635	**455**		7.98	mg/kg	03.26.2019 23:15		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	87	70 - 130	%		
1-Chlorooctane	86	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **HA-12 (.5-1)** Matrix: Soil Sample Depth: .5 - 1 ft

Lab Sample Id: 618908-006 Date Collected: 03.25.2019 15:58 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**1340**	25.2	4.32	mg/kg	03.26.2019 19:44		5

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083501 Date Prep: 03.26.2019 17:00

Prep seq: 7674393

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<7.99	25.0	7.99	mg/kg	03.26.2019 23:31	U	1
C12-C28 Range Hydrocarbons	PHCG1228	**94.8**	25.0	8.11	mg/kg	03.26.2019 23:31		1
C28-C35 Range Hydrocarbons	PHCG2835	<8.11	25.0	8.11	mg/kg	03.26.2019 23:31	U	1
Total TPH	PHC635	**94.8**		7.99	mg/kg	03.26.2019 23:31		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	83	70 - 130	%		
1-Chlorooctane	83	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **HA-12 (1.5-2)** Matrix: Soil Sample Depth: 1.5 - 2 ft

Lab Sample Id: 618908-007 Date Collected: 03.25.2019 16:00 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084794 Date Prep: 04.04.2019 08:30

Prep seq: 7675004

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**1960**	25.1	4.30	mg/kg	04.04.2019 12:55		5

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3084487 Date Prep: 04.03.2019 12:00

Prep seq: 7674996

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<7.98	24.9	7.98	mg/kg	04.03.2019 15:23	U	1
C12-C28 Range Hydrocarbons	PHCG1228	<8.10	24.9	8.10	mg/kg	04.03.2019 15:23	U	1
C28-C35 Range Hydrocarbons	PHCG2835	<8.10	24.9	8.10	mg/kg	04.03.2019 15:23	U	1
Total TPH	PHC635	<7.98		7.98	mg/kg	04.03.2019 15:23	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	73	70 - 130	%		
1-Chlorooctane	71	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **HA-13 (0-.5)** Matrix: Soil Sample Depth: 0 - .5 ft

Lab Sample Id: 618908-009 Date Collected: 03.25.2019 16:10 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**868**	5.00	0.858	mg/kg	03.26.2019 20:01		1

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083501 Date Prep: 03.26.2019 17:00

Prep seq: 7674393

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<8.00	25.0	8.00	mg/kg	03.26.2019 23:47	U	1
C12-C28 Range Hydrocarbons	PHCG1228	**17.6**	25.0	8.13	mg/kg	03.26.2019 23:47	J	1
C28-C35 Range Hydrocarbons	PHCG2835	<8.13	25.0	8.13	mg/kg	03.26.2019 23:47	U	1
Total TPH	PHC635	**17.6**		8.00	mg/kg	03.26.2019 23:47	J	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	79	70 - 130	%		
1-Chlorooctane	83	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **HA-13 (.5-1)** Matrix: Soil Sample Depth: .5 - 1 ft

Lab Sample Id: 618908-010 Date Collected: 03.25.2019 16:12 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**941**	4.95	0.850	mg/kg	03.26.2019 20:07		1

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083501 Date Prep: 03.26.2019 17:00

Prep seq: 7674393

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<8.00	25.0	8.00	mg/kg	03.27.2019 00:02	U	1
C12-C28 Range Hydrocarbons	PHCG1228	**95.6**	25.0	8.13	mg/kg	03.27.2019 00:02		1
C28-C35 Range Hydrocarbons	PHCG2835	<8.13	25.0	8.13	mg/kg	03.27.2019 00:02	U	1
Total TPH	PHC635	**95.6**		8.00	mg/kg	03.27.2019 00:02		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	86	70 - 130	%		
1-Chlorooctane	84	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **HA-13(1.5-2)** Matrix: Soil Sample Depth: 1.5 - 2 ft

Lab Sample Id: 618908-011 Date Collected: 03.25.2019 16:14 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084794 Date Prep: 04.04.2019 08:30

Prep seq: 7675004

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**1780**	25.0	4.29	mg/kg	04.04.2019 13:00		5

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3084487 Date Prep: 04.03.2019 12:00

Prep seq: 7674996

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<7.97	24.9	7.97	mg/kg	04.03.2019 16:13	U	1
C12-C28 Range Hydrocarbons	PHCG1228	<8.10	24.9	8.10	mg/kg	04.03.2019 16:13	U	1
C28-C35 Range Hydrocarbons	PHCG2835	<8.10	24.9	8.10	mg/kg	04.03.2019 16:13	U	1
Total TPH	PHC635	<7.97		7.97	mg/kg	04.03.2019 16:13	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	70	70 - 130	%		
1-Chlorooctane	70	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id:	**HA-14 (0-.5)**	Matrix:	Soil	Sample Depth:	0 - .5 ft
Lab Sample Id:	618908-012	Date Collected:	03.25.2019 16:20	Date Received:	03.26.2019 12:18
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Analyst:	CHE	% Moist:		Tech:	CHE
Seq Number:	3083504	Date Prep:	03.26.2019 16:50		
		Prep seq:	7674373		

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**1180**	24.8	4.25	mg/kg	03.26.2019 20:12		5

Analytical Method:	TPH by Texas1005			Prep Method:	1005
Analyst:	ARM	% Moist:		Tech:	ARM
Seq Number:	3083501	Date Prep:	03.26.2019 17:00		
		Prep seq:	7674393		

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<7.98	24.9	7.98	mg/kg	03.27.2019 00:18	U	1
C12-C28 Range Hydrocarbons	PHCG1228	**64.6**	24.9	8.10	mg/kg	03.27.2019 00:18		1
C28-C35 Range Hydrocarbons	PHCG2835	<8.10	24.9	8.10	mg/kg	03.27.2019 00:18	U	1
Total TPH	PHC635	**64.6**		7.98	mg/kg	03.27.2019 00:18		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	82	70 - 130	%		
1-Chlorooctane	84	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **HA-14 (.5-1)** Matrix: Soil Sample Depth: .5 - 1 ft

Lab Sample Id: 618908-013 Date Collected: 03.25.2019 16:22 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**1060**	24.8	4.25	mg/kg	03.26.2019 20:18		5

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083501 Date Prep: 03.26.2019 17:00

Prep seq: 7674393

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<7.97	24.9	7.97	mg/kg	03.27.2019 00:34	U	1
C12-C28 Range Hydrocarbons	PHCG1228	**15.9**	24.9	8.10	mg/kg	03.27.2019 00:34	J	1
C28-C35 Range Hydrocarbons	PHCG2835	<8.10	24.9	8.10	mg/kg	03.27.2019 00:34	U	1
Total TPH	PHC635	**15.9**		7.97	mg/kg	03.27.2019 00:34	J	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	86	70 - 130	%		
1-Chlorooctane	91	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **7674373-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7674373-1-BLK Date Collected: Date Received:

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<0.858	5.00	0.858	mg/kg	03.26.2019 18:53	U	1

Sample Id: **7674393-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7674393-1-BLK Date Collected: Date Received:

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083501 Date Prep: 03.26.2019 17:00

Prep seq: 7674393

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<8.00	25.0	8.00	mg/kg	03.26.2019 21:10	U	1
C12-C28 Range Hydrocarbons	PHCG1228	<8.13	25.0	8.13	mg/kg	03.26.2019 21:10	U	1
C28-C35 Range Hydrocarbons	PHCG2835	<8.13	25.0	8.13	mg/kg	03.26.2019 21:10	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	98	70 - 130	%		
1-Chlorooctane	98	70 - 130	%		

Sample Id: **7674996-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7674996-1-BLK Date Collected: Date Received:

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3084487 Date Prep: 04.03.2019 12:00

Prep seq: 7674996

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Range Hydrocarbons	PHC612	<8.00	25.0	8.00	mg/kg	04.03.2019 14:34	U	1
C12-C28 Range Hydrocarbons	PHCG1228	<8.13	25.0	8.13	mg/kg	04.03.2019 14:34	U	1
C28-C35 Range Hydrocarbons	PHCG2835	<8.13	25.0	8.13	mg/kg	04.03.2019 14:34	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	88	70 - 130	%		
1-Chlorooctane	83	70 - 130	%		

Certificate of Analytical Results
618908

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **7675004-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7675004-1-BLK Date Collected: Date Received:

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084794 Date Prep: 04.04.2019 08:30

Prep seq: 7675004

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<0.858	5.00	0.858	mg/kg	04.04.2019 10:40	U	1

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: Stella Blue

Work Orders : 618908 **Project ID:** AR197123

Lab Batch #: 3083501 **Sample:** 7674393-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03.26.2019 21:10 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	49.0	50.0	98	70-130	
1-Chlorooctane	98.4	100	98	70-130	

Lab Batch #: 3083501 **Sample:** 7674393-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03.26.2019 21:25 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.7	50.0	101	70-130	
1-Chlorooctane	120	100	120	70-130	

Lab Batch #: 3083501 **Sample:** 7674393-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03.26.2019 21:41 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	55.1	50.0	110	70-130	
1-Chlorooctane	110	100	110	70-130	

Lab Batch #: 3083501 **Sample:** 618723-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03.26.2019 22:12 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.1	49.9	96	70-130	
1-Chlorooctane	99.6	99.8	100	70-130	

Lab Batch #: 3083501 **Sample:** 618723-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03.26.2019 22:28 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	47.8	50.0	96	70-130	
1-Chlorooctane	99.8	99.9	100	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Stella Blue

Work Orders : 618908 **Project ID:** AR197123

Lab Batch #: 3084487 **Sample:** 7674996-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04.03.2019 14:34 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	43.8	50.0	88	70-130	
1-Chlorooctane	82.7	100	83	70-130	

Lab Batch #: 3084487 **Sample:** 7674996-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04.03.2019 14:50 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	52.0	50.0	104	70-130	
1-Chlorooctane	104	100	104	70-130	

Lab Batch #: 3084487 **Sample:** 7674996-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04.03.2019 15:07 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	51.7	50.0	103	70-130	
1-Chlorooctane	110	100	110	70-130	

Lab Batch #: 3084487 **Sample:** 618908-007 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04.03.2019 15:40 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	42.5	50.0	85	70-130	
1-Chlorooctane	80.8	99.9	81	70-130	

Lab Batch #: 3084487 **Sample:** 618908-007 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04.03.2019 15:56 **SURROGATE RECOVERY STUDY**

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	40.9	49.9	82	70-130	
1-Chlorooctane	85.3	99.7	86	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Stella Blue

Work Order #: 618908 **Project ID:** AR197123

Analyst: CHE **Date Prepared:** 03.26.2019 **Date Analyzed:** 03.26.2019

Lab Batch ID: 3083504 **Sample:** 7674373-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.858	250	239	96	250	239	96	0	90-110	20	

Analyst: CHE **Date Prepared:** 04.04.2019 **Date Analyzed:** 04.04.2019

Lab Batch ID: 3084794 **Sample:** 7675004-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.858	250	251	100	250	262	105	4	90-110	20	

Analyst: ARM **Date Prepared:** 03.26.2019 **Date Analyzed:** 03.26.2019

Lab Batch ID: 3083501 **Sample:** 7674393-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<8.00	1000	975	98	1000	985	99	1	75-125	20	
C12-C28 Range Hydrocarbons	<8.13	1000	909	91	1000	929	93	2	75-125	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Stella Blue

Work Order #: 618908 **Project ID:** AR197123

Analyst: ARM **Date Prepared:** 04.03.2019 **Date Analyzed:** 04.03.2019

Lab Batch ID: 3084487 **Sample:** 7674996-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<8.00	1000	979	98	1000	974	97	1	75-125	20	
C12-C28 Range Hydrocarbons	<8.13	1000	1000	100	1000	965	97	4	75-125	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: Stella Blue

Work Order # : 618908 **Project ID:** AR197123

Lab Batch ID: 3083504 **QC- Sample ID:** 618636-005 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03.26.2019 **Date Prepared:** 03.26.2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	24.2	250	275	100	250	277	101	1	90-110	20	

Lab Batch ID: 3083504 **QC- Sample ID:** 618909-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03.26.2019 **Date Prepared:** 03.26.2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	2.55	249	279	111	249	279	111	0	90-110	20	X

Lab Batch ID: 3084794 **QC- Sample ID:** 619249-005 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04.04.2019 **Date Prepared:** 04.04.2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	56.5	250	340	113	250	346	116	2	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Stella Blue

Work Order # : 618908 **Project ID:** AR197123

Lab Batch ID: 3084794 **QC- Sample ID:** 619567-023 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04.04.2019 **Date Prepared:** 04.04.2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	109	248	408	121	248	389	113	5	90-110	20	X

Lab Batch ID: 3083501 **QC- Sample ID:** 618723-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03.26.2019 **Date Prepared:** 03.26.2019 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<7.99	998	936	94	999	934	93	0	75-125	20	
C12-C28 Range Hydrocarbons	299	998	929	63	999	944	65	2	75-125	20	X

Lab Batch ID: 3084487 **QC- Sample ID:** 618908-007 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04.03.2019 **Date Prepared:** 04.03.2019 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<7.99	999	814	81	997	817	82	0	75-125	20	
C12-C28 Range Hydrocarbons	<8.12	999	836	84	997	824	83	1	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

L018908

CHAIN OF CUSTODY RECORD

Terracon

Laboratory: Xenco
Address: 6701 Aberdeen
Lubbock, Texas 79424

Office Location: Lubbock
Phone:
Contact:
Project Manager: John Ferguson
SRS #:
Sampler's Name: Joseph Guesnier
Sampler's Signature

ANALYSIS REQUESTED

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

Project Number: AR197123
Project Name: Stella Blue (TX)

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No. Type of Containers: 2 oz Glass	4 oz Glass			Chloride (EPA Method 300)	TPH (TCEQ Method TX1005)		Hold				Lab Sample ID
S	3/25/2019	4:00		X	BG-5 (0-.5)	0'	.5'	X				X	X						
S	3/25/2019	4:02		X	BG-5 (.5-1)	.5'	1'	X				X	X						
S	3/25/2019	4:04		X	BG-5 (1.5-2)	1.5'	2'	X							X				
S	3/25/2019	4:06		X	BG-5 (3-3.5)	3'	3.5'	X							X				
S	3/25/2019	3:56		X	HA-12 (0-.5)	0'	.5'	X				X	X						
S	3/25/2019	3:58		X	HA-12 (.5-1)	.5'	1'	X				X	X						
S	3/25/2019	4:00		X	HA-12 (1.5-2)	1.5'	2'	X							X				
S	3/25/2019	4:02		X	HA-12 (3-3.5)	3'	3.5'	X							X				
S	3/25/2019	4:10		X	HA-13 (0-.5)	0'	.5'	X				X	X						
S	3/25/2019	4:12		X	HA-13 (.5-1)	.5'	1'	X				X	X						
S	3/25/2019	4:14		X	HA-13 (1.5-2)	1.5'	2'		X						X				
S	3/25/2019	4:20		X	HA-14 (0-.5)	0'	.5'		X			X	X						
S	3/25/2019	4:22		X	HA-14 (.5-1)	.5'	1'		X			X	X						
S	3/25/2019	4:24		X	HA-14 (1.5-2)	1.5'	2'		X						X				
S	3/25/2019	4:26		X	HA-14 (3-3.5)	3'	3.5'		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:
	3.26.19	12:18		3/26	1218
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:

NOTES: Client: Solaris

e-mail results to:

kcwilliams@terracon.com
kristina.kohl@terracon.com
jrguesnier@terracon.com

0-3|0.2

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 _____

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Terracon-Lubbock

Date/ Time Received: 03/26/2019 12:18:00 PM

Work Order #: 618908

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambien

Temperature Measuring device used : R8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	.2	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**N/A**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	tph was in bulk container
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**N/A**	
#17 Subcontract of sample(s)?	**N/A**	
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 03/26/2019

Brianna Teel

Checklist reviewed by: Debbie Simmons Date: 03/28/2019

Debbie Simmons

Analytical Report 618909

for

Terracon-Lubbock

Project Manager: John Fergerson

Stella Blue

AR197123

03.28.2019

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)

03.28.2019

Project Manager: **John Fergerson**
Terracon-Lubbock
5827 50th st, Suite 1
Lubbock, TX 79424

Reference: XENCO Report No(s): **618909**
Stella Blue
Project Address:

John Fergerson:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 618909. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 618909 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Debbie Simmons

Debbie Simmons
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Sample Cross Reference 618909

Terracon-Lubbock, Lubbock, TX

Stella Blue

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BG-1 (0-.5)	S	03.25.2019 14:10	0 - .5 ft	618909-001
BG-1 (.5-1)	S	03.25.2019 14:12	.5 - 1 ft	618909-002
BG-2 (0-.5)	S	03.25.2019 14:50	0 - .5 ft	618909-004
BG-2 (.5-1)	S	03.25.2019 14:52	.5 - .1 ft	618909-005
BG-3 (0-.5)	S	03.25.2019 15:30	0 - .5 ft	618909-008
BG-3 (.5-1)	S	03.25.2019 15:32	.5 - 1 ft	618909-009
BG-4 (0-.5)	S	03.25.2019 16:00	0 - .5 ft	618909-012
BG-4 (.5-1)	S	03.25.2019 16:02	.5 - 1 ft	618909-013
BG-1 (1.5-2)	S	03.25.2019 14:14	1.5 - 2 ft	Not Analyzed
BG-2 (1.5-2)	S	03.25.2019 14:54	1.5 - 2 ft	Not Analyzed
BG-2 (3-3.5)	S	03.25.2019 14:56	3 - 3.5 ft	Not Analyzed
BG-3 (1.5-2)	S	03.25.2019 15:34	1.5 - 2 ft	Not Analyzed
BG-3 (3-3.5)	S	03.25.2019 15:36	3 - 3.5 ft	Not Analyzed
BG-4 (1.5-2)	S	03.25.2019 16:04	1.5 - 2 ft	Not Analyzed

CASE NARRATIVE

Client Name: Terracon-Lubbock

Project Name: Stella Blue

Project ID: *AR197123*
Work Order Number(s): *618909*

Report Date: *03.28.2019*
Date Received: *03.26.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3083504 Chloride by EPA 300

Lab Sample ID 618909-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 618909-001, -002, -004, -005, -008, -009.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3083673 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-1 (0-.5)** Matrix: Soil Sample Depth: 0 - .5 ft

Lab Sample Id: 618909-001 Date Collected: 03.25.2019 14:10 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**26.3**	4.99	0.857	mg/kg	03.26.2019 20:24		1

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083540 Date Prep: 03.26.2019 16:00

Prep seq: 7674391

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.98	15.0	7.98	mg/kg	03.27.2019 02:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.10	15.0	8.10	mg/kg	03.27.2019 02:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.10	15.0	8.10	mg/kg	03.27.2019 02:33	U	1
Total TPH	PHC635	<7.98		7.98	mg/kg	03.27.2019 02:33	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	89	70 - 135	%		
o-Terphenyl	87	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3083673 Date Prep: 03.27.2019 09:00

Prep seq: 7674448

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000384	0.00200	0.000384	mg/kg	03.27.2019 13:51	U	1
Toluene	108-88-3	<0.000455	0.00200	0.000455	mg/kg	03.27.2019 13:51	U	1
Ethylbenzene	100-41-4	<0.000564	0.00200	0.000564	mg/kg	03.27.2019 13:51	U	1
m,p-Xylenes	179601-23-1	<0.00101	0.00399	0.00101	mg/kg	03.27.2019 13:51	U	1
o-Xylene	95-47-6	<0.000344	0.00200	0.000344	mg/kg	03.27.2019 13:51	U	1
Total Xylenes	1330-20-7	<0.000344		0.000344	mg/kg	03.27.2019 13:51	U	
Total BTEX		<0.000344		0.000344	mg/kg	03.27.2019 13:51	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	101	70 - 130	%		
4-Bromofluorobenzene	124	70 - 130	%		

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-1 (.5-1)** Matrix: Soil Sample Depth: .5 - 1 ft

Lab Sample Id: 618909-002 Date Collected: 03.25.2019 14:12 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**2.55**	4.98	0.855	mg/kg	03.26.2019 20:29	JX	1

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083540 Date Prep: 03.26.2019 16:00

Prep seq: 7674391

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.97	14.9	7.97	mg/kg	03.27.2019 03:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.10	14.9	8.10	mg/kg	03.27.2019 03:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.10	14.9	8.10	mg/kg	03.27.2019 03:31	U	1
Total TPH	PHC635	<7.97		7.97	mg/kg	03.27.2019 03:31	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	87	70 - 135	%		
o-Terphenyl	86	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3083673 Date Prep: 03.27.2019 09:00

Prep seq: 7674448

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000387	0.00201	0.000387	mg/kg	03.27.2019 14:10	U	1
Toluene	108-88-3	<0.000458	0.00201	0.000458	mg/kg	03.27.2019 14:10	U	1
Ethylbenzene	100-41-4	<0.000568	0.00201	0.000568	mg/kg	03.27.2019 14:10	U	1
m,p-Xylenes	179601-23-1	<0.00102	0.00402	0.00102	mg/kg	03.27.2019 14:10	U	1
o-Xylene	95-47-6	<0.000346	0.00201	0.000346	mg/kg	03.27.2019 14:10	U	1
Total Xylenes	1330-20-7	<0.000346		0.000346	mg/kg	03.27.2019 14:10	U	
Total BTEX		<0.000346		0.000346	mg/kg	03.27.2019 14:10	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	100	70 - 130	%		
4-Bromofluorobenzene	123	70 - 130	%		

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-2 (0-.5)** Matrix: Soil Sample Depth: 0 - .5 ft

Lab Sample Id: 618909-004 Date Collected: 03.25.2019 14:50 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**8.53**	5.01	0.860	mg/kg	03.26.2019 20:46		1

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083540 Date Prep: 03.26.2019 16:00

Prep seq: 7674391

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.97	14.9	7.97	mg/kg	03.27.2019 03:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.10	14.9	8.10	mg/kg	03.27.2019 03:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.10	14.9	8.10	mg/kg	03.27.2019 03:50	U	1
Total TPH	PHC635	<7.97		7.97	mg/kg	03.27.2019 03:50	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	84	70 - 135	%		
o-Terphenyl	82	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3083673 Date Prep: 03.27.2019 09:00

Prep seq: 7674448

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000382	0.00198	0.000382	mg/kg	03.27.2019 14:29	U	1
Toluene	108-88-3	<0.000452	0.00198	0.000452	mg/kg	03.27.2019 14:29	U	1
Ethylbenzene	100-41-4	<0.000560	0.00198	0.000560	mg/kg	03.27.2019 14:29	U	1
m,p-Xylenes	179601-23-1	<0.00101	0.00397	0.00101	mg/kg	03.27.2019 14:29	U	1
o-Xylene	95-47-6	<0.000342	0.00198	0.000342	mg/kg	03.27.2019 14:29	U	1
Total Xylenes	1330-20-7	<0.000342		0.000342	mg/kg	03.27.2019 14:29	U	
Total BTEX		<0.000342		0.000342	mg/kg	03.27.2019 14:29	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	100	70 - 130	%		
4-Bromofluorobenzene	125	70 - 130	%		

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-2 (.5-1)** Matrix: Soil Sample Depth: .5 - .1 ft

Lab Sample Id: 618909-005 Date Collected: 03.25.2019 14:52 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**5.98**	4.96	0.852	mg/kg	03.26.2019 20:52		1

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083540 Date Prep: 03.26.2019 16:00

Prep seq: 7674391

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.99	15.0	7.99	mg/kg	03.27.2019 04:09	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.12	15.0	8.12	mg/kg	03.27.2019 04:09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.12	15.0	8.12	mg/kg	03.27.2019 04:09	U	1
Total TPH	PHC635	<7.99		7.99	mg/kg	03.27.2019 04:09	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	84	70 - 135	%		
o-Terphenyl	82	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3083673 Date Prep: 03.27.2019 09:00

Prep seq: 7674448

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000383	0.00199	0.000383	mg/kg	03.27.2019 14:48	U	1
Toluene	108-88-3	<0.000454	0.00199	0.000454	mg/kg	03.27.2019 14:48	U	1
Ethylbenzene	100-41-4	<0.000563	0.00199	0.000563	mg/kg	03.27.2019 14:48	U	1
m,p-Xylenes	179601-23-1	<0.00101	0.00398	0.00101	mg/kg	03.27.2019 14:48	U	1
o-Xylene	95-47-6	<0.000343	0.00199	0.000343	mg/kg	03.27.2019 14:48	U	1
Total Xylenes	1330-20-7	<0.000343		0.000343	mg/kg	03.27.2019 14:48	U	
Total BTEX		<0.000343		0.000343	mg/kg	03.27.2019 14:48	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	101	70 - 130	%		
4-Bromofluorobenzene	125	70 - 130	%		

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-3 (0-.5)** Matrix: Soil Sample Depth: 0 - .5 ft

Lab Sample Id: 618909-008 Date Collected: 03.25.2019 15:30 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**1.85**	5.03	0.864	mg/kg	03.26.2019 21:09	J	1

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083540 Date Prep: 03.26.2019 16:00

Prep seq: 7674391

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.98	15.0	7.98	mg/kg	03.27.2019 04:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.10	15.0	8.10	mg/kg	03.27.2019 04:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.10	15.0	8.10	mg/kg	03.27.2019 04:29	U	1
Total TPH	PHC635	<7.98		7.98	mg/kg	03.27.2019 04:29	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	87	70 - 135	%		
o-Terphenyl	88	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3083673 Date Prep: 03.27.2019 09:00

Prep seq: 7674448

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	**0.000575**	0.00202	0.000388	mg/kg	03.27.2019 15:07	J	1
Toluene	108-88-3	**0.000474**	0.00202	0.000459	mg/kg	03.27.2019 15:07	J	1
Ethylbenzene	100-41-4	<0.000569	0.00202	0.000569	mg/kg	03.27.2019 15:07	U	1
m,p-Xylenes	179601-23-1	<0.00102	0.00403	0.00102	mg/kg	03.27.2019 15:07	U	1
o-Xylene	95-47-6	<0.000347	0.00202	0.000347	mg/kg	03.27.2019 15:07	U	1
Total Xylenes	1330-20-7	<0.000347		0.000347	mg/kg	03.27.2019 15:07	U	
Total BTEX		**0.00105**		0.000347	mg/kg	03.27.2019 15:07	J	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	100	70 - 130	%		
4-Bromofluorobenzene	120	70 - 130	%		

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-3 (.5-1)** Matrix: Soil Sample Depth: .5 - 1 ft

Lab Sample Id: 618909-009 Date Collected: 03.25.2019 15:32 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**5.53**	5.00	0.858	mg/kg	03.26.2019 21:15		1

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083540 Date Prep: 03.26.2019 16:00

Prep seq: 7674391

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<8.00	15.0	8.00	mg/kg	03.27.2019 04:48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.13	15.0	8.13	mg/kg	03.27.2019 04:48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.13	15.0	8.13	mg/kg	03.27.2019 04:48	U	1
Total TPH	PHC635	<8.00		8.00	mg/kg	03.27.2019 04:48	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	83	70 - 135	%		
o-Terphenyl	83	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3083673 Date Prep: 03.27.2019 09:00

Prep seq: 7674448

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000385	0.00200	0.000385	mg/kg	03.27.2019 15:26	U	1
Toluene	108-88-3	<0.000456	0.00200	0.000456	mg/kg	03.27.2019 15:26	U	1
Ethylbenzene	100-41-4	<0.000565	0.00200	0.000565	mg/kg	03.27.2019 15:26	U	1
m,p-Xylenes	179601-23-1	<0.00101	0.00400	0.00101	mg/kg	03.27.2019 15:26	U	1
o-Xylene	95-47-6	<0.000344	0.00200	0.000344	mg/kg	03.27.2019 15:26	U	1
Total Xylenes	1330-20-7	<0.000344		0.000344	mg/kg	03.27.2019 15:26	U	
Total BTEX		<0.000344		0.000344	mg/kg	03.27.2019 15:26	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	101	70 - 130	%		
4-Bromofluorobenzene	123	70 - 130	%		

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-4 (0-.5)** Matrix: Soil Sample Depth: 0 - .5 ft

Lab Sample Id: 618909-012 Date Collected: 03.25.2019 16:00 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083707 Date Prep: 03.27.2019 16:00

Prep seq: 7674466

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**5.22**	4.95	0.850	mg/kg	03.28.2019 00:35		1

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083540 Date Prep: 03.26.2019 16:00

Prep seq: 7674391

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.98	15.0	7.98	mg/kg	03.27.2019 05:07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.10	15.0	8.10	mg/kg	03.27.2019 05:07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.10	15.0	8.10	mg/kg	03.27.2019 05:07	U	1
Total TPH	PHC635	<7.98		7.98	mg/kg	03.27.2019 05:07	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	84	70 - 135	%		
o-Terphenyl	85	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3083673 Date Prep: 03.27.2019 09:00

Prep seq: 7674448

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000385	0.00200	0.000385	mg/kg	03.27.2019 15:45	U	1
Toluene	108-88-3	<0.000456	0.00200	0.000456	mg/kg	03.27.2019 15:45	U	1
Ethylbenzene	100-41-4	<0.000565	0.00200	0.000565	mg/kg	03.27.2019 15:45	U	1
m,p-Xylenes	179601-23-1	<0.00101	0.00400	0.00101	mg/kg	03.27.2019 15:45	U	1
o-Xylene	95-47-6	<0.000344	0.00200	0.000344	mg/kg	03.27.2019 15:45	U	1
Total Xylenes	1330-20-7	<0.000344		0.000344	mg/kg	03.27.2019 15:45	U	
Total BTEX		<0.000344		0.000344	mg/kg	03.27.2019 15:45	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	101	70 - 130	%		
4-Bromofluorobenzene	123	70 - 130	%		

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **BG-4 (.5-1)** Matrix: Soil Sample Depth: .5 - 1 ft

Lab Sample Id: 618909-013 Date Collected: 03.25.2019 16:02 Date Received: 03.26.2019 12:18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083707 Date Prep: 03.27.2019 16:00

Prep seq: 7674466

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**8.34**	4.99	0.857	mg/kg	03.28.2019 01:01		1

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083540 Date Prep: 03.26.2019 16:00

Prep seq: 7674391

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.99	15.0	7.99	mg/kg	03.27.2019 05:27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.12	15.0	8.12	mg/kg	03.27.2019 05:27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.12	15.0	8.12	mg/kg	03.27.2019 05:27	U	1
Total TPH	PHC635	<7.99		7.99	mg/kg	03.27.2019 05:27	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	84	70 - 135	%		
o-Terphenyl	82	70 - 135	%		

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3083673 Date Prep: 03.27.2019 09:00

Prep seq: 7674448

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000386	0.00201	0.000386	mg/kg	03.27.2019 16:04	U	1
Toluene	108-88-3	<0.000457	0.00201	0.000457	mg/kg	03.27.2019 16:04	U	1
Ethylbenzene	100-41-4	<0.000567	0.00201	0.000567	mg/kg	03.27.2019 16:04	U	1
m,p-Xylenes	179601-23-1	<0.00102	0.00402	0.00102	mg/kg	03.27.2019 16:04	U	1
o-Xylene	95-47-6	<0.000346	0.00201	0.000346	mg/kg	03.27.2019 16:04	U	1
Total Xylenes	1330-20-7	<0.000346		0.000346	mg/kg	03.27.2019 16:04	U	
Total BTEX		<0.000346		0.000346	mg/kg	03.27.2019 16:04	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	101	70 - 130	%		
4-Bromofluorobenzene	127	70 - 130	%		

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **7674373-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7674373-1-BLK Date Collected: Date Received:

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083504 Date Prep: 03.26.2019 16:50

Prep seq: 7674373

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<0.858	5.00	0.858	mg/kg	03.26.2019 18:53	U	1

Sample Id: **7674391-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7674391-1-BLK Date Collected: Date Received:

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3083540 Date Prep: 03.26.2019 16:00

Prep seq: 7674391

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<8.00	15.0	8.00	mg/kg	03.27.2019 01:34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.13	15.0	8.13	mg/kg	03.27.2019 01:34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.13	15.0	8.13	mg/kg	03.27.2019 01:34	U	1
Total TPH	PHC635	<8.00		8.00	mg/kg	03.27.2019 01:34	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	88	70 - 135	%		
o-Terphenyl	90	70 - 135	%		

Certificate of Analytical Results
618909

Terracon-Lubbock, Lubbock, TX
Stella Blue

Sample Id: **7674448-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7674448-1-BLK Date Collected: Date Received:

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3083673 Date Prep: 03.27.2019 09:00

Prep seq: 7674448

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000386	0.00201	0.000386	mg/kg	03.27.2019 12:54	U	1
Toluene	108-88-3	<0.000457	0.00201	0.000457	mg/kg	03.27.2019 12:54	U	1
Ethylbenzene	100-41-4	<0.000567	0.00201	0.000567	mg/kg	03.27.2019 12:54	U	1
m,p-Xylenes	179601-23-1	<0.00102	0.00402	0.00102	mg/kg	03.27.2019 12:54	U	1
o-Xylene	95-47-6	<0.000346	0.00201	0.000346	mg/kg	03.27.2019 12:54	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	93	70 - 130	%		
4-Bromofluorobenzene	107	70 - 130	%		

Sample Id: **7674466-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7674466-1-BLK Date Collected: Date Received:

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3083707 Date Prep: 03.27.2019 16:00

Prep seq: 7674466

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<0.858	5.00	0.858	mg/kg	03.27.2019 22:28	U	1

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: Stella Blue

Work Orders : 618909 **Project ID:** AR197123

Lab Batch #: 3083673 **Sample:** 618907-039 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03.27.2019 12:18 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0310	0.0300	103	70-130	
4-Bromofluorobenzene	0.0365	0.0300	122	70-130	

Lab Batch #: 3083673 **Sample:** 7674448-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03.27.2019 12:54 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	70-130	
4-Bromofluorobenzene	0.0322	0.0300	107	70-130	

Lab Batch #: 3083673 **Sample:** 7674448-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03.27.2019 23:21 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	70-130	
4-Bromofluorobenzene	0.0358	0.0300	119	70-130	

Lab Batch #: 3083673 **Sample:** 7674448-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03.27.2019 23:40 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	70-130	
4-Bromofluorobenzene	0.0356	0.0300	119	70-130	

Lab Batch #: 3083673 **Sample:** 618907-039 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03.27.2019 23:59 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	70-130	
4-Bromofluorobenzene	0.0373	0.0300	124	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Stella Blue

Work Orders : 618909 **Project ID:** AR197123

Lab Batch #: 3083540 **Sample:** 7674391-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03.27.2019 01:34 **SURROGATE RECOVERY STUDY**

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.5	100	88	70-135	
o-Terphenyl	44.9	50.0	90	70-135	

Lab Batch #: 3083540 **Sample:** 7674391-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03.27.2019 01:54 **SURROGATE RECOVERY STUDY**

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	100	122	70-135	
o-Terphenyl	52.0	50.0	104	70-135	

Lab Batch #: 3083540 **Sample:** 7674391-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03.27.2019 02:13 **SURROGATE RECOVERY STUDY**

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	52.0	50.0	104	70-135	

Lab Batch #: 3083540 **Sample:** 618909-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03.27.2019 02:52 **SURROGATE RECOVERY STUDY**

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.7	102	70-135	
o-Terphenyl	43.5	49.9	87	70-135	

Lab Batch #: 3083540 **Sample:** 618909-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03.27.2019 03:11 **SURROGATE RECOVERY STUDY**

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.8	101	70-135	
o-Terphenyl	44.6	49.9	89	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Stella Blue

Work Order #: 618909 **Project ID:** AR197123

Analyst: SCM **Date Prepared:** 03.27.2019 **Date Analyzed:** 03.27.2019

Lab Batch ID: 3083673 **Sample:** 7674448-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000384	0.0998	0.109	109	0.0994	0.116	117	6	70-130	35	
Toluene	<0.000455	0.0998	0.109	109	0.0994	0.115	116	5	70-130	35	
Ethylbenzene	<0.000564	0.0998	0.117	117	0.0994	0.123	124	5	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.230	115	0.199	0.241	121	5	70-130	35	
o-Xylene	<0.000344	0.0998	0.117	117	0.0994	0.123	124	5	70-130	35	

Analyst: CHE **Date Prepared:** 03.26.2019 **Date Analyzed:** 03.26.2019

Lab Batch ID: 3083504 **Sample:** 7674373-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.858	250	239	96	250	239	96	0	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Stella Blue

Work Order #: 618909 **Project ID:** AR197123

Analyst: CHE **Date Prepared:** 03.27.2019 **Date Analyzed:** 03.27.2019

Lab Batch ID: 3083707 **Sample:** 7674466-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.858	250	255	102	250	257	103	1	90-110	20	

Analyst: ARM **Date Prepared:** 03.26.2019 **Date Analyzed:** 03.27.2019

Lab Batch ID: 3083540 **Sample:** 7674391-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	898	90	1000	937	94	4	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	992	99	1000	1040	104	5	70-135	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: Stella Blue

Work Order # : 618909 **Project ID:** AR197123

Lab Batch ID: 3083673 **QC- Sample ID:** 618907-039 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03.27.2019 **Date Prepared:** 03.27.2019 **Analyst:** SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000383	0.0996	0.122	122	0.100	0.113	113	8	70-130	35	
Toluene	<0.000454	0.0996	0.118	118	0.100	0.109	109	8	70-130	35	
Ethylbenzene	<0.000563	0.0996	0.123	123	0.100	0.110	110	11	70-130	35	
m,p-Xylenes	<0.00101	0.199	0.237	119	0.200	0.214	107	10	70-130	35	
o-Xylene	<0.000343	0.0996	0.122	122	0.100	0.110	110	10	70-130	35	

Lab Batch ID: 3083504 **QC- Sample ID:** 618636-005 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03.26.2019 **Date Prepared:** 03.26.2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	24.2	250	275	100	250	277	101	1	90-110	20	

Lab Batch ID: 3083504 **QC- Sample ID:** 618909-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03.26.2019 **Date Prepared:** 03.26.2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	2.55	249	279	111	249	279	111	0	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Stella Blue

Work Order # : 618909 **Project ID:** AR197123

Lab Batch ID: 3083707 **QC- Sample ID:** 618909-012 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03.28.2019 **Date Prepared:** 03.27.2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	5.22	248	265	105	248	245	97	8	90-110	20	

Lab Batch ID: 3083707 **QC- Sample ID:** 619079-006 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03.27.2019 **Date Prepared:** 03.27.2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	15.0	250	263	99	250	266	100	1	90-110	20	

Lab Batch ID: 3083540 **QC- Sample ID:** 618909-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03.27.2019 **Date Prepared:** 03.26.2019 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<7.98	997	824	83	998	845	85	3	70-135	20	
Diesel Range Organics (DRO)	<8.10	997	931	93	998	957	96	3	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

6189109

CHAIN OF CUSTODY RECORD

Terracon

Laboratory: Xenco
Address: 6701 Aberdeen
Lubbock, Texas 79424

Office Location: Lubbock
Phone:
Project Manager: John Ferguson
Contact:
Sampler's Name: Joseph Guesnier
SRS #:
Sampler's Signature

ANALYSIS REQUESTED

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

Project Number: AR197123
Project Name: Stella Blue

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No. Type of Containers: 2 oz Glass	4 oz Glass			Chloride (EPA Method 300)	TPH Extended 8015	BTEX (EPA Method 8021B)	Hold				Lab Sample ID
S	3/25/2019	2:10		X	BG-1 (0-.5)	0'	.5'	X				X	X	X					
S	3/25/2019	2:12		X	BG-1 (.5-1)	.5'	1'	X				X	X	X					
S	3/25/2019	2:14		X	BG-1 (1.5-2)	1.5'	2'	X							X				
S	3/25/2019	2:50		X	BG-2 (0-.5)	0'	.5'	X				X	X	X					
S	3/25/2019	2:52		X	BG-2 (.5-1)	.5'	1'	X				X	X	X					
S	3/25/2019	2:54		X	BG-2 (1.5-2)	1.5'	2'	X							X				
S	3/25/2019	2:56		X	BG-2 (3-3.5)	3'	3.5'	X							X				
S	3/25/2019	3:30		X	BG-3 (0-.5)	0'	.5'	X				X	X	X					
S	3/25/2019	3:32		X	BG-3 (.5-1)	.5'	1'	X				X	X	X					
S	3/25/2019	3:34		X	BG-3 (1.5-2)	1.5'	2'	X							X				
S	3/25/2019	3:36		X	BG-3 (3-3.5)	3'	3.5'	X							X				
S	3/25/2019	4:00		X	BG-4 (0-.5)	0'	.5'	X				X	X	X					
S	3/25/2019	4:02		X	BG-4 (.5-1)	.5'	1'	X				X	X	X					
S	3/25/2019	4:04		X	BG-4 (1.5-2)	1.5'	2'	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:
	3-26-19	12:18	DAVE	3/26	1218
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:

NOTES: Client: Solaris

e-mail results to:
kcwilliams@terracon.com
kristina.kohl@terracon.com
jrguesnier@terracon.com

0.3/0.2

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 _____

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Terracon-Lubbock

Date/ Time Received: 03.26.2019 12.18.00 PM

Work Order #: 618909

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 03.26.2019
Brianna Teel

Checklist reviewed by: Debbie Simmons Date: 03.28.2019
Debbie Simmons

APPENDIX E

Standard of Care, Limitations, and Reliance Policies

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, Solaris Water Midstream, as reflected in our proposal (PA4197040).

Additional Scope Limitations

Development of this 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 our recommendations are based solely upon reformation executed within the scope of these services.

Reliance

This report has been prepared for the exclusive use of Solaris Water Midstream, 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 Solaris Water Midstream and Terracon. Any unauthorized distribution or reuse is at Solaris Water Midstream sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal and Solaris Water Midstream 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 Solaris Water Midstream and all relying parties unless otherwise agreed in writing.