2021 Annual Groundwater Monitoring Report

Review of 2021 ANNUAL GROUNDWATER MONITORING REPORT: **Content satisfactory**

Contractor anticipated actions approved by NMOCD and are as follows;

1. Complete quarterly monitoring well gauging for all site wells
2. Continue quarterly groundwater purging and sampling on monitoring wells MW-2, MW-3, MW-4 (if PSH is not present), MW-5, MW-6, and MW-9
3. Monitoring wells MW-7, MW-8, MW-10, and MW-11 will be sampled during the 1st quarter of 2022 and continue to be sampled annually per NMOCD approval of the 2019 annual groundwater monitoring report.
4. Groundwater samples collected from monitor wells MW-2 through MW-6 and MW-9 will be analyzed for PAHs during the 1st quarter of 2022.
5. Complete monthly manual recovery of PSH hydrocarbon impacted groundwater from monitoring well MW-4 and MW-5, if present
6. Submit annual report to NMOCD no later than March 31, 2023.

Plains All American Pipeline, L.P.
Livingston Line – Bob McCasland
Plains SRS Number: 2001-11226
Lea County, New Mexico
NMOCD Reference No. 1RP-0395
NMOCD Incident No. nAPP2109736613

Terracon Project No. AR217011
March 25, 2022

Prepared for:

Plains All American Pipeline, L.P.
1106 Griffith Drive
Midland, Texas 79706

Prepared by:

Terracon Consultants, Inc.
Lubbock, Texas

Terracon

March 25, 2022

Plains All American Pipeline, L.P.
1106 Griffith Drive
Midland, Texas 79706

Attn: Mrs. Camille Bryant
Telephone: (432) 758-8008
Email: CJBryant@paalp.com

Re: 2021 Annual Groundwater Monitoring Report
Livingston Line – Bob McCasland Site
NE ¼ of the SW ¼, Section 3, T21S, R37E
Lea County, New Mexico
NMOCD Reference No. 1RP-0395
NMOCD Incident No. nAPP2109736613
Plains All American Pipeline, L.P. SRS Number 2001-11226
Terracon Project Number AR217011

Dear Mrs. Bryant:

Terracon is pleased to submit one electronic copy of the 2021 Annual Groundwater Monitoring Report for the above-referenced site.

We appreciate the opportunity to perform these services for Plains All American Pipeline (Plains), L.P. (Plains). Please contact either of the undersigned at (806) 300-0140 if you have questions regarding the information provided in the report.

Sincerely,
Terracon

Prepared by:

Brett Dennis
Staff Scientist
Lubbock

Reviewed by:

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

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1.0 INTRODUCTION

1.1 Site Description

The legal description of the Livingston Line to Bob McCasland Pipeline Release site is Unit Letter "K" (NE/SW), Section 3, Township 21 South, Range 37 East, in Lea County, New Mexico. The property affected by the release is owned by Mr. Bob McCasland. The geographic coordinates of the release site are 32.504135º North latitude and 103.151345º West longitude. A "Topographic Map" depicting the site's location is provided as Exhibit 1 in Appendix A.

Site Name	Livingston Line – Bob McCasland Pipeline Release
Site Location	West of Loop 207 approximately 5 miles north-northeast of Eunice, Lea County, New Mexico. Latitude 32.504135º North, Longitude 103.151345º West.
General Site Description	The site consists of 11 groundwater monitoring wells located in, and adjacent to, a pipeline right-of-way surrounded by native pasture land, in close proximity of a former Carbon Black Plant.
Landowner	Mr. Bob McCasland

1.2 Background Information

Based on information provided by the client, on July 13, 2001, an estimated release of 4 barrels (bbls) of crude oil was reported to the New Mexico Oil Conservation District (NMOCD). The release covered an area of approximately 1,600 square feet (sq. ft.) along a pipeline right-of-way and an adjacent caliche road. Initial excavation activities were reportedly conducted by Environmental Plus, Inc. (EPI) in an effort to stockpile saturated soils and expose the leak origin to facilitate repair of the pipeline. The pipeline excavation activities continued into December 2001. A total of approximately 11,445 cubic yards (cy) of hydrocarbon impacted soil were excavated and stockpiled at the site. Earthen berms were constructed around the stockpiles to prevent constituent runoff. Analytical results for soil samples collected from the excavation indicated benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations above NMOCD remedial threshold limits. A *Soil Characterization Report and Remediation Plan Report* dated June 2006, by EPI was submitted to the NMOCD. This report detailed remediation activities conducted at the site, in-place soil concentrations, and recommendations for in-situ hydrocarbon-impacted soil closure.

Investigation activities were conducted from August 16 through 22, 2001, which included the advancement of 17 exploratory soil borings. It was determined during this time that groundwater,

approximately 30 feet below ground surface (bgs), had been impacted. Based on these field observations, three groundwater monitor wells (MW-1, MW-2 and MW-3) were installed proximate to the release area to evaluate the extent and magnitude of the release. Groundwater samples collected from the groundwater monitor wells exhibited concentrations of BTEX above applicable New Mexico Water Quality Control Commission (NMWQCC) Groundwater Standards. Subsequently, three additional groundwater monitoring wells (MW-4, MW-5 and MW-6) were installed at the site. A measurable thickness of phase separated hydrocarbons (PSH) was detected in groundwater monitoring well MW-4 following installation.

To delineate the lateral extent of groundwater impact at the site, three additional groundwater monitoring wells MW-7, MW-8 and MW-9 were installed in June of 2004. Two additional monitoring wells MW-10 and MW-11 were installed in November of 2004. During installation of these five groundwater monitor wells, soil samples were collected and submitted to AnalySys, Inc., Austin, Texas, for analysis of total petroleum hydrocarbons (TPH) (gasoline and diesel range organics) and BTEX constituents. BTEX constituents for all soil samples from the monitor wells were below NMOCD remedial threshold limits. TPH concentrations from soil samples collected from groundwater monitoring wells MW-7, MW-10 and MW-11 were at, or below, laboratory analytical method detection limits (MDLs).

On February 1, 2007, Terracon assumed project management responsibilities and oversight of groundwater monitoring activities at the Livingston Line to Bob McCasland Pipeline Release project site. Available files for this site were provided to Terracon at this time. There are a total of 11 monitoring wells MW-1 through MW-11 at the site. Monitoring wells MW-2 through MW-11 are gauged and sampled on a quarterly schedule. Monitoring well MW-1 is not sampled as it has been gauged as “dry” and monitoring well MW-4 is currently not sampled due to the presence of PSH. A “Site Diagram” depicting monitoring well locations is provided as Exhibit 2 in Appendix A.

During May of 2020, due to COVID-19, manual recovery events were reduced from a frequency of once per week to once per month. Monthly frequency of recovery events persisted in 2021.

1.3 Scope of Work

Terracon’s scope of work includes project management responsibilities, oversight of groundwater monitoring activities, and preparation of an *Annual Groundwater Monitoring Report* in accordance with the NMOCD letter, dated May 1998, requiring submittal of an *Annual Groundwater Monitoring* Report by April 1st of each year. Quarterly groundwater monitoring activities include measuring the static water levels in the monitoring wells, checking for the presence of PSH, and the collection of groundwater samples from each of the on-site wells not exhibiting a measurable thickness of PSH. In accordance with the approved scope of work, Terracon conducted quarterly groundwater monitoring events on March 10 (1Q21), June 15 (2Q21), September 24 (3Q21), and December 13, 2020 (4Q21).

2.0 GROUNDWATER REMEDIATION PROGRAM

2.1 Groundwater Monitoring

Quarterly groundwater monitoring events were conducted on March 10 (1Q21), June 15 (2Q21), September 24 (3Q21), and December 13, 2021 (4Q21). Monitoring event activities included measuring the static water levels in the site's monitoring wells, checking for the presence of PSH, purging, and the collection of groundwater samples from each of the wells not exhibiting a measurable thickness of PSH.

Groundwater samples were collected utilizing low-flow sampling equipment, including a bladder pump and multi-parameter meter. Prior to sample collection, readings on the multi-parameter meter were recorded for a minimum of four cycles of five minutes each. Each collected sample was placed in laboratory-supplied containers appropriate to the analyses requested and placed on ice in a cooler. The sample coolers and completed chain-of-custody forms were delivered to Eurofins/Xenco Laboratories in Lubbock, Texas for analysis of BTEX using EPA Method SW-846 8021B. Purged water was placed into a polystyrene aboveground storage tank and disposed at an NMOCD-approved disposal facility.

Groundwater elevation gauging data collected during the respective quarterly monitoring events were used to construct groundwater gradient maps, which are included as Exhibits 3 through 6 in Appendix A. The groundwater flow direction was relatively consistent to the southeast for each quarter of 2021. Groundwater elevation and PSH thickness data is summarized in Table 1 in Appendix B.

A yearly monitoring event for polyaromatic hydrocarbons (PAH) was conducted December 14, 2020. Based on the sampling criteria provided by NMOCD, only monitoring wells MW-4 and MW-5 were subject to annual PAH monitoring. However, monitor wells MW-2, MW-3, MW-6, and MW-9 were inadvertently analyzed for PAHs as well. Therefore, monitor wells MW-2 through MW-6 and MW-9 were intended to be analyzed for PAHs during the 4th quarter sampling event in 2021. The groundwater samples collected during the 4th quarter monitoring event did not get analyzed for PAHs. It should be noted that a PAHs exceedance has not been detected since 2013. Plains requests NMOCD approval to analyze PAHs during the 1st quarter of 2022. A summary of PAH analysis can be found as Table 5 in Appendix B.

3.0 LABORATORY ANALYTICAL METHODS

The groundwater samples collected were analyzed for BTEX using EPA Method SW-846 8021B. Laboratory results from the analysis of groundwater samples collected from the monitoring wells are summarized in Table 2 in Appendix B and presented as Exhibits 7 through 10 in Appendix A. Copies of the certified laboratory reports and chain-of-custody documentation are provided in Appendix C.

4.0 GROUNDWATER DATA EVALUATION

4.1 Groundwater Sample Results

Laboratory analytical results from each quarterly monitoring event were compared to NMOCD regulatory guidelines based on NMWQCC groundwater standards found in Section 20.6.2.3103 of the New Mexico Administrative Code (NMAC).

4.1.1 Monitoring Well MW-1

- Monitoring well MW-1 was gauged dry during all four quarters of 2021.

4.1.2 Monitoring Wells MW-7, MW-8, MW-10, and MW-11

- Monitoring wells MW-7, MW-8, MW-10, and MW-11 were sampled in the 1st quarter only, per NMOCD approval. Concentrations of BTEX were not detected above laboratory sample detection limits (SDLs).

4.1.3 Monitoring Well MW-2

- Concentrations of BTEX were below laboratory SDLs in each of the four quarters, with the exception of benzene during the 2nd quarter. The detected concentration of benzene was below NMOCD criteria.

4.1.4 Monitoring Well MW-3

- Concentrations of BTEX were below laboratory SDLs in each of the four quarters, with the exception of total xylenes during the 2nd quarter. The detected concentration of total xylenes were below NMOCD criteria.

4.1.5 Monitoring Well MW-4

- Monitoring well MW-4 was not sampled during the 2021 reporting period due to the presence of PSH.
- During 2021, PSH thickness detected in MW-4 ranged from 1.20 ft in the 1st quarter to 2.77 ft in the 3rd quarter.

4.1.6 Monitoring Well MW-5

- Concentrations of BTEX were below laboratory SDLs in each of the four quarters, with the exception of benzene, ethylbenzene, and total xylenes during the 2nd quarter. Ethylbenzene and total xylenes were detected in the sample, identified as MW-5, and benzene and total xylenes were detected in the duplicate sample, identified as DUP-1, at concentrations above laboratory SDLs but below NMOCD criteria.

4.1.7 Monitoring Well MW-9

- Monitor well MW-9 was inadvertently not sampled during the 3rd and 4th quarters of 2021 and will resume quarterly sampling frequency in 2022.
- Concentrations of BTEX were below laboratory SDLs during the 1st quarter. Toluene was detected above laboratory SDLs during the 2nd quarter but was below NMOCD action levels. The remaining constituents were below laboratory SDLs.

5.0 CORRECTIVE ACTION

5.1 Product Recovery

An estimated 3.542 gallons of PSH were recovered from monitoring well MW-4 by manual recovery in 2021. An estimated 32.8 gallons of hydrocarbon impacted groundwater were recovered manually from monitoring well MW-4 in 2021. Since recovery operations began in 2018, 177.8 gallons of hydrocarbon impacted groundwater have been manually recovered from monitoring well MW-4. Recovery Data is summarized in Table 3a in Appendix B.

5.2 Groundwater Recovery

Since May of 2019, monitoring well MW-5 had an estimated 134 gallons (3.19 bbls) of hydrocarbon impacted groundwater recovered via manual recovery events. Recovered fluids were disposed at an NMOCD-approved disposal facility. Recovery data is summarized in Table 3b in Appendix B.

6.0 SUMMARY OF FINDINGS

The findings of the 2021 Quarterly groundwater monitoring activities are as follows:

- Currently, there are 11 groundwater monitoring wells MW-1 through MW-11 located at the site.
- Quarterly groundwater monitoring events were conducted on March 10 (1Q21), June 15 (2Q21), September 24 (3Q21), and December 13, 2021 (4Q21).
- The groundwater flow direction remained relatively consistent to the southeast during all four quarters.
- Monitoring well MW-1 was gauged dry during all four quarterly monitoring events.
- Concentrations of BTEX in monitoring wells MW-7, MW-8, MW-10, and MW-11 were not detected above laboratory SDLs during the 2021 reporting period.
- Monitoring wells MW-2, MW-3, MW-5, MW-6, MW-9 were purged and sampled during all four quarterly monitoring events. BTEX concentrations were below NMOCD Action Levels for all wells sampled during the 2021 reporting period.

- Monitoring well MW-4 was not sampled during the 2021 reporting period due to the presence of PSH.
- Monitoring well MW-4 had an approximate total of 3.54 gallons of PSH were recovered via manual recovery in 2021.
- Monitoring well MW-5 had an approximate total of 134 gallons (3.19 bbls) of hydrocarbon impacted groundwater recovered by manual recovery since May of 2019.

7.0 ANTICIPATED ACTIONS

- Conduct quarterly monitoring well gauging for all site wells.
- Continue quarterly groundwater purging and sampling on monitoring wells MW-2, MW-3, MW-4 (if PSH is not present), MW-5, MW-6, and MW-9.
- Monitoring wells MW-7, MW-8, MW-10, and MW-11 will be sampled during the 1st quarter of 2022 and continue to be sampled annually per NMOCD approval of the 2019 annual groundwater monitoring report.
- Groundwater samples collected from monitor wells MW-2 through MW-6 and MW-9 will be analyzed for PAHs during the 1st quarter of 2022.
- Conduct monthly manual recovery of PSH hydrocarbon impacted groundwater from monitoring well MW-4 and MW-5, if present.
- An *Annual Groundwater Monitoring Report* will be prepared detailing field activities and the results of groundwater monitoring activities conducted during the 2022 reporting period.

8.0 DISTRIBUTION

Copy 1: Bradford Billings, Hydrologist E Spec. A
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
bradford.billings@state.nm.us

Copy 2: New Mexico Oil Conservation Division
District 1 Office
1625 N. French Drive
Hobbs, New Mexico 88240
emnrd-ocd-district1spills@state.nm.us

Copy 3: Mrs. Camille Bryant
Plains All American Pipeline, L.P.
1106 Griffith Drive
Midland, Texas 79706
cjbryant@paalp.com

Copy 4: Mr. Jeff Dann
Plains All American Pipeline, L.P.
333 Clay Street, Suite 1600
Houston, Texas 77002
jpdann@paalp.com

APPENDIX A

Exhibit 1 – Topographic Map
Exhibit 2 – Site Diagram
Exhibit 3 – 1Q21 Groundwater Gradient Map (03/10/21)
Exhibit 4 – 2Q21 Groundwater Gradient Map (06/15/21)
Exhibit 5 – 3Q21 Groundwater Gradient Map (09/24/21)
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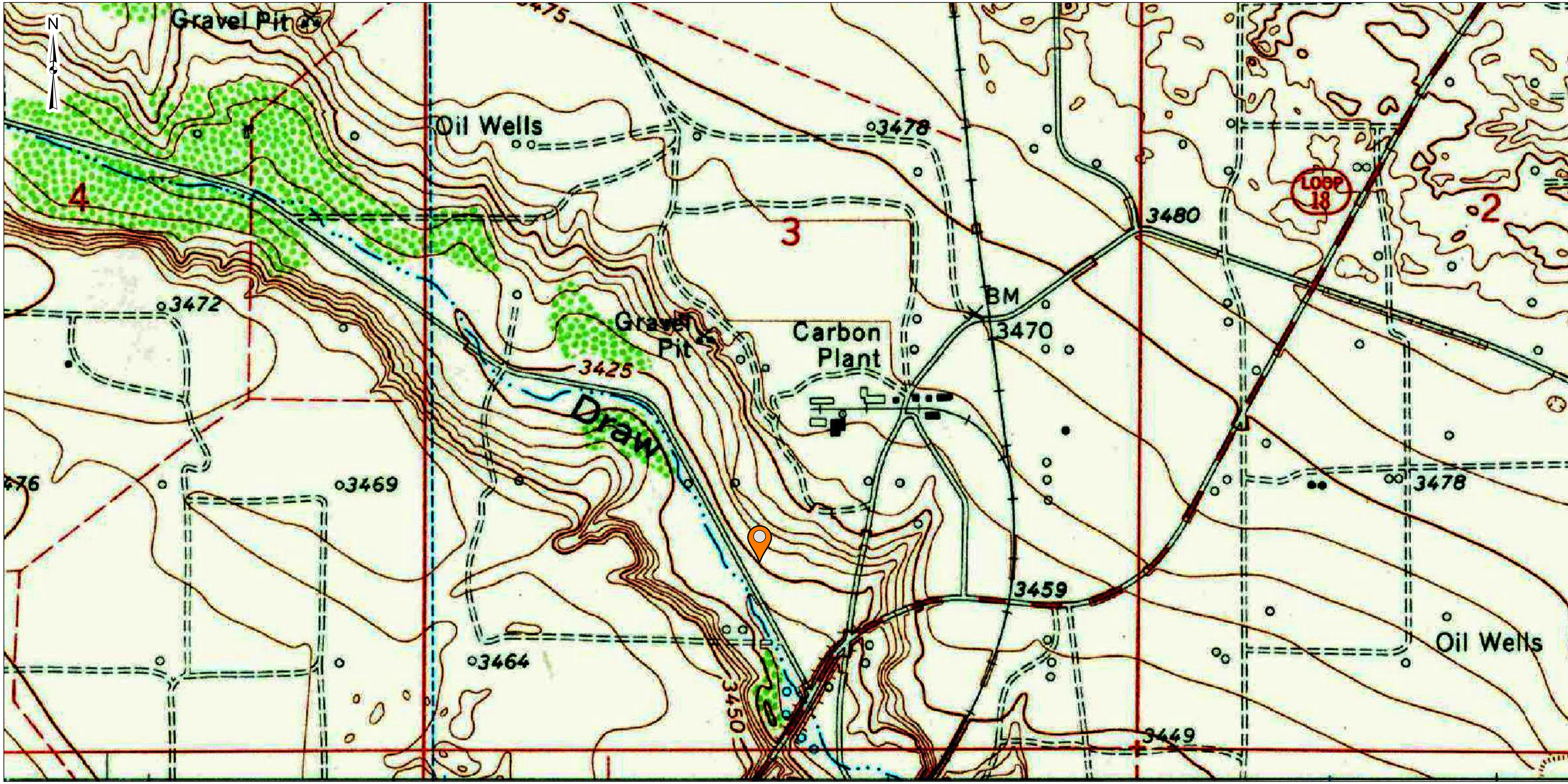
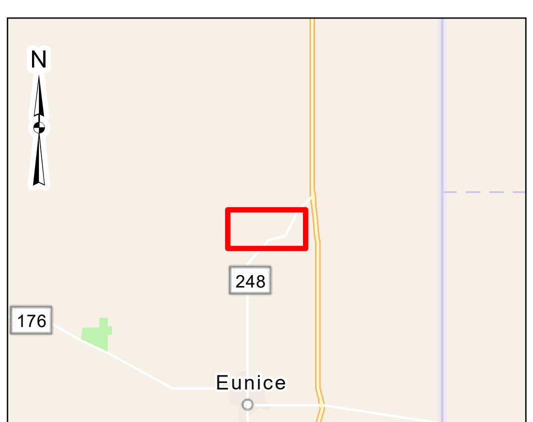
Exhibit 7 – 1Q21 Groundwater Contaminant Concentration Map (03/10/21)
Exhibit 8 – 2Q21 Groundwater Contaminant Concentration Map (06/15/21)
Exhibit 9 – 3Q21 Groundwater Contaminant Concentration Map (09/24/21)
Exhibit 10 – 4Q21 Groundwater Contaminant Concentration Map (12/13/21)





Legend:

Site Location

DATA SOURCES:
USGS Topoview - Hobbs SW, NM 1969

Feet
0 500 1,000 2,000

Project No.:	AR217011
Date:	Jan 2022
Drawn By:	BAD
Reviewed By:	ELL

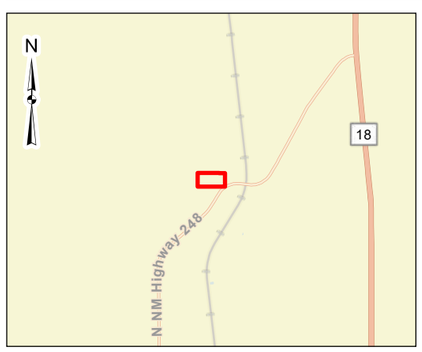
Terracon
5847 50th Street Lubbock, Texas 79424
PH. (806) 300-0140 terracon.com

Topographic Map

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

1



Legend:

- Monitor Well (MW)

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Feet
0 65 130 260

Project No.:	AR217011
Date:	Jan 2022
Drawn By:	BAD
Reviewed By:	ELL

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5847 50th Street Lubbock, Texas 79424
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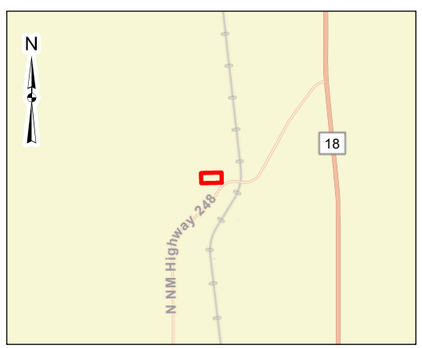
Site Diagram

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

2



Legend:

- Monitor Well (MW)
- GW Flow Direction
- Groundwater Contour

Notes:
- All groundwater elevations are measured in feet above mean sea level.
- Groundwater contours were interpolated with ArcGIS's kringing algorithm.
- Groundwater contour interval: 0.10 ft.
- Groundwater gradient: 0.0038 ft./ft.

Feet
0 62.5 125 250

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217011
Date:	Apr 2021
Drawn By:	BAD
Reviewed By:	ELL

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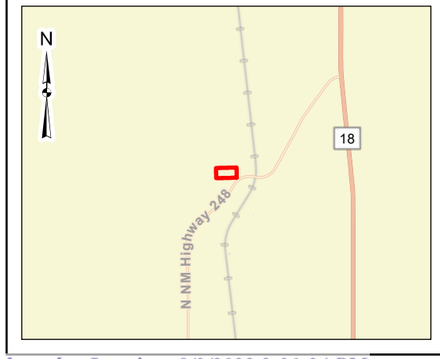
1Q21 Groundwater Gradient Map

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

3



Legend:

- Monitor Well (MW)
- Groundwater Contour
- GW Flow Direction

Notes:
- All groundwater elevations are measured in feet above mean sea level.
- Groundwater contours were interpolated with ArcGIS's kringing algorithm.
- Groundwater contour interval: 0.10 ft.
- Groundwater gradient: 0.0036 ft./ft.

Feet
0 62.5 125 250

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217011
Date:	Jul 2021
Drawn By:	BAD
Reviewed By:	ELL

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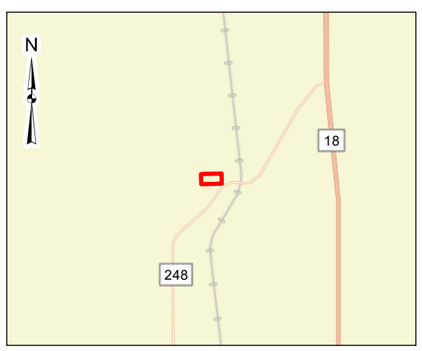
2Q21 Groundwater Gradient Map

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

4



Legend:

- Monitor Well (MW)
- Groundwater Flow Direction
- Groundwater Contour

Notes:
- All groundwater elevations are measured in feet above mean sea level.
- Groundwater contours were interpolated with ArcGIS's kringing algorithm.
- Groundwater contour interval: 0.10 ft.
- Groundwater gradient: 0.0036 ft./ft.

Feet
0 62.5 125 250

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217011
Date:	Dec 2021
Drawn By:	BAD
Reviewed By:	ELL

Terracon
5847 50th Street Lubbock, Texas 79424
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3Q21 Groundwater Gradient Map

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

5

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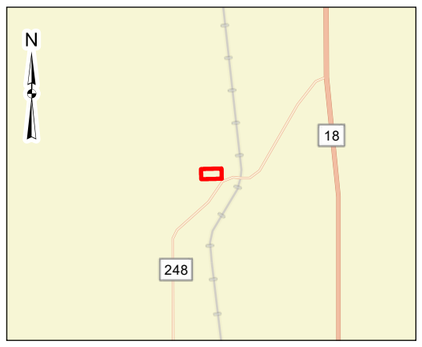

Legend:

- Monitor Well (MW)
- Groundwater Flow Direction
- Groundwater Contour

Notes:
- All groundwater elevations are measured in feet above mean sea level.
- Groundwater contours were interpolated with ArcGIS's kringing algorithm.
- Monitor well MW-5 was not honored in interpolation.
- Groundwater contour interval: 0.10 ft.
- Groundwater gradient: 0.0038 ft./ft.

Feet
0 62.5 125 250

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217011
Date:	Jan 2022
Drawn By:	BAD
Reviewed By:	ELL

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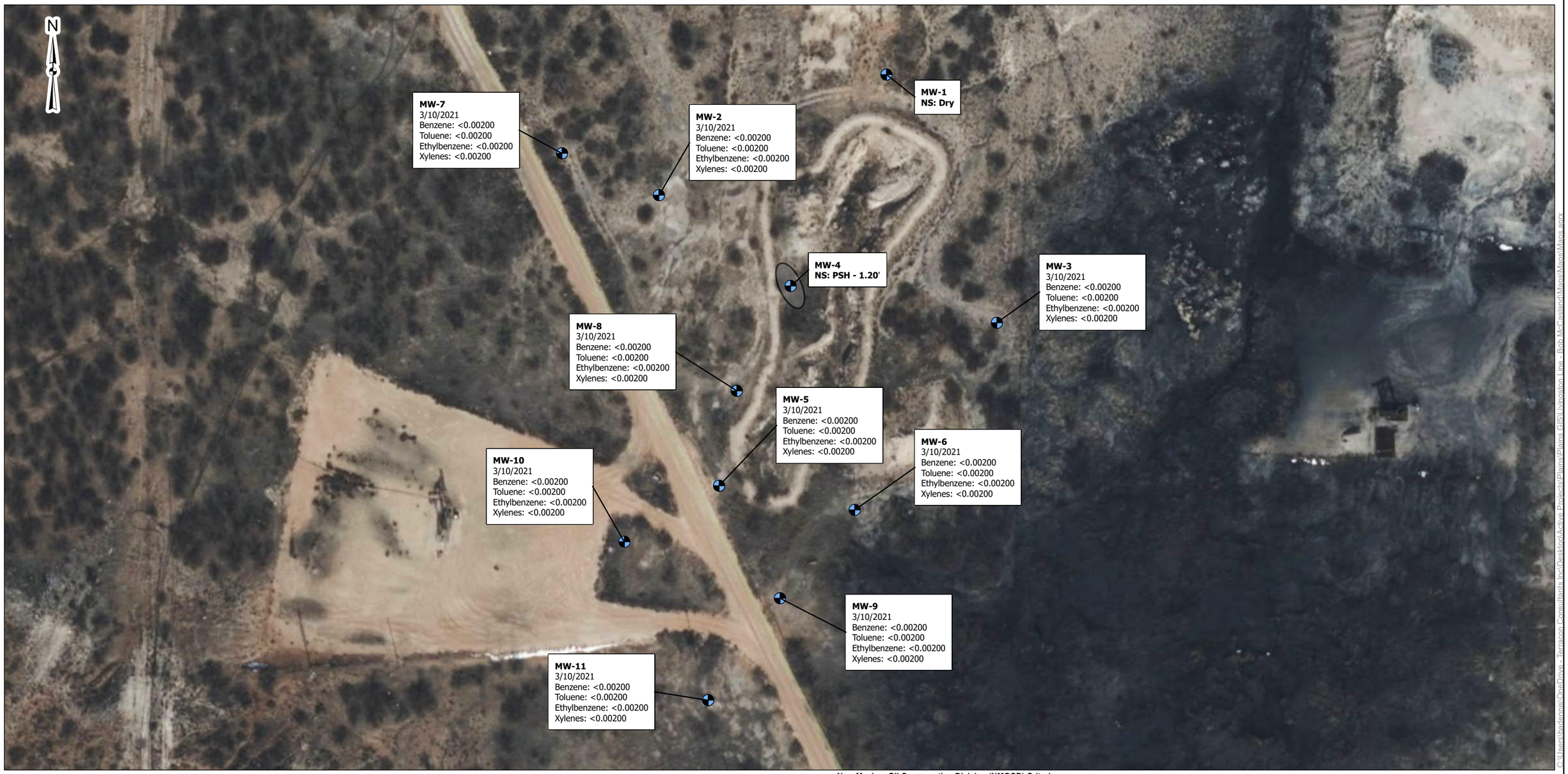
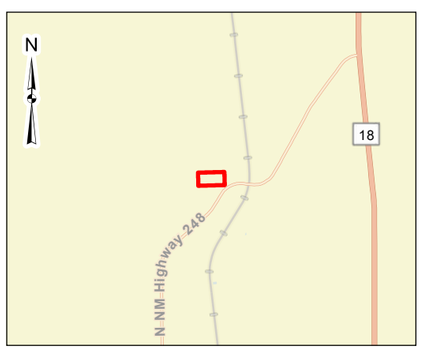
4Q21 Groundwater Gradient Map

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

6





Legend:

- Monitor Well (MW)
- Free Phase Plume

New Mexico- Oil Conservation Division (NMOCD) Criteria:
B (Benzene) - 0.01 mg/L
T (Toluene) - 0.75 mg/L
E (Ethylbenzene) - 0.75 mg/L
X (Total Xylenes) - 0.62 mg/L
- NS: Monitoring well was not sampled
- **Bold** concentrations indicates a concentration above laboratory sample detection limit (SDL).
- **Red text** indicates concentrations exceeding applicable NMOCD criteria
- All concentrations are reported in milligrams per liter (mg/L)
- PSH thickness is measured in tenths of feet.

Feet
0 62.5 125 250

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217011
Date:	Apr 2021
Drawn By:	BAD
Reviewed By:	ELL

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1Q21 Groundwater Concentration Map

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

7

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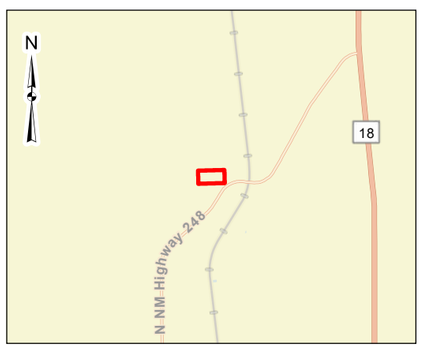

Legend:

- Monitor Well (MW)
- Free Phase Plume

New Mexico- Oil Conservation Division (NMOCD) Criteria:
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Feet
0 62.5 125 250

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217011
Date:	Jul 2021
Drawn By:	BAD
Reviewed By:	ELL

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5847 50th Street Lubbock, Texas 79424
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2Q21 Groundwater Concentration Map

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

8

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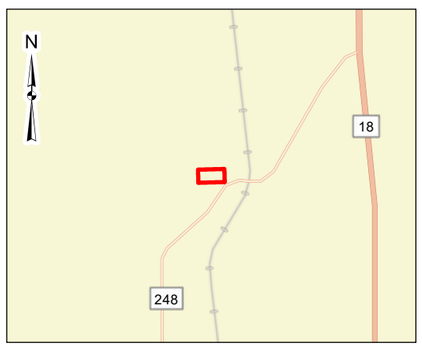

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- Monitor Well (MW)
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X (Total Xylenes) - 0.62 mg/L
- NS: Monitoring well was not sampled
- **Bold** concentrations indicates a concentration above laboratory sample detection limit (SDL).
- **Red text** indicates concentrations exceeding applicable NMOCD criteria
- All concentrations are reported in milligrams per liter (mg/L)
- PSH thickness is measured in tenths of feet.

Feet
0 62.5 125 250

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217011
Date:	Dec 2021
Drawn By:	BAD
Reviewed By:	ELL

Terracon
5847 50th Street Lubbock, Texas 79424
PH. (806) 300-0140 terracon.com

3Q21 Groundwater Concentration Map

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

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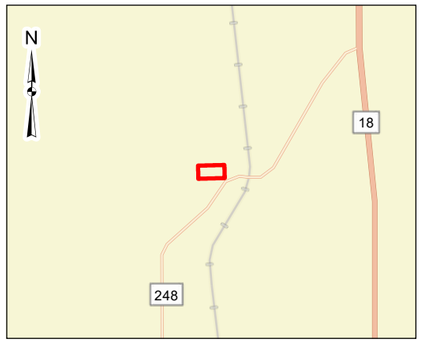
C:\Users\bdennis\OneDrive - Terracon Consultants Inc\Desktop\Active Projects\Plains\Plains GIS\Livingston Line - Bob McCasland\MapsMaps.aprx



Legend:

- Monitor Well (MW)
- Free Phase Plume

New Mexico- Oil Conservation Division (NMOCD) Criteria:
B (Benzene) - 0.01 mg/L
T (Toluene) - 0.75 mg/L
E (Ethylbenzene) - 0.75 mg/L
X (Total Xylenes) - 0.62 mg/L
- NS: Monitoring well was not sampled
- **Bold** concentrations indicates a concentration above laboratory sample detection limit (SDL).
- **Red text** indicates concentrations exceeding applicable NMOCD criteria
- All concentrations are reported in milligrams per liter (mg/L)
- PSH thickness is measured in tenths of feet.

Feet
0 62.5 125 250

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217011
Date:	Jan 2022
Drawn By:	BAD
Reviewed By:	ELL

Terracon
5847 50th Street Lubbock, Texas 79424
PH. (806) 300-0140 terracon.com

4Q21 Groundwater Concentration Map

Livingston Line - Bob McCasland Pipeline Release
Plains SRS # 2001-11226
NMOCD Ref. # 1RP-0395
NE 1/4 of the SW 1/4, Sec 3, T21S, R37E
GPS: 32.504135, -103.151345

Exhibit

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APPENDIX B

Table 1 – Groundwater Elevation and PSH Thickness Summary
Table 2 – Groundwater BTEX Concentration Analytical Summary
Table 3a – MW-4 PSH/BTEX Impacted Groundwater Recovery Summary
Table 3b – MW-5 BTEX Impacted Groundwater Recovery Summary
Table 4 – Concentrations of PAH in Groundwater Summary

Table 1
Groundwater Elevation & PSH[1] Thickness Summary

Livingston Line - Bob McCasland Pipeline Leak
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11226
Terracon Project #: AR217011
NMOCD[2] Reference #: 1RP-0395
All measurements are in feet above mean sea level

Monitoring Well (Well Diameter ")	Date Gauged	Top of Casing (TOC)[3] Elevation*	Depth to PSH Below TOC (feet)	Depth to Water Below TOC (feet)	PSH Thickness (feet)	Corrected Groundwater Elevation**
MW-1 (2")	01/21/20	2,439.09	DRY			
	06/08/20					
	09/16/20					
	12/14/20					
	03/10/21					
	06/15/21					
	09/24/21					
	12/13/21					
MW-2 (2")	01/21/20	3,432.62	-	31.29	-	3,401.33
	06/08/20		-	31.92	-	3,400.70
	09/16/20		-	32.60	-	3,400.02
	12/14/20		-	32.37	-	3,400.25
	03/10/21		-	32.22	-	3,400.40
	06/15/21		-	32.84	-	3,399.78
	09/24/21		-	33.39	-	3,399.23
	12/13/21		-	33.14	-	3,399.48
MW-3 (2")	01/21/20	3,433.61	-	33.99	-	3,399.62
	06/08/20		-	33.45	-	3,400.16
	09/16/20		-	34.16	-	3,399.45
	12/14/20		-	34.04	-	3,399.57
	03/10/21		-	33.92	-	3,399.69
	06/15/21		-	34.40	-	3,399.21
	09/24/21		-	34.94	-	3,398.67
	12/13/21		-	34.83	-	3,398.78
MW-4 (2")	01/21/20	3,432.25	31.33	31.40	0.07	3,400.91
	06/08/20		31.74	31.89	0.15	3,400.49
	09/16/20		32.52	32.94	0.42	3,399.67
	12/14/20		32.09	34.15	2.06	3,399.85
	03/10/21		32.05	33.25	1.20	3,400.02
	06/15/21		32.45	34.56	2.11	3,399.48
	09/24/21		32.90	35.67	2.77	3,398.93
	12/13/21		32.58	34.58	2.00	3,399.37
MW-5 (2")	01/21/20	3,429.63	-	28.42	-	3,401.21
	06/08/20		-	29.13	-	3,400.50
	09/16/20		-	29.65	-	3,399.98
	12/14/20		-	29.47	-	3,400.16
	03/10/21		-	29.32	-	3,400.31
	06/15/21		-	29.96	-	3,399.67
	09/24/21		-	30.45	-	3,399.18
	12/13/21		-	31.24	-	3,398.39
MW-6 (2")	01/21/20	3,429.30	-	28.63	-	3,400.67
	06/08/20		-	29.20	-	3,400.10
	09/16/20		-	29.84	-	3,399.46
	12/14/20		-	29.70	-	3,399.60
	03/10/21		-	29.53	-	3,399.77
	06/15/21		-	30.13	-	3,399.17
	09/24/21		-	30.68	-	3,398.62
	12/13/21		-	30.47	-	3,398.83

Notes:
1. PSH = Phase Separated Hydrocarbons
2. NMOCD = New Mexico Oil Conservation Division
3. TOC = Top of Casing

* Elevations based on the North American Vertical Datum of 1988.

** Corrected groundwater elevations were extrapolated using a PSH specific gravity of 0.85, if PSH was gauged in the monitoring well.

Table 1
Groundwater Elevation & PSH[1] Thickness Summary

Livingston Line - Bob McCasland Pipeline Leak
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11226
Terracon Project #: AR217011
NMOCD[2] Reference #: 1RP-0395
All measurements are in feet above mean sea level

Monitoring Well (Well Diameter ")	Date Gauged	Top of Casing (TOC)[3] Elevation*	Depth to PSH Below TOC (feet)	Depth to Water Below TOC (feet)	PSH Thickness (feet)	Corrected Groundwater Elevation**
MW-7 (2")	01/21/20	3,431.37	-	29.24	-	3,402.13
	06/08/20		-	29.95	-	3,401.42
	09/16/20		-	30.55	-	3,400.82
	12/14/20		-	30.29	-	3,401.08
	03/10/21		-	30.12	-	3,401.25
	06/15/21		-	30.80	-	3,400.57
	09/24/21		-	31.33	-	3,400.04
	12/13/21		-	31.05	-	3,400.32
MW-8 (4")	01/21/20	3,431.07	-	29.31	-	3,401.76
	06/08/20		-	30.35	-	3,400.72
	09/16/20		-	31.01	-	3,400.06
	12/14/20		-	30.83	-	3,400.24
	03/10/21		-	30.64	-	3,400.43
	06/15/21		-	31.24	-	3,399.83
	09/24/21		-	31.80	-	3,399.27
	12/13/21		-	31.60	-	3,399.47
MW-9 (2")	01/21/20	3,429.79	-	28.85	-	3,400.94
	06/08/20		-	29.43	-	3,400.36
	09/16/20		-	30.07	-	3,399.72
	12/14/20		-	29.91	-	3,399.88
	03/10/21		-	29.72	-	3,400.07
	06/15/21		-	30.33	-	3,399.46
	09/24/21		-	30.88	-	3,398.91
	12/13/21		-	30.66	-	3,399.13
MW-10 (2")	01/21/20	3,429.49	-	28.28	-	3,401.21
	06/08/20		-	29.15	-	3,400.34
	09/16/20		-	29.57	-	3,399.92
	12/14/20		-	29.30	-	3,400.19
	03/10/21		-	29.18	-	3,400.31
	06/15/21		-	29.76	-	3,399.73
	09/24/21		-	30.30	-	3,399.19
	12/13/21		-	30.06	-	3,399.43
MW-11 (2")	01/21/20	3,428.32	-	27.41	-	3,400.91
	06/08/20		-	28.02	-	3,400.30
	09/16/20		-	28.64	-	3,399.68
	12/14/20		-	28.45	-	3,399.87
	03/10/21		-	28.32	-	3,400.00
	06/15/21		-	28.90	-	3,399.42
	09/24/21		-	29.44	-	3,398.88
	12/13/21		-	29.21	-	3,399.11

Notes:
1. PSH = Phase Separated Hydrocarbons
2. NMOCD = New Mexico Oil Conservation Division
3. TOC = Top of Casing
* Elevations based on the North American Vertical Datum of 1988.
** Corrected groundwater elevations were extrapolated using a PSH specific gravity of 0.85, if PSH was gauged in the monitoring well.

Table 2
Groundwater BTEX[1] Concentration Analytical Summary

Livingston Line - Bob McCasland Pipeline Leak
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11226
Terracon Project #: AR217011
NMOCD[2] Reference #: 1RP-0395
All concentrations are in milligrams per Liter (mg/L)

Monitoring Well	Date Sampled	EPA SW846-8021B						
		Benzene	Toluene	Ethylbenzene	M,P-Xylenes	O-Xylenes	Total Xylenes	Total BTEX
NMOCD RRAL CRITERIA[3]		**0.01**	**0.75**	**0.75**	**TOTAL XYLENES 0.62**			**NE[4]**
MW-1	01/21/2020	**Dry - Not Sampled**						
	06/09/2020							
	09/17/2020							
	12/14/2020							
	03/10/2021							
	06/15/2021							
	09/24/2021							
	12/13/2021							
MW-2	01/21/2020	**Well Not Sampled**						
	06/09/2020							
	09/17/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.0200	<0.00200	<0.00200
	12/14/2020	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	03/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.0200	<0.00200	<0.00200
	06/15/2021	**0.00189 J**	<0.000367	<0.000657	<0.000629	<0.000642	<0.000642	**0.00189 J**
	09/24/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	**0.00297**
	12/13/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
MW-3	01/21/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	06/09/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	09/17/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/14/2020	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	03/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	06/15/2021	<0.000408	<0.000367	<0.000657	<0.000629	**0.00177 J**	**0.00177 J**	**0.00177 J**
	09/24/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00200
	12/13/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
MW-4	01/21/2020	**Not Sampled Due to Phase Separated Hydrocarbons**						
	06/09/2020							
	09/17/2020							
	12/14/2020							
	03/10/2021							
	06/15/2021							
	09/24/2021							
	12/13/2021							
MW-5	01/21/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	DUP-1	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	06/09/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	DUP-1	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	09/17/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/14/2020	**0.000780 J**	**0.000500 J**	**0.000820 J**	**0.000840 J**	**0.00102 J**	**0.00186 J**	**0.00396**
	DUP-1	**0.000480 J**	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	**0.000480 J**
	03/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	DUP-2	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	06/15/2021	<0.000408	<0.000367	**0.00253**	**0.000792 J**	<0.000642	**0.000792 J**	**0.00332 J**
	DUP-1	**0.000622 J**	<0.000367	<0.000657	<0.000629	**0.000988 J**	**0.000988 J**	**0.00161 J**
	09/24/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	**0.00258**
	DUP-1	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	**0.00224**
	12/13/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	DUP-1	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
MW-6	01/21/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	06/09/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	09/17/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/14/2020	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	03/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	06/15/2021	<0.000408	**0.000777 J B**	<0.000657	<0.000629	<0.000642	<0.000642	**0.000777 J B**
	09/24/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00200
	12/13/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400

Notes:
1. BTEX = Benzene, Toluene, Ethylbenzene, and Total Xylenes
2. NMOCD = New Mexico Oil Conservation Division
3. RRAL Criteria = Recommended Remediation Action Level Criteria
4. NE = Not Established
J: The target analyte was positively identified below the quantitation limit and above the detection limit
Bold text indicates a concentration above the laboratory detection limit.
Highlighted text indicates a concentration exceeding the NMOCD RRAL Criteria

Table 2
Groundwater BTEX[1] Concentration Analytical Summary

Livingston Line - Bob McCasland Pipeline Leak
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11226
Terracon Project #: AR217011
NMOCD[2] Reference #: 1RP-0395
All concentrations are in milligrams per Liter (mg/L)

Monitoring Well	Date Sampled	EPA SW846-8021B						
		Benzene	Toluene	Ethylbenzene	M,P-Xylenes	O-Xylenes	Total Xylenes	Total BTEX
NMOCD RRAL CRITERIA[3]		0.01	0.75	0.75	TOTAL XYLENES 0.62			NE[4]
MW-7	01/21/2020	Well Not Sampled						
	06/09/2020							
	09/17/2020							
	12/14/2020							
	03/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	06/15/2021	Well Not Sampled						
	09/24/2021							
	12/13/2021							
MW-8	01/21/2020	Well Not Sampled						
	06/09/2020							
	09/17/2020							
	12/14/2020							
	03/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	06/15/2021	Well Not Sampled						
	09/24/2021							
	12/13/2021							
MW-9	01/21/2020	<0.000480	<0.000512	**0.0058**	**0.0044**	**0.0018**	**0.0062**	**0.012**
	06/09/2020	<0.000480	<0.000512	<0.000616	**0.001 J**	**0.0007 J**	**0.0017**	**0.0017**
	09/17/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/14/2020	<0.000408	<0.000367	<0.000657	**0.000720 J**	<0.000642	**0.000720 J**	**0.000720 J**
	03/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	DUP-1	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	06/15/2021	<0.000408	**0.000515 J B**	<0.000657	<0.000629	<0.000642	<0.000642	<0.000657
	09/24/2021	Well Not Sampled						
	12/13/2021							
MW-10	01/21/2020	Well Not Sampled						
	06/09/2020							
	09/17/2020							
	12/14/2020							
	03/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	06/15/2021	Well Not Sampled						
	09/24/2021							
	12/13/2021							
MW-11	01/21/2020	Well Not Sampled						
	06/09/2020							
	09/17/2020							
	12/14/2020							
	03/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	06/15/2021	Well Not Sampled						
	09/24/2021							
	12/13/2021							

Notes:
1. BTEX = Benzene, Toluene, Ethylbenzene, and Total Xylenes
2. NMOCD = New Mexico Oil Conservation Division
3. RRAL Criteria = Recommended Remediation Action Level Criteria
4. NE = Not Established
J: The target analyte was positively identified below the quantitation limit and above the detection limit
Bold text indicates a concentration above the laboratory detection limit.
Highlighted text indicates a concentration exceeding the NMOCD RRAL Criteria

Table 3a

MW-4 PSH/BTEX[2] Impacted Groundwater Recovery Summary

Manual Abatement (Bailer)

Livingston Line to Bob McCasland Pipeline Release
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11226
NMOCD[3] Reference #: 1R-0395
Terracon Project Number: AR217011

All elevations are measured in feet above mean sea level

Monitoring Well	Date	Depth to PSH[1] Below Top of Casing	Depth to Water Below	PSH Thickness	Total Fluid Recovery (gallons)	PSH Recovered (gallons)
MW-4	01/09/2020	31.33	31.39	0.06	3.0	0.010
	01/20/2020	31.35	31.40	0.05	3.0	0.008
	01/31/2020	31.37	34.42	3.05	3.0	0.497
	02/14/2020	31.23	31.33	0.10	3.0	0.016
	02/19/2020	31.31	31.37	0.06	3.5	0.010
	02/27/2020	31.33	31.37	0.04	3.0	0.007
	03/05/2020	31.26	31.27	0.01	3.0	0.002
	03/17/2020	31.33	31.38	0.05	3.0	0.008
	05/26/2020	31.60	31.89	0.29	2.0	0.047
	06/29/2020	32.16	32.25	0.09	3.0	0.015
	07/28/2020	32.35	32.45	0.10	2.0	0.016
	08/18/2020	32.16	32.25	0.09	2.0	0.015
	10/14/2020	32.54	33.48	0.94	2.0	0.153
	11/12/2020	-	-	-	3.0	-
	12/29/2020	32.12	34.16	2.04	3.0	0.333
	01/21/2021	32.04	33.69	1.65	3.0	0.269
	02/26/2021	31.95	33.83	1.88	3.0	0.306
	03/29/2021	31.87	33.80	1.93	3.0	0.315
	04/26/2021	31.99	33.87	1.88	3.0	0.306
	05/21/2021	32.13	34.01	1.88	3.0	0.306
	06/29/2021	32.20	34.02	1.82	3.0	0.297
	07/29/2021	32.59	35.67	3.08	2.3	0.502
	08/26/2021	-	-	-	3.0	-
	10/25/2021	32.93	36.04	3.11	3.0	0.507
	11/30/2021	32.83	35.23	2.40	3.0	0.391
	12/20/2021	32.82	34.92	2.10	3.5	0.342
Average PSH Thickness: 2.17				**2021 Total Recovered**	**32.8**	**3.542**

Notes:
1. PSH: Phase Separated Hydrocarbons
2. BTEX: Benzene, Toluene, Ethylbenzene, and Total Xylenes
3. NMOCD: New Mexico Oil Conservation Division
4. GW: Groundwater
- = Data not recorded

Table 3b

MW-5 BTEX[1] Impacted Groundwater Recovery Summary

Manual Abatement (Bailer)

Livingston Line to Bob McCasland Pipeline Release
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11226
NMOCD[2] Reference #: 1R-0395
Terracon Project Number: AR217011

All elevations are measured in feet above mean sea level

Monitoring Well	Date	Groundwater Recovered (gallons)
MW-5	01/09/2020	3.0
	01/20/2020	5.0
	01/31/2020	3.0
	02/14/2020	5.0
	02/19/2020	5.0
	02/27/2020	4.0
	03/05/2020	5.0
	03/17/2020	5.0
	05/26/2020	5.0
	06/29/2020	5.0
	07/28/2020	4.5
	08/18/2020	5.0
	10/14/2020	3.0
	11/12/2020	5.0
	12/29/2020	3.0
	01/21/2021	3.0
	02/26/2021	5.0
	03/29/2021	5.0
	04/26/2021	5.0
	05/21/2021	5.0
	06/29/2021	5.0
	07/29/2021	3.0
	08/26/2021	3.0
	10/25/2021	3.0
	11/30/2021	2.5
	12/20/2021	4.0
2021 Total GW[3] Recovered		**43.5**

Notes:
1. BTEX: Benzene, Toluene, Ethylbenzene, and Total Xylenes
2 NMOCD: New Mexico Oil Conservation Division
3. GW: Groundwater
- = Data not recorded

Table 4
Concentrations of PAH[1] in Groundwater Summary

Livingston Line - Bob McCasland Pipeline Leak
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11226
Terracon Project #: AR217011
NMOCD2 Reference#: 1R-0395

All concentrations are in milligrams per liter (mg/L)[3]

Monitoring Well	Date Sampled	EPA SW846-8270C, 3510																	
		Naphthalene	Benzo(a)pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)Pyrene	Phenanthrene	Pyrene
NMWQCC Groundwater Criteria[4]		0.03	0.0007	NE[5]														
MW-1	9/13/2001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	<0.005	<0.005	<0.005
	7/14/2004	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	3/21/2005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	2/16/2006	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/10/2007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002
MW-2	7/14/2004	**0.0133**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	**0.000061**	<0.00005	**0.000497**	<0.00005
	3/21/2005	**0.00883**	<0.00005	0.000054	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	**0.000052**	<0.00005	**0.000325**	<0.00005
	2/16/2006	**0.0128**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000066	<0.00005	N/A	<0.00005	**0.000103**	<0.00005	**0.000352**	<0.00005
	5/10/2007	**0.00779**	<0.0002	<0.0002	<0.0002	0.00175	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	**0.000442**	<0.0002	**0.000229**	<0.0004	<0.0002	<0.0002
	2/28/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	11/7/2012	**0.00946**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	9/5/2013	**0.000902**	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508
	12/14/2020	<0.0000976	<0.0000573	<0.000100	<0.0000845	<0.0000869	<0.000135	<0.0000714	<0.000114	<0.000117	<0.000157	<0.0000763	N/A	<0.000158	<0.000101	<0.0000916	<0.0000854	<0.000131
MW-3	9/13/2001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	<0.005	<0.005	<0.005
	7/14/2004	N/A																
	9/14/2004	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	3/21/2005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	2/16/2006	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/10/2007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002
	2/28/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	<0.005	<0.005	<0.005
	9/5/2013	<0.000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562
	10/5/2014	Not Sampled Due to Sample Reduction																
	10/15/2015																	
	12/14/2020	<0.000104	<0.0000613	<0.000107	<0.0000904	<0.0000930	<0.000144	<0.0000763	<0.000122	<0.000125	<0.000168	<0.0000816	N/A	<0.000169	<0.000108	<0.0000980	<0.0000913	<0.000140
MW-4		Not Sampled due to the presence of phase separated hydrocarbons																
	2/16/2006	**0.113**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00252	<0.00005	N/A	<0.00005	**0.000855**	<0.00005	**0.00916**	<0.00005
	5/10/2007	**0.0659**	<0.0002	<0.0002	<0.0002	**0.00596**	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	**0.00112**	<0.0002	**0.000737**	<0.0004	<0.0002	<0.0002
	2/28/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	12/30/2011	**0.0366**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	11/7/2012	**0.101**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	**0.00154**	<0.0002	<0.0002	<0.0002	**0.00494**	<0.0002
	9/5/2013	**0.0643**	<0.0000667	<0.0000667	0.000288	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	**0.00092**	<0.0000667	**0.000419**	<0.0000667	**0.00328**	<0.0000667
	10/5/2014	0.00869	<0.00000660	<0.00000407	<0.00000495	<0.00000236	<0.00000527	<0.00000998	<0.00000796	<0.00000583	<0.00000427	<0.00000580	**0.000308**	<0.00000633	**0.00014**	<0.00000750	**0.000821**	<0.00000691
	10/15/2015	0.0104	<0.000391	<0.000958	<0.000967	<0.000729	<0.000367	<0.000459	<0.000350	<0.000573	<0.000382	<0.000406	N/A	<0.000500	<0.000988	<0.000367	**0.000797**	0.000459
	11/14/2019	**0.0107**	<0.000108	<0.000108	**0.000262**	<0.000108	<0.000108	<0.000108	<0.000108	<0.000108	<0.000108	<0.000108	**0.000831**	<0.000108	**0.000367**	<0.000108	**0.00148**	<0.000108
	12/14/2020	Not Sampled Due to PSH																
MW-5	9/13/2001	**0.049**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	<0.005	<0.005	<0.005
	7/14/2004	N/A																
	9/14/2004	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	3/21/2005	N/A																
	2/16/2006	**0.000415**	<0.00005	0.000059	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	0.000147	<0.00005	0.000309	<0.00005
	5/10/2007	**0.00218**	<0.0002	<0.0002	<0.0002	0.00075	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	0.00112	<0.0002	0.000496	<0.0004	<0.0002	<0.0002
	2/28/2008	**0.051**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	12/30/2011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	11/7/2012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	9/5/2013	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562	0.000311	<0.0000562	<0.0000562	<0.0000562	<0.0000562	<0.0000562
	11/14/2019	**0.00670**	<0.000111	**0.000233**	<0.000111	<0.000111	<0.000111	<0.000111	<0.000111	<0.000111	<0.000111	<0.000111	**0.00135**	<0.000111	<0.000111	<0.000111	**0.000242**	<0.000111
	12/14/2020	<0.000101	<0.0000595	<0.000104	<0.0000878	<0.0000904	<0.000140	<0.0000742	<0.000118	<0.000121	<0.000163	<0.0000793	N/A	<0.000164	<0.000105	<0.0000953	<0.0000887	<0.000136
MW-6	7/14/2004	**0.00122**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	0.000085	<0.00005
	3/21/2005	**0.000089**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	2/16/2006	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/10/2007	**0.00095**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002
	2/28/2008	**0.009**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	<0.005	<0.005	<0.005
	9/5/2013	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667	0.000305	<0.0000667	<0.0000667	<0.0000667	<0.0000667	<0.0000667
	12/14/2020	<0.0000977	<0.0000573	<0.000100	<0.0000846	<0.0000870	<0.000135	<0.0000714	<0.000114	<0.000117	<0.000157	<0.0000764	N/A	<0.000158	<0.000101	<0.0000917	<0.0000854	<0.000131

Notes:
1. PAH: Polycyclic Aromatic Hydrocarbons
2. NMOCD: New Mexico Oil Conservation Division
3. mg/L milligrams per liter
4. NMWQCC Groundwater Criteria: Recommended Remediation Action Level Criteria
5. NE: Not Established
J: The target analyte was positively identified below the quantitation limit and above the detection limit
Bold text indicates a concentration above the laboratory detection limit.
Highlighted text indicates a concentration exceeding the NMOCD RRAL Criteria

Table 4
Concentrations of PAH[1] in Groundwater Summary

Livingston Line - Bob McCasland Pipeline Leak
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11226
Terracon Project #: AR217011
NMOCD2 Reference#: 1R-0395

All concentrations are in milligrams per liter (mg/L)[3]

Monitoring Well	Date Sampled	EPA SW846-8270C, 3510																
		Naphthalene	Benzo(a)pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)Pyrene	Phenanthrene	Pyrene
NMWQCC Groundwater Criteria[4]		0.03	0.0007	NE[5]														
MW-7	7/14/2004	**0.000261**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	0.000293	<0.00005
	3/21/2005	**0.000448**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	0.000222	<0.00005
	2/16/2006	**0.000057**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/10/2007	**0.000606**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002
	2/28/2008	**0.017**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	<0.005	<0.005	<0.005
	12/30/2011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	9/5/2013	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508
MW-8	7/14/2004	**0.000261**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	**0.000293**	<0.00005
	3/21/2005	**0.000448**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	**0.000222**	<0.00005
	2/16/2006	**0.000057**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/10/2007	**0.000606**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002
	2/28/2008	**0.017**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	<0.005	<0.005	<0.005
	12/30/2011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	9/5/2013	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508
MW-9	7/14/2004	**0.00798**	<0.00005	0.000089	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	**0.000306**	<0.00005	**0.00008**	<0.00005
	3/21/2005	**0.00126**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	**0.000076**	<0.00005	**0.000068**	<0.00005
	2/16/2006	**0.0107**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	**0.000139**	<0.00005	**0.000125**	<0.00005
	5/10/2007	**0.00243**	<0.0002	<0.0002	<0.0002	0.000222	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	**0.00132**	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002
	2/28/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	9/5/2013	**0.00247**	<0.0000588	<0.0000588	<0.0000588	<0.0000588	<0.0000588	<0.0000588	<0.0000588	<0.0000588	<0.0000588	<0.0000588	**0.000354**	<0.0000588	**0.000262**	<0.0000588	**0.000287**	<0.0000588
	12/14/2020	<0.0000969	<0.0000569	<0.0000996	<0.0000839	<0.0000863	<0.000134	<0.0000708	<0.000113	<0.000116	<0.000156	<0.0000757	N/A	<0.000157	<0.000100	<0.0000910	<0.0000848	<0.000130
MW-10	3/21/2005	**0.00738**	<0.00005	**0.000083**	**0.000051**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	**0.000292**	<0.00005	**0.000654**	<0.00005
	2/16/2006	N/A																
	5/22/2006	**0.000174**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	**0.00009**	<0.00005	**0.000202**	<0.00005
	5/10/2007	**0.000688**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	**0.00108**	<0.0002	**0.000388**	<0.0004	<0.0002	<0.0002
	2/28/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	9/5/2013	**0.000548**	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	**0.000714**	<0.0000508	**0.0000839**	<0.0000508	**0.0000605**	<0.0000508
MW-11	3/21/2005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	2/16/2006	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	N/A	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/10/2007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002
	2/28/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	<0.005	<0.005	<0.005
	9/5/2013	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524	<0.0000524

Notes:
1. PAH: Polycyclic Aromatic Hydrocarbons
2. NMOCD: New Mexico Oil Conservation Division
3. mg/L milligrams per liter
4. NMWQCC Groundwater Criteria: Recommended Remediation Action Level Criteria
5. NE: Not Established
J: The target analyte was positively identified below the quantitation limit and above the detection limit
Bold text indicates a concentration above the laboratory detection limit.
Highlighted text indicates a concentration exceeding the NMOCD RRAL Criteria

APPENDIX C

Certified Laboratory Analytical Reports:

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Certificate of Analysis Summary 691401

Terracon-Midland, Midland, TX

Project Name: Livingston Line-Bob McCasland (SRS #2001-11226)

Project Id:

Contact: Brett Dennis

Project Location:

Date Received in Lab: Thu 03.11.2021 10:36

Report Date: 03.19.2021 16:58

Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	691401-001		691401-002		691401-003		691401-004		691401-005		691401-006	
	Field Id:	MW-2		MW-3		MW-5		MW-6		MW-7		MW-8	
	Depth:												
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	03.10.2021 11:50		03.10.2021 12:50		03.10.2021 16:00		03.10.2021 13:40		03.10.2021 10:35		03.10.2021 17:00	
BTEX by EPA 8021B	***Extracted:***	03.18.2021 13:00		03.18.2021 13:00		03.18.2021 13:00		03.18.2021 13:00		03.18.2021 13:00		03.18.2021 13:00	
	Analyzed:	03.18.2021 14:48		03.18.2021 15:14		03.18.2021 15:40		03.18.2021 16:05		03.18.2021 16:30		03.18.2021 18:12	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Toluene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Ethylbenzene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400
o-Xylene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200

BRL - Below Reporting Limit

Jessica Kramer

eurofins | Environment Testing Xenco

Certificate of Analysis Summary 691401

Terracon-Midland, Midland, TX

Project Name: Livingston Line-Bob McCasland (SRS #2001-11226)

Project Id:

Contact: Brett Dennis

Project Location:

Date Received in Lab: Thu 03.11.2021 10:36

Report Date: 03.19.2021 16:58

Project Manager: Jessica Kramer

Analysis Requested											
	Lab Id:	691401-007		691401-008		691401-009		691401-010		691401-011	
	Field Id:	MW-9		MW-10		MW-11		DUP-1		DUP-2	
	Depth:										
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	03.10.2021 14:50		03.10.2021 09:40		03.10.2021 08:30		03.10.2021 14:51		03.10.2021 16:01	
BTEX by EPA 8021B	***Extracted:***	03.18.2021 13:00		03.18.2021 13:00		03.18.2021 13:00		03.18.2021 13:00		03.18.2021 13:00	
	Analyzed:	03.18.2021 18:37		03.18.2021 19:02		03.18.2021 19:27		03.18.2021 19:53		03.18.2021 20:18	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Toluene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Ethylbenzene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400
o-Xylene		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200

BRL - Below Reporting Limit

Jessica Kramer

eurofins | Environment Testing Xenco

Analytical Report 691401

for

Terracon-Midland

Project Manager: Brett Dennis

Livingston Line-Bob McCasland (SRS #2001-11226)

03.19.2021

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-24)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-20-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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03.19.2021

Project Manager: **Brett Dennis**
Terracon-Midland
10400 State Hwy 191
Midland, TX 79707

Reference: Eurofins Xenco, LLC Report No(s): **691401**
Livingston Line-Bob McCasland (SRS #2001-11226)
Project Address:

Brett Dennis:

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 Eurofins Xenco, LLC Report Number(s) 691401. 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 Eurofins Xenco, LLC. 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. 691401 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Manager

A Small Business and Minority Company

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

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Sample Cross Reference 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2	W	03.10.2021 11:50		691401-001
MW-3	W	03.10.2021 12:50		691401-002
MW-5	W	03.10.2021 16:00		691401-003
MW-6	W	03.10.2021 13:40		691401-004
MW-7	W	03.10.2021 10:35		691401-005
MW-8	W	03.10.2021 17:00		691401-006
MW-9	W	03.10.2021 14:50		691401-007
MW-10	W	03.10.2021 09:40		691401-008
MW-11	W	03.10.2021 08:30		691401-009
DUP-1	W	03.10.2021 14:51		691401-010
DUP-2	W	03.10.2021 16:01		691401-011

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CASE NARRATIVE

Client Name: Terracon-Midland

Project Name: Livingston Line-Bob McCasland (SRS #2001-11226)

Project ID:
Work Order Number(s): *691401*

Report Date: *03.19.2021*
Date Received: *03.11.2021*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **MW-2** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-001 Date Collected: 03.10.2021 11:50

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 14:48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 14:48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 14:48	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 14:48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 14:48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 14:48	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 14:48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	114	%	70-130	03.18.2021 14:48	
4-Bromofluorobenzene	460-00-4	104	%	70-130	03.18.2021 14:48	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **MW-3** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-002 Date Collected: 03.10.2021 12:50

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 15:14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 15:14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 15:14	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 15:14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 15:14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 15:14	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 15:14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	119	%	70-130	03.18.2021 15:14	
4-Bromofluorobenzene	460-00-4	87	%	70-130	03.18.2021 15:14	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **MW-5** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-003 Date Collected: 03.10.2021 16:00

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 15:40	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 15:40	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 15:40	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 15:40	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 15:40	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 15:40	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 15:40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	03.18.2021 15:40	
4-Bromofluorobenzene	460-00-4	103	%	70-130	03.18.2021 15:40	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **MW-6** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-004 Date Collected: 03.10.2021 13:40

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 16:05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 16:05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 16:05	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 16:05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 16:05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 16:05	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 16:05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	112	%	70-130	03.18.2021 16:05	
4-Bromofluorobenzene	460-00-4	102	%	70-130	03.18.2021 16:05	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **MW-7** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-005 Date Collected: 03.10.2021 10:35

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 16:30	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 16:30	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 16:30	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 16:30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 16:30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 16:30	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 16:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	118	%	70-130	03.18.2021 16:30	
4-Bromofluorobenzene	460-00-4	105	%	70-130	03.18.2021 16:30	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **MW-8** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-006 Date Collected: 03.10.2021 17:00

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 18:12	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 18:12	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 18:12	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 18:12	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 18:12	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 18:12	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 18:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	03.18.2021 18:12	
4-Bromofluorobenzene	460-00-4	98	%	70-130	03.18.2021 18:12	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **MW-9** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-007 Date Collected: 03.10.2021 14:50

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 18:37	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 18:37	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 18:37	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 18:37	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 18:37	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 18:37	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 18:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.18.2021 18:37	
4-Bromofluorobenzene	460-00-4	98	%	70-130	03.18.2021 18:37	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **MW-10** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-008 Date Collected: 03.10.2021 09:40

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 19:02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 19:02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 19:02	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 19:02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 19:02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 19:02	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 19:02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	118	%	70-130	03.18.2021 19:02	
4-Bromofluorobenzene	460-00-4	99	%	70-130	03.18.2021 19:02	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **MW-11** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-009 Date Collected: 03.10.2021 08:30

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 19:27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 19:27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 19:27	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 19:27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 19:27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 19:27	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 19:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	122	%	70-130	03.18.2021 19:27	
4-Bromofluorobenzene	460-00-4	106	%	70-130	03.18.2021 19:27	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **DUP-1** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-010 Date Collected: 03.10.2021 14:51

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 19:53	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 19:53	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 19:53	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 19:53	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 19:53	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 19:53	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 19:53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	100	%	70-130	03.18.2021 19:53	
4-Bromofluorobenzene	460-00-4	96	%	70-130	03.18.2021 19:53	

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Certificate of Analytical Results 691401

Terracon-Midland, Midland, TX

Livingston Line-Bob McCasland (SRS #2001-11226)

Sample Id: **DUP-2** Matrix: Ground Water Date Received:03.11.2021 10:36

Lab Sample Id: 691401-011 Date Collected: 03.10.2021 16:01

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: KTL

Analyst: KTL Date Prep: 03.18.2021 13:00 % Moisture:

Seq Number: 3154186

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/L	03.18.2021 20:18	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/L	03.18.2021 20:18	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/L	03.18.2021 20:18	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/L	03.18.2021 20:18	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/L	03.18.2021 20:18	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/L	03.18.2021 20:18	U	1
Total BTEX		<0.00200	0.00200	mg/L	03.18.2021 20:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	116	%	70-130	03.18.2021 20:18	
4-Bromofluorobenzene	460-00-4	108	%	70-130	03.18.2021 20:18	

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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. **ND** Not Detected.

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

QC Summary 691401

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Terracon-Midland

Livingston Line-Bob McCasland (SRS #2001-11226)

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3154186 Matrix: Water Date Prep: 03.18.2021
MB Sample Id: 7723687-1-BLK LCS Sample Id: 7723687-1-BKS LCSD Sample Id: 7723687-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0923	92	0.102	102	70-130	10	25	mg/L	03.18.2021 10:09	
Toluene	<0.00200	0.100	0.0902	90	0.0995	100	70-130	10	25	mg/L	03.18.2021 10:09	
Ethylbenzene	<0.00200	0.100	0.0908	91	0.0996	100	70-130	9	25	mg/L	03.18.2021 10:09	
m,p-Xylenes	<0.00400	0.200	0.186	93	0.205	103	70-130	10	25	mg/L	03.18.2021 10:09	
o-Xylene	<0.00200	0.100	0.0913	91	0.103	103	70-130	12	25	mg/L	03.18.2021 10:09	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		115		124		70-130	%	03.18.2021 10:09
4-Bromofluorobenzene	72		88		95		70-130	%	03.18.2021 10:09

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3154186 Matrix: Water Date Prep: 03.18.2021
Parent Sample Id: 691396-018 MS Sample Id: 691396-018 S MSD Sample Id: 691396-018 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.0927	0.100	0.195	102	0.200	107	70-130	3	25	mg/L	03.18.2021 11:00	
Toluene	0.000770	0.100	0.0927	92	0.0974	97	70-130	5	25	mg/L	03.18.2021 11:00	
Ethylbenzene	<0.00200	0.100	0.0931	93	0.0967	97	70-130	4	25	mg/L	03.18.2021 11:00	
m,p-Xylenes	0.0138	0.200	0.203	95	0.212	99	70-130	4	25	mg/L	03.18.2021 11:00	
o-Xylene	0.00761	0.100	0.104	96	0.108	100	70-130	4	25	mg/L	03.18.2021 11:00	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	114		115		70-130	%	03.18.2021 11:00
4-Bromofluorobenzene	93		93		70-130	%	03.18.2021 11:00

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Terracon

CHAIN OF CUSTODY RECORD 691401

Laboratory: Xenco Laboratories
Address: 1211 West Florida Avenue, Midland, TX 79701
Phone: (432) 563-1800
Contact: Jessica Kramer
PO/SO #:

Office Location: Lubbock
Project Manager: Brett Dennis
Sampler's Name: Kimble Thrash
Sampler's Signature:

Project Number: AR217011
Project Name: Livingston Line (SRS # 2001-11226)

ANALYSIS REQUESTED

LAB USE ONLY
DUE DATE:

TEMP OF COOLER WHEN RECEIVED (°C): 0.5/1.0

Page __1__ of _2___

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No. Type of Containers: 40 ml VOA				BTEX (EPA Method 8021B)							Lab Sample ID
GW	03/10/21	1150		X	MW-2			X				3							
GW	03/10/21	1250		X	MW-3			X				3							
GW	03/10/21	1600		X	MW-5			X				3							
GW	03/10/21	1340		X	MW-6			X				3							
GW	03/10/21	1035		X	MW-7			X				3							
GW	03/10/21	1700		X	MW-8			X				3							
GW	03/10/21	1450		X	MW-9			X				3							
GW	03/10/21	0940		X	MW-10			X				3							
GW	03/10/21	0830		X	MW-11			X				3							
GW	03/10/21	1451		X	DUP-1			X				3							

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
	3/10/21	2030		3/10/21	2030
	3/11/21	1036		3/11/21	10:36

NOTES:

E-MAIL RESULTS TO:
1. CJBRYANT@PAALP.COM
2. ALGROVES@PAALP.COM
3. MAOCHOA@PAALP.COM
4. BRETT.DENNIS@TERRACON.COM
5. ERIN.LOYD@TERRACON.COM
6. KATHRASH@TERRACON.COM

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

Terracon

CHAIN OF CUSTODY RECORD

691401

Laboratory: Xenco Laboratories
Address: 1211 West Florida Avenue
Midland, TX 79701

Phone: (432) 563-1800
Contact: Jessica Kramer
PO/SO #:

Office Location: Lubbock
Project Manager: Brett Dennis
Sampler's Name: Kimble Thrash
Sampler's Signature:

Project Number: AR217011
Project Name: Livingston Line (SRS # 2001-11226)

ANALYSIS REQUESTED

LAB USE ONLY
DUE DATE:

TEMP OF COOLER WHEN RECEIVED (°C): 0.5/1.0

Page 2 of 2

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No. Type of Containers: 40 ml VOA	BTEX (EPA Method 8021B)	Lab Sample ID
GW	03/10/21	1601		X	DUP-2			X	3	
					**********END OF COC**********					

TURNAROUND TIME: ☑ Normal ☐ 48-Hour Rush ☐ 24-Hour Rush

TRRP Laboratory Review Checklist ☐ Yes ☐ No

	Date	Time		Date	Time
Relinquished by (Signature)	3/10/21	2030	Received by (Signature)	3/10/21	2030
Relinquished by (Signature)	3/11/21	0956	Received by (Signature)	3/11/21	10:36
Relinquished by (Signature)			Received by (Signature)		
Relinquished by (Signature)			Received by (Signature)		

NOTES:

E-MAIL RESULTS TO:
1. CJBRYANT@PAALP.COM
2. ALGROVES@PAALP.COM
3. MAOCHOA@PAALP.COM
4. BRETT.DENNIS@TERRACON.COM
5. ERIN.LOYD@TERRACON.COM
6. KATHRASH@TERRACON.COM

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

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Terracon-Midland

Date/ Time Received: 03.11.2021 10.36.00 AM

Work Order #: 691401

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

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.5
#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?	**Yes**

*** 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: 03.11.2021

Brianna Teel

Checklist reviewed by: John Builes Date: 03.12.2021

John Builes

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 820-1046-1
Laboratory Sample Delivery Group: AR217011
Client Project/Site: Livingston Line--Bob McCasland

For:
Terracon Consulting Eng & Scientists
5827 50th St
Suite 1
Lubbock, Texas 79424

Attn: Brett Dennis

JKramer

Authorized for release by:
6/22/2021 2:47:58 PM

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

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

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

Warranties, Terms, and Conditions
· Analyses for Field Parameters are performed by EQC field staff. Locations and certifications are identified on the Chain of Custody as follows:
ERF = field staff performs tests under NJ State certification #02015
VL = field staff performs tests under NJ State certification #06005
WG = field staff performs tests under NJ State certification #PA001
H = field staff performs tests under NJ NELAP certification #PA093, PA NELAP certification # 46-05499

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

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

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

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

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

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

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

Jessica Kramer
Project Manager
6/22/2021 2:47:58 PM

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Laboratory Job ID: 820-1046-1
SDG: AR217011

Table of Contents

Definitions/Glossary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Qualifiers

GC VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Job ID: 820-1046-1

Laboratory: Eurofins Xenco, Lubbock

Narrative

Job Narrative
820-1046-1

Comments
No additional comments.

Receipt
The samples were received on 6/16/2021 12:20 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 11.2º C.

GC VOA
Method 8021B: Surrogate recovery for the following sample was outside control limits: MW-6 (820-1046-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The method blank for analytical batch 880-4226 contained Toluene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

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

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Client Sample ID: MW-2

Lab Sample ID: 820-1046-1
Matrix: Water
Date Collected: 06/15/21 13:21
Date Received: 06/16/21 12:20

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.00189**	**J**	0.00200	0.000408	mg/L			06/22/21 01:03	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/22/21 01:03	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/22/21 01:03	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/22/21 01:03	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/22/21 01:03	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/22/21 01:03	1
Total BTEX	**0.00189**	**J**	0.00400	0.000657	mg/L			06/22/21 01:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*		*06/22/21 01:03*	*1*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*		*06/22/21 01:03*	*1*

Client Sample ID: MW-3

Lab Sample ID: 820-1046-2
Matrix: Water
Date Collected: 06/15/21 12:20
Date Received: 06/16/21 12:20

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/22/21 01:23	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/22/21 01:23	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/22/21 01:23	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/22/21 01:23	1
o-Xylene	**0.00177**	**J**	0.00200	0.000642	mg/L			06/22/21 01:23	1
Xylenes, Total	**0.00177**	**J**	0.00400	0.000642	mg/L			06/22/21 01:23	1
Total BTEX	**0.00177**	**J**	0.00400	0.000657	mg/L			06/22/21 01:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*		*06/22/21 01:23*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*		*06/22/21 01:23*	*1*

Client Sample ID: MW-5

Lab Sample ID: 820-1046-3
Matrix: Water
Date Collected: 06/15/21 14:24
Date Received: 06/16/21 12:20

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/22/21 01:44	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/22/21 01:44	1
Ethylbenzene	**0.00253**		0.00200	0.000657	mg/L			06/22/21 01:44	1
m-Xylene & p-Xylene	**0.000792**	**J**	0.00400	0.000629	mg/L			06/22/21 01:44	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/22/21 01:44	1
Xylenes, Total	**0.000792**	**J**	0.00400	0.000642	mg/L			06/22/21 01:44	1
Total BTEX	**0.00332**	**J**	0.00400	0.000657	mg/L			06/22/21 01:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*06/22/21 01:44*	*1*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*		*06/22/21 01:44*	*1*

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Client Sample ID: MW-6

Lab Sample ID: 820-1046-4

Date Collected: 06/15/21 11:00
Matrix: Water
Date Received: 06/16/21 12:20

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/18/21 12:19	1
Toluene	**0.000777**	**J B**	0.00200	0.000367	mg/L			06/18/21 12:19	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/18/21 12:19	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/18/21 12:19	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/18/21 12:19	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/18/21 12:19	1
Total BTEX	**0.000777**	**J B**	0.00400	0.000657	mg/L			06/18/21 12:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*137*	*S1+*	*70 - 130*		*06/18/21 12:19*	*1*
1,4-Difluorobenzene (Surr)	*113*		*70 - 130*		*06/18/21 12:19*	*1*

Client Sample ID: MW-9

Lab Sample ID: 820-1046-5

Date Collected: 06/15/21 11:22
Matrix: Water
Date Received: 06/16/21 12:20

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/18/21 12:44	1
Toluene	**0.000515**	**J B**	0.00200	0.000367	mg/L			06/18/21 12:44	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/18/21 12:44	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/18/21 12:44	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/18/21 12:44	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/18/21 12:44	1
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			06/18/21 12:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*133*	*S1+*	*70 - 130*		*06/18/21 12:44*	*1*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*		*06/18/21 12:44*	*1*

Client Sample ID: DUP-1

Lab Sample ID: 820-1046-6

Date Collected: 06/15/21 00:00
Matrix: Water
Date Received: 06/16/21 12:20

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.000622**	**J**	0.00200	0.000408	mg/L			06/21/21 14:01	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/21/21 14:01	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/21/21 14:01	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/21/21 14:01	1
o-Xylene	**0.000988**	**J**	0.00200	0.000642	mg/L			06/21/21 14:01	1
Xylenes, Total	**0.000988**	**J**	0.00400	0.000642	mg/L			06/21/21 14:01	1
Total BTEX	**0.00161**	**J**	0.00400	0.000657	mg/L			06/21/21 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*06/21/21 14:01*	*1*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*		*06/21/21 14:01*	*1*

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
		BFB1	DFBZ1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
820-1046-1	MW-2	112	114										
820-1046-2	MW-3	113	100										
820-1046-3	MW-5	108	110										
820-1046-4	MW-6	137 S1+	113										
820-1046-5	MW-9	133 S1+	106										
820-1046-6	DUP-1	106	111										
LCS 880-4226/34	Lab Control Sample	116	109										
LCS 880-4366/35	Lab Control Sample	105	98										
LCS 880-4428/3	Lab Control Sample	109	114										
LCSD 880-4226/35	Lab Control Sample Dup	116	111										
LCSD 880-4366/36	Lab Control Sample Dup	108	101										
LCSD 880-4428/4	Lab Control Sample Dup	94	99										
MB 880-4226/39	Method Blank	80	86										
MB 880-4226/8	Method Blank	0.002 S1-	87										
MB 880-4366/41	Method Blank	104	94										
MB 880-4366/9	Method Blank	118	94										
MB 880-4428/9	Method Blank	111	101										

Surrogate Legend

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

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-4226/39
Matrix: Water
Analysis Batch: 4226

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/18/21 03:02	1
Toluene	0.0008569	J	0.00200	0.000367	mg/L			06/18/21 03:02	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/18/21 03:02	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/18/21 03:02	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/18/21 03:02	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/18/21 03:02	1
Total BTEX	0.0008569	J	0.00400	0.000657	mg/L			06/18/21 03:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*		*06/18/21 03:02*	*1*
1,4-Difluorobenzene (Surr)	*86*		*70 - 130*		*06/18/21 03:02*	*1*

Lab Sample ID: MB 880-4226/8
Matrix: Water
Analysis Batch: 4226

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/17/21 14:41	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/17/21 14:41	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/17/21 14:41	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/17/21 14:41	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/17/21 14:41	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/17/21 14:41	1
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			06/17/21 14:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*0.002*	*S1-*	*70 - 130*		*06/17/21 14:41*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*		*06/17/21 14:41*	*1*

Lab Sample ID: LCS 880-4226/34
Matrix: Water
Analysis Batch: 4226

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.1110		mg/L		111	70 - 130
Toluene	0.100	0.09574		mg/L		96	70 - 130
Ethylbenzene	0.100	0.1154		mg/L		115	70 - 130
m-Xylene & p-Xylene	0.200	0.2076		mg/L		104	70 - 130
o-Xylene	0.100	0.1064		mg/L		106	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

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

Lab Sample ID: LCSD 880-4226/35
Matrix: Water
Analysis Batch: 4226

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.1176		mg/L		118	70 - 130	6	20
Toluene			0.100	0.1109		mg/L		111	70 - 130	15	20
Ethylbenzene			0.100	0.1224		mg/L		122	70 - 130	6	20
m-Xylene & p-Xylene			0.200	0.2194		mg/L		110	70 - 130	6	20
o-Xylene			0.100	0.1119		mg/L		112	70 - 130	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*

Lab Sample ID: MB 880-4366/41
Matrix: Water
Analysis Batch: 4366

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/21/21 07:41	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/21/21 07:41	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/21/21 07:41	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/21/21 07:41	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/21/21 07:41	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/21/21 07:41	1
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			06/21/21 07:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*06/21/21 07:41*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*		*06/21/21 07:41*	*1*

Lab Sample ID: MB 880-4366/9
Matrix: Water
Analysis Batch: 4366

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/20/21 16:32	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/20/21 16:32	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/20/21 16:32	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/20/21 16:32	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/20/21 16:32	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/20/21 16:32	1
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			06/20/21 16:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*70 - 130*		*06/20/21 16:32*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*		*06/20/21 16:32*	*1*

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

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

Lab Sample ID: LCS 880-4366/35
Matrix: Water
Analysis Batch: 4366

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.09502		mg/L		95	70 - 130		
Toluene			0.100	0.09971		mg/L		100	70 - 130		
Ethylbenzene			0.100	0.09969		mg/L		100	70 - 130		
m-Xylene & p-Xylene			0.200	0.1828		mg/L		91	70 - 130		
o-Xylene			0.100	0.1068		mg/L		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 880-4366/36
Matrix: Water
Analysis Batch: 4366

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.08746		mg/L		87	70 - 130	8	20
Toluene			0.100	0.09839		mg/L		98	70 - 130	1	20
Ethylbenzene			0.100	0.09646		mg/L		96	70 - 130	3	20
m-Xylene & p-Xylene			0.200	0.1759		mg/L		88	70 - 130	4	20
o-Xylene			0.100	0.1028		mg/L		103	70 - 130	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: MB 880-4428/9
Matrix: Water
Analysis Batch: 4428

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/21/21 19:31	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/21/21 19:31	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/21/21 19:31	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/21/21 19:31	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/21/21 19:31	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/21/21 19:31	1
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			06/21/21 19:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*		*06/21/21 19:31*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*06/21/21 19:31*	*1*

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

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

Lab Sample ID: LCS 880-4428/3
Matrix: Water
Analysis Batch: 4428

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	114		70 - 130

Lab Sample ID: LCSD 880-4428/4
Matrix: Water
Analysis Batch: 4428

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

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

GC VOA

Analysis Batch: 4226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-1046-4	MW-6	Total/NA	Water	8021B	
820-1046-5	MW-9	Total/NA	Water	8021B	
MB 880-4226/39	Method Blank	Total/NA	Water	8021B	
MB 880-4226/8	Method Blank	Total/NA	Water	8021B	
LCS 880-4226/34	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-4226/35	Lab Control Sample Dup	Total/NA	Water	8021B	

Analysis Batch: 4366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-1046-6	DUP-1	Total/NA	Water	8021B	
MB 880-4366/41	Method Blank	Total/NA	Water	8021B	
MB 880-4366/9	Method Blank	Total/NA	Water	8021B	
LCS 880-4366/35	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-4366/36	Lab Control Sample Dup	Total/NA	Water	8021B	

Analysis Batch: 4428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-1046-1	MW-2	Total/NA	Water	8021B	
820-1046-2	MW-3	Total/NA	Water	8021B	
820-1046-3	MW-5	Total/NA	Water	8021B	
MB 880-4428/9	Method Blank	Total/NA	Water	8021B	
LCS 880-4428/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-4428/4	Lab Control Sample Dup	Total/NA	Water	8021B	

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Client Sample ID: MW-2
Date Collected: 06/15/21 13:21
Date Received: 06/16/21 12:20

Lab Sample ID: 820-1046-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4428	06/22/21 01:03	KL	XEN MID

Client Sample ID: MW-3
Date Collected: 06/15/21 12:20
Date Received: 06/16/21 12:20

Lab Sample ID: 820-1046-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4428	06/22/21 01:23	KL	XEN MID

Client Sample ID: MW-5
Date Collected: 06/15/21 14:24
Date Received: 06/16/21 12:20

Lab Sample ID: 820-1046-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4428	06/22/21 01:44	KL	XEN MID

Client Sample ID: MW-6
Date Collected: 06/15/21 11:00
Date Received: 06/16/21 12:20

Lab Sample ID: 820-1046-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4226	06/18/21 12:19	MR	XEN MID

Client Sample ID: MW-9
Date Collected: 06/15/21 11:22
Date Received: 06/16/21 12:20

Lab Sample ID: 820-1046-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4226	06/18/21 12:44	MR	XEN MID

Client Sample ID: DUP-1
Date Collected: 06/15/21 00:00
Date Received: 06/16/21 12:20

Lab Sample ID: 820-1046-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4366	06/21/21 14:01	KL	XEN MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Laboratory: Eurofins Xenco, Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-21

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

Analysis Method	Prep Method	Matrix	Analyte
8021B		Water	Total BTEX

Method Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
5030B	Purge and Trap	SW846	XEN MID

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line--Bob McCasland

Job ID: 820-1046-1
SDG: AR217011

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
820-1046-1	MW-2	Water	06/15/21 13:21	06/16/21 12:20	
820-1046-2	MW-3	Water	06/15/21 12:20	06/16/21 12:20	
820-1046-3	MW-5	Water	06/15/21 14:24	06/16/21 12:20	
820-1046-4	MW-6	Water	06/15/21 11:00	06/16/21 12:20	
820-1046-5	MW-9	Water	06/15/21 11:22	06/16/21 12:20	
820-1046-6	DUP-1	Water	06/15/21 00:00	06/16/21 12:20	

820-1046 Chain of Custody

Loc: 820
1046

: CUSTODY RECORD

Terracon

Labor.
Address: 6701 Aberdeen
Lubbock, Texas 79424

LAB USE ONLY
DUE DATE:

TEMP OF COOLER WHEN RECEIVED (°C) 11.2/11.16

Page 1 of 1

Office Location: Lubbock
Phone:
Contact:
Project Manager: Brett Dennis
SRS #: 2001-11226
Sampler's Name: Aaron Adams
Sampler's Signature

Project Number: AR217011
Project Name: Livingston Line - Bob McCasland

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No. Type of Containers: 40 ml VOA				BTEX (EPA Method 8021)	Lab Sample ID
GW	6/15/2021	13:21		X	MW-2			3				X	820-1046-1
GW	6/15/2021	12:20		X	MW-3			3				X	2
GW	6/15/2021	14:24		X	MW-5			3				X	3
GW	6/15/2021	11:00		X	MW-6			3				X	4
GW	6/15/2021	11:22		X	MW-9			3				X	5
GW	6/15/2021	---		X	DUP-1			3				X	6

NFE

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

Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
[signature]	6/16/21	12:14	[signature]	6/16/21	12:20

NOTES: Bill directly to Plains Pipeline

e-mail results to:
brett.dennis@terracon.com
erin.loyd@terracon.com
algroves@paalp.com
cjbryant@paalp.com
maochoa@paalp.com

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

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer, Jessica	Carrier Tracking No(s)	COC No: 820-1438 1
Client Contact: Shipping/Receiving	Phone	E-Mail: jessica.kramer@eurofinset.com	State of Origin: Texas	Page: Page 1 of 1
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Texas		Job #: 820-1046-1
Address: 1211 W Florida Ave,	Due Date Requested: 6/22/2021			
City: Midland	TAT Requested (days):			
State, Zip: TX, 79701				
Phone: 432-704-5440(Tel)	PO #:			
Email	WO #:			
Project Name: Livingston Line--Bob McCasland--Terracon	Project #: 82000284			
Site	SSOW#:			

Analysis Requested

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

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	8021B/5030B BTEX	Special Instructions/Note:
MW-2 (820-1046-1)	6/15/21	13 21 Central		Water	X	
MW-3 (820-1046-2)	6/15/21	12:20 Central		Water	X	
MW-5 (820-1046-3)	6/15/21	14 24 Central		Water	X	
MW-6 (820-1046-4)	6/15/21	11 00 Central		Water	X	
MW-9 (820-1046-5)	6/15/21	11 22 Central		Water	X	
DUP-1 (820-1046-6)	6/15/21	Central		Water	X	

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

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

Empty Kit Relinquished by	Date	Time	Method of Shipment
Relinquished by:	Date/Time: 6/16/21 15:25	Company	Received by: Date/Time: 6-17-21 12:00 Company
Relinquished by	Date/Time	Company	Received by Date/Time Company
Relinquished by	Date/Time	Company	Received by Date/Time Company

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

Ver: 11/01/2020

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-1046-1
SDG Number: AR217011

Login Number: 1046
List Number: 1
Creator: Turner, Michael

List Source: Eurofins Xenco, Lubbock

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

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-1046-1
SDG Number: AR217011

Login Number: 1046
List Number: 2
Creator: Copeland, Tatiana

List Source: Eurofins Xenco, Midland
List Creation: 06/17/21 12:09 PM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 820-2033-1
Laboratory Sample Delivery Group: AR217011
Client Project/Site: Livingston Line - Bob McCasland

For:
Terracon Consulting Eng & Scientists
5827 50th St
Suite 1
Lubbock, Texas 79424

Attn: Brett Dennis

JKramer

Authorized for release by:
9/30/2021 3:54:56 PM

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

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

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

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

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

Warranties, Terms, and Conditions
· Analyses for Field Parameters are performed by EQC field staff. Locations and certifications are identified on the Chain of Custody as follows:
ERF = field staff performs tests under NJ State certification #02015
VL = field staff performs tests under NJ State certification #06005
WG = field staff performs tests under NJ State certification #PA001
H = field staff performs tests under NJ NELAP certification #PA093, PA NELAP certification # 46-05499

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

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

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

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

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

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

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

Jessica Kramer
Project Manager
9/30/2021 3:54:56 PM

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Laboratory Job ID: 820-2033-1
SDG: AR217011

Table of Contents

Definitions/Glossary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Qualifiers

GC VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Job ID: 820-2033-1

Laboratory: Eurofins Xenco, Lubbock

Narrative

Job Narrative
820-2033-1

Receipt
The samples were received on 9/24/2021 3:30 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.1°C

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

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Client Sample ID: MW-2

Lab Sample ID: 820-2033-1
Date Collected: 09/24/21 10:02
Matrix: Water
Date Received: 09/24/21 15:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			09/30/21 08:52	1
Toluene	<0.00200	U	0.00200		mg/L			09/30/21 08:52	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			09/30/21 08:52	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			09/30/21 08:52	1
o-Xylene	<0.00200	U	0.00200		mg/L			09/30/21 08:52	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			09/30/21 08:52	1
Total BTEX	**0.00297**	***+**	0.00200		mg/L			09/30/21 08:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*		*09/30/21 08:52*	*1*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*		*09/30/21 08:52*	*1*

Client Sample ID: MW-3

Lab Sample ID: 820-2033-2
Date Collected: 09/24/21 09:23
Matrix: Water
Date Received: 09/24/21 15:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			09/30/21 09:18	1
Toluene	<0.00200	U	0.00200		mg/L			09/30/21 09:18	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			09/30/21 09:18	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			09/30/21 09:18	1
o-Xylene	<0.00200	U	0.00200		mg/L			09/30/21 09:18	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			09/30/21 09:18	1
Total BTEX	<0.00200	U *+	0.00200		mg/L			09/30/21 09:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*09/30/21 09:18*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*		*09/30/21 09:18*	*1*

Client Sample ID: MW-5

Lab Sample ID: 820-2033-3
Date Collected: 09/24/21 10:37
Matrix: Water
Date Received: 09/24/21 15:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			09/30/21 09:44	1
Toluene	<0.00200	U	0.00200		mg/L			09/30/21 09:44	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			09/30/21 09:44	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			09/30/21 09:44	1
o-Xylene	<0.00200	U	0.00200		mg/L			09/30/21 09:44	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			09/30/21 09:44	1
Total BTEX	**0.00258**	***+**	0.00200		mg/L			09/30/21 09:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*09/30/21 09:44*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*		*09/30/21 09:44*	*1*

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Client Sample ID: MW-6

Lab Sample ID: 820-2033-4
Matrix: Water
Date Collected: 09/24/21 08:45
Date Received: 09/24/21 15:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			09/30/21 10:10	1
Toluene	<0.00200	U	0.00200		mg/L			09/30/21 10:10	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			09/30/21 10:10	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			09/30/21 10:10	1
o-Xylene	<0.00200	U	0.00200		mg/L			09/30/21 10:10	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			09/30/21 10:10	1
Total BTEX	<0.00200	U *+	0.00200		mg/L			09/30/21 10:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*09/30/21 10:10*	*1*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*		*09/30/21 10:10*	*1*

Client Sample ID: DUP-1

Lab Sample ID: 820-2033-5
Matrix: Water
Date Collected: 09/24/21 00:00
Date Received: 09/24/21 15:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			09/30/21 10:36	1
Toluene	<0.00200	U	0.00200		mg/L			09/30/21 10:36	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			09/30/21 10:36	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			09/30/21 10:36	1
o-Xylene	<0.00200	U	0.00200		mg/L			09/30/21 10:36	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			09/30/21 10:36	1
Total BTEX	**0.00224**	*+	0.00200		mg/L			09/30/21 10:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*09/30/21 10:36*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*		*09/30/21 10:36*	*1*

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
		BFB1	DFBZ1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
820-2017-A-1 MS	Matrix Spike	105	103										
820-2017-A-1 MSD	Matrix Spike Duplicate	108	115										
820-2033-1	MW-2	114	90										
820-2033-2	MW-3	100	104										
820-2033-3	MW-5	103	103										
820-2033-4	MW-6	107	106										
820-2033-5	DUP-1	107	105										
LCS 880-8514/65	Lab Control Sample	102	109										
LCSD 880-8514/66	Lab Control Sample Dup	106	108										
MB 880-8514/39	Method Blank	63 S1-	93										
MB 880-8514/70	Method Blank	64 S1-	93										

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-8514/39
Matrix: Water
Analysis Batch: 8514

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			09/29/21 13:21	1
Toluene	<0.00200	U	0.00200		mg/L			09/29/21 13:21	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			09/29/21 13:21	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			09/29/21 13:21	1
o-Xylene	<0.00200	U	0.00200		mg/L			09/29/21 13:21	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			09/29/21 13:21	1
Total BTEX	<0.00200	U	0.00200		mg/L			09/29/21 13:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*63*	*S1-*	*70 - 130*		*09/29/21 13:21*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*		*09/29/21 13:21*	*1*

Lab Sample ID: MB 880-8514/70
Matrix: Water
Analysis Batch: 8514

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			09/30/21 02:51	1
Toluene	<0.00200	U	0.00200		mg/L			09/30/21 02:51	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			09/30/21 02:51	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			09/30/21 02:51	1
o-Xylene	<0.00200	U	0.00200		mg/L			09/30/21 02:51	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			09/30/21 02:51	1
Total BTEX	<0.00200	U	0.00200		mg/L			09/30/21 02:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*64*	*S1-*	*70 - 130*		*09/30/21 02:51*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*		*09/30/21 02:51*	*1*

Lab Sample ID: LCS 880-8514/65
Matrix: Water
Analysis Batch: 8514

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.07930		mg/L		79	70 - 130
Toluene	0.100	0.08734		mg/L		87	70 - 130
Ethylbenzene	0.100	0.08962		mg/L		90	70 - 130
m-Xylene & p-Xylene	0.200	0.1932		mg/L		97	70 - 130
o-Xylene	0.100	0.1003		mg/L		100	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

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

Lab Sample ID: LCSD 880-8514/66
Matrix: Water
Analysis Batch: 8514

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.07779		mg/L		78	70 - 130	2	20
Toluene			0.100	0.08514		mg/L		85	70 - 130	3	20
Ethylbenzene			0.100	0.08761		mg/L		88	70 - 130	2	20
m-Xylene & p-Xylene			0.200	0.1895		mg/L		95	70 - 130	2	20
o-Xylene			0.100	0.09976		mg/L		100	70 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*

Lab Sample ID: 820-2017-A-1 MS
Matrix: Water
Analysis Batch: 8514

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00200	U	0.100	0.08106		mg/L		81	70 - 130
Toluene	<0.00200	U	0.100	0.07866		mg/L		79	70 - 130
Ethylbenzene	<0.00200	U	0.100	0.08950		mg/L		90	70 - 130
m-Xylene & p-Xylene	<0.00400	U	0.200	0.1938		mg/L		97	70 - 130
o-Xylene	<0.00200	U	0.100	0.1005		mg/L		101	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*

Lab Sample ID: 820-2017-A-1 MSD
Matrix: Water
Analysis Batch: 8514

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.100	0.08758		mg/L		88	70 - 130	8	25
Toluene	<0.00200	U	0.100	0.09346		mg/L		93	70 - 130	17	25
Ethylbenzene	<0.00200	U	0.100	0.09744		mg/L		97	70 - 130	8	25
m-Xylene & p-Xylene	<0.00400	U	0.200	0.2108		mg/L		105	70 - 130	8	25
o-Xylene	<0.00200	U	0.100	0.1098		mg/L		110	70 - 130	9	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*115*		*70 - 130*

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

GC VOA

Analysis Batch: 8514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-2033-1	MW-2	Total/NA	Water	8021B	
820-2033-2	MW-3	Total/NA	Water	8021B	
820-2033-3	MW-5	Total/NA	Water	8021B	
820-2033-4	MW-6	Total/NA	Water	8021B	
820-2033-5	DUP-1	Total/NA	Water	8021B	
MB 880-8514/39	Method Blank	Total/NA	Water	8021B	
MB 880-8514/70	Method Blank	Total/NA	Water	8021B	
LCS 880-8514/65	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-8514/66	Lab Control Sample Dup	Total/NA	Water	8021B	
820-2017-A-1 MS	Matrix Spike	Total/NA	Water	8021B	
820-2017-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Client Sample ID: MW-2
Date Collected: 09/24/21 10:02
Date Received: 09/24/21 15:30

Lab Sample ID: 820-2033-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	8514	09/30/21 08:52	MR	XEN MID

Client Sample ID: MW-3
Date Collected: 09/24/21 09:23
Date Received: 09/24/21 15:30

Lab Sample ID: 820-2033-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	8514	09/30/21 09:18	MR	XEN MID

Client Sample ID: MW-5
Date Collected: 09/24/21 10:37
Date Received: 09/24/21 15:30

Lab Sample ID: 820-2033-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	8514	09/30/21 09:44	MR	XEN MID

Client Sample ID: MW-6
Date Collected: 09/24/21 08:45
Date Received: 09/24/21 15:30

Lab Sample ID: 820-2033-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	8514	09/30/21 10:10	MR	XEN MID

Client Sample ID: DUP-1
Date Collected: 09/24/21 00:00
Date Received: 09/24/21 15:30

Lab Sample ID: 820-2033-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	8514	09/30/21 10:36	MR	XEN MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Laboratory: Eurofins Xenco, Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

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

Analysis Method	Prep Method	Matrix	Analyte
8021B		Water	Total BTEX

Method Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
5030B	Purge and Trap	SW846	XEN MID

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2033-1
SDG: AR217011

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
820-2033-1	MW-2	Water	09/24/21 10:02	09/24/21 15:30
820-2033-2	MW-3	Water	09/24/21 09:23	09/24/21 15:30
820-2033-3	MW-5	Water	09/24/21 10:37	09/24/21 15:30
820-2033-4	MW-6	Water	09/24/21 08:45	09/24/21 15:30
820-2033-5	DUP-1	Water	09/24/21 00:00	09/24/21 15:30

Loc: 820
2033

CHAIN OF CUSTODY RECORD

Terracon

Laboratory: Xenco
Address: 6701 Aberdeen
Lubbock, Texas 79424

Office Location: Lubbock
Phone:
Contact:
Project Manager: Brett Dennis
SRS #: 2001-11226
Sampler's Name: Aaron Adams
Sampler's Signature:

ANALYSIS REQUESTED

LAB USE ONLY
DUE DATE:
TEMP OF COOLER WHEN RECEIVED (°C): 5.1/5.06 IR-4 -0.04

Page 1 of 1

Project Number: AR217011
Project Name: Livingston Line - Bob McCasland

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No. Type of Containers: 40 ml VOA	BTEX (EPA Method 8021)	Lab Sample ID
GW	9/24/2021	10:02		X	MW-2			3	X	
GW	9/24/2021	9:23		X	MW-3			3	X	
GW	9/24/2021	10:37		X	MW-5			3	X	
GW	9/24/2021	8:45		X	MW-6			3	X	
GW	9/24/2021	-		X	DUP-1			3	X	

NFE

820-2033 Chain of Custody

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:
	9-24-21	1530	Teddy Randell	9/24/21	1530

NOTES: Bill directly to Plains Pipeline

e-mail results to:
brett.dennis@terracon.com
erin.loyd@terracon.com
algroves@paalp.com
maochoa@paalp.com
cjbryant@paalp.com

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

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

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer, Jessica	Carrier Tracking No(s):	COC No: 820-2144.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jessica.kramer@eurofinset.com	State of Origin: Texas	Page: Page 1 of 1
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Texas		Job #: 820-2033-1
Address: 1211 W. Florida Ave	Due Date Requested: 9/30/2021			
City: Midland	TAT Requested (days):			
State, Zip: TX, 79701				
Phone: 432-704-5440(Tel)	PO #:			
Email:	WO #:			
Project Name: Livingston Line- Bob McCasland	Project #: 82000284			
Site:	SSOW#:			

Analysis Requested

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

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Oil, Tissue, Air)	8021B/5030B (MOD) BTEX	Special Instructions/Note:
MW-2 (820-2033-1)	9/24/21	10:02 Central		Water	X	
MW-3 (820-2033-2)	9/24/21	09:23 Central		Water	X	
MW-5 (820-2033-3)	9/24/21	10:37 Central		Water	X	
MW-6 (820-2033-4)	9/24/21	08:45 Central		Water	X	
DUP-1 (820-2033-5)	9/24/21	Central		Water	X	

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

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) — Primary Deliverable Rank: 2	Special Instructions/QC Requirements:
Empty Kit Relinquished by:	Date: Time: Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No — Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.1 | 2.6

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-2033-1
SDG Number: AR217011

Login Number: 2033
List Number: 1
Creator: Ruggles, Ashley

List Source: Eurofins Xenco, Lubbock

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

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-2033-1
SDG Number: AR217011

Login Number: 2033
List Number: 2
Creator: Copeland, Tatiana

List Source: Eurofins Xenco, Midland
List Creation: 09/27/21 02:00 PM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.1 / 2.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

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ANALYTICAL REPORT

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

Laboratory Job ID: 820-2872-1
Laboratory Sample Delivery Group: AR217011
Client Project/Site: Livingston Line - Bob McCasland
Revision: 1

For:
Terracon Consulting Eng & Scientists
5827 50th St
Suite 1
Lubbock, Texas 79424

Attn: Brett Dennis

Jkramer

Authorized for release by:
12/21/2021 6:18:31 PM

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

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

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

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

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

Warranties, Terms, and Conditions
· Analyses for Field Parameters are performed by EQC field staff. Locations and certifications are identified on the Chain of Custody as follows:
ERF = field staff performs tests under NJ State certification #02015
VL = field staff performs tests under NJ State certification #06005
WG = field staff performs tests under NJ State certification #PA001
H = field staff performs tests under NJ NELAP certification #PA093, PA NELAP certification # 46-05499

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

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

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

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

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

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

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

Jessica Kramer
Project Manager
12/21/2021 6:18:31 PM

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Laboratory Job ID: 820-2872-1
SDG: AR217011

Table of Contents

Definitions/Glossary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Job ID: 820-2872-1

Laboratory: Eurofins Xenco, Lubbock

Narrative

Job Narrative
820-2872-1

REVISION

The report being provided is a revision of the original report sent on 12/16/2021. The report (revision 1) is being revised due to Double import - revision needed to correct data.

Report revision history

Receipt
The samples were received on 12/14/2021 8:07 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.3°C

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

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Client Sample ID: MW-2

Lab Sample ID: 820-2872-1
Matrix: Water
Date Collected: 12/13/21 16:07
Date Received: 12/14/21 08:07

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			12/15/21 21:24	1
Toluene	<0.00200	U	0.00200		mg/L			12/15/21 21:24	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/15/21 21:24	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/15/21 21:24	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/15/21 21:24	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/15/21 21:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*12/15/21 21:24*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*		*12/15/21 21:24*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/L			12/21/21 14:36	1

Client Sample ID: MW-3

Lab Sample ID: 820-2872-2
Matrix: Water
Date Collected: 12/13/21 14:57
Date Received: 12/14/21 08:07

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			12/15/21 21:51	1
Toluene	<0.00200	U	0.00200		mg/L			12/15/21 21:51	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/15/21 21:51	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/15/21 21:51	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/15/21 21:51	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/15/21 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*12/15/21 21:51*	*1*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*		*12/15/21 21:51*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/L			12/21/21 14:36	1

Client Sample ID: MW-5

Lab Sample ID: 820-2872-3
Matrix: Water
Date Collected: 12/13/21 16:49
Date Received: 12/14/21 08:07

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			12/15/21 22:17	1
Toluene	<0.00200	U	0.00200		mg/L			12/15/21 22:17	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/15/21 22:17	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/15/21 22:17	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/15/21 22:17	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/15/21 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*12/15/21 22:17*	*1*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*		*12/15/21 22:17*	*1*

Eurofins Xenco, Lubbock

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Client Sample ID: MW-5
Date Collected: 12/13/21 16:49
Date Received: 12/14/21 08:07

Lab Sample ID: 820-2872-3
Matrix: Water

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/L			12/21/21 14:36	1

Client Sample ID: MW-6
Date Collected: 12/13/21 14:13
Date Received: 12/14/21 08:07

Lab Sample ID: 820-2872-4
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			12/15/21 22:44	1
Toluene	<0.00200	U	0.00200		mg/L			12/15/21 22:44	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/15/21 22:44	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/15/21 22:44	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/15/21 22:44	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/15/21 22:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*12/15/21 22:44*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*		*12/15/21 22:44*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/L			12/21/21 14:36	1

Client Sample ID: DUP-1
Date Collected: 12/13/21 00:00
Date Received: 12/14/21 08:07

Lab Sample ID: 820-2872-5
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			12/15/21 23:10	1
Toluene	<0.00200	U	0.00200		mg/L			12/15/21 23:10	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/15/21 23:10	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/15/21 23:10	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/15/21 23:10	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/15/21 23:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*72*		*70 - 130*		*12/15/21 23:10*	*1*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*		*12/15/21 23:10*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/L			12/21/21 14:36	1

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)										
820-2872-1	MW-2	102	97										
820-2872-2	MW-3	96	92										
820-2872-3	MW-5	95	96										
820-2872-4	MW-6	99	98										
820-2872-5	DUP-1	72	81										
880-9236-C-1 MS	Matrix Spike	97	99										
880-9236-C-1 MSD	Matrix Spike Duplicate	97	98										
LCS 880-14806/3	Lab Control Sample	89	94										
LCSD 880-14806/4	Lab Control Sample Dup	97	102										
MB 880-14806/8	Method Blank	57 S1-	83										

Surrogate Legend

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

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-14806/8
Matrix: Water
Analysis Batch: 14806

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			12/15/21 12:59	1
Toluene	<0.00200	U	0.00200		mg/L			12/15/21 12:59	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/15/21 12:59	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/15/21 12:59	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/15/21 12:59	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/15/21 12:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*57*	*S1-*	*70 - 130*		*12/15/21 12:59*	*1*
1,4-Difluorobenzene (Surr)	*83*		*70 - 130*		*12/15/21 12:59*	*1*

Lab Sample ID: LCS 880-14806/3
Matrix: Water
Analysis Batch: 14806

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.1064		mg/L		106	70 - 130		
Toluene			0.100	0.1032		mg/L		103	70 - 130		
Ethylbenzene			0.100	0.09536		mg/L		95	70 - 130		
m-Xylene & p-Xylene			0.200	0.1920		mg/L		96	70 - 130		
o-Xylene			0.100	0.09587		mg/L		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*

Lab Sample ID: LCSD 880-14806/4
Matrix: Water
Analysis Batch: 14806

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.1098		mg/L		110	70 - 130	3	20
Toluene			0.100	0.1058		mg/L		106	70 - 130	2	20
Ethylbenzene			0.100	0.09690		mg/L		97	70 - 130	2	20
m-Xylene & p-Xylene			0.200	0.1958		mg/L		98	70 - 130	2	20
o-Xylene			0.100	0.09866		mg/L		99	70 - 130	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: 880-9236-C-1 MS
Matrix: Water
Analysis Batch: 14806

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<0.00200	U	0.100	0.1188		mg/L		119	70 - 130		
Toluene	<0.00200	U	0.100	0.1154		mg/L		115	70 - 130		

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

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

Lab Sample ID: 880-9236-C-1 MS
Matrix: Water
Analysis Batch: 14806

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	<0.00200	U	0.100	0.1073		mg/L		107	70 - 130
m-Xylene & p-Xylene	<0.00400	U	0.200	0.2161		mg/L		108	70 - 130
o-Xylene	<0.00200	U	0.100	0.1072		mg/L		107	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 880-9236-C-1 MSD
Matrix: Water
Analysis Batch: 14806

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.100	0.1104		mg/L		110	70 - 130	7	25
Toluene	<0.00200	U	0.100	0.1117		mg/L		112	70 - 130	3	25
Ethylbenzene	<0.00200	U	0.100	0.09974		mg/L		100	70 - 130	7	25
m-Xylene & p-Xylene	<0.00400	U	0.200	0.2012		mg/L		101	70 - 130	7	25
o-Xylene	<0.00200	U	0.100	0.1015		mg/L		102	70 - 130	5	25

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

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

GC VOA

Analysis Batch: 14806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-2872-1	MW-2	Total/NA	Water	8021B	
820-2872-2	MW-3	Total/NA	Water	8021B	
820-2872-3	MW-5	Total/NA	Water	8021B	
820-2872-4	MW-6	Total/NA	Water	8021B	
820-2872-5	DUP-1	Total/NA	Water	8021B	
MB 880-14806/8	Method Blank	Total/NA	Water	8021B	
LCS 880-14806/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-14806/4	Lab Control Sample Dup	Total/NA	Water	8021B	
880-9236-C-1 MS	Matrix Spike	Total/NA	Water	8021B	
880-9236-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

Analysis Batch: 15276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-2872-1	MW-2	Total/NA	Water	Total BTEX	
820-2872-2	MW-3	Total/NA	Water	Total BTEX	
820-2872-3	MW-5	Total/NA	Water	Total BTEX	
820-2872-4	MW-6	Total/NA	Water	Total BTEX	
820-2872-5	DUP-1	Total/NA	Water	Total BTEX	

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Client Sample ID: MW-2
Date Collected: 12/13/21 16:07
Date Received: 12/14/21 08:07

Lab Sample ID: 820-2872-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	14806	12/15/21 21:24	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			15276	12/21/21 14:36	AJ	XEN MID

Client Sample ID: MW-3
Date Collected: 12/13/21 14:57
Date Received: 12/14/21 08:07

Lab Sample ID: 820-2872-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	14806	12/15/21 21:51	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			15276	12/21/21 14:36	AJ	XEN MID

Client Sample ID: MW-5
Date Collected: 12/13/21 16:49
Date Received: 12/14/21 08:07

Lab Sample ID: 820-2872-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	14806	12/15/21 22:17	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			15276	12/21/21 14:36	AJ	XEN MID

Client Sample ID: MW-6
Date Collected: 12/13/21 14:13
Date Received: 12/14/21 08:07

Lab Sample ID: 820-2872-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	14806	12/15/21 22:44	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			15276	12/21/21 14:36	AJ	XEN MID

Client Sample ID: DUP-1
Date Collected: 12/13/21 00:00
Date Received: 12/14/21 08:07

Lab Sample ID: 820-2872-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	14806	12/15/21 23:10	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			15276	12/21/21 14:36	AJ	XEN MID

Laboratory References:
XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Laboratory: Eurofins Xenco, Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

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

Analysis Method	Prep Method	Matrix	Analyte
Total BTEX		Water	Total BTEX

Method Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
5030B	Purge and Trap	SW846	XEN MID

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Line - Bob McCasland

Job ID: 820-2872-1
SDG: AR217011

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
820-2872-1	MW-2	Water	12/13/21 16:07	12/14/21 08:07
820-2872-2	MW-3	Water	12/13/21 14:57	12/14/21 08:07
820-2872-3	MW-5	Water	12/13/21 16:49	12/14/21 08:07
820-2872-4	MW-6	Water	12/13/21 14:13	12/14/21 08:07
820-2872-5	DUP-1	Water	12/13/21 00:00	12/14/21 08:07

Loc: 820
2872

820-2872 Chain of Custody

CHAIN OF CUSTODY RECORD

Terracon

Laboratory: Xenco
Address: 6701 Aberdeen
Lubbock, Texas 79424

Office Location: Lubbock
Phone:
Contact:
Project Manager: Brett Dennis
SRS #: 2001-11226
Sampler's Name: Aaron Adams
Sampler's Signature:

Project Number: AR217011
Project Name: Livingston Line - Bob McCasland

ANALYSIS REQUESTED

LAB USE ONLY
DUE DATE:
TEMP OF COOLER WHEN RECEIVED (°C): 3.4 / 3.3

Page 1 of 1

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No. Type of Containers: 40 ml VOA	BTEX (EPA Method 8021)	Lab Sample ID
GW	12/13/2021	16:07		X	MW-2			3	X	
GW	12/13/2021	14:57		X	MW-3			3	X	
GW	12/13/2021	16:49		X	MW-5			3	X	
GW	12/13/2021	14:13		X	MW-6			3	X	
GW	12/13/2021			X	DUP-1			3	X	

NFE

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

Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time
	12-14-2021	0700		12/14/21	0700
	12-14-2021	0807		12/14/21	0807

NOTES: Bill directly to Plains Pipeline

e-mail results to:
1. CJBRYANT@PAALP.COM
2. ALGROVES@PAALP.COM
3. BRETT.DENNIS@TERRACON.COM
4. ERIN.LOYD@TERRACON.COM

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

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer Jessica	Carrier Tracking No(s):	COC No: 820-2766 1
Client Contact: Shipping/Receiving	Phone	E-Mail: jessica.kramer@eurofinset.com	State of Origin: Texas	Page: Page 1 of 1
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Texas		Job #: 820-2872-1
Address: 1211 W Florida Ave	Due Date Requested: 12/20/2021			
City: Midland	TAT Requested (days):			
State, Zip: TX, 79701				
Phone: 432-704-5440(Tel)	PO #:			
Email:	WO #:			
Project Name: Livingston Line- Bob McCasland	Project #: 82000284			
Site:	SSOW#:			

Analysis Requested

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

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (w=water, s=solid, o=waste/oil, BT=Tissue, A=Air)	8021B/5030B (MOD) BTEX	8021B/5030B (MOD) BTEX and MTBE	Special Instructions/Note:
MW-2 (820-2872-1)	12/13/21	16 07 Central		Water	X	X	
MW-3 (820-2872-2)	12/13/21	14 57 Central		Water	X	X	
MW-5 (820-2872-3)	12/13/21	16 49 Central		Water	X	X	
MW-6 (820-2872-4)	12/13/21	14 13 Central		Water	X	X	
DUP-1 (820-2872-5)	12/13/21	Central		Water	X	X	

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

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

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Ashleigh Ruggles	12/14/21 17:00		Jessica R	12/15/21 12:50	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: 4.6/4.7 .10 IR8

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-2872-1
SDG Number: AR217011

Login Number: 2872
List Number: 1
Creator: Ruggles, Ashley

List Source: Eurofins Xenco, Lubbock

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

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-2872-1
SDG Number: AR217011

Login Number: 2872
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Xenco, Midland
List Creation: 12/15/21 01:04 PM

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

APPENDIX D

Terracon Standard of Care, Limitation, and Reliance

Standard of Care

Terracon's services will be 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 period. 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, our client, as set forth in our proposal and were not intended to be in strict conformance with ASTM E1903-11.

Additional Scope Limitations

Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; 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, non-detectable or not present during these services, and we cannot represent that the Site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this confirmation sampling. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

Reliance

This report has been prepared for the exclusive use of Plains All American Pipeline LP; 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 Plains All American Pipeline LP and Terracon. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the Master Services Agreement (026450-04810-PMLP.2.17), dated August 3, 2011, between Terracon and Plains All American Pipeline LP. The limitation of liability defined in the Terms and Conditions is the aggregate limit of Terracon's liability to the client and all relying parties unless otherwise agreed in writing.

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

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

CONDITIONS

Action 93368

CONDITIONS

Operator:	OGRID:
PLAINS MARKETING L.P. 333 Clay Street Suite 1900 Houston, TX 77002	34053
	Action Number: 93368
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Review of 2021 ANNUAL GROUNDWATER MONITORING REPORT: Content satisfactory Contractor anticipated actions approved by NMOCD and are as follows; 1. Complete quarterly monitoring well gauging for all site wells 2. Continue quarterly groundwater purging and sampling on monitoring wells MW-2, MW-3, MW-4 (if PSH is not present), MW-5, MW-6, and MW-9 3. Monitoring wells MW-7, MW-8, MW-10, and MW-11 will be sampled during the 1st quarter of 2022 and continue to be sampled annually per NMOCD approval of the 2019 annual groundwater monitoring report. 4. Groundwater samples collected from monitor wells MW-2 through MW-6 and MW-9 will be analyzed for PAHs during the 1st quarter of 2022. 5. Complete monthly manual recovery of PSH hydrocarbon impacted groundwater from monitoring well MW-4 and MW-5, if present 6. Submit annual report to NMOCD no later than March 31, 2023.	8/3/2022