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, groundwater purging, and BTEX sampling from MW-1, MW-2, MW-4, MW-5, MW-11, and MW-12 if PSH is not present
2. Resume semi-annual monitoring events from MW-6, MW-9, MW-14, and MW-15
3. Continue annual monitoring events from MW-7, MW-8, and MW-10
4. Complete monthly manual abatement of hydrocarbon impacted groundwater and PSH from MW-4, MW-5, MW-12, and TMW-1R
5. Complete quarterly AFR events on monitoring well TMW-1R
6. Submit annual report to NMOCD no later than March 31, 2023.

Plains All American Pipeline, L.P.
Livingston Ridge to Hugh – P. Sims
Plains SRS No. 2001-11005
Lea County, New Mexico
NMOCD Reference No. 1RP-0398
NMOCD Incident No. nAPP2109740065

Terracon Project No. AR217012

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) 221-7924
Email: CJBryant@paalp.com

Re: 2021 Annual Groundwater Monitoring Report
Livingston Ridge to Hugh - P. Sims
NE ¼ of the SE ¼, Section 3, T21S, R37E
Lea County, New Mexico
NMOCD Reference No. 1RP-0398
NMOCD Incident No. nAPP2109740065
Plains All American Pipeline, L.P. SRS No. 2001-11005
Terracon Project Number AR217012

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, 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

TABLE OF CONTENTS

LIST OF APPENDICES

Appendix A:

Appendix B:

Appendix C:

Appendix D:

1.0 INTRODUCTION

1.1 Site Description

The legal description of the Livingston Ridge to Hugh – P. Sims site is Unit Letter "I" (NE/SE), Section 3, Township 21 South, Range 37 East, in Lea County, New Mexico. The property affected by the release is owned by Mr. Hugh P. Sims. The geographic coordinates of the release site are 32.503649º North latitude and 103.148924º West longitude. A "Topographic Map" depicting the site's location is provided as Exhibit 1 in Appendix A.

Site Name	Livingston Ridge to Hugh – P. Sims
Site Location	West of Loop 207 approximately 5 miles north-northeast of Eunice, Lea County, New Mexico. Latitude 32.503649º North, Longitude 103.148924º West
General Site Description	The site consists of 16 groundwater monitoring wells located in, and adjacent to, a pipeline right-of-way surrounded by native pasture land, and in close proximity to the former Carbon Black Plant.
Landowner	Mr. Hugh P. Sims

1.2 Background Information

Based on information provided by the client, on June 22, 2001, an estimated release of 6 barrels (bbls) of crude oil was reported to the New Mexico Oil Conservation District (NMOCD). 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 July 2001. A total of approximately 148 cubic yards (cy) of hydrocarbon impacted soil were excavated at the site and transported to EPI's land-farm south of Eunice, New Mexico. A temporary groundwater monitoring well (TMW-1) was installed in the bottom of the excavation. Phase-separated hydrocarbons (PSH) were observed within the shallow groundwater bearing unit at the time of installation. Based on the review of provided documentation, the NMOCD and landowner were immediately notified of the release. EPI installed three groundwater monitoring wells at the site to evaluate the magnitude and extent of the release and determine the groundwater gradient.

In August 2002, Environmental Technology Group, Inc. (ETGI), assumed control of remedial activities and installed 12 additional groundwater monitoring wells at the site monitoring well MW-2 through MW-14. These wells were installed to complete the delineation activities initiated by EPI. At the time of ETGI's investigation, the groundwater monitoring wells had adequately

delineated the hydrocarbon dissolved phase plume and PSH plume at the site. In 2004, Plains appointed EPI to take over the remediation and sampling activities.

On February 1, 2007, Terracon assumed project management responsibilities and oversight of groundwater activities associated with the release. Available files for this site were provided to Terracon at this time.

In July 2007, Terracon oversaw the installation of a polyvinyl chloride (PVC) liner on the floor of the excavation and backfilling the excavation with remediated soils from the previous land treatment area at the site in accordance with the NMOCD-approved work plan. Details of these activities can be found in *Plains' Soil Closure Compliance Report*, dated August 17, 2007.

On October 1, 2018, monitoring well TMW-1 was plugged and abandoned, and replacement monitoring well TMW-1R was installed to evaluate the status of the groundwater at the site. This monitoring well was advanced to a total depth of approximately 45 ft. bgs. Monitoring well TMW-1R is located approximately 65 ft. to the west (cross-gradient) of monitoring well MW-1. A "Site Diagram" depicting monitoring well locations is provided as Exhibit 2 in Appendix A.

On November 2, 2018, West Company a licensed surveyor, surveyed monitoring well TMW-1R.

In May of 2021, frequency of manual recovery events were reduced from once per week to once per month due to COVID-19. 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 and *Annual Groundwater Monitoring* Report by April 1st of each year. In accordance with the approved scope of work, Terracon conducted quarterly groundwater monitoring and sampling events on March 11-12 (1Q21), June 16 (2Q21), September 29 (3Q21), and December 14, 2021 (4Q21).

2.0 GROUNDWATER REMEDIATION PROGRAM

2.1 Groundwater Monitoring

Quarterly groundwater monitoring events were conducted on March 11-12, June 16, September 29, and December 14, 2021. Monitoring event activities included measuring the static water levels in all the site's monitoring wells, checking for the presence of PSH, and purging and collecting groundwater samples from 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 Xenco Laboratories in Lubbock, Texas for analysis of benzene, toluene, ethylbenzene, total xylene (BTEX) and polycyclic aromatic hydrocarbons (PAHs), as applicable. Purged water was placed into a polystyrene aboveground storage tank (AST) 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 for each of the quarterly monitoring events in a southeasterly direction.

A yearly monitoring event for polyaromatic hydrocarbons (PAH) was conducted during the 4th quarter of 2020. Based on the sampling criteria provided by NMOCD, only monitoring wells MW-5 and MW-12 were subject to annual PAH monitoring. Due to the presence of PSH, TMW-1R was not sampled. PAH sample requirements were met, as two years of analysis with constituents below laboratory SDLs were achieved for monitoring wells MW-1 through MW-4, MW-6 through MW-11, and MW-13 through MW-15. Monitor wells MW-5 and MW-12 did not achieve constituents below laboratory SDLs and were not analyzed for PAHs during the 4th quarter monitoring event of 2021. It should be noted that a PAH exceedance has not been detected since 2013. Plains requests NMOCD approval to analyze PAHs during the 1st quarter of 2022. A summary of PAH data can be found in Table 5 in Appendix B.

3.0 LABORATORY ANALYTICAL METHODS

The groundwater samples collected from the site monitor wells were analyzed for BTEX using EPA SW-846 Method 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 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 standards based on New Mexico Water Quality Control Commission (NMWQCC) groundwater standards found in Section 20.6.2.3103 of the NMAC.

4.1.1 Monitoring Well MW-1

- Laboratory analytical results indicated concentrations of total xylenes in monitor well MW-1 were detected above laboratory sample detection limits (SDLs) During the 1st quarter. The detected concentration of total xylenes was 0.00354 milligrams per liter (mg/L) and was below NMOCD Action Levels.

4.1.2 Monitoring Well MW-2, MW-5, MW-11

- Monitor Wells MW-2, MW-5, and MW-11 were sampled each of the quarterly monitoring events during the 2021 reporting period. Concentrations of BTEX were not detected above laboratory SDLs in the groundwater samples collected from these monitoring wells.

4.1.3 Monitoring Well MW-4

- Laboratory analytical results indicated benzene and toluene were not detected above laboratory SDLs in groundwater samples collected from monitor well MW-4.
- Ethylbenzene was detected at concentrations above the laboratory SDL in the 2nd and 3rd quarter at 0.0204 mg/L and 0.0525 mg/L, respectively. Detected concentrations of ethylbenzene did not exceed NMOCD Action Levels.
- Total xylenes were detected above laboratory SDLs in the 2nd and 3rd quarter at 0.0109 mg/l and 0.0423 mg/L, respectively. Detected concentrations of total xylenes did not exceed NMOCD Action Levels.
- A measurable thickness of PSH was observed during the October recovery event in monitor well MW-4 of 0.47 feet. The presence of PSH persisted throughout the 4th quarter resulting in monitor well MW-4 not being sampled in the 4th quarter monitoring event.

4.1.4 Monitoring Well MW-6, MW-9, MW-14, and MW-15

- Monitor wells MW-6, MW-9, MW-14 and MW-15 are sampled on a semi-annual basis and were sampled during the 1st and 3rd quarter of the 2021 reporting period.
- Concentrations of BTEX were not detected above laboratory SDLs in groundwater samples collected from monitor well MW-6, MW-9, MW-14 and MW-15.

4.1.5 Monitoring Well MW-7, MW-8, and MW-10

- Monitor wells MW-7, MW-8, and MW-10 are sampled on an annual basis and were sampled during the 1st quarter of 2021.
- Concentrations of BTEX were not detected above laboratory SDLs in groundwater samples collected from monitor well MW-7, MW-8, and MW-10.

4.1.6 Monitoring Well MW-12

- Concentrations of benzene and toluene were not detected above laboratory SDLs during the 2021 reporting period.
- Ethylbenzene was detected at concentrations above the laboratory SDL in the 1st and 2nd quarter at 0.00555 mg/L and 0.00224 mg/L, respectively. Detected concentrations of ethylbenzene did not exceed NMOCD Action Levels.
- Total xylenes were detected above laboratory SDLs in the 1st and 2nd quarter at 0.00348 mg/l and 0.00552 mg/L, respectively. Detected concentrations of total xylenes did not exceed NMOCD Action Levels.

4.1.7 Monitoring Well MW-13

- Monitor well MW-13 was sampled during the 1st, 2nd, and 3rd quarter monitoring events.
- Concentrations of BTEX were not detected above laboratory SDLs in groundwater samples collected from monitor well MW-13.

4.1.8 Monitoring Well TMW-1R

- Monitoring well TMW-1R was not sampled during the 2021 reporting period due to the presence of PSH. PSH thickness ranged from 0.24 ft. (1Q21 and 4Q21) to 0.45 ft. (3Q21).

5.0 CORRECTIVE ACTION

5.1 Product Recovery

On October 1, 2018, TMW-1 was plugged and abandoned and replacement monitoring well (TMW-1R) was drilled and constructed. For monitoring well TMW-1R, monthly/quarterly gauging and manual PSH recovery activities indicated the average PSH thickness was 0.32 feet.

5.2 Groundwater Recovery

For monitoring well TMW-1R, approximately 43.0 gallons of hydrocarbon impacted groundwater was recovered manually in 2021. For the AFR events performed on TMW-1R during the 2021 reporting period, an estimated 5,205 gallons (123.92 bbls) of hydrocarbon impacted groundwater was recovered from the well. Manual recovery collection information is included as Table 3 (Appendix B). AFR event data is included as Table 4 (Appendix B).

For monitoring well MW-4, an estimated 53.0 gallons of hydrocarbon impacted groundwater were recovered via monthly manual recovery.

For monitoring well MW-5, an estimated 30.75 gallons of hydrocarbon impacted groundwater were recovered via monthly manual recovery.

For monitoring well MW-12, an estimated 53.0 gallons of hydrocarbon impacted groundwater were recovered via weekly, monthly, and quarterly manual recovery.

6.0 SUMMARY OF FINDINGS

The findings of the 2021 Quarterly Groundwater Monitoring and Remediation activities are as follows:

- Currently, there are 15 groundwater monitoring wells.
- Quarterly groundwater monitoring events were conducted on March 11-12, June 16, September 29, and December 14, 2021.
- Monitoring well TMW-1R gauging events observed an average PSH thickness of 0.32 ft. during the 2021 reporting period.
- The groundwater flow direction was relatively consistent at 0.002 foot/foot in a south-easterly direction.
- BTEX was not detected in concentrations exceeding NMOCD Action Levels during the 2021 reporting period.
- Quarterly AFR events performed on monitoring well TMW-1R resulted in recovering approximately 5,205 gallons (123.92 bbls) of hydrocarbon impacted groundwater.

7.0 ANTICIPATED ACTIONS

- Conduct quarterly monitoring well gauging, groundwater purging and BTEX sampling for monitor wells MW-1, MW-2, MW-4, MW-5, MW-11, and MW-12 if PSH is not present.
- Continue semi-annual monitoring events for monitor wells MW-6, MW-9, MW-13, MW-14, and MW-15.
- Continue annual monitoring events for monitor wells MW-7, MW-8, and MW-10.
- Collect PAH samples from monitoring wells MW-5, MW-12, and TMW-1R (if applicable) during the 1st quarter of 2022.
- Conduct monthly manual abatement of hydrocarbon impacted groundwater and PSH on monitoring wells TMW-1R, MW-4, MW-5, and MW-12.
- Conduct quarterly AFR events on monitoring well TMW-1R.
- 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

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District 1 Office
1625 N. French Drive
Hobbs, New Mexico 88240
emnrd-ocd-district1spills@state.nm.us

Copy 3: Ms. Camille Bryant
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Midland, Texas 79706
cjbryant@paalp.com

Copy 4: Mr. Jeff Dann
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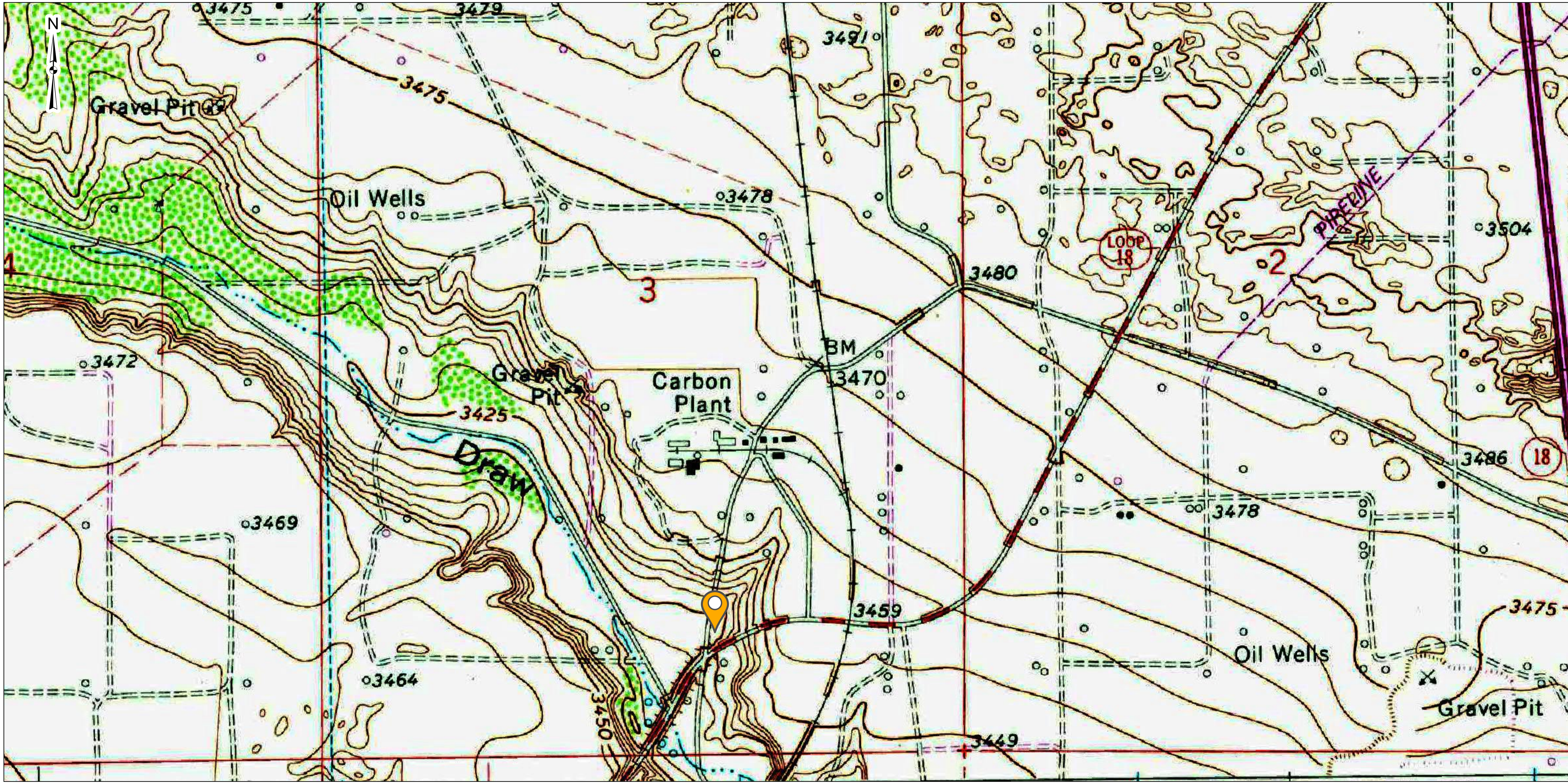
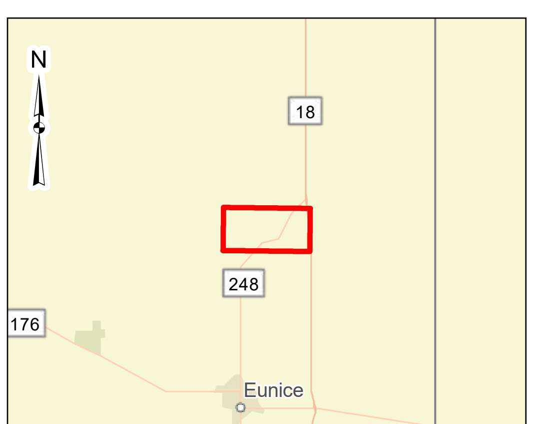
333 Clay Street, Suite 1600
Houston, Texas 77002
jpdann@paalp.com

APPENDIX A

Exhibit 1 – Topographic Map
Exhibit 2 – Site Detail
Exhibit 3 – 1Q21 Groundwater Gradient Map (03/11-12/21)
Exhibit 4 – 2Q21 Groundwater Gradient Map (06/16/21)
Exhibit 5 – 3Q21 Groundwater Gradient Map (09/29/21)
Exhibit 6 – 4Q21 Groundwater Gradient Map (12/14/21)
Exhibit 7 – 1Q21 Groundwater Contaminant Concentration Map (03/11-12/21)
Exhibit 8 – 2Q21 Groundwater Contaminant Concentration Map (6/16/21)
Exhibit 9 – 3Q21 Groundwater Contaminant Concentration Map (09/29/21)
Exhibit 10 – 4Q21 Groundwater Contaminant Concentration Map (12/14/21)





Legend:

Site Location

DATA SOURCES:
USGS Topoview - Hobbs SW, NM - 1969

Feet
0 500 1,000 2,000

Project No.:	AR217012
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 Ridge to Hugh - P. Sims
Plains SRS # 2001-11005
NMOCD Ref. # 1RP-0398
NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E
Lea County, New Mexico
GPS: 32.503649, -103.148924

Exhibit

1

Legend:

- Monitor Well (MW)

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Feet
0 37.5 75 150

Project No.:	AR217012
Date:	Jan 2022
Drawn By:	BAD
Reviewed By:	ELL

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5847 50th Street Lubbock, Texas 79424
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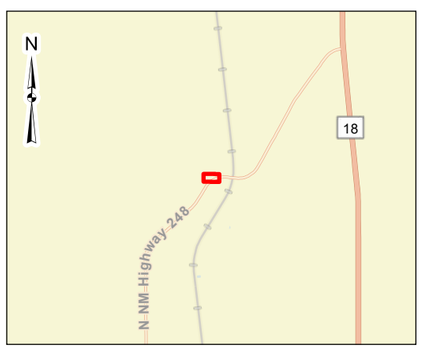
Site Diagram	Exhibit
Livingston Ridge to Hugh - P. Sims Plains SRS # 2001-11005 NMOCD Ref. # 1RP-0398 NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E Lea County, New Mexico GPS: 32.503649, -103.148924	2



Legend:

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

Notes:
- All groundwater elevations measured in feet above mean sea level.
- Groundwater contours were interpolated using ArGIS's kringing algorithm.
- TMW-1R and MW-8 were not honored in interpolation
- Groundwater contour intervals: 0.10 ft.
- Groundwater gradient: 0.002 ft./ft.

Feet
0 37.5 75 150

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217012
Date:	May 2021
Drawn By:	BAD
Reviewed By:	ELL

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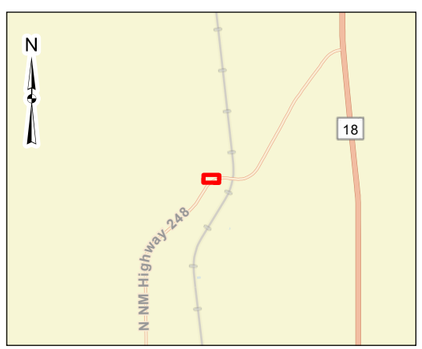
1Q21 Groundwater Gradient Map

Livingston Ridge to Hugh - P. Sims
Plains SRS # 2001-11005
NMOCD Ref. # 1RP-0398
NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E
Lea County, New Mexico
GPS: 32.503649, -103.148924

Exhibit

3



Legend:

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

Notes:
- All groundwater elevations measured in feet above mean sea level.
- Groundwater contours were interpolated using ArGIS's kringing algorithm.
- TMW-1R, MW-8, and MW-12 were not honored in interpolation
- Groundwater contour intervals: 0.10 ft.
- Groundwater gradient: 0.002 ft./ft.

Feet
0 37.5 75 150

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217012
Date:	Jul 2021
Drawn By:	BAD
Reviewed By:	ELL

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

Livingston Ridge to Hugh - P. Sims
Plains SRS # 2001-11005
NMOCD Ref. # 1RP-0398
NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E
Lea County, New Mexico
GPS: 32.503649, -103.148924

Exhibit

4

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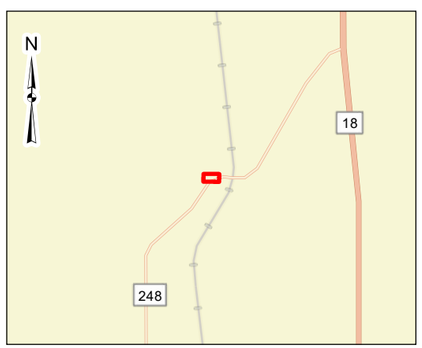

Legend:

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

Notes:
- All groundwater elevations measured in feet above mean sea level.
- Groundwater contours were interpolated using ArGIS's kringing algorithm.
- TMW-1R, MW-8, and MW-12 were not honored in interpolation
- Groundwater contour intervals: 0.05 ft.
- Groundwater gradient: 0.002 ft./ft.

Feet
0 37.5 75 150

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217012
Date:	Dec 2021
Drawn By:	BAD
Reviewed By:	ELL

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3Q21 Groundwater Gradient Map

Livingston Ridge to Hugh - P. Sims
Plains SRS # 2001-11005
NMOCD Ref. # 1RP-0398
NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E
Lea County, New Mexico
GPS: 32.503649, -103.148924

Exhibit

5

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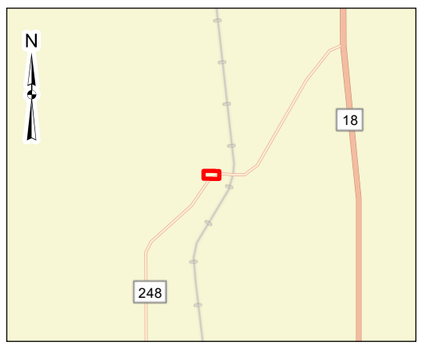

Legend:

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

Notes:
- All groundwater elevations measured in feet above mean sea level.
- Groundwater contours were interpolated using ArGIS's kringing algorithm.
- TMW-1R, MW-8, and MW-9 were not honored in interpolation.
- Groundwater contour intervals: 0.10 ft.
- Groundwater gradient: 0.002 ft./ft.

Feet
0 37.5 75 150

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217012
Date:	Jan 2022
Drawn By:	BAD
Reviewed By:	ELL

Terracon
5847 50th Street Lubbock, Texas 79424
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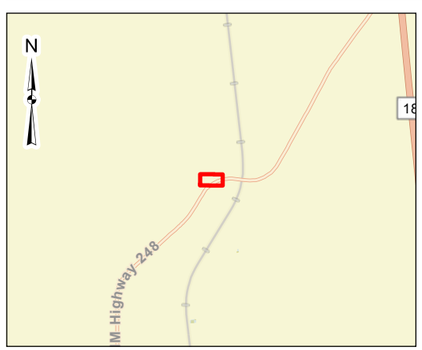
4Q21 Groundwater Gradient Map

Livingston Ridge to Hugh - P. Sims
Plains SRS # 2001-11005
NMOCD Ref. # 1RP-0398
NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E
Lea County, New Mexico
GPS: 32.503649, -103.148924

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).
- **Bold 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 37.5 75 150

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217012
Date:	May 2021
Drawn By:	BAD
Reviewed By:	ELL

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5847 50th Street Lubbock, Texas 79424
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1Q21 Groundwater Concentration Map

Livingston Ridge to Hugh - P. Sims
Plains SRS # 2001-11005
NMOCD Ref. # 1RP-0398
NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E
Lea County, New Mexico
GPS: 32.503649, -103.148924

Exhibit

7

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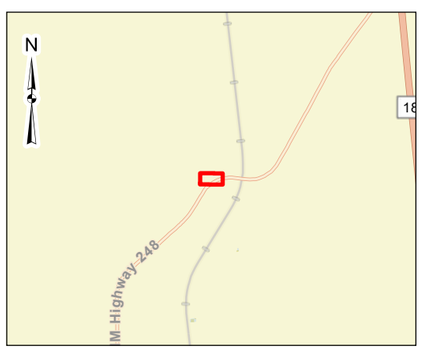

Legend:

- Monitor Well (MW)
- Free Phase Plume

New Mexico- Oil Conservation Division(NMOCD) Criteria:
B (Benzene) - 0.01 mg/L
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- PSH thickness is measured in tenths of feet.

Feet
0 37.5 75 150

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217012
Date:	Jul 2021
Drawn By:	BAD
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Terracon
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2Q21 Groundwater Concentration Map

Livingston Ridge to Hugh - P. Sims
Plains SRS # 2001-11005
NMOCD Ref. # 1RP-0398
NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E
Lea County, New Mexico
GPS: 32.503649, -103.148924

Exhibit

8

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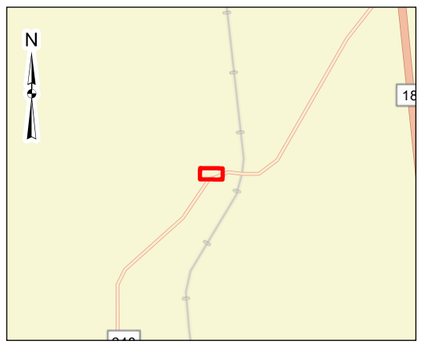


Legend:

- 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).
- **Bold 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 37.5 75 150

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217012
Date:	Jan 2022
Drawn By:	BAD
Reviewed By:	ELL

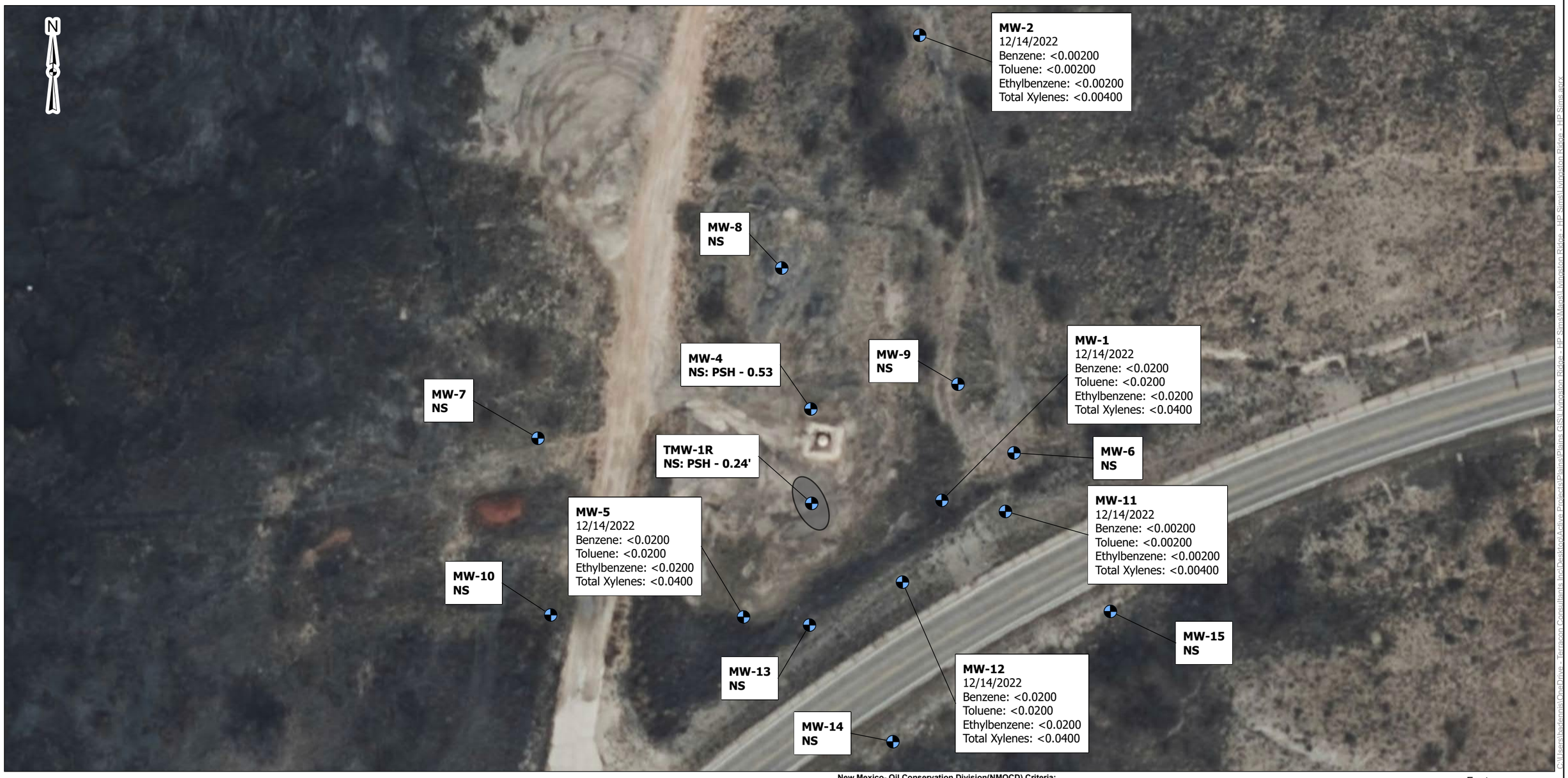
Terracon
5847 50th Street Lubbock, Texas 79424
PH. (806) 300-0140 terracon.com

3Q21 Groundwater Concentration Map

Livingston Ridge to Hugh - P. Sims
Plains SRS # 2001-11005
NMOCD Ref. # 1RP-0398
NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E
Lea County, New Mexico
GPS: 32.503649, -103.148924

Exhibit

9



Legend:

- Monitor Well (MW)
- Free Phase Plume

New Mexico- Oil Conservation Division(NMOCD) Criteria:
B (Benzene) - 0.01 mg/L
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- **Bold 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 37.5 75 150

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	AR217012
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 Ridge to Hugh - P. Sims
Plains SRS # 2001-11005
NMOCD Ref. # 1RP-0398
NE 1/4 of the SE 1/4, Sec. 3, T21S, R37E
Lea County, New Mexico
GPS: 32.503649, -103.148924

Exhibit

10

APPENDIX B

Table 1
Groundwater Elevation & PSH[1] Thickness Summary

Livingston Ridge - HP Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11005
Terracon Project #: AR217012
NMOCD[2] Reference #: 1R-0398
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")	01/22/2020	3,374.23	-	38.61	-	3,335.62
	06/08/2020		-	38.97	-	3,335.26
	09/23/2020		-	38.42	-	3,335.81
	12/17/2020		-	39.63	-	3,334.60
	03/11/2021		-	39.55	-	3,334.68
	06/16/2021		-	39.89	-	3,334.34
	09/29/2021		-	40.45	-	3,333.78
	12/14/2021		-	40.45	-	3,333.78
MW-2 (2")	11/14/2019	3,378.27	Dry			
	01/22/2020		-	42.33	-	3,335.94
	06/08/2020		Dry			
	09/23/2020					
	12/17/2020					
	03/11/2021		-	43.25	-	3,335.02
	06/16/2021		-	43.58	-	3,334.69
	09/29/2021		-	44.17	-	3,334.10
	12/14/2021		-	44.17	-	3,334.10
MW-3 (2")	10/01/2018	3,367.36	Plugged & Abandoned			
MW-4 (2")	01/22/2020	3,372.73	-	36.95	-	3,335.78
	06/08/2020		-	37.35	-	3,335.38
	09/23/2020		-	37.88	-	3,334.85
	12/17/2020		-	37.97	-	3,334.76
	03/11/2021		-	37.91	-	3,334.82
	06/16/2021		-	38.24	-	3,334.49
	09/29/2021		-	38.80	-	3,333.93
	12/14/2021		38.71	39.24	0.53	3,333.94
MW-5 (2")	01/22/2020	3,370.92	-	35.05	-	3,335.87
	06/08/2020		-	35.47	-	3,335.45
	09/23/2020		-	36.14	-	3,334.78
	12/17/2020		-	36.10	-	3,334.82
	03/11/2021		-	36.02	-	3,334.90
	06/16/2021		-	36.39	-	3,334.53
	09/29/2021		-	36.91	-	3,334.01
	12/14/2021		-	36.90	-	3,334.02
MW-6 (2")	01/22/2020	3,377.02	-	41.46	-	3,335.56
	06/08/2020		-	41.79	-	3,335.23
	09/23/2020		-	42.45	-	3,334.57
	12/17/2020		-	42.47	-	3,334.55
	03/11/2021		-	42.38	-	3,334.64
	06/16/2021		-	42.72	-	3,334.30
	09/29/2021		-	43.28	-	3,333.74
	12/14/2021		-	43.29	-	3,333.73

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 Ridge - HP Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11005
Terracon Project #: AR217012
NMOCD[2] Reference #: 1R-0398
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")	01/22/2020	3,369.47	-	33.46	-	3,336.01
	06/08/2020		-	33.88	-	3,335.59
	09/23/2020		-	34.54	-	3,334.93
	12/17/2020		-	34.49	-	3,334.98
	03/11/2021		-	34.38	-	3,335.09
	06/16/2021		-	34.81	-	3,334.66
	09/29/2021		-	35.36	-	3,334.11
	12/14/2021		-	35.29	-	3,334.18
MW-8 (2")	01/22/2020	3,373.33	-	37.84	-	3,335.49
	06/08/2020		-	38.72	-	3,334.61
	09/23/2020		-	38.91	-	3,334.42
	12/17/2020		-	38.88	-	3,334.45
	03/11/2021		-	38.79	-	3,334.54
	06/16/2021		-	39.16	-	3,334.17
	09/29/2021		-	37.61	-	3,335.72
	12/14/2021		-	39.68	-	3,333.65
MW-9 (2")	01/22/2020	3,375.92	-	41.24	-	3,334.68
	06/08/2020		-	41.58	-	3,334.34
	09/23/2020		-	41.26	-	3,334.66
	12/17/2020		-	41.26	-	3,334.66
	03/11/2021		-	41.19	-	3,334.73
	06/16/2021		-	41.52	-	3,334.40
	09/29/2021		-	42.16	-	3,333.76
	12/14/2021		-	43.06	-	3,332.86
MW-10 (2")	01/22/2020	3,370.17	-	34.30	-	3,335.87
	06/08/2020		-	34.41	-	3,335.76
	09/23/2020		-	35.40	-	3,334.77
	12/17/2020		-	35.33	-	3,334.84
	03/11/2021		-	35.23	-	3,334.94
	06/16/2021		-	35.67	-	3,334.50
	09/29/2021		-	36.20	-	3,333.97
	12/14/2021		-	36.13	-	3,334.04
MW-11 (2")	01/22/2020	3,373.96	-	38.42	-	3,335.54
	06/08/2020		-	38.70	-	3,335.26
	09/23/2020		-	39.40	-	3,334.56
	12/17/2020		-	39.44	-	3,334.52
	03/11/2021		-	39.32	-	3,334.64
	06/16/2021		-	39.66	-	3,334.30
	09/29/2021		-	40.23	-	3,333.73
	12/14/2021		-	40.25	-	3,333.71
MW-12 (2")	01/22/2020	3,372.41	-	36.40	-	3,336.01
	06/08/2020		-	37.19	-	3,335.22
	09/23/2020		-	37.82	-	3,334.59
	12/17/2020		-	37.83	-	3,334.58
	03/11/2021		-	37.74	-	3,334.67
	06/16/2021		-	37.08	-	3,335.33
	09/29/2021		-	41.65	-	3,330.76
	12/14/2021		-	38.63	-	3,333.78

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 Ridge - HP Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-11005
Terracon Project #: AR217012
NMOCD[2] Reference #: 1R-0398
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-13 (2")	01/22/2020	3,368.91	-	33.25	-	3,335.66
	06/08/2020		-	33.65	-	3,335.26
	09/23/2020		-	34.32	-	3,334.59
	12/17/2020		-	34.27	-	3,334.64
	03/11/2021		-	34.18	-	3,334.73
	06/16/2021		-	34.56	-	3,334.35
	09/29/2021		-	35.12	-	3,333.79
	12/14/2021		-	35.08	-	3,333.83
MW-14 (2")	01/22/2020	3,371.54	-	35.98	-	3,335.56
	06/08/2020		-	35.35	-	3,336.19
	09/23/2020		-	37.33	-	3,334.21
	12/17/2020		-	37.02	-	3,334.52
	03/11/2021		-	36.93	-	3,334.61
	06/16/2021		-	37.33	-	3,334.21
	09/29/2021		-	37.83	-	3,333.71
	12/14/2021		-	37.84	-	3,333.70
MW-15 (2")	01/22/2020	3,377.64	-	42.18	-	3,335.46
	06/08/2020		-	42.23	-	3,335.41
	09/23/2020		-	41.31	-	3,336.33
	12/17/2020		-	43.27	-	3,334.37
	03/11/2021		-	43.12	-	3,334.52
	06/16/2021		-	43.45	-	3,334.19
	09/29/2021		-	44.00	-	3,333.64
	12/14/2021		-	44.01	-	3,333.63
TMW-1R	01/22/2020	3,431.82	36.40	36.51	0.11	3,395.40
	06/08/2020		36.63	36.67	0.04	3,395.18
	09/23/2020		36.72	36.99	0.27	3,395.06
	12/17/2020		37.45	37.55	0.10	3,394.36
	03/11/2021		37.30	37.54	0.24	3,394.48
	06/16/2021		37.66	38.00	0.34	3,394.11
	09/29/2021		38.19	38.64	0.45	3,393.56
	12/14/2021		38.20	38.44	0.24	3,393.58

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 Ridge to Hugh P. Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-1005
Terracon Project #: AR217012
NMOCD[2] Reference #: 1RP-0398
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	11/15/2019	Inadvertantly Not Sampled						
	01/22/2020	<0.000480	<0.000512	<0.000616	**0.0065**	**0.0029**	**0.0094**	**0.0094**
	06/11/2020	<0.000480	<0.000512	<0.000616	**0.0027**	**0.0011**	**0.0038**	**0.0038**
	DUP-1	<0.000480	<0.000512	<0.000616	**0.0027**	**0.0012**	**0.0039**	**0.0039**
	09/23/2020	<0.00200	<0.00200	<0.00200	**0.00428**	<0.00200	**0.00428**	**0.00428**
	12/22/2020	<0.000408	**0.000890 J**	<0.000657	**0.00265 J**	**0.00158 J**	**0.00423**	**0.00512**
	03/12/2021	<0.000408	<0.000367	<0.000657	**0.00195 J**	**0.00159 J**	**0.00354**	**0.00354**
	DUP-2	<0.000408	<0.000367	<0.000657	<000630	<0.000642	<0.000630	<0.000367
	06/16/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	09/29/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	12/14/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
MW-2	01/22/2020	Inadvertantly Not Sampled						
	06/11/2020	Not Sampled						
	09/23/2020							
	12/22/2020							
	03/12/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	09/29/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	12/14/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
MW-3	10/01/2018	Plugged & Abandoned						
MW-4	01/22/2020	**0.01151**	<0.000512	**0.0411**	**0.0062**	**0.001 J**	**0.0072**	**0.0634**
	DUP-2	**0.0149**	<0.000512	**0.0405**	**0.0061**	**0.001 J**	**0.0071**	**0.0625**
	06/11/2020	**0.0062**	<0.000512	**0.0236**	**0.0021**	**0.0008 J**	**0.0029**	**0.0327**
	09/23/2020	**0.00382**	<0.00200	**0.0198**	<0.00400	<0.00200	<0.00200	**0.0236**
	12/23/2020	**0.00430**	**0.000690 J**	**0.0198**	**0.00239 J**	**0.00382**	**0.00621**	**0.0310**
	03/12/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	<0.00200	<0.00200	**0.0204**	**0.0109**	<0.00200	**0.0109**	**0.0313**
	DUP-1	<0.00200	<0.00200	**0.0158**	**0.00833**	<0.00200	**0.00833**	**0.0241**
	09/29/2021	<0.00200	<0.00200	**0.0525**	**0.0423**	<0.00200	**0.0423**	**0.0948**
	12/14/2021	Not Sampled Due to Phase Separated Hydrocarbons						
MW-5	01/22/2020	**0.0049**	<0.000512	**0.0515**	**0.0019 J**	**0.0015**	**0.0034**	**0.0598**
	06/11/2020	**0.0017**	<0.000512	**0.023**	**0.0019 J**	**0.0014**	**0.0033**	**0.028**
	DUP-2	**0.0015**	<0.000512	**0.0213**	**0.00180 J**	**0.0014**	**0.0032**	**0.026**
	09/23/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/22/2020	<0.000408	**0.000770 J**	<0.000657	**0.000920 J**	<0.000642	**0.000920 J**	**0.00169 J**
	03/12/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	09/29/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	DUP-2	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	12/14/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
MW-6	01/22/2020	Not Sampled						
	06/11/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	09/23/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/22/2020	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	03/12/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	Not Sampled						
	09/29/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	12/14/2021	Not Sampled						

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 Ridge to Hugh P. Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-1005
Terracon Project #: AR217012
NMOCD[2] Reference #: 1RP-0398
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	01/22/2020	Inadvertantly Not Sampled						
	06/11/2020	Not Sampled						
	09/23/2020							
	12/22/2020							
	03/11/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	Not Sampled						
	09/29/2021							
	12/14/2021							
MW-8	01/22/2020	Inadvertantly Not Sampled						
	06/11/2020	Not Sampled due to Sample Reduction						
	09/23/2020							
	12/22/2020							
	03/12/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	Not Sampled						
	09/29/2021							
	12/14/2021							
MW-9	01/22/2020	Inadvertantly Not Sampled						
	06/11/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	09/23/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/22/2020	<0.000408	**0.000560 J**	<0.000657	<0.000630	<0.000642	<0.000630	**0.000560 J**
	03/12/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	Not Sampled						
	09/29/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	12/14/2021	Not Sampled						
MW-10	01/22/2020	Inadvertantly Not Sampled						
	06/11/2020	Not Sampled due to Sample Reduction						
	09/23/2020							
	12/22/2020							
	03/11/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	Not Sampled						
	09/29/2021							
	12/14/2021							
MW-11	01/22/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	06/10/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	09/23/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/23/2020	<0.000408	**0.000780 J**	<0.000657	**0.00164 J**	<0.000642	**0.00164 J**	**0.00242**
	03/11/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	09/29/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	12/14/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
MW-12	01/22/2020	<0.000480	<0.000512	**0.0448**	**0.0127**	**0.0013**	**0.0140**	**0.0588**
	DUP-1	<0.000480	<0.000512	**0.0418**	**0.0115**	<0.00270	**0.015**	**0.0533**
	06/11/2020	<0.000480	<0.000512	**0.0225**	**0.0049**	<0.000270	**0.0049**	**0.0274**
	09/23/2020	<0.00200	<0.00200	0.00897	<0.00400	<0.00200	<0.00200	**0.00897**
	DUP-1	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/23/2020	<0.000408	**0.000940 J**	**0.0141**	**0.00273 J**	**0.00114 J**	**0.00387**	**0.0189**
	03/11/2021	<0.000408	<0.000367	**0.00555**	**0.00215 J**	**0.00133 J**	**0.00348**	**0.00903**
	DUP-1	<0.000408	<0.000367	**0.00573**	**0.00193 J**	<0.000642	**0.00193 J**	**0.00766**
	06/16/2021	<0.00200	<0.00200	**0.00224**	**0.00552**	<0.00200	**0.00552**	**0.00776**
	09/29/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	12/14/2021	<0.00200	<0.00200	<0.00200	<0.00400	0.00391	<0.00400	<0.00400
MW-13	01/22/2020	<0.000480	<0.000512	<0.000616	**0.0011 J**	<0.000270	**0.0011**	**0.0011**
	06/11/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	09/23/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/29/2020	<0.000408	**0.000760 J**	<0.000657	**0.00115 J**	<0.000642	**0.00115 J**	**0.00191 J**
	03/11/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	09/29/2021	<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
	12/14/2021	Not Sampled						

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 Ridge to Hugh P. Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-1005
Terracon Project #: AR217012
NMOCD[2] Reference #: 1RP-0398
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-14	01/22/2020	Inadvertantly Not Sampled						
	01/22/2020	<0.000480	<0.000512	<0.000616	**0.001 J**	**0.0008 J**	**0.0018**	**0.0018**
	09/23/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/29/2020	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	03/11/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	Not Sampled						
	09/29/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	12/14/2021	Not Sampled						
MW-15	01/22/2020	Inadvertantly Not Sampled						
	06/10/2020	<0.000480	<0.000512	<0.000616	<0.000454	<0.000270	<0.000270	<0.000270
	09/23/2020	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00200	<0.00200
	12/29/2020	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	03/11/2021	<0.000408	<0.000367	<0.000657	<0.000630	<0.000642	<0.000630	<0.000367
	06/16/2021	Not Sampled						
	09/29/2021	<0.00200	<0.00200	<0.00200	<0.00400	<0.00200	<0.00400	<0.00400
	12/14/2021	Not Sampled						
TMW-1	10/01/2018	Plugged & Abandoned						
TMW-1R	01/22/2020	Not Sampled Due to Phase Separated Hydrocarbons						
	06/10/2020							
	09/23/2020							
	12/22/2020							
	03/11/2021							
	06/16/2021							
	09/29/2021							
	12/14/2021							

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
TMW-1R BTEX[1] and PSH[2] Thickness & Recovery Summary

Livingston Ridge to Hugh - P. Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #2001-1005
Terracon Project #: AR217012
NMOCD[3] REFERENCE #: 1RP-0398
All measurements are in feet above mean sea level

Monitoring Well	Date	Top of Casing (TOC)[4] Elevation*	Depth to PSH Below TOC (feet)	Depth to Water Below TOC (feet)	PSH Thickness (feet)	Total Fluid Recovery (Gallons)	PSH Recovered (Gallons)
TMW-1R	01/09/2020	3431.82	36.41	36.53	0.12	3.0	0.02
	01/20/2020		36.39	36.45	0.06	5.0	0.01
	01/31/2020		36.38	36.41	0.03	3.0	0.00
	02/14/2020		36.42	36.62	0.20	3.0	0.03
	02/19/2020		36.36	36.38	0.02	5.0	0.00
	02/27/2020		36.60	36.80	0.20	3.0	0.03
	03/05/2020		36.31	36.32	0.01	5.0	0.00
	03/17/2020		36.50	36.52	0.02	5.0	0.00
	05/26/2020		36.50	37.60	1.10	5.0	0.18
	06/15/2020		36.75	37.65	0.90	1,008	0.15
	06/29/2020		36.97	38.47	1.50	5.0	0.24
	07/29/2020		37.15	37.35	0.20	4.0	0.03
	08/18/2020		36.79	36.97	0.18	4.0	0.03
	09/01/2020		37.39	37.61	0.22	1,050	0.04
	10/14/2020		37.51	37.66	0.15	4.0	0.02
	11/13/2020		37.50	37.81	0.31	1,050	0.05
	12/29/2020		37.59	37.91	0.32	4.0	0.05
	01/21/2021		37.37	37.56	0.19	3.0	0.03
	02/26/2021		37.35	37.63	0.28	1,050	0.05
	03/29/2021		37.42	37.70	0.28	5.0	0.05
	04/26/2021		37.31	37.68	0.37	5.0	0.06
	05/22/2021		37.42	37.78	0.36	1,680	0.06
	06/29/2021		37.63	38.00	0.37	5.0	0.06
	07/29/2021		Sheen	37.90	-	5.0	-
	08/13/2021		38.02	38.48	0.46	1,350	0.07
	08/26/2021		-	-	-	5.0	-
	10/25/2021		38.33	39.27	0.94	5.0	0.15
	11/15/2021		38.26	38.96	0.70	1,125	0.11
	11/30/2021		38.28	38.51	0.23	5.0	0.04
	12/20/2021		38.20	38.48	0.28	5.0	0.05
2021 Average PSH Thickness					**0.41**	**5,248.0**	**0.73**

Notes:
1. BTEX: Benzene, Toluene, Ethylbenzene, Total Xylenes
2. PSH = Phase Separated Hydrocarbons
3. NMOCD = New Mexico Oil Conservation Division
4. 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 3b

MW-4 Gauging and BTEX[1] Impacted Groundwater Recovery Summary
Livingston Ridge to Hugh - P. Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #2001-1005
Terracon Project #: AR217012
NMOCD[2] REFERENCE #: 1RP-0398
All measurements are in feet above mean sea level

Monitoring Well	Date	Top of Casing (TOC)[3] Elevation*	DEPTH TO PRODUCT (Feet)	Depth to Water (Feet)	PSH THICKNESS (Feet)	Groundwater Recovered (gallons)
MW-4	01/09/2020	3372.73		-		3.0
	01/20/2020			-		5.0
	01/31/2020			-		3.0
	02/14/2020			36.98		4.0
	02/19/2020			-		5.0
	02/27/2020			-		5.0
	03/05/2020			-		5.0
	03/17/2020			-		5.0
	05/26/2020			-		5.0
	06/29/2020			-		5.0
	07/29/2020			-		5.0
	08/18/2020			-		5.0
	10/14/2020			-		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
	05/22/2021			-		5.0
	06/29/2021			-		5.0
	07/29/2021			-		5.0
	08/26/2021			-		5.0
	10/25/2021		38.80	39.27	0.47	5.0
	11/30/2021		38.73	39.46	0.73	5.0
	12/20/2021		38.70	39.31	0.61	5.0
					2021 Total GW[4] Recovered	**53.0**

Notes:
1. BTEX: Benzene, Toluene, Ethylbenzene, Total Xylenes
2. NMOCD = New Mexico Oil Conservation Division
3. TOC = Top Of Casing
4. GW: Groundwater

Table 3c

MW-5 Gauging and BTEX[1] Impacted Groundwater Recovery Summary

Livingston Ridge to Hugh - P. Sims

Lea County, New Mexico

Plains Pipeline, L.P. SRS #2001-1005

Terracon Project #: AR217012

NMOCD[2] REFERENCE #: 1RP-0398

All measurements are in feet above mean sea level

Monitoring Well	Date	Top of Casing (TOC)[3] Elevation*	Groundwater Recovered (gallons)
MW-5	01/09/2020	3,370.92	3.0
	01/20/2020		3.5
	01/31/2020		3.0
	02/14/2020		4.0
	02/19/2020		3.5
	02/27/2020		4.0
	03/05/2020		3.5
	03/17/2020		3.0
	05/26/2020		3.0
	06/29/2020		3.5
	07/29/2020		2.5
	08/18/2020		3.0
	10/14/2020		2.5
	12/29/2020		3.0
	01/21/2021		2.5
	02/26/2021		2.5
	03/29/2021		3.75
	04/26/2021		2.5
	05/22/2021		3.0
	06/29/2021		2.5
	07/29/2021		2.0
	08/26/2021		2.5
	10/25/2021		2.5
	11/30/2021		2.0
	12/20/2021		5.0
2021 Total GW[4] Recovered			**30.75**

Notes:

1. BTEX: Benzene, Toluene, Ethylbenzene, Total Xylenes
2. NMOCD = New Mexico Oil Conservation Division
3. TOC = Top Of Casing
4. GW: Groundwater

Table 3d

MW-12 Gauging and BTEX[1] Impacted Groundwater Recovery Summary

Livingston Ridge to Hugh - P. Sims

Lea County, New Mexico

Plains Pipeline, L.P. SRS #2001-1005

Terracon Project #: AR217012

NMOCD[2] REFERENCE #: 1RP-0398

All measurements are in feet above mean sea level

Monitoring Well	Date	Top of Casing (TOC)[3] Elevation*	Groundwater Recovered (gallons)
MW-12	01/09/2020	3,372.41	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		5.0
	03/05/2020		5.0
	03/17/2020		5.0
	05/26/2020		5.0
	06/29/2020		5.0
	07/29/2020		5.0
	08/18/2020		5.0
	10/14/2020		4.0
	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
	05/22/2021		5.0
	06/29/2021		5.0
	07/29/2021		5.0
	08/26/2021		5.0
	10/25/2021		5.0
	11/30/2021		5.0
	12/20/2021		5.0
2021 Total GW[4] Recovered			**53.0**

Notes:

1. BTEX: Benzene, Toluene, Ethylbenzene, Total Xylenes
2. NMOCD = New Mexico Oil Conservation Division
3. TOC = Top Of Casing
4. GW: Groundwater

TABLE 4

Quarterly AFR[1] Event Results

Livingston Ridge to Hugh - P. Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #2001-1005
Terracon Project #: AR217012
NMOCD[2] REFERENCE #: 1RP-0398
All measurements are in feet above mean sea level

Monitoring Well	Date	Targeted Constituent	PSH Fluid Volume (gallons)	Fluid Volume (gallons)	Notes
TMWR-1	12/03/2019	PSH/BTEX	N/A	2,100	Vac Truck, 325 gallons removed from buffalo tank
	03/01/2020	PSH/BTEX	N/A	N/A	1Q20 quarterly AFR not performed due to Covid
	06/15/2020	PSH/BTEX	N/A	1,008	Vac Truck, 333 gallons removed from buffalo tank
	09/01/2020	PSH/BTEX	N/A	1,050	Vac Truck, 210 gallons removed from buffalo tank
	11/13/2020	PSH/BTEX	N/A	1,050	Vac Truck, unknown gallons removed from buffalo tank
	02/26/2021	PSH/BTEX	N/A	1,050	Vac Truck, unknown gallons removed from buffalo tank
	05/22/2021	PSH/BTEX	N/A	1,680	Vac Truck, ~30 gallons removed from buffalo tank
	08/13/2021	PSH/BTEX	N/A	1,260	Vac Truck, unknown gallons removed from buffalo tank
	11/15/2021	PSH/BTEX	N/A	1,050	Vac Truck, ~30 gallons removed from buffalo tank
			2021 Total Recovered	5,040	

Notes:

1. AFR: Aggressive Fluid Recovery
2. NMOCD: New Mexico Oil Conservation Division

Table 5
Concentrations of PAH[1] in Groundwater Summary

Livingston Line to Hugh P Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-1005
Terracon Project #: AR197011
NMOCD2 Reference#: 1RP-0398
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	2/16/2006	**0.0000136**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	**0.00229**	<0.00005	**0.00399**	<0.00005
	5/11/2007	**0.017**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	N/A	<0.001	<0.001	NA	<0.001	**0.001**	<0.001	**0.012**	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	11/7/2012	**0.0438**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NA	<0.002	<0.002	<0.002	**0.0180**	<0.002
	9/19/2013	**0.00592**	<0.0000500	0.000128	<0.0000500	0.000162	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NA	<0.0000500	0.000736	<0.0000500	**0.000649**	<0.0000500
	10/4/2014	<0.0000149	<0.0000066	<0.00000495	<0.00000236	<0.00000407	<0.00000527	<0.00000998	<0.00000796	<0.00000583	<0.00000427	<0.00000580	0.000332	<0.00000633	<0.00000633	<0.00000750	**0.000148**	<0.00000691
	12/22/2020	**0.000315 J**	<0.0000585	<0.000103	<0.0000864	<0.0000888	<0.000138	<0.0000729	<0.000116	<0.000119	<0.000160	<0.0000780	N/A	<0.000161	<0.000103	<0.0000937	<0.0000872	<0.000134
MW-2	6/18/2003	<0.00005	<0.00005	**0.000118**	0.000061	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	**0.000056**	**0.000078**	<0.00005	<0.00005	**0.000121**
	3/22/2005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<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	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	11/7/2012	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NA	<0.002	<0.002	<0.002	<0.002	<0.002
	9/19/2013	**0.00056**	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	NA	<0.0000513	**0.000115**	<0.0000513	**0.000174**	<0.0000513
	10/4/2014	Not Sampled Due to Sample Reduction																
MW-3	6/18/2003	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<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	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	Dry - Not Sampled																
MW-4		Not Sampled due to the presence of phase separated hydrocarbons																
	6/18/2003	**0.000167**	<0.00005	**0.000156**	<0.00005	**0.000144**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	**0.000498**	<0.00005	**0.000891**	<0.00005
	11/2/2004	**0.0025**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	**0.0002**	<0.00005	**0.000227**	<0.00005
	2/16/2006	**0.00492**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000068	<0.00005	NA	<0.00005	**0.000251**	<0.00005	**0.000312**	<0.00005
	5/11/2007	**0.034**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	**0.001**	<0.001	**0.006**	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	NA	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513
	10/4/2014	<0.0000149	<0.0000066	<0.00000495	<0.00000236	<0.00000407	<0.00000527	<0.00000998	<0.00000796	<0.00000583	<0.00000427	<0.00000580	0.000114	<0.00000633	<0.00000633	<0.00000750	**0.0000614**	<0.00000691
	12/23/2020	**0.00501**	<0.0000577	<0.000101	<0.0000851	<0.0000876	<0.000136	<0.0000719	<0.000114	<0.000117	<0.000158	<0.0000768	N/A	<0.000159	**0.000247**	<0.0000923	<0.0000860	<0.000132

Notes:
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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.
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Table 5
Concentrations of PAH[1] in Groundwater Summary

Livingston Line to Hugh P Sims
Lea County, New Mexico
Plains Pipeline, L.P. SRS #: 2001-1005
Terracon Project #: AR197011
NMOCD2 Reference#: 1RP-0398
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-5	6/18/2003	**0.0403**	**0.000249**	**0.000732**	**0.00507**	**0.000856**	0.000459	0.000129	<0.00005	0.00007	0.000328	<0.00005	NA	0.000087	0.00268	<0.00005	<0.00005	0.000284
	8/24/2004	**0.00768**	<0.00005	**0.000092**	<0.00005	**0.00007**	<0.00005	<0.00005	<0.00005	0.00006	0.000114	<0.00005	NA	<0.00005	0.000419	<0.00005	0.000898	<0.00005
	2/16/2006	**0.00136**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000115	<0.00005	NA	<0.00005	0.000306	<0.00005	0.000427	<0.00005
	5/11/2007	**0.019**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	0.606	<0.001	<0.001	<0.001
	2/29/2008	**0.031**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<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	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	11/7/2012	**0.0448**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NA	<0.002	<0.002	<0.002	0.0161	<0.002
	9/19/2013	**0.0405**	<0.000256	0.00028	<0.000256	0.000397	0.000377	<0.000256	<0.000256	<0.000256	<0.000256	<0.000256	NA	<0.000256	0.00213	<0.000256	0.00374	<0.000256
	10/4/2014	0.00741	<0.00000667	<0.000005	<0.00000238	<0.00000411	<0.00000533	<0.0000101	<0.0000804	<0.00000588	<0.00000431	<0.00000586	0.00071	<0.00000639	0.000301	<0.00000757	0.00019	<0.00000698
	10/19/2015	<0.000968	<0.000395	<0.000968	<0.000736	<0.000977	<0.000371	<0.000463	<0.000353	<0.000579	<0.000386	<0.00041	NA	<0.000505	<0.000997	<0.000371	<0.000804	<0.000463
	11/15/2019	**0.00193**	<0.000109	<0.000109	<0.000109	<0.000109	<0.000109	<0.000109	<0.000109	<0.000109	<0.000109	<0.000109	**0.00126**	<0.000109	**0.000421**	<0.000109	**0.000227**	<0.000109
	12/22/2020	**0.000292 J**	<0.0000575	<0.000101	<0.0000849	<0.0000873	<0.000136	<0.0000717	<0.000114	<0.000117	<0.000157	<0.0000766	N/A	<0.000158	0.000286	<0.0000921	<0.0000857	<0.000131
MW-6	6/18/2003	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	11/2/2004	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<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	NA	<0.00005	0.000126	<0.00005	0.000063	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	NA	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508
	12/22/2020	<0.0000997	<0.0000585	<0.000103	<0.0000864	<0.0000888	<0.000138	<0.0000729	<0.000116	<0.000119	<0.000160	<0.0000780	N/A	<0.000161	<0.000103	<0.0000937	<0.0000872	<0.000134
MW-7	6/18/2003	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<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	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NA	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
MW-8	6/18/2003	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<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	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

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NMWQCC Groundwater Criteria[4]		0.03	0.0007	NE[5]														
MW-9	6/18/2003	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	3/22/2005	**0.000544**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.000084	<0.00005	0.000058	<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	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.0000513	<0.0000513	0.000052	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513	NA	<0.0000513	<0.0000513	<0.0000513	<0.0000513	<0.0000513
	12/22/2020	<0.0000974	<0.0000571	<0.000100	<0.0000843	<0.0000867	<0.000135	<0.0000712	<0.000113	<0.000116	<0.000156	<0.0000761	N/A	<0.000157	<0.000101	<0.0000914	<0.0000852	<0.000130
MW-10	6/18/2003	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<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	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2019	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	NA	<0.0000508	<0.0000508	<0.0000508	0.0000852	<0.0000508
MW-11	11/6/2002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	8/18/2004	**0.0014**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.000075	<0.00005	0.000154	<0.00005
	3/22/2005	**0.00167**	<0.00005	0.000068	<0.00005	0.000055	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.00008	<0.00005	0.000296	<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	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NA	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
	12/23/2020	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NA	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
MW-12	11/6/2002	**0.000198**	<0.00005	**0.00007**	0.000096	0.000151	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.000662	<0.00005	0.000722	0.000071
	8/18/2004	**0.000262**	<0.00005	**0.000079**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.000078	<0.00005	0.000246	<0.00005
	3/22/2005	**0.000107**	<0.00005	**0.0011**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.000166	<0.00005	0.000285	<0.00005
	2/16/2006	<0.00005	<0.00005	**0.000055**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.000053	<0.00005	0.000174	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NA	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
	11/15/2019	**0.00210**	<0.0000585	<0.000103	<0.0000864	<0.0000888	<0.000138	<0.0000729	<0.000116	<0.000119	<0.000160	<0.0000780	N/A	<0.000161	<0.000103	<0.0000937	<0.0000872	<0.000134
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NMWQCC Groundwater Criteria[4]		0.03	0.0007	NE[5]														
MW-13	11/6/2002	**0.000232**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	8/18/2004	**0.00234**	<0.00005	**0.000139**	<0.00005	0.000086	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.000141	<0.00005	0.000702	<0.00005
	3/22/2005	**0.000746**	<0.00005	**0.000105**	<0.00005	0.000072	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.000366	<0.00005	0.000426	<0.00005
	2/16/2006	**0.000064**	<0.00005	**0.000079**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	0.000079	<0.00005	0.000132	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508	NA	<0.0000508	<0.0000508	<0.0000508	<0.0000508	<0.0000508
	12/22/2020	<0.0000997	<0.0000585	<0.000103	<0.0000863	<0.0000888	<0.000138	<0.0000729	<0.000116	<0.000119	<0.000160	<0.0000779	N/A	<0.000161	<0.000103	<0.0000936	<0.0000872	<0.000134
MW-14	11/6/2002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	8/18/2004	**0.00119**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	0.000079	<0.00005
	3/22/2005	**0.000071**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<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	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/11/2007	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NA	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
	12/29/2020	<0.000116	<0.0000683	<0.000120	<0.000101	<0.000104	<0.000161	<0.0000851	<0.000136	<0.000139	<0.000187	<0.0000910	N/A	<0.000188	<0.000121	<0.000109	<0.000102	<0.000156
MW-15	11/6/2002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	8/24/2004	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	2/16/2006	**0.0033**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	NA	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	5/11/2007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001
	2/29/2008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005
	9/19/2013	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NA	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
	12/29/2020	<0.000100	<0.0000588	<0.000103	<0.0000867	<0.0000892	<0.000138	<0.0000732	<0.000117	<0.000120	<0.000161	<0.0000783	N/A	<0.000162	<0.000104	<0.0000940	<0.0000876	<0.000134
TMW-1	2/16/2006	**0.0886**	<0.00005	**0.00146**	<0.00005	0.00147	<0.00005	<0.00005	<0.00005	<0.00005	0.00221	<0.00005	NA	<0.00005	0.00818	<0.00005	0.0149	0.000788
	5/11/2007	**0.062**	<0.003	<0.002	<0.004	<0.002	<0.002	<0.002	<0.006	NA	<0.002	<0.001	NA	<0.002	0.008	<0.003	<0.002	<0.002
	2/29/2008	**0.069**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	NA	<0.025	<0.025	NA	<0.025	<0.025	<0.025	<0.025	<0.025
	9/19/2013	Not Sampled Due to PSH																
	10/4/2014																	
	10/1/2018	Plugged & Abbandoned																

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 Laboratories Analytical Reports:

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Analytical Report 691739

for

Terracon-Midland

Project Manager: Brett Dennis

Livingston Ridge-HP Sims (SRS #2001-11005)

AR217012

03.24.2021

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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03.24.2021

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

Reference: Eurofins Xenco, LLC Report No(s): **691739**
Livingston Ridge-HP Sims (SRS #2001-11005)
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) 691739. 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. 691739 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 691739

Terracon-Midland, Midland, TX

Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	03.11.2021 14:45		691739-001
MW-10	W	03.11.2021 13:45		691739-002
MW-11	W	03.11.2021 10:40		691739-003
MW-12	W	03.11.2021 11:50		691739-004
MW-13	W	03.11.2021 12:45		691739-005
MW-14	W	03.11.2021 08:45		691739-006
MW-15	W	03.11.2021 09:45		691739-007
Dup-1	W	03.11.2021 11:51		691739-008
MW-1	W	03.12.2021 11:20		691739-009
MW-2	W	03.12.2021 08:25		691739-010
MW-4	W	03.12.2021 14:30		691739-011
MW-5	W	03.12.2021 13:20		691739-012
MW-6	W	03.12.2021 10:20		691739-013
MW-8	W	03.12.2021 12:20		691739-014
MW-9	W	03.12.2021 09:25		691739-015
Dup-2	W	03.12.2021 11:21		691739-016

CASE NARRATIVE

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Client Name: Terracon-Midland

Project Name: Livingston Ridge-HP Sims (SRS #2001-11005)

Project ID: *AR217012*
Work Order Number(s): *691739*

Report Date: *03.24.2021*
Date Received: *03.12.2021*

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

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3154455 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 691739-009,691739-008.

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Certificate of Analytical Results
691739
Terracon-Midland, Midland, TX
Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id: **MW-7** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-001 Date Collected: 03.11.2021 14:45 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.22.2021 18:40	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.22.2021 18:40	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.22.2021 18:40	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.22.2021 18:40	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.22.2021 18:40	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.22.2021 18:40	U	
Total BTEX		<0.000367		0.000367	mg/L	03.22.2021 18:40	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	101	70 - 130	%		
4-Bromofluorobenzene	115	70 - 130	%		

Sample Id: **MW-10** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-002 Date Collected: 03.11.2021 13:45 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.22.2021 19:05	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.22.2021 19:05	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.22.2021 19:05	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.22.2021 19:05	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.22.2021 19:05	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.22.2021 19:05	U	
Total BTEX		<0.000367		0.000367	mg/L	03.22.2021 19:05	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	110	70 - 130	%		
4-Bromofluorobenzene	104	70 - 130	%		

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Certificate of Analytical Results
691739
Terracon-Midland, Midland, TX
Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id: **MW-11** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-003 Date Collected: 03.11.2021 10:40 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.22.2021 19:30	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.22.2021 19:30	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.22.2021 19:30	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.22.2021 19:30	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.22.2021 19:30	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.22.2021 19:30	U	
Total BTEX		<0.000367		0.000367	mg/L	03.22.2021 19:30	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	120	70 - 130	%		
4-Bromofluorobenzene	123	70 - 130	%		

Sample Id: **MW-12** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-004 Date Collected: 03.11.2021 11:50 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 00:12	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 00:12	U	1
Ethylbenzene	100-41-4	**0.00555**	0.00200	0.000657	mg/L	03.23.2021 00:12		1
m,p-Xylenes	179601-23-1	**0.00215**	0.00400	0.000630	mg/L	03.23.2021 00:12	J	1
o-Xylene	95-47-6	**0.00133**	0.00200	0.000642	mg/L	03.23.2021 00:12	J	1
Total Xylenes	1330-20-7	**0.00348**		0.000630	mg/L	03.23.2021 00:12		
Total BTEX		**0.00903**		0.000367	mg/L	03.23.2021 00:12		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	104	70 - 130	%		
4-Bromofluorobenzene	126	70 - 130	%		

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Certificate of Analytical Results
691739
Terracon-Midland, Midland, TX
Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id: **MW-13** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-005 Date Collected: 03.11.2021 12:45 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 00:38	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 00:38	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 00:38	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 00:38	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 00:38	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 00:38	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 00:38	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	106	70 - 130	%		
4-Bromofluorobenzene	104	70 - 130	%		

Sample Id: **MW-14** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-006 Date Collected: 03.11.2021 08:45 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 01:03	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 01:03	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 01:03	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 01:03	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 01:03	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 01:03	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 01:03	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	106	70 - 130	%		
4-Bromofluorobenzene	111	70 - 130	%		

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Certificate of Analytical Results
691739
Terracon-Midland, Midland, TX
Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id: **MW-15** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-007 Date Collected: 03.11.2021 09:45 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 01:29	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 01:29	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 01:29	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 01:29	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 01:29	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 01:29	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 01:29	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	118	70 - 130	%		
4-Bromofluorobenzene	117	70 - 130	%		

Sample Id: **Dup-1** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-008 Date Collected: 03.11.2021 11:51 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 01:55	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 01:55	U	1
Ethylbenzene	100-41-4	**0.00573**	0.00200	0.000657	mg/L	03.23.2021 01:55		1
m,p-Xylenes	179601-23-1	**0.00193**	0.00400	0.000630	mg/L	03.23.2021 01:55	J	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 01:55	U	1
Total Xylenes	1330-20-7	**0.00193**		0.000630	mg/L	03.23.2021 01:55	J	
Total BTEX		**0.00766**		0.000367	mg/L	03.23.2021 01:55		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	123	70 - 130	%		
4-Bromofluorobenzene	132	70 - 130	%		**

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691739
Terracon-Midland, Midland, TX
Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id: **MW-1** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-009 Date Collected: 03.12.2021 11:20 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 02:21	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 02:21	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 02:21	U	1
m,p-Xylenes	179601-23-1	**0.00195**	0.00400	0.000630	mg/L	03.23.2021 02:21	J	1
o-Xylene	95-47-6	**0.00159**	0.00200	0.000642	mg/L	03.23.2021 02:21	J	1
Total Xylenes	1330-20-7	**0.00354**		0.000630	mg/L	03.23.2021 02:21		
Total BTEX		**0.00354**		0.000367	mg/L	03.23.2021 02:21		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	119	70 - 130	%		
4-Bromofluorobenzene	133	70 - 130	%		**

Sample Id: **MW-2** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-010 Date Collected: 03.12.2021 08:25 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 02:47	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 02:47	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 02:47	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 02:47	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 02:47	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 02:47	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 02:47	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	120	70 - 130	%		
4-Bromofluorobenzene	121	70 - 130	%		

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691739
Terracon-Midland, Midland, TX
Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id: **MW-4** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-011 Date Collected: 03.12.2021 14:30 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 03:13	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 03:13	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 03:13	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 03:13	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 03:13	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 03:13	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 03:13	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	120	70 - 130	%		
4-Bromofluorobenzene	128	70 - 130	%		

Sample Id: **MW-5** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-012 Date Collected: 03.12.2021 13:20 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 03:38	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 03:38	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 03:38	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 03:38	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 03:38	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 03:38	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 03:38	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	113	70 - 130	%		
4-Bromofluorobenzene	129	70 - 130	%		

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Certificate of Analytical Results
691739
Terracon-Midland, Midland, TX
Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id: **MW-6** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-013 Date Collected: 03.12.2021 10:20 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 04:04	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 04:04	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 04:04	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 04:04	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 04:04	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 04:04	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 04:04	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	123	70 - 130	%		
4-Bromofluorobenzene	128	70 - 130	%		

Sample Id: **MW-8** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-014 Date Collected: 03.12.2021 12:20 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154452 Date Prep: 03.22.2021 10:00 Tech: KTL

Prep seq: 7723844

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 01:18	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 01:18	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 01:18	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 01:18	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 01:18	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 01:18	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 01:18	U	

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

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691739
Terracon-Midland, Midland, TX
Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id: **MW-9** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-015 Date Collected: 03.12.2021 09:25 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154452 Date Prep: 03.22.2021 10:00 Tech: KTL

Prep seq: 7723844

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 01:38	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 01:38	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 01:38	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 01:38	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 01:38	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 01:38	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 01:38	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	103	70 - 130	%		
4-Bromofluorobenzene	102	70 - 130	%		

Sample Id: **Dup-2** Matrix: Ground Water Sample Depth:

Lab Sample Id: 691739-016 Date Collected: 03.12.2021 11:21 Date Received: 03.12.2021 18:04

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

Analyst: KTL % Moist:

Seq Number: 3154452 Date Prep: 03.22.2021 10:00 Tech: KTL

Prep seq: 7723844

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 01:59	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 01:59	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 01:59	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 01:59	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 01:59	U	1
Total Xylenes	1330-20-7	<0.000630		0.000630	mg/L	03.23.2021 01:59	U	
Total BTEX		<0.000367		0.000367	mg/L	03.23.2021 01:59	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	104	70 - 130	%		
4-Bromofluorobenzene	101	70 - 130	%		

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Certificate of Analytical Results
691739

Terracon-Midland, Midland, TX
Livingston Ridge-HP Sims (SRS #2001-11005)

Sample Id: **7723844-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7723844-1-BLK Date Collected: Date Received:

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

Analyst: KTL % Moist:

Seq Number: 3154452 Date Prep: 03.22.2021 10:00 Tech: KTL

Prep seq: 7723844

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.23.2021 00:56	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.23.2021 00:56	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.23.2021 00:56	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.23.2021 00:56	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.23.2021 00:56	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	93	70 - 130	%		
4-Bromofluorobenzene	118	70 - 130	%		

Sample Id: **7723847-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7723847-1-BLK Date Collected: Date Received:

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

Analyst: KTL % Moist:

Seq Number: 3154455 Date Prep: 03.22.2021 15:00 Tech: KTL

Prep seq: 7723847

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000408	0.00200	0.000408	mg/L	03.22.2021 18:15	U	1
Toluene	108-88-3	<0.000367	0.00200	0.000367	mg/L	03.22.2021 18:15	U	1
Ethylbenzene	100-41-4	<0.000657	0.00200	0.000657	mg/L	03.22.2021 18:15	U	1
m,p-Xylenes	179601-23-1	<0.000630	0.00400	0.000630	mg/L	03.22.2021 18:15	U	1
o-Xylene	95-47-6	<0.000642	0.00200	0.000642	mg/L	03.22.2021 18:15	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	91	70 - 130	%		
4-Bromofluorobenzene	80	70 - 130	%		

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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

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Form 2 - Surrogate Recoveries

Project Name: Livingston Ridge-HP Sims (SRS #2001-11005)

Report Date: 03242021

Work Orders : 691739 **Project ID:** AR217012

Lab Batch #: 3154452 **Sample:** 7723844-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 03.22.2021 22:55 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	70-130	
4-Bromofluorobenzene	0.0299	0.0300	100	70-130	

Lab Batch #: 3154452 **Sample:** 7723844-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 03.22.2021 23:16 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	70-130	
4-Bromofluorobenzene	0.0281	0.0300	94	70-130	

Lab Batch #: 3154452 **Sample:** 691739-014 S / MS **Batch:** 1 **Matrix:** Ground Water

Units: mg/L **Date Analyzed:** 03.22.2021 23:37 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	70-130	
4-Bromofluorobenzene	0.0313	0.0300	104	70-130	

Lab Batch #: 3154452 **Sample:** 691739-014 SD / MSD **Batch:** 1 **Matrix:** Ground Water

Units: mg/L **Date Analyzed:** 03.22.2021 23:57 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	70-130	
4-Bromofluorobenzene	0.0297	0.0300	99	70-130	

Lab Batch #: 3154452 **Sample:** 7723844-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 03.23.2021 00:56 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	70-130	
4-Bromofluorobenzene	0.0355	0.0300	118	70-130	

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

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Form 2 - Surrogate Recoveries

Project Name: Livingston Ridge-HP Sims (SRS #2001-11005)

Report Date: 03242021

Work Orders : 691739 **Project ID:** AR217012

Lab Batch #: 3154455 **Sample:** 7723847-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 03.22.2021 14:52 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0339	0.0300	113	70-130	
4-Bromofluorobenzene	0.0303	0.0300	101	70-130	

Lab Batch #: 3154455 **Sample:** 7723847-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 03.22.2021 16:08 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0348	0.0300	116	70-130	
4-Bromofluorobenzene	0.0357	0.0300	119	70-130	

Lab Batch #: 3154455 **Sample:** 691739-001 S / MS **Batch:** 1 **Matrix:** Ground Water

Units: mg/L **Date Analyzed:** 03.22.2021 16:33 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0362	0.0300	121	70-130	
4-Bromofluorobenzene	0.0333	0.0300	111	70-130	

Lab Batch #: 3154455 **Sample:** 691739-001 SD / MSD **Batch:** 1 **Matrix:** Ground Water

Units: mg/L **Date Analyzed:** 03.22.2021 16:58 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0367	0.0300	122	70-130	
4-Bromofluorobenzene	0.0353	0.0300	118	70-130	

Lab Batch #: 3154455 **Sample:** 7723847-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 03.22.2021 18:15 **SURROGATE RECOVERY STUDY**

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	70-130	
4-Bromofluorobenzene	0.0240	0.0300	80	70-130	

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

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BS / BSD Recoveries

Project Name: Livingston Ridge-HP Sims (SRS #2001-11005)

Work Order #: 691739 **Project ID:** AR217012

Analyst: KTL **Date Prepared:** 03.22.2021 **Date Analyzed:** 03.22.2021

Lab Batch ID: 3154452 **Sample:** 7723844-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000408	0.100	0.0985	99	0.100	0.0938	94	5	70-130	25	
Toluene	<0.000367	0.100	0.0962	96	0.100	0.0881	88	9	70-130	25	
Ethylbenzene	<0.000657	0.100	0.0910	91	0.100	0.0843	84	8	70-130	25	
m,p-Xylenes	<0.000630	0.200	0.182	91	0.200	0.169	85	7	70-130	25	
o-Xylene	<0.000642	0.100	0.0900	90	0.100	0.0823	82	9	70-130	25	

Analyst: KTL **Date Prepared:** 03.22.2021 **Date Analyzed:** 03.22.2021

Lab Batch ID: 3154455 **Sample:** 7723847-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000408	0.100	0.101	101	0.100	0.106	106	5	70-130	25	
Toluene	<0.000367	0.100	0.0991	99	0.100	0.104	104	5	70-130	25	
Ethylbenzene	<0.000657	0.100	0.0981	98	0.100	0.102	102	4	70-130	25	
m,p-Xylenes	<0.000630	0.200	0.200	100	0.200	0.207	104	3	70-130	25	
o-Xylene	<0.000642	0.100	0.0984	98	0.100	0.105	105	6	70-130	25	

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

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Form 3 - MS / MSD Recoveries

Project Name: Livingston Ridge-HP Sims (SRS #2001-11005)

Report Date: 03242021

Work Order # : 691739 **Project ID:** AR217012

Lab Batch ID: 3154452 **QC- Sample ID:** 691739-014 S **Batch #:** 1 **Matrix:** Ground Water

Date Analyzed: 03.22.2021 **Date Prepared:** 03.22.2021 **Analyst:** KTL

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000408	0.100	0.0822	82	0.100	0.0968	97	16	70-130	25	
Toluene	<0.000367	0.100	0.0891	89	0.100	0.0929	93	4	70-130	25	
Ethylbenzene	<0.000657	0.100	0.0839	84	0.100	0.0887	89	6	70-130	25	
m,p-Xylenes	<0.000630	0.200	0.169	85	0.200	0.178	89	5	70-130	25	
o-Xylene	<0.000642	0.100	0.0833	83	0.100	0.0867	87	4	70-130	25	

Lab Batch ID: 3154455 **QC- Sample ID:** 691739-001 S **Batch #:** 1 **Matrix:** Ground Water

Date Analyzed: 03.22.2021 **Date Prepared:** 03.22.2021 **Analyst:** KTL

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000408	0.100	0.101	101	0.100	0.107	107	6	70-130	25	
Toluene	<0.000367	0.100	0.0976	98	0.100	0.111	111	13	70-130	25	
Ethylbenzene	<0.000657	0.100	0.0964	96	0.100	0.113	113	16	70-130	25	
m,p-Xylenes	<0.000630	0.200	0.197	99	0.200	0.216	108	9	70-130	25	
o-Xylene	<0.000642	0.100	0.0992	99	0.100	0.114	114	14	70-130	25	

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

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

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

CHAIN OF CUSTODY RECORD 691739

Terracon

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 Names: Kimble Thrash
Sampler's Signature:

ANALYSIS REQUESTED

LAB USE ONLY
DUE DATE:
TEMP OF COOLER WHEN RECEIVED (°C): 1.4°C
Page 1 of 2

Project Number: AR217012
Project Name: Livingston Ridge - HP Sims (SRS # 2001-11005)

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	03/11/21	1445		X	MW-7			X				3								
GW	03/11/21	1345		X	MW-10			X				3								
GW	03/11/21	1040		X	MW-11			X				3								
GW	03/11/21	1150		X	MW-12			X				3								
GW	03/11/21	1245		X	MW-13			X				3								
GW	03/11/21	0845		X	MW-14			X				3								
GW	03/11/21	0945		X	MW-15			X				3								
GW	03/11/21	1151		X	DUP-1			X				3								
GW	03/12/21	1120		X	MW-1			X				3								
GW	03/12/21	0815		X	MW-2			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:
	3/12/21	1304	Bell Rhoman		
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:

NOTES:

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 _____

CHAIN OF CUSTODY RECORD 691739

Terracon

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

Office Location Lubbock

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

Project Manager: Brett Dennis

Sampler's Names: Kimble Thrash

Sampler's Signature

ANALYSIS REQUESTED

LAB USE ONLY
DUE DATE:

TEMP OF COOLER WHEN RECEIVED (°C) 1.4°C

Page 1/2 of 1/2

Project Number: AR217012

Project Name: Livingston Ridge - HP Sims (SRS # 2001-11005)

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	03/12/21	1430		X	MW-4			X	3	
GW	03/12/21	1320		X	MW-5			X	3	
GW	03/12/21	1020		X	MW-6			X	3	
GW	03/12/21	1220		X	MW-8			X	3	
GW	03/12/21	0925		X	MW-9			X	3	
GW	03/12/21	1124		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)	3/12/21	1804	Received by (Signature)		
Relinquished by (Signature)			Received by (Signature)		
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 _____

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ANALYTICAL REPORT

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

Laboratory Job ID: 820-1067-1
Laboratory Sample Delivery Group: AR217012
Client Project/Site: Livingston Ridge-HP Sims

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

Attn: Brett Dennis

Jkramer

Authorized for release by:
6/23/2021 1:02:45 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
6/23/2021 1:02:45 PM

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge-HP Sims

Laboratory Job ID: 820-1067-1
SDG: AR217012

Table of Contents

Definitions/Glossary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

Qualifiers

GC VOA

Qualifier	Qualifier Description
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 Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

Job ID: 820-1067-1

Laboratory: Eurofins Xenco, Lubbock

Narrative

Job Narrative
820-1067-1

Receipt
The samples were received on 6/18/2021 10:35 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 4.7°C

GC VOA
Method 8021B: Surrogate recovery for the following samples were outside control limits: MW-1 (820-1067-1), MW-2 (820-1067-2), MW-4 (820-1067-3), MW-5 (820-1067-4), MW-11 (820-1067-5), MW-12 (820-1067-6), DUP-1 (820-1067-7), MW-13 (820-1067-8) and (CCV 880-4464/20). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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 Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

Client Sample ID: MW-1

Lab Sample ID: 820-1067-1
Date Collected: 06/16/21 11:28
Matrix: Water
Date Received: 06/18/21 10:35

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			06/22/21 23:08	1
Toluene	<0.00200	U	0.00200		mg/L			06/22/21 23:08	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/22/21 23:08	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/22/21 23:08	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/22/21 23:08	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/22/21 23:08	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/22/21 23:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*		*06/22/21 23:08*	*1*
1,4-Difluorobenzene (Surr)	*140*	*S1+*	*70 - 130*		*06/22/21 23:08*	*1*

Client Sample ID: MW-2

Lab Sample ID: 820-1067-2
Date Collected: 06/16/21 13:04
Matrix: Water
Date Received: 06/18/21 10:35

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			06/22/21 20:10	1
Toluene	<0.00200	U	0.00200		mg/L			06/22/21 20:10	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/22/21 20:10	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/22/21 20:10	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/22/21 20:10	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/22/21 20:10	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/22/21 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*06/22/21 20:10*	*1*
1,4-Difluorobenzene (Surr)	*143*	*S1+*	*70 - 130*		*06/22/21 20:10*	*1*

Client Sample ID: MW-4

Lab Sample ID: 820-1067-3
Date Collected: 06/16/21 16:47
Matrix: Water
Date Received: 06/18/21 10:35

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			06/22/21 22:42	1
Toluene	<0.00200	U	0.00200		mg/L			06/22/21 22:42	1
Ethylbenzene	**0.0204**		0.00200		mg/L			06/22/21 22:42	1
m-Xylene & p-Xylene	**0.0109**		0.00400		mg/L			06/22/21 22:42	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/22/21 22:42	1
Xylenes, Total	**0.0109**		0.00400		mg/L			06/22/21 22:42	1
Total BTEX	**0.0313**		0.00400		mg/L			06/22/21 22:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*06/22/21 22:42*	*1*
1,4-Difluorobenzene (Surr)	*148*	*S1+*	*70 - 130*		*06/22/21 22:42*	*1*

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

Client Sample ID: MW-5

Lab Sample ID: 820-1067-4

Date Collected: 06/16/21 16:12
Date Received: 06/18/21 10:35

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			06/22/21 22:17	1
Toluene	<0.00200	U	0.00200		mg/L			06/22/21 22:17	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/22/21 22:17	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/22/21 22:17	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/22/21 22:17	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/22/21 22:17	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/22/21 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*06/22/21 22:17*	*1*
1,4-Difluorobenzene (Surr)	*138*	*S1+*	*70 - 130*		*06/22/21 22:17*	*1*

Client Sample ID: MW-11

Lab Sample ID: 820-1067-5

Date Collected: 06/16/21 14:17
Date Received: 06/18/21 10:35

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			06/22/21 20:36	1
Toluene	<0.00200	U	0.00200		mg/L			06/22/21 20:36	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/22/21 20:36	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/22/21 20:36	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/22/21 20:36	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/22/21 20:36	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/22/21 20:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*06/22/21 20:36*	*1*
1,4-Difluorobenzene (Surr)	*144*	*S1+*	*70 - 130*		*06/22/21 20:36*	*1*

Client Sample ID: MW-12

Lab Sample ID: 820-1067-6

Date Collected: 06/16/21 14:53
Date Received: 06/18/21 10:35

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			06/22/21 21:01	1
Toluene	<0.00200	U	0.00200		mg/L			06/22/21 21:01	1
Ethylbenzene	**0.00224**		0.00200		mg/L			06/22/21 21:01	1
m-Xylene & p-Xylene	**0.00552**		0.00400		mg/L			06/22/21 21:01	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/22/21 21:01	1
Xylenes, Total	**0.00552**		0.00400		mg/L			06/22/21 21:01	1
Total BTEX	**0.00776**		0.00400		mg/L			06/22/21 21:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*06/22/21 21:01*	*1*
1,4-Difluorobenzene (Surr)	*139*	*S1+*	*70 - 130*		*06/22/21 21:01*	*1*

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

Client Sample ID: DUP-1

Lab Sample ID: 820-1067-7
Matrix: Water
Date Collected: 06/16/21 00:00
Date Received: 06/18/21 10:35

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			06/22/21 21:26	1
Toluene	<0.00200	U	0.00200		mg/L			06/22/21 21:26	1
Ethylbenzene	**0.0158**		0.00200		mg/L			06/22/21 21:26	1
m-Xylene & p-Xylene	**0.00833**		0.00400		mg/L			06/22/21 21:26	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/22/21 21:26	1
Xylenes, Total	**0.00833**		0.00400		mg/L			06/22/21 21:26	1
Total BTEX	**0.0241**		0.00400		mg/L			06/22/21 21:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*06/22/21 21:26*	*1*
1,4-Difluorobenzene (Surr)	*144*	*S1+*	*70 - 130*		*06/22/21 21:26*	*1*

Client Sample ID: MW-13

Lab Sample ID: 820-1067-8
Matrix: Water
Date Collected: 06/16/21 15:35
Date Received: 06/18/21 10:35

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			06/22/21 21:52	1
Toluene	<0.00200	U	0.00200		mg/L			06/22/21 21:52	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/22/21 21:52	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/22/21 21:52	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/22/21 21:52	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/22/21 21:52	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/22/21 21:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*06/22/21 21:52*	*1*
1,4-Difluorobenzene (Surr)	*152*	*S1+*	*70 - 130*		*06/22/21 21:52*	*1*

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

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)										
820-1067-1	MW-1	110	140 S1+										
820-1067-2	MW-2	101	143 S1+										
820-1067-3	MW-4	101	148 S1+										
820-1067-4	MW-5	99	138 S1+										
820-1067-5	MW-11	100	144 S1+										
820-1067-6	MW-12	104	139 S1+										
820-1067-7	DUP-1	95	144 S1+										
820-1067-8	MW-13	100	152 S1+										
LCS 880-4464/3	Lab Control Sample	87	130										
LCSD 880-4464/4	Lab Control Sample Dup	92	149 S1+										
MB 880-4464/8	Method Blank	62 S1-	111										

Surrogate Legend

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

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-4464/8
Matrix: Water
Analysis Batch: 4464

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			06/22/21 13:28	1
Toluene	<0.00200	U	0.00200		mg/L			06/22/21 13:28	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/22/21 13:28	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/22/21 13:28	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/22/21 13:28	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/22/21 13:28	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/22/21 13:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*62*	*S1-*	*70 - 130*		*06/22/21 13:28*	*1*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*		*06/22/21 13:28*	*1*

Lab Sample ID: LCS 880-4464/3
Matrix: Water
Analysis Batch: 4464

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	0.1076		mg/L		108	70 - 130		
Toluene			0.100	0.09715		mg/L		97	70 - 130		
Ethylbenzene			0.100	0.09730		mg/L		97	70 - 130		
m-Xylene & p-Xylene			0.200	0.2005		mg/L		100	70 - 130		
o-Xylene			0.100	0.09818		mg/L		98	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*
1,4-Difluorobenzene (Surr)	*130*		*70 - 130*

Lab Sample ID: LCSD 880-4464/4
Matrix: Water
Analysis Batch: 4464

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	0.1192		mg/L		119	70 - 130	10	20
Toluene			0.100	0.1089		mg/L		109	70 - 130	11	20
Ethylbenzene			0.100	0.1061		mg/L		106	70 - 130	9	20
m-Xylene & p-Xylene			0.200	0.2185		mg/L		109	70 - 130	9	20
o-Xylene			0.100	0.1065		mg/L		106	70 - 130	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
1,4-Difluorobenzene (Surr)	*149*	*S1+*	*70 - 130*

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

GC VOA

Analysis Batch: 4464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-1067-1	MW-1	Total/NA	Water	8021B	
820-1067-2	MW-2	Total/NA	Water	8021B	
820-1067-3	MW-4	Total/NA	Water	8021B	
820-1067-4	MW-5	Total/NA	Water	8021B	
820-1067-5	MW-11	Total/NA	Water	8021B	
820-1067-6	MW-12	Total/NA	Water	8021B	
820-1067-7	DUP-1	Total/NA	Water	8021B	
820-1067-8	MW-13	Total/NA	Water	8021B	
MB 880-4464/8	Method Blank	Total/NA	Water	8021B	
LCS 880-4464/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-4464/4	Lab Control Sample Dup	Total/NA	Water	8021B	

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

Client Sample ID: MW-1
Date Collected: 06/16/21 11:28
Date Received: 06/18/21 10:35

Lab Sample ID: 820-1067-1
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	4464	06/22/21 23:08	MR	XEN MID

Client Sample ID: MW-2
Date Collected: 06/16/21 13:04
Date Received: 06/18/21 10:35

Lab Sample ID: 820-1067-2
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	4464	06/22/21 20:10	MR	XEN MID

Client Sample ID: MW-4
Date Collected: 06/16/21 16:47
Date Received: 06/18/21 10:35

Lab Sample ID: 820-1067-3
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	4464	06/22/21 22:42	MR	XEN MID

Client Sample ID: MW-5
Date Collected: 06/16/21 16:12
Date Received: 06/18/21 10:35

Lab Sample ID: 820-1067-4
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	4464	06/22/21 22:17	MR	XEN MID

Client Sample ID: MW-11
Date Collected: 06/16/21 14:17
Date Received: 06/18/21 10:35

Lab Sample ID: 820-1067-5
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	4464	06/22/21 20:36	MR	XEN MID

Client Sample ID: MW-12
Date Collected: 06/16/21 14:53
Date Received: 06/18/21 10:35

Lab Sample ID: 820-1067-6
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	4464	06/22/21 21:01	MR	XEN MID

Client Sample ID: DUP-1
Date Collected: 06/16/21 00:00
Date Received: 06/18/21 10:35

Lab Sample ID: 820-1067-7
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	4464	06/22/21 21:26	MR	XEN MID

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

Client Sample ID: MW-13
Date Collected: 06/16/21 15:35
Date Received: 06/18/21 10:35

Lab Sample ID: 820-1067-8
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	4464	06/22/21 21:52	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 Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

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 Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

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 Ridge-HP Sims

Job ID: 820-1067-1
SDG: AR217012

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
820-1067-1	MW-1	Water	06/16/21 11:28	06/18/21 10:35	
820-1067-2	MW-2	Water	06/16/21 13:04	06/18/21 10:35	
820-1067-3	MW-4	Water	06/16/21 16:47	06/18/21 10:35	
820-1067-4	MW-5	Water	06/16/21 16:12	06/18/21 10:35	
820-1067-5	MW-11	Water	06/16/21 14:17	06/18/21 10:35	
820-1067-6	MW-12	Water	06/16/21 14:53	06/18/21 10:35	
820-1067-7	DUP-1	Water	06/16/21 00:00	06/18/21 10:35	
820-1067-8	MW-13	Water	06/16/21 15:35	06/18/21 10:35	


820-1067 Chain of Custody

Loc: 820
1067

CHAIN OF CUSTODY RECORD

Terracon

Company: Xenco
Address: 6701 Aberdeen
Lubbock, Texas 79424

Office Location: Lubbock
Phone:
Project Manager: Brett Dennis
Contact:
Sampler's Name: Aaron Adams
SRS #: 2001-11005
Sampler's Signature

ANALYSIS REQUESTED

LAB USE ONLY
DUE DATE:
TEMP OF COOLER WHEN RECEIVED (°C): 4.7/4.66

Project Number: AR217012
Project Name: Livingston Ridge - HP Sims

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	6/16/2021	11:28		X	MW-1			3	X	820-1067-1
GW	6/16/2021	13:04		X	MW-2			3	X	2
GW	6/16/2021	16:47		X	MW-4			3	X	3
GW	6/16/2021	16:12		X	MW-5			3	X	4
GW	6/16/2021	14:17		X	MW-11			3	X	5
GW	6/16/2021	14:53		X	MW-12			3	X	6
GW	6/16/2021	-		X	DUP-1			3	X	7
GW	6/16/21	15:35		X	MW-13			3	X	8

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
	6/18/21	10:35		6/18/21	10:35

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

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Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer, Jessica	Carrier Tracking No(s):	COC No: 820-1458.1
Client Contact: Shipping/Receiving	Phone	E-Mail: jessica.kramer@eurofinset.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Texas		Job #: 820-1067-1
Address: 1211 W Florida Ave	Due Date Requested: 6/24/2021	Analysis Requested		Preservation Codes:
City: Midland	TAT Requested (days):			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)
State, Zip: TX, 79701	PO #:			
Phone: 432-704-5440(Tel)	WO #:			
Email:	Project #: 82000284			
Project Name: Livingston Ridge-HP Sims AR217012--Terracon	SSOW#:			
Site:				Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	8021B/5030B BTEX	Special Instructions/Note:
MW-1 (820-1067-1)	6/16/21	11:28 Mountain		Water		X	
MW-2 (820-1067-2)	6/16/21	13:04 Mountain		Water		X	
MW-4 (820-1067-3)	6/16/21	16:47 Mountain		Water		X	
MW-5 (820-1067-4)	6/16/21	16:12 Mountain		Water		X	
MW-11 (820-1067-5)	6/16/21	14:17 Mountain		Water		X	
MW-12 (820-1067-6)	6/16/21	14:53 Mountain		Water		X	
DUP-1 (820-1067-7)	6/16/21	Mountain		Water		X	
MW-13 (820-1067-8)	6/16/21	15:35 Mountain		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: 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: 6/18/21 13:48	Company	Received by:	Date/Time: 6-21-21 12:00am	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:

Ver: 11/01/2020

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-1067-1
SDG Number: AR217012

Login Number: 1067
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	
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: 820-1067-1
SDG Number: AR217012

Login Number: 1067
List Number: 2
Creator: Copeland, Tatiana

List Source: Eurofins Xenco, Midland
List Creation: 06/21/21 11:52 AM

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: 820-2113-1
Laboratory Sample Delivery Group: AR217012
Client Project/Site: Livigston Ridge - HP Sims

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

Attn: Brett Dennis

JKramer

Authorized for release by:
10/11/2021 8:31:13 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
10/11/2021 8:31:13 PM

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Laboratory Job ID: 820-2113-1
SDG: AR217012

Table of Contents

Definitions/Glossary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
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: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Job ID: 820-2113-1

Laboratory: Eurofins Xenco, Lubbock

Narrative

Job Narrative
820-2113-1

Receipt
The samples were received on 10/1/2021 2:19 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 20.8°C

Receipt Exceptions
The following samples were received at the laboratory outside the required temperature criteria: 820-2113. The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 880-9114 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following samples were outside control limits: MW-14 (820-2113-1), MW-15 (820-2113-2), MW-2 (820-2113-3), MW-6 (820-2113-4), MW-9 (820-2113-5), MW-1 (820-2113-6), MW-11 (820-2113-7), MW-12 (820-2113-8), MW-13 (820-2113-9) and MW-5 (820-2113-10). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Client Sample ID: MW-14

Lab Sample ID: 820-2113-1
Date Collected: 09/29/21 11:35
Matrix: Water
Date Received: 10/01/21 14:19

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			10/08/21 20:06	1
Toluene	<0.00200	U	0.00200		mg/L			10/08/21 20:06	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			10/08/21 20:06	1
m-Xylene & p-Xylene	<0.00400	U F1	0.00400		mg/L			10/08/21 20:06	1
o-Xylene	<0.00200	U F1	0.00200		mg/L			10/08/21 20:06	1
Xylenes, Total	<0.00400	U F1	0.00400		mg/L			10/08/21 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*163*	*S1+*	*70 - 130*		*10/08/21 20:06*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*10/08/21 20:06*	*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			10/11/21 15:19	1

Client Sample ID: MW-15

Lab Sample ID: 820-2113-2
Date Collected: 09/29/21 12:20
Matrix: Water
Date Received: 10/01/21 14:19

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			10/08/21 20:32	1
Toluene	<0.00200	U	0.00200		mg/L			10/08/21 20:32	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			10/08/21 20:32	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			10/08/21 20:32	1
o-Xylene	<0.00200	U	0.00200		mg/L			10/08/21 20:32	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			10/08/21 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*149*	*S1+*	*70 - 130*		*10/08/21 20:32*	*1*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*		*10/08/21 20:32*	*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			10/11/21 15:19	1

Client Sample ID: MW-2

Lab Sample ID: 820-2113-3
Date Collected: 09/29/21 13:36
Matrix: Water
Date Received: 10/01/21 14:19

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			10/08/21 20:58	1
Toluene	<0.00200	U	0.00200		mg/L			10/08/21 20:58	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			10/08/21 20:58	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			10/08/21 20:58	1
o-Xylene	<0.00200	U	0.00200		mg/L			10/08/21 20:58	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			10/08/21 20:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*142*	*S1+*	*70 - 130*		*10/08/21 20:58*	*1*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*		*10/08/21 20:58*	*1*

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Client Sample ID: MW-2
Lab Sample ID: 820-2113-3
Date Collected: 09/29/21 13:36
Matrix: Water
Date Received: 10/01/21 14:19

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			10/11/21 15:19	1

Client Sample ID: MW-6
Lab Sample ID: 820-2113-4
Date Collected: 09/29/21 14:17
Matrix: Water
Date Received: 10/01/21 14:19

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			10/08/21 21:24	1
Toluene	<0.00200	U	0.00200		mg/L			10/08/21 21:24	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			10/08/21 21:24	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			10/08/21 21:24	1
o-Xylene	<0.00200	U	0.00200		mg/L			10/08/21 21:24	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			10/08/21 21:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*150*	*S1+*	*70 - 130*		*10/08/21 21:24*	*1*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*		*10/08/21 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			10/11/21 15:19	1

Client Sample ID: MW-9
Lab Sample ID: 820-2113-5
Date Collected: 09/30/21 09:10
Matrix: Water
Date Received: 10/01/21 14:19

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			10/08/21 21:50	1
Toluene	<0.00200	U	0.00200		mg/L			10/08/21 21:50	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			10/08/21 21:50	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			10/08/21 21:50	1
o-Xylene	<0.00200	U	0.00200		mg/L			10/08/21 21:50	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			10/08/21 21:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*153*	*S1+*	*70 - 130*		*10/08/21 21:50*	*1*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*		*10/08/21 21:50*	*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			10/11/21 15:19	1

Client Sample ID: MW-1
Lab Sample ID: 820-2113-6
Date Collected: 09/30/21 09:48
Matrix: Water
Date Received: 10/01/21 14:19

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200		mg/L			10/08/21 22:43	10
Toluene	<0.0200	U	0.0200		mg/L			10/08/21 22:43	10

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Client Sample ID: MW-1

Lab Sample ID: 820-2113-6
Date Collected: 09/30/21 09:48
Matrix: Water
Date Received: 10/01/21 14:19

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.0200	U	0.0200		mg/L			10/08/21 22:43	10
m-Xylene & p-Xylene	<0.0400	U	0.0400		mg/L			10/08/21 22:43	10
o-Xylene	<0.0200	U	0.0200		mg/L			10/08/21 22:43	10
Xylenes, Total	<0.0400	U	0.0400		mg/L			10/08/21 22:43	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*155*	*S1+*	*70 - 130*		*10/08/21 22:43*	*10*
1,4-Difluorobenzene (Surr)	*113*		*70 - 130*		*10/08/21 22:43*	*10*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0400	U	0.0400		mg/L			10/11/21 15:19	1

Client Sample ID: MW-11

Lab Sample ID: 820-2113-7
Date Collected: 09/30/21 10:36
Matrix: Water
Date Received: 10/01/21 14:19

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			10/08/21 22:17	1
Toluene	<0.00200	U	0.00200		mg/L			10/08/21 22:17	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			10/08/21 22:17	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			10/08/21 22:17	1
o-Xylene	<0.00200	U	0.00200		mg/L			10/08/21 22:17	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			10/08/21 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*156*	*S1+*	*70 - 130*		*10/08/21 22:17*	*1*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*		*10/08/21 22:17*	*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			10/11/21 15:19	1

Client Sample ID: MW-12

Lab Sample ID: 820-2113-8
Date Collected: 09/30/21 11:28
Matrix: Water
Date Received: 10/01/21 14:19

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200		mg/L			10/08/21 23:09	10
Toluene	<0.0200	U	0.0200		mg/L			10/08/21 23:09	10
Ethylbenzene	<0.0200	U	0.0200		mg/L			10/08/21 23:09	10
m-Xylene & p-Xylene	<0.0400	U	0.0400		mg/L			10/08/21 23:09	10
o-Xylene	<0.0200	U	0.0200		mg/L			10/08/21 23:09	10
Xylenes, Total	<0.0400	U	0.0400		mg/L			10/08/21 23:09	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*150*	*S1+*	*70 - 130*		*10/08/21 23:09*	*10*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*		*10/08/21 23:09*	*10*

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Client Sample ID: MW-12
Lab Sample ID: 820-2113-8
Date Collected: 09/30/21 11:28
Matrix: Water
Date Received: 10/01/21 14:19

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0400	U	0.0400		mg/L			10/11/21 15:19	1

Client Sample ID: MW-13
Lab Sample ID: 820-2113-9
Date Collected: 09/30/21 12:01
Matrix: Water
Date Received: 10/01/21 14:19

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200		mg/L			10/08/21 23:35	10
Toluene	<0.0200	U	0.0200		mg/L			10/08/21 23:35	10
Ethylbenzene	<0.0200	U	0.0200		mg/L			10/08/21 23:35	10
m-Xylene & p-Xylene	<0.0400	U	0.0400		mg/L			10/08/21 23:35	10
o-Xylene	<0.0200	U	0.0200		mg/L			10/08/21 23:35	10
Xylenes, Total	<0.0400	U	0.0400		mg/L			10/08/21 23:35	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*153*	*S1+*	*70 - 130*		*10/08/21 23:35*	*10*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*		*10/08/21 23:35*	*10*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0400	U	0.0400		mg/L			10/11/21 15:19	1

Client Sample ID: MW-5
Lab Sample ID: 820-2113-10
Date Collected: 09/30/21 13:13
Matrix: Water
Date Received: 10/01/21 14:19

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200		mg/L			10/09/21 00:01	10
Toluene	<0.0200	U	0.0200		mg/L			10/09/21 00:01	10
Ethylbenzene	<0.0200	U	0.0200		mg/L			10/09/21 00:01	10
m-Xylene & p-Xylene	<0.0400	U	0.0400		mg/L			10/09/21 00:01	10
o-Xylene	<0.0200	U	0.0200		mg/L			10/09/21 00:01	10
Xylenes, Total	<0.0400	U	0.0400		mg/L			10/09/21 00:01	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*162*	*S1+*	*70 - 130*		*10/09/21 00:01*	*10*
1,4-Difluorobenzene (Surr)	*115*		*70 - 130*		*10/09/21 00:01*	*10*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0400	U	0.0400		mg/L			10/11/21 15:19	1

Client Sample ID: MW-4
Lab Sample ID: 820-2113-11
Date Collected: 09/30/21 14:25
Matrix: Water
Date Received: 10/01/21 14:19

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200		mg/L			10/09/21 04:23	10
Toluene	<0.0200	U	0.0200		mg/L			10/09/21 04:23	10

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Client Sample ID: MW-4

Lab Sample ID: 820-2113-11
Matrix: Water
Date Collected: 09/30/21 14:25
Date Received: 10/01/21 14:19

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**0.0525**		0.0200		mg/L			10/09/21 04:23	10
m-Xylene & p-Xylene	**0.0423**		0.0400		mg/L			10/09/21 04:23	10
o-Xylene	<0.0200	U	0.0200		mg/L			10/09/21 04:23	10
Xylenes, Total	**0.0423**		0.0400		mg/L			10/09/21 04:23	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*157*	*S1+*	*70 - 130*		*10/09/21 04:23*	*10*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*		*10/09/21 04:23*	*10*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.0948**		0.0400		mg/L			10/11/21 15:20	1

Client Sample ID: DUP-1

Lab Sample ID: 820-2113-12
Matrix: Water
Date Collected: 09/30/21 00:00
Date Received: 10/01/21 14:19

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200		mg/L			10/09/21 04:49	10
Toluene	<0.0200	U	0.0200		mg/L			10/09/21 04:49	10
Ethylbenzene	<0.0200	U	0.0200		mg/L			10/09/21 04:49	10
m-Xylene & p-Xylene	<0.0400	U	0.0400		mg/L			10/09/21 04:49	10
o-Xylene	<0.0200	U	0.0200		mg/L			10/09/21 04:49	10
Xylenes, Total	<0.0400	U	0.0400		mg/L			10/09/21 04:49	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*162*	*S1+*	*70 - 130*		*10/09/21 04:49*	*10*
1,4-Difluorobenzene (Surr)	*112*		*70 - 130*		*10/09/21 04:49*	*10*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0400	U	0.0400		mg/L			10/11/21 15:20	1

Client Sample ID: DUP-2

Lab Sample ID: 820-2113-13
Matrix: Water
Date Collected: 09/30/21 00:00
Date Received: 10/01/21 14:19

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200		mg/L			10/09/21 05:15	10
Toluene	<0.0200	U	0.0200		mg/L			10/09/21 05:15	10
Ethylbenzene	<0.0200	U	0.0200		mg/L			10/09/21 05:15	10
m-Xylene & p-Xylene	<0.0400	U	0.0400		mg/L			10/09/21 05:15	10
o-Xylene	<0.0200	U	0.0200		mg/L			10/09/21 05:15	10
Xylenes, Total	<0.0400	U	0.0400		mg/L			10/09/21 05:15	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*148*	*S1+*	*70 - 130*		*10/09/21 05:15*	*10*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*		*10/09/21 05:15*	*10*

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Client Sample ID: DUP-2
Date Collected: 09/30/21 00:00
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-13
Matrix: Water

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0400	U	0.0400		mg/L			10/11/21 15:20	1

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

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)
820-2113-1	MW-14	163 S1+	101
820-2113-1 MS	MW-14	151 S1+	112
820-2113-2	MW-15	149 S1+	111
820-2113-3	MW-2	142 S1+	111
820-2113-4	MW-6	150 S1+	106
820-2113-5	MW-9	153 S1+	111
820-2113-6	MW-1	155 S1+	113
820-2113-7	MW-11	156 S1+	114
820-2113-8	MW-12	150 S1+	108
820-2113-9	MW-13	153 S1+	108
820-2113-10	MW-5	162 S1+	115
820-2113-11	MW-4	157 S1+	114
820-2113-12	DUP-1	162 S1+	112
820-2113-13	DUP-2	148 S1+	109
LCS 880-9114/3	Lab Control Sample	155 S1+	110
LCSD 880-9114/4	Lab Control Sample Dup	147 S1+	102
MB 880-9114/8	Method Blank	86	97

Surrogate Legend

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

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		
820-2113-1 MSD	MW-14		

Surrogate Legend

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

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-9114/8
Matrix: Water
Analysis Batch: 9114

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			10/08/21 19:40	1
Toluene	<0.00200	U	0.00200		mg/L			10/08/21 19:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			10/08/21 19:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			10/08/21 19:40	1
o-Xylene	<0.00200	U	0.00200		mg/L			10/08/21 19:40	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			10/08/21 19:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*70 - 130*		*10/08/21 19:40*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*		*10/08/21 19:40*	*1*

Lab Sample ID: LCS 880-9114/3
Matrix: Water
Analysis Batch: 9114

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	0.1156		mg/L		116	70 - 130		
Toluene			0.100	0.1229		mg/L		123	70 - 130		
Ethylbenzene			0.100	0.1188		mg/L		119	70 - 130		
m-Xylene & p-Xylene			0.200	0.2580		mg/L		129	70 - 130		
o-Xylene			0.100	0.1299		mg/L		130	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*155*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*

Lab Sample ID: LCSD 880-9114/4
Matrix: Water
Analysis Batch: 9114

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	0.1067		mg/L		107	70 - 130	8	20
Toluene			0.100	0.1123		mg/L		112	70 - 130	9	20
Ethylbenzene			0.100	0.1088		mg/L		109	70 - 130	9	20
m-Xylene & p-Xylene			0.200	0.2370		mg/L		118	70 - 130	8	20
o-Xylene			0.100	0.1203		mg/L		120	70 - 130	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*147*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: 820-2113-1 MS
Matrix: Water
Analysis Batch: 9114

Client Sample ID: MW-14
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	0.1224		mg/L		122	70 - 130		
Toluene	<0.00200	U	0.100	0.1302		mg/L		130	70 - 130		

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

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

Lab Sample ID: 820-2113-1 MS
Matrix: Water
Analysis Batch: 9114

Client Sample ID: MW-14
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	0.1264		mg/L		126	70 - 130
m-Xylene & p-Xylene	<0.00400	U F1	0.200	0.2755	F1	mg/L		137	70 - 130
o-Xylene	<0.00200	U F1	0.100	0.1391	F1	mg/L		139	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*151*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*112*		*70 - 130*

Lab Sample ID: 820-2113-1 MSD
Matrix: Water
Analysis Batch: 9114

Client Sample ID: MW-14
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	0.1057		mg/L					
Toluene	<0.00200	U	0.100	0.1065		mg/L					
Ethylbenzene	<0.00200	U	0.100	0.1068		mg/L					
m-Xylene & p-Xylene	<0.00400	U F1	0.200	0.2323		mg/L					
o-Xylene	<0.00200	U F1	0.100	0.1179		mg/L					

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

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

GC VOA

Analysis Batch: 9114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-2113-1	MW-14	Total/NA	Water	8021B	
820-2113-2	MW-15	Total/NA	Water	8021B	
820-2113-3	MW-2	Total/NA	Water	8021B	
820-2113-4	MW-6	Total/NA	Water	8021B	
820-2113-5	MW-9	Total/NA	Water	8021B	
820-2113-6	MW-1	Total/NA	Water	8021B	
820-2113-7	MW-11	Total/NA	Water	8021B	
820-2113-8	MW-12	Total/NA	Water	8021B	
820-2113-9	MW-13	Total/NA	Water	8021B	
820-2113-10	MW-5	Total/NA	Water	8021B	
820-2113-11	MW-4	Total/NA	Water	8021B	
820-2113-12	DUP-1	Total/NA	Water	8021B	
820-2113-13	DUP-2	Total/NA	Water	8021B	
MB 880-9114/8	Method Blank	Total/NA	Water	8021B	
LCS 880-9114/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-9114/4	Lab Control Sample Dup	Total/NA	Water	8021B	
820-2113-1 MS	MW-14	Total/NA	Water	8021B	
820-2113-1 MSD	MW-14	Total/NA	Water	8021B	

Analysis Batch: 9242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-2113-1	MW-14	Total/NA	Water	Total BTEX	
820-2113-2	MW-15	Total/NA	Water	Total BTEX	
820-2113-3	MW-2	Total/NA	Water	Total BTEX	
820-2113-4	MW-6	Total/NA	Water	Total BTEX	
820-2113-5	MW-9	Total/NA	Water	Total BTEX	
820-2113-6	MW-1	Total/NA	Water	Total BTEX	
820-2113-7	MW-11	Total/NA	Water	Total BTEX	
820-2113-8	MW-12	Total/NA	Water	Total BTEX	
820-2113-9	MW-13	Total/NA	Water	Total BTEX	
820-2113-10	MW-5	Total/NA	Water	Total BTEX	
820-2113-11	MW-4	Total/NA	Water	Total BTEX	
820-2113-12	DUP-1	Total/NA	Water	Total BTEX	
820-2113-13	DUP-2	Total/NA	Water	Total BTEX	

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Client Sample ID: MW-14
Date Collected: 09/29/21 11:35
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-1
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	9114	10/08/21 20:06	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Client Sample ID: MW-15
Date Collected: 09/29/21 12:20
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-2
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	9114	10/08/21 20:32	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Client Sample ID: MW-2
Date Collected: 09/29/21 13:36
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-3
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	9114	10/08/21 20:58	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Client Sample ID: MW-6
Date Collected: 09/29/21 14:17
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-4
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	9114	10/08/21 21:24	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Client Sample ID: MW-9
Date Collected: 09/30/21 09:10
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-5
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	9114	10/08/21 21:50	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Client Sample ID: MW-1
Date Collected: 09/30/21 09:48
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-6
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		10	5 mL	5 mL	9114	10/08/21 22:43	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Client Sample ID: MW-11
Date Collected: 09/30/21 10:36
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-7
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	9114	10/08/21 22:17	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Client Sample ID: MW-12
Date Collected: 09/30/21 11:28
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-8
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		10	5 mL	5 mL	9114	10/08/21 23:09	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Client Sample ID: MW-13
Date Collected: 09/30/21 12:01
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-9
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		10	5 mL	5 mL	9114	10/08/21 23:35	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Client Sample ID: MW-5
Date Collected: 09/30/21 13:13
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-10
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		10	5 mL	5 mL	9114	10/09/21 00:01	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:19	MR	XEN MID

Client Sample ID: MW-4
Date Collected: 09/30/21 14:25
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-11
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		10	5 mL	5 mL	9114	10/09/21 04:23	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:20	MR	XEN MID

Client Sample ID: DUP-1
Date Collected: 09/30/21 00:00
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-12
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		10	5 mL	5 mL	9114	10/09/21 04:49	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:20	MR	XEN MID

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Client Sample ID: DUP-2
Date Collected: 09/30/21 00:00
Date Received: 10/01/21 14:19

Lab Sample ID: 820-2113-13
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		10	5 mL	5 mL	9114	10/09/21 05:15	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			9242	10/11/21 15:20	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: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

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: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

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: Livigston Ridge - HP Sims

Job ID: 820-2113-1
SDG: AR217012

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
820-2113-1	MW-14	Water	09/29/21 11:35	10/01/21 14:19
820-2113-2	MW-15	Water	09/29/21 12:20	10/01/21 14:19
820-2113-3	MW-2	Water	09/29/21 13:36	10/01/21 14:19
820-2113-4	MW-6	Water	09/29/21 14:17	10/01/21 14:19
820-2113-5	MW-9	Water	09/30/21 09:10	10/01/21 14:19
820-2113-6	MW-1	Water	09/30/21 09:48	10/01/21 14:19
820-2113-7	MW-11	Water	09/30/21 10:36	10/01/21 14:19
820-2113-8	MW-12	Water	09/30/21 11:28	10/01/21 14:19
820-2113-9	MW-13	Water	09/30/21 12:01	10/01/21 14:19
820-2113-10	MW-5	Water	09/30/21 13:13	10/01/21 14:19
820-2113-11	MW-4	Water	09/30/21 14:25	10/01/21 14:19
820-2113-12	DUP-1	Water	09/30/21 00:00	10/01/21 14:19
820-2113-13	DUP-2	Water	09/30/21 00:00	10/01/21 14:19

Loc: 820
2113

820-2113 Chain of Custody

Terracon

Laboratory: Xenco
Address: 6701 Aberdeen
Lubbock, Texas 79424

RD
AB USE ON
DUE DATE:

TEMP OF COOLER WHEN RECEIVED (°C) 20.8/20.6

Page 1 of 1

Office Location: Lubbock
Phone:
Contact:
Project Manager: Brett Dennis
SRS #: 2001-11005
Sampler's Name: Aaron Adams
Sampler's Signature:

Project Number: AR217012
Project Name: Livingston Ridge - HP Sims

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	9/29/2021	11:35		X	MW-14			3				X							
GW	9/29/2021	12:20		X	MW-15			3				X							
GW	9/29/2021	13:36		X	MW-2			3				X							
GW	9/29/2021	14:17		X	MW-6			3				X							
GW	9/30/2021	9:10		X	MW-9			3				X							
GW	9/30/2021	9:48		X	MW-1			3				X							
GW	9/30/2021	10:36		X	MW-11			3				X							
GW	9/30/2021	11:28		X	MW-12			3				X							
GW	9/30/2021	12:01		X	MW-13			3				X							
GW	9/30/2021	13:13		X	MW-5			3				X							
GW	9/30/2021	14:25		X	MW-4			3				X							
GW	9/30/2021			X	DUP-1			3				X							
GW	9/30/2021			X	DUP-2			3				X							

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

TRRP Laboratory Review Checklist ☐ Yes ☐ No

Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
	10-1-21	14:19	Ashley J. Ruggles	10/1/21	14:19

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
5. AARON.ADAMS@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, 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: 820-2207 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jessica.kramer@eurofinset.com	State of Origin: Texas	Page: Page 1 of 2
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Texas		Job #: 820-2113-1
Address: 1211 W Florida Ave	Due Date Requested: 10/7/2021			
City: Midland	TAT Requested (days):			
State, Zip: TX, 79701				
Phone: 432-704-5440(Tel)	PO #:			
Email	WO #:			
Project Name: Livinston Ridge-HP Sims AR217012	Project #: 82000284			
Site:	SSOW#:			

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:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=soil, O=waste/oil, BT=Tissue, A=Air)	8021B/8030B (MOD) BTEX	Total_BTEX_GCV	Special Instructions/Note:
MW-14 (820-2113-1)	9/29/21	11:35 Central		Water	X	X	
MW-15 (820-2113-2)	9/29/21	12:20 Central		Water	X	X	
MW-2 (820-2113-3)	9/29/21	13:36 Central		Water	X	X	
MW-6 (820-2113-4)	9/29/21	14:17 Central		Water	X	X	
MW-9 (820-2113-5)	9/30/21	09:10 Central		Water	X	X	
MW-1 (820-2113-6)	9/30/21	09:48 Central		Water	X	X	
MW-11 (820-2113-7)	9/30/21	10:36 Central		Water	X	X	
MW-12 (820-2113-8)	9/30/21	11:28 Central		Water	X	X	
MW-13 (820-2113-9)	9/30/21	12:01 Central		Water	X	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: Teddy Hendelle Xe	Date/Time: 10/1/21 1200	Company	Received by:	Date/Time: 10-4-21 [illegible]	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: 2.2 -1.2

Ver: 06/08/2021

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: 820-2207.2
Client Contact: Shipping/Receiving	Phone	E-Mail: jessica.kramer@eurofinset.com	State of Origin: Texas	Page: Page 2 of 2
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Texas		Job #: 820-2113-1
Address: 1211 W Florida Ave	Due Date Requested: 10/7/2021			
City: Midland	TAT Requested (days):			
State, Zip: TX, 79701	PO #:			
Phone: 432-704-5440(Tel)	WO #:			
Email:	Project #: 82000284			
Project Name: Livinston Ridge-HP Sims AR217012	SSOW#:			
Site:				

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	Total_BTEX_GCV	Special Instructions/Note:
MW-5 (820-2113-10)	9/30/21	13 13 Central		Water	X	X	
MW-4 (820-2113-11)	9/30/21	14 25 Central		Water	X	X	
DUP-1 (820-2113-12)	9/30/21	Central		Water	X	X	
DUP-2 (820-2113-13)	9/30/21	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: Teddy Kendell Le	Date/Time: 10/1/21 1700 Company
Relinquished by:	Date/Time: Company
Relinquished by:	Date/Time: Company
Received by:	Date/Time: Company
Received by:	Date/Time: Company
Received by:	Date/Time: Company
Custody Seals Intact: ∧ Yes ∆ No	Custody Seal No:
Cooler Temperature(s) °C and Other Remarks: 1.1 C	

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-2113-1
SDG Number: AR217012

Login Number: 2113
List Number: 1
Creator: Lee, Randell

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.	False	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.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-2113-1
SDG Number: AR217012

Login Number: 2113
List Number: 2
Creator: Copeland, Tatiana

List Source: Eurofins Xenco, Midland
List Creation: 10/04/21 09:13 AM

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	2.2 / 2.7
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: 820-2918-1
Laboratory Sample Delivery Group: AR217012
Client Project/Site: Livingston Ridge - HP Sims

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

Attn: Brett Dennis

JKramer

Authorized for release by:
12/22/2021 1:18:31 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
12/22/2021 1:18:31 PM

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Laboratory Job ID: 820-2918-1
SDG: AR217012

Table of Contents

Definitions/Glossary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

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 Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

Job ID: 820-2918-1

Laboratory: Eurofins Xenco, Lubbock

Narrative

Job Narrative
820-2918-1

Receipt
The samples were received on 12/16/2021 9:33 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 5.5°C

GC VOA
Method 8021B: Surrogate recovery for the following samples were outside control limits: MW-2 (820-2918-1) and (MB 880-15046/39). Evidence of matrix interferences is not obvious.

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 Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

Client Sample ID: MW-2

Lab Sample ID: 820-2918-1
Matrix: Water
Date Collected: 12/14/21 11:14
Date Received: 12/16/21 09:33

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			12/21/21 12:03	1
Toluene	<0.00200	U	0.00200		mg/L			12/21/21 12:03	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/21/21 12:03	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/21/21 12:03	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/21/21 12:03	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/21/21 12:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*70 - 130*		*12/21/21 12:03*	*1*
1,4-Difluorobenzene (Surr)	*57*	*S1-*	*70 - 130*		*12/21/21 12:03*	*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			12/22/21 12:38	1

Client Sample ID: MW-11

Lab Sample ID: 820-2918-2
Matrix: Water
Date Collected: 12/14/21 12:05
Date Received: 12/16/21 09:33

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			12/21/21 12:29	1
Toluene	<0.00200	U	0.00200		mg/L			12/21/21 12:29	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/21/21 12:29	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/21/21 12:29	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/21/21 12:29	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/21/21 12:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*12/21/21 12:29*	*1*
1,4-Difluorobenzene (Surr)	*79*		*70 - 130*		*12/21/21 12:29*	*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			12/22/21 12:38	1

Client Sample ID: MW-12

Lab Sample ID: 820-2918-3
Matrix: Water
Date Collected: 12/14/21 12:53
Date Received: 12/16/21 09:33

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			12/21/21 12:55	1
Toluene	<0.00200	U	0.00200		mg/L			12/21/21 12:55	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/21/21 12:55	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/21/21 12:55	1
o-Xylene	**0.00391**		0.00200		mg/L			12/21/21 12:55	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/21/21 12:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*12/21/21 12:55*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*		*12/21/21 12:55*	*1*

Eurofins Xenco, Lubbock

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

Client Sample ID: MW-12
Date Collected: 12/14/21 12:53
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-3
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			12/22/21 12:38	1

Client Sample ID: MW-5
Date Collected: 12/14/21 14:06
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-4
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200		mg/L			12/21/21 14:40	10
Toluene	<0.0200	U	0.0200		mg/L			12/21/21 14:40	10
Ethylbenzene	<0.0200	U	0.0200		mg/L			12/21/21 14:40	10
m-Xylene & p-Xylene	<0.0400	U	0.0400		mg/L			12/21/21 14:40	10
o-Xylene	<0.0200	U	0.0200		mg/L			12/21/21 14:40	10
Xylenes, Total	<0.0400	U	0.0400		mg/L			12/21/21 14:40	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*12/21/21 14:40*	*10*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*		*12/21/21 14:40*	*10*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0400	U	0.0400		mg/L			12/22/21 12:38	1

Client Sample ID: MW-1
Date Collected: 12/14/21 14:49
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-5
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200		mg/L			12/21/21 15:06	10
Toluene	<0.0200	U	0.0200		mg/L			12/21/21 15:06	10
Ethylbenzene	<0.0200	U	0.0200		mg/L			12/21/21 15:06	10
m-Xylene & p-Xylene	<0.0400	U	0.0400		mg/L			12/21/21 15:06	10
o-Xylene	<0.0200	U	0.0200		mg/L			12/21/21 15:06	10
Xylenes, Total	<0.0400	U	0.0400		mg/L			12/21/21 15:06	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*12/21/21 15:06*	*10*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*		*12/21/21 15:06*	*10*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0400	U	0.0400		mg/L			12/22/21 12:38	1

Client Sample ID: DUP-1
Date Collected: 12/14/21 00:00
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-6
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			12/21/21 13:22	1
Toluene	<0.00200	U	0.00200		mg/L			12/21/21 13:22	1

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

Client Sample ID: DUP-1
Date Collected: 12/14/21 00:00
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/21/21 13:22	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/21/21 13:22	1
o-Xylene	**0.00667**		0.00200		mg/L			12/21/21 13:22	1
Xylenes, Total	**0.00667**		0.00400		mg/L			12/21/21 13:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*12/21/21 13:22*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*		*12/21/21 13:22*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.00667**		0.00400		mg/L			12/22/21 12:38	1

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

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)
820-2918-1	MW-2	118	57 S1-
820-2918-2	MW-11	97	79
820-2918-3	MW-12	97	87
820-2918-4	MW-5	104	89
820-2918-5	MW-1	99	91
820-2918-6	DUP-1	106	95
LCS 880-15046/34	Lab Control Sample	89	101
LCSD 880-15046/35	Lab Control Sample Dup	99	106
MB 880-15046/39	Method Blank	83	63 S1-
MB 880-15046/8	Method Blank	55 S1-	84

Surrogate Legend

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

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		
820-2918-1 MS	MW-2		
820-2918-1 MSD	MW-2		

Surrogate Legend

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

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-15046/39
Matrix: Water
Analysis Batch: 15046

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.01208		0.00200		mg/L			12/21/21 11:36	1
Toluene	<0.00200	U	0.00200		mg/L			12/21/21 11:36	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/21/21 11:36	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/21/21 11:36	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/21/21 11:36	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/21/21 11:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*70 - 130*		*12/21/21 11:36*	*1*
1,4-Difluorobenzene (Surr)	*63*	*S1-*	*70 - 130*		*12/21/21 11:36*	*1*

Lab Sample ID: MB 880-15046/8
Matrix: Water
Analysis Batch: 15046

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			12/20/21 17:31	1
Toluene	<0.00200	U	0.00200		mg/L			12/20/21 17:31	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			12/20/21 17:31	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			12/20/21 17:31	1
o-Xylene	<0.00200	U	0.00200		mg/L			12/20/21 17:31	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			12/20/21 17:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*55*	*S1-*	*70 - 130*		*12/20/21 17:31*	*1*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*		*12/20/21 17:31*	*1*

Lab Sample ID: LCS 880-15046/34
Matrix: Water
Analysis Batch: 15046

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	0.08470		mg/L		85	70 - 130
Toluene	0.100	0.07948		mg/L		79	70 - 130
Ethylbenzene	0.100	0.08635		mg/L		86	70 - 130
m-Xylene & p-Xylene	0.200	0.1692		mg/L		85	70 - 130
o-Xylene	0.100	0.09287		mg/L		93	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-15046/35
Matrix: Water
Analysis Batch: 15046

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	0.09632		mg/L		96	70 - 130	13	20

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

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

Lab Sample ID: LCSD 880-15046/35
Matrix: Water
Analysis Batch: 15046

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
Toluene			0.100	0.08763		mg/L		88	70 - 130	10	20
Ethylbenzene			0.100	0.09518		mg/L		95	70 - 130	10	20
m-Xylene & p-Xylene			0.200	0.1856		mg/L		93	70 - 130	9	20
o-Xylene			0.100	0.1028		mg/L		103	70 - 130	10	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*

Lab Sample ID: 820-2918-1 MS
Matrix: Water
Analysis Batch: 15046

Client Sample ID: MW-2
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	0.07555		mg/L					
Toluene	<0.00200	U	0.100	0.07408		mg/L					
Ethylbenzene	<0.00200	U	0.100	0.08351		mg/L					
m-Xylene & p-Xylene	<0.00400	U	0.200	0.1609		mg/L					
o-Xylene	<0.00200	U	0.100	0.08969		mg/L					

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

Lab Sample ID: 820-2918-1 MSD
Matrix: Water
Analysis Batch: 15046

Client Sample ID: MW-2
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	0.09055		mg/L					
Toluene	<0.00200	U	0.100	0.07948		mg/L					
Ethylbenzene	<0.00200	U	0.100	0.09258		mg/L					
m-Xylene & p-Xylene	<0.00400	U	0.200	0.1818		mg/L					
o-Xylene	<0.00200	U	0.100	0.1026		mg/L					

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

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

GC VOA

Analysis Batch: 15046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-2918-1	MW-2	Total/NA	Water	8021B	
820-2918-2	MW-11	Total/NA	Water	8021B	
820-2918-3	MW-12	Total/NA	Water	8021B	
820-2918-4	MW-5	Total/NA	Water	8021B	
820-2918-5	MW-1	Total/NA	Water	8021B	
820-2918-6	DUP-1	Total/NA	Water	8021B	
MB 880-15046/39	Method Blank	Total/NA	Water	8021B	
MB 880-15046/8	Method Blank	Total/NA	Water	8021B	
LCS 880-15046/34	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-15046/35	Lab Control Sample Dup	Total/NA	Water	8021B	
820-2918-1 MS	MW-2	Total/NA	Water	8021B	
820-2918-1 MSD	MW-2	Total/NA	Water	8021B	

Analysis Batch: 15380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-2918-1	MW-2	Total/NA	Water	Total BTEX	
820-2918-2	MW-11	Total/NA	Water	Total BTEX	
820-2918-3	MW-12	Total/NA	Water	Total BTEX	
820-2918-4	MW-5	Total/NA	Water	Total BTEX	
820-2918-5	MW-1	Total/NA	Water	Total BTEX	
820-2918-6	DUP-1	Total/NA	Water	Total BTEX	

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

Client Sample ID: MW-2
Date Collected: 12/14/21 11:14
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-1
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	15046	12/21/21 12:03	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			15380	12/22/21 12:38	AJ	XEN MID

Client Sample ID: MW-11
Date Collected: 12/14/21 12:05
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-2
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	15046	12/21/21 12:29	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			15380	12/22/21 12:38	AJ	XEN MID

Client Sample ID: MW-12
Date Collected: 12/14/21 12:53
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-3
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	15046	12/21/21 12:55	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			15380	12/22/21 12:38	AJ	XEN MID

Client Sample ID: MW-5
Date Collected: 12/14/21 14:06
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-4
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		10	5 mL	5 mL	15046	12/21/21 14:40	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			15380	12/22/21 12:38	AJ	XEN MID

Client Sample ID: MW-1
Date Collected: 12/14/21 14:49
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-5
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		10	5 mL	5 mL	15046	12/21/21 15:06	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			15380	12/22/21 12:38	AJ	XEN MID

Client Sample ID: DUP-1
Date Collected: 12/14/21 00:00
Date Received: 12/16/21 09:33

Lab Sample ID: 820-2918-6
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	15046	12/21/21 13:22	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			15380	12/22/21 12:38	AJ	XEN MID

Laboratory References:

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

Eurofins Xenco, Lubbock

Accreditation/Certification Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Livingston Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

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 Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

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 Ridge - HP Sims

Job ID: 820-2918-1
SDG: AR217012

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
820-2918-1	MW-2	Water	12/14/21 11:14	12/16/21 09:33
820-2918-2	MW-11	Water	12/14/21 12:05	12/16/21 09:33
820-2918-3	MW-12	Water	12/14/21 12:53	12/16/21 09:33
820-2918-4	MW-5	Water	12/14/21 14:06	12/16/21 09:33
820-2918-5	MW-1	Water	12/14/21 14:49	12/16/21 09:33
820-2918-6	DUP-1	Water	12/14/21 00:00	12/16/21 09:33

Loc: 820
2918

820-2918 Chain of Custody

CHAIN OF CUSTO

Terracon

Laboratory: Xenco
Address: 6701 Aberdeen
Lubbock, Texas 79424

Office Location: Lubbock
Phone:
Contact:
Project Manager: Brett Dennis
SRS #: 2001-11005
Sampler's Name: Aaron Adams
Sampler's Signature:

ANALYSIS REQUESTED

TEMP OF COOLER WHEN RECEIVED (°C): 5.6/5.5 IR-4

Page 1 of 1

Project Number: AR217012
Project Name: Livingston Ridge - HP Sims

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	12/14/2021	11:14		X	MW-2			3				X							
GW	12/14/2021	12:05		X	MW-11			3				X							
GW	12/14/2021	12:53		X	MW-12			3				X							
GW	12/14/2021	14:06		X	MW-5			3				X							
GW	12/14/2021	14:49		X	MW-1			3				X							
GW	12/14/2021			X	DUP-1			3				X							

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

Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Date:	Time:
	12-16-2021	09:33		12/16/21	0933

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
5. AARON.ADAMS@TERRACON.COM

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

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-2918-1
SDG Number: AR217012

Login Number: 2918
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: 820-2918-1
SDG Number: AR217012

Login Number: 2918
List Number: 2
Creator: Kramer, Jessica

List Source: Eurofins Xenco, Midland
List Creation: 12/17/21 01:55 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	

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 93369

CONDITIONS

Operator:	OGRID:
PLAINS MARKETING L.P. 333 Clay Street Suite 1900 Houston, TX 77002	34053
	Action Number: 93369
	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, groundwater purging, and BTEX sampling from MW-1, MW-2, MW-4, MW-5, MW-11, and MW-12 if PSH is not present 2. Resume semi-annual monitoring events from MW-6, MW-9, MW-14, and MW-15 3. Continue annual monitoring events from MW-7, MW-8, and MW-10 4. Complete monthly manual abatement of hydrocarbon impacted groundwater and PSH from MW-4, MW-5, MW-12, and TMW-1R 5. Complete quarterly AFR events on monitoring well TMW-1R 6. Submit annual report to NMOCD no later than March 31, 2023.	8/3/2022