APPROVED
By OCD; Dr. Oberding at 8:52 am, May 25, 2016

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Effective Solutions

2014 ANNUAL MONITORING REPORT

14-INCH VAC TO JAL LEGACY
Lea County, New Mexico
Plains SRS # 2009-092
UNIT LTR "F" (SE/NW), Section 25, Township 25 South, Range 37 East
Latitude 32º 06' 10.7" North, Longitude 103º 07' 10.3" West
NMOCD Reference # 1RP-2162

Prepared For:

PLAINS

Plains All American Pipeline, LP
333 Clay Street, Suite 1600
Houston, Texas 77002

Prepared By:

Basin Environmental Service Technologies, LLC
P. O. Box 301
Lovington, New Mexico 88260

March 2015

Ben J. Arguijo
Project Manager

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APPENDICES

1.0 INTRODUCTION

Basin Environmental Service Technologies, LLC (Basin Environmental), on behalf of Plains All American Pipeline, LP (Plains), is pleased to submit this *Annual Monitoring Report* in compliance with the New Mexico Oil Conservation Division (NMOCD) letter of May 1998, requiring submittal of an Annual Monitoring Report by April 1st of each year. This report is intended to be viewed as a complete document with text, figures, tables, and appendices. This report presents the results of the quarterly groundwater monitoring events conducted in calendar year 2014 only. For reference, a "Site Location Map" is provided as Figure 1.

2.0 SITE DESCRIPTION & BACKGROUND INFORMATION

The legal description of the 14-Inch Vac to Jal Legacy release site is Unit Letter "F" (SE/NW), Section 25, Township 25 South, Range 37 East, in Lea County, New Mexico. The geographic coordinates of the release site are 32º 06' 10.7" North latitude and 103º 07' 10.3" West longitude.

On April 9, 2009, Plains discovered a crude oil release from a fourteen-inch (14") steel pipeline. The cause of the release was attributed to external corrosion of the pipeline. The release was reported to the New Mexico Oil Conservation Division (NMOCD) on April 9, 2009. During initial response activities, a temporary clamp was installed on the pipeline to mitigate the release. Approximately two hundred and fifty barrels (250 bbls) of crude oil was released, with no recovery.

On April 9, 2009, following initial response activities, excavation of hydrocarbon-impacted soil commenced at the site. To facilitate remediation activities, the excavation was divided into two (2) sections: Main Excavation and West Excavation. Excavated soil was stockpiled on-site on a plastic liner to mitigate the potential leaching of contaminants into the vadose zone. Approximately eighteen thousand cubic yards (18,000 yd^3) of impacted soil was excavated and stockpiled on-site during excavation activities. Final dimensions of the Main Excavation were approximately four hundred feet (400') in length, approximately two hundred feet (200') in width, and five feet (5') to fourteen feet (14') in depth. Final dimensions of the West Excavation were approximately one hundred and fifty feet (150') in length, approximately one hundred and five feet (105') in width, and approximately ten feet (10') in depth. Due to safety concerns associated with excavating near and supporting two (2) fourteen-inch (14") diameter pipelines that bisect the release site, Plains requested and received NMOCD approval to leave the soil beneath and adjacent to the pipelines in-situ.

On July 2 and 3, 2009, three (3) soil borings (SB-1, SB-2, and SB-3) were advanced at the release site to evaluate the vertical extent of soil impact. During the advancement of the soil borings, groundwater was encountered at approximately sixty-four feet (64') below ground surface (bgs). On July 1, 2009, soil boring SB-1 was converted to monitor well MW-1.

On July 2, 2009, temporary casing was installed in soil borings SB-2 and SB-3 to allow a preliminary groundwater sample to be collected for analysis. Following collection of the preliminary groundwater sample, the temporary casing was removed from soil borings SB-2 and

SB-3, and the soil borings were plugged with cement and bentonite, pursuant to NMOCD and New Mexico Office of the State Engineer (NMOSE) standards.

On December 10, 2009, two (2) soil borings (SB-4 and SB-5) were installed up-gradient of the excavation to evaluate the potential groundwater impact from an up-gradient, off-site source. During the advancement of soil borings SB-4 and SB-5, groundwater was encountered at approximately sixty-four (64') bgs. Temporary casing was installed in soil borings SB-4 and SB-5 to allow a preliminary groundwater sample to be collected for analysis. Following collection of the preliminary groundwater sample, the temporary casing was removed from soil borings SB-4 and SB-5, and the soil borings were plugged with cement and bentonite, pursuant to NMOCD and NMOSE standards.

From May 6 through May 8, 2013, five (5) additional monitor wells (MW-2 through MW-6) were installed to evaluate the status of the groundwater at the site. The monitor wells were installed to total depths of approximately eighty feet (80') bgs. Monitor well MW-2 is located approximately three hundred and eighty feet (380') to the northwest (up-gradient) of monitor well MW-1. Monitor well MW-3 is located approximately two hundred feet (200') to the northeast (cross-gradient) of monitor well MW-1. Monitor well MW-4 is located approximately one hundred feet (100') to the northwest (up-gradient) of monitor well MW-1. Monitor well MW-5 is located approximately two hundred and eighty feet (280') to the west-northwest (cross-gradient) of monitor well MW-1. Monitor well MW-6 is located approximately one hundred and fifty feet (150') to the southeast (down-gradient) of monitor well MW-1.

PSH was not observed in monitor wells MW-2 through MW-6. Laboratory analytical results of soil samples collected during the installation of the monitor wells indicated benzene, toluene, ethylbenzene, and total xylenes (BTEX), total petroleum hydrocarbons (TPH), and chloride concentrations were less than NMOCD regulatory standards in all submitted samples.

From June 25 through June 26, 2014, three (3) additional monitor wells (MW-7, MW-8, and MW-9) were installed to further monitor the down- and cross-gradient migration of the dissolved-phase plume. The monitor wells were installed to total depths of approximately eighty feet (80') bgs. Monitor well MW-7 is located approximately forty-five feet (45') to the southeast (down-gradient) of monitor well MW-1. Monitor well MW-8 is located approximately one hundred eighty feet (180') to the east-northeast (cross-gradient) of monitor well MW-1. Monitor well MW-9 is located approximately one hundred fifty feet (150') to the southeast (down-gradient) of monitor well MW-1.

PSH was not observed in monitor wells MW-7 through MW-9. Laboratory analytical results of soil samples collected during the installation of the monitor wells indicated benzene, BTEX, TPH, and chloride concentrations were less than NMOCD regulatory standards in all submitted samples. Monitor Well Logs are provided as Appendix C.

Currently, a total of nine (9) monitor wells (MW-1 through MW-9) are located at the 14-Inch Vac to Jal Legacy release site. Monitor wells MW-2 through MW-9 are gauged and sampled on a quarterly schedule, while MW-1 is gauged weekly but not sampled due to the presence of PSH.

The 14-Inch Vac to Jal Legacy release site is located approximately one thousand, one hundred and forty-seven feet (1,147') to the south-southeast of a documented groundwater remediation site (Arco South Justis Unit F-230). Information regarding this site can be found in the NMOCD imaging system.

3.0 FIELD ACTIVITIES

3.1 Groundwater Remediation Activities

A measurable thickness of PSH was detected in monitor well MW-1 during the April 12, 2012, quarterly monitoring event. Basin Environmental began manual, monthly gauging and recovery of PSH from MW-1 in April 2012. In November 2013, the frequency of PSH recovery was increased to twice monthly. The frequency was increased to weekly in June 2014. Approximately 556.5 gallons (13.25 barrels) of PSH has been recovered from MW-1 since recovery operations began in April 2012, and approximately 372.5 gallons (8.9 barrels) of PSH were recovered during the 2014 reporting period. The average PSH thickness measured in MW-1 during the reporting period was 2.31 feet, and the maximum PSH thickness was 3.37 feet on June 17, 2014.

Basin Environmental began monthly manual recovery of hydrocarbon-impacted groundwater from monitor wells MW-3 and MW-8 in November 2014 in an effort to control the down-gradient migration of the dissolved-phase plume.

All recovered fluids are disposed of at an NMOCD- approved disposal facility.

3.2 Groundwater Monitoring

The on-site monitor wells were gauged and sampled on February 12 (1Q2014), May 12 (2Q2014), August 4 (3Q2014), and November 12, 2014 (4Q2014). The groundwater monitoring events consisted of measuring static water levels in the on-site monitor wells (MW-1 through MW-9), checking for the presence of PSH, and purging and sampling of each well exhibiting sufficient recharge. The monitor wells were purged using disposable Teflon bailers of a minimum of three (3) well volumes of water, or until the wells were dry. Groundwater was allowed to recharge, and samples were obtained using clean, disposable Teflon bailers. Water samples were stored in clean, plastic or glass containers provided by the laboratory and placed on ice in the field. Purged water was collected in a trailer-mounted polystyrene tank and disposed of at an NMOCD-approved disposal.

A yearly monitoring event for polyaromatic hydrocarbons (PAH) was conducted on May 12, 2014. Based on sampling criteria provided by the NMOCD, only monitor wells MW-2 through MW-6 were subject to annual PAH monitoring during the 2014 calendar year.

Baseline sampling of monitor wells MW-7 through MW-9 was conducted on July 2, 2014. Laboratory analytical results from the baseline monitoring event are summarized in Tables 3 through 6.

Based on laboratory analytical results of groundwater samples collected from monitor well MW-5, which is located approximately two hundred and sixty feet (260') to the west-southwest (cross-gradient) of the release point, and the absence of elevated chloride concentrations in the soil columns of monitor wells MW-2 through MW-6, Plains requested permission to cease monitoring of TDS and chloride concentrations in monitor wells MW-2 through MW-6 in the *2013 Annual Monitoring Report*, dated March 2014. The request was subsequently approved by the NMOCD, with the caveat that a chloride sample would be collected from monitor well MW-2 on a quarterly basis. Quarterly chloride monitoring of MW-2 commenced in November 2014.

Locations of the groundwater monitoring wells and the inferred groundwater elevations, which were constructed from measurements collected during the 2014 quarterly sampling events, are depicted in Figures 2A through 2D. The "Groundwater Gradient Map" from the most recent sampling event (Figure 2D, November 12, 2014) indicates a general gradient of approximately 0.0014 feet/foot to the southeast as measured between monitor wells MW-2 and MW-9.

On November 12, 2014, the corrected groundwater elevation ranged between 3,002.22 and 3,002.97 feet above mean sea level in monitor wells MW-9 and MW-2, respectively. The "2014 Groundwater Elevation Data" is provided as Table 1.

4.0 LABORATORY RESULTS

Groundwater samples collected from the on-site monitor wells during the quarterly and yearly monitoring events were delivered to Xenco Laboratories in Odessa, Texas, for determination of total dissolved solids (TDS), chloride, BTEX, and/or PAH constituent concentrations by Environmental Protection Agency (EPA) Methods SM2540C, E300, SW846-8021b, and SW846 8270C, respectively. A summary of laboratory analytical results is presented in Table 2, "Concentrations of BTEX, Chloride & TDS in Groundwater". A summary of PAH constituent concentrations is presented in Table 5, "Concentrations of Semi-Volatile Compounds in Groundwater". "Groundwater Concentration" maps are provided as Figure 3A through 3D. Laboratory analytical reports are provided as Appendix A.

Laboratory analytical results were compared to NMOCD regulatory limits based on the New Mexico groundwater standards found in section 20.6.2.3103 of the New Mexico Administrative Code (NMAC).

Monitor well MW-1

Monitor well MW-1 was not sampled during the 2014 reporting period due to the presence of PSH in the monitor well.

Monitor Well MW-2

Laboratory analytical results indicated benzene concentrations ranged from 0.0084 mg/L in 2Q2014 to 0.0101 mg/L in 3Q2014. Toluene, ethylbenzene, and total xylene concentrations were less than the appropriate laboratory method detection limit (MDL) in all submitted groundwater samples. Chloride concentrations ranged from 9,550 mg/L in 1Q2014 to 10,500 mg/L in 4Q2014.

The TDS concentration in the groundwater sample collected during 1Q2014 was 10,800 mg/L. The benzene concentration in the groundwater sample collected during 3Q2014 exceeded NMOCD regulatory standards. Toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all submitted samples. Chloride concentrations exceeded NMOCD regulatory standards in all submitted samples. TDS concentrations in the groundwater sample collected during 1Q2014 exceeded NMOCD regulatory standards.

PAH constituent concentrations in the groundwater sample collected on May 12, 2014, were both less than the appropriate laboratory MDL and less than NMOCD regulatory standards.

Monitor Well MW-3

Laboratory analytical results indicated benzene concentrations ranged from 0.0345 mg/L in 4Q2014 to 0.4920 mg/L in 1Q2014. Toluene and ethylbenzene concentrations were less than the appropriate laboratory MDL in all submitted groundwater samples. Total xylene concentrations ranged from less than the laboratory MDL in 4Q2014 to 0.0204 mg/L in 1Q2014. The chloride concentration in the groundwater sample collected during 1Q2014 was 6,840 mg/L, and the TDS concentration was 13,600 mg/L. Benzene concentrations exceeded NMOCD regulatory standards in all submitted groundwater samples. Toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all submitted samples. Chloride and TDS concentrations in the groundwater sample collected during 1Q2014 exceeded NMOCD regulatory standards.

PAH constituent concentrations in the groundwater sample collected on May 12, 2014, were both less than the appropriate laboratory MDL and less than NMOCD regulatory standards.

Monitor Well MW-4

Laboratory analytical results indicated benzene concentrations ranged from 0.0176 mg/L in 1Q2014 to 0.1050 mg/L in 4Q2014. Toluene, ethylbenzene, and total xylene concentrations were less than the appropriate laboratory MDL in all submitted groundwater samples, with the exception of the groundwater sample collected during 4Q2014, which exhibited a total xylene concentration of 0.0024 mg/L. The chloride concentration in the groundwater sample collected during 1Q2014 was 7,700 mg/L, and the TDS concentration was 15,200 mg/L. Benzene concentrations exceeded NMOCD regulatory standards in all submitted groundwater samples. Toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all submitted samples. Chloride and TDS concentrations in the groundwater sample collected during 1Q2014 exceeded NMOCD regulatory standards.

PAH constituent concentrations in the groundwater sample collected on May 12, 2014, were both less than the appropriate laboratory MDL and less than NMOCD regulatory standards.

Monitor Well MW-5

Laboratory analytical results indicated benzene, toluene, ethylbenzene, and total xylene concentrations were less than the appropriate laboratory MDL in all groundwater samples

submitted during the reporting period. The chloride concentration in the groundwater sample collected during 1Q2014 was 4,550 mg/L, and the TDS concentration was 8,540 mg/L. Benzene and BTEX constituent concentrations were less than NMOCD regulatory standards in all submitted groundwater samples. The chloride concentration in the groundwater sample collected during 1Q2014 exceeded the NMOCD regulatory standard, while the TDS concentration was less than the NMOCD regulatory standard.

PAH constituent concentrations in the groundwater sample collected on May 12, 2014, were both less than the appropriate laboratory MDL and less than NMOCD regulatory standards.

Monitor Well MW-6

Laboratory analytical results indicated benzene, toluene, ethylbenzene, and total xylene concentrations were less than the appropriate laboratory MDL in all groundwater samples submitted during the reporting period. The chloride concentration in the groundwater sample collected during 1Q2014 was 5,260 mg/L, and the TDS concentration was 9,920 mg/L. Benzene and BTEX constituent concentrations were less than NMOCD regulatory standards in all submitted groundwater samples. The chloride concentration in the groundwater sample collected during 1Q2014 exceeded the NMOCD regulatory standard, while the TDS concentration was less than the NMOCD regulatory standard.

PAH constituent concentrations in the groundwater sample collected on May 12, 2014, were both less than the appropriate laboratory MDL and less than NMOCD regulatory standards.

Monitor Well MW-7

Laboratory analytical results indicated benzene concentrations ranged from less than the laboratory MDL in the baseline sample collected on July 2, 2014, to 0.3970 mg/L in 4Q2014. Toluene and ethylbenzene concentrations were less than the appropriate laboratory MDL in all submitted groundwater samples. Total xylene concentrations ranged from less than the laboratory MDL in the baseline sample collected on July 2 to 0.0087 mg/L in 4Q2014. The chloride concentration in the baseline sample collected on July 2 was 4,850 mg/L, and the TDS concentration was 13,700 mg/L. Benzene concentrations exceeded NMOCD regulatory standards in 3Q2014 and 4Q2014. Toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all submitted groundwater samples. Chloride and TDS concentrations in the baseline sample collected on July 2 exceeded NMOCD regulatory standards.

Monitor Well MW-8

Laboratory analytical results indicated benzene concentrations ranged from less than the laboratory MDL in the baseline sample collected on July 2, 2014, to 0.7030 mg/L in 4Q2014. Toluene and ethylbenzene concentrations were less than the appropriate laboratory MDL in all submitted groundwater samples. Total xylene concentrations ranged from less than the laboratory MDL in the baseline sample collected on July 2 to 0.0150 mg/L in 4Q2014. The chloride concentration in the baseline sample collected on July 2 was 7,540 mg/L, and the TDS concentration was 18,100 mg/L. Benzene concentrations exceeded NMOCD regulatory standards in 3Q2014 and 4Q2014.

Toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all submitted groundwater samples. Chloride and TDS concentrations in the baseline sample collected on July 2 exceeded NMOCD regulatory standards.

Monitor Well MW-9

Laboratory analytical results indicated benzene, toluene, ethylbenzene, and total xylene concentrations were less than the appropriate laboratory MDL in all submitted groundwater samples. The chloride concentration in the baseline sample collected on July 2, 2014, was 3,340 mg/L, and the TDS concentration was 9,680 mg/L. Benzene and BTEX constituent concentrations were less than NMOCD regulatory standards in all submitted groundwater samples. The chloride concentration in the baseline sample collected on July 2 exceeded the NMOCD regulatory standard, while the TDS concentration was less than the NMOCD regulatory standard.

5.0 SUMMARY

This report presents the results of groundwater monitoring activities for the 2014 annual monitoring period. Currently, there are nine (9) groundwater monitoring wells (MW-1 through MW-9) on-site. Monitor well MW-1 was not sampled in 2014 due to the presence of PSH. Monitor wells MW-7 through MW-9 were installed in June 2014 and sampled during the last three quarters of the monitoring period. The results of those sampling events are summarized above.

The "Groundwater Gradient Map" from the most recent sampling event (Figure 2D, November 12, 2014) indicates a general gradient of approximately 0.0014 feet/foot to the southeast as measured between monitor wells MW-2 and MW-9.

A measurable thickness of PSH was detected in monitor well MW-1 throughout the 2014 reporting period. The average PSH thickness measured in MW-1 during the reporting period was 2.31 feet, and the maximum PSH thickness was 3.37 feet on June 17, 2014.

During the reporting period, approximately 372.5 gallons (8.9 barrels) of PSH was recovered, by manual recovery, from monitor well MW-1.

Review of laboratory analytical results generated from analysis of groundwater samples collected in 2014 indicated benzene concentrations were less than the NMOCD regulatory standard in monitor wells MW-5, MW-6, and MW-9. However, benzene concentrations above NMOCD standards were detected in the groundwater samples from monitor wells MW-2 (3Q2014 and 4Q2014), MW-3 (all submitted samples), MW-4 (all submitted samples), MW-7 (3Q2014 and 4Q2014), and MW-8 (3Q2014 and 4Q2014). Toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all submitted groundwater samples. Chloride concentrations exceeded NMOCD regulatory standards in all submitted groundwater samples. TDS concentrations exceeded NMOCD regulatory standards in groundwater samples from monitor wells MW-2 (1Q2014), MW-3 (1Q2014), MW-4 (1Q2014), MW-7 (July 2 baseline), and MW-8 (July 2 baseline).

6.0 ANTICIPATED ACTIONS

PSH recovery from monitor well MW-1 will continue on weekly schedule. Groundwater recovery from monitor wells MW-3 and MW-8 will continue on a twice-monthly schedule. All recovered fluid will be disposed of at an NMOCD-permitted disposal facility.

Monitor wells MW-2 through MW-9 will be monitored and sampled quarterly for concentrations of BTEX. Monitor well MW-2 will also be monitored quarterly for concentrations of chloride. Results of the 2015 sampling events will be reported in the *2015 Annual Monitoring Report*, which will be submitted to the NMOCD by April 1, 2016.

7.0 LIMITATIONS

Basin Environmental Service Technologies, LLC, has prepared this *Annual Monitoring Report* to the best of its ability. No other warranty, expressed or implied, is made or intended. Basin Environmental has examined and relied upon documents referenced in the report and on oral statements made by certain individuals. Basin Environmental has not conducted an independent examination of the facts contained in referenced materials and statements. Basin Environmental has presumed the genuineness of these documents and statements and that the information provided therein is true and accurate. Basin Environmental has prepared this report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. Basin Environmental notes that the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of Plains All American Pipeline, LP. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of Basin Environmental Service Technologies, LLC, and/or Plains All American Pipeline, LP.

8.0 DISTRIBUTION

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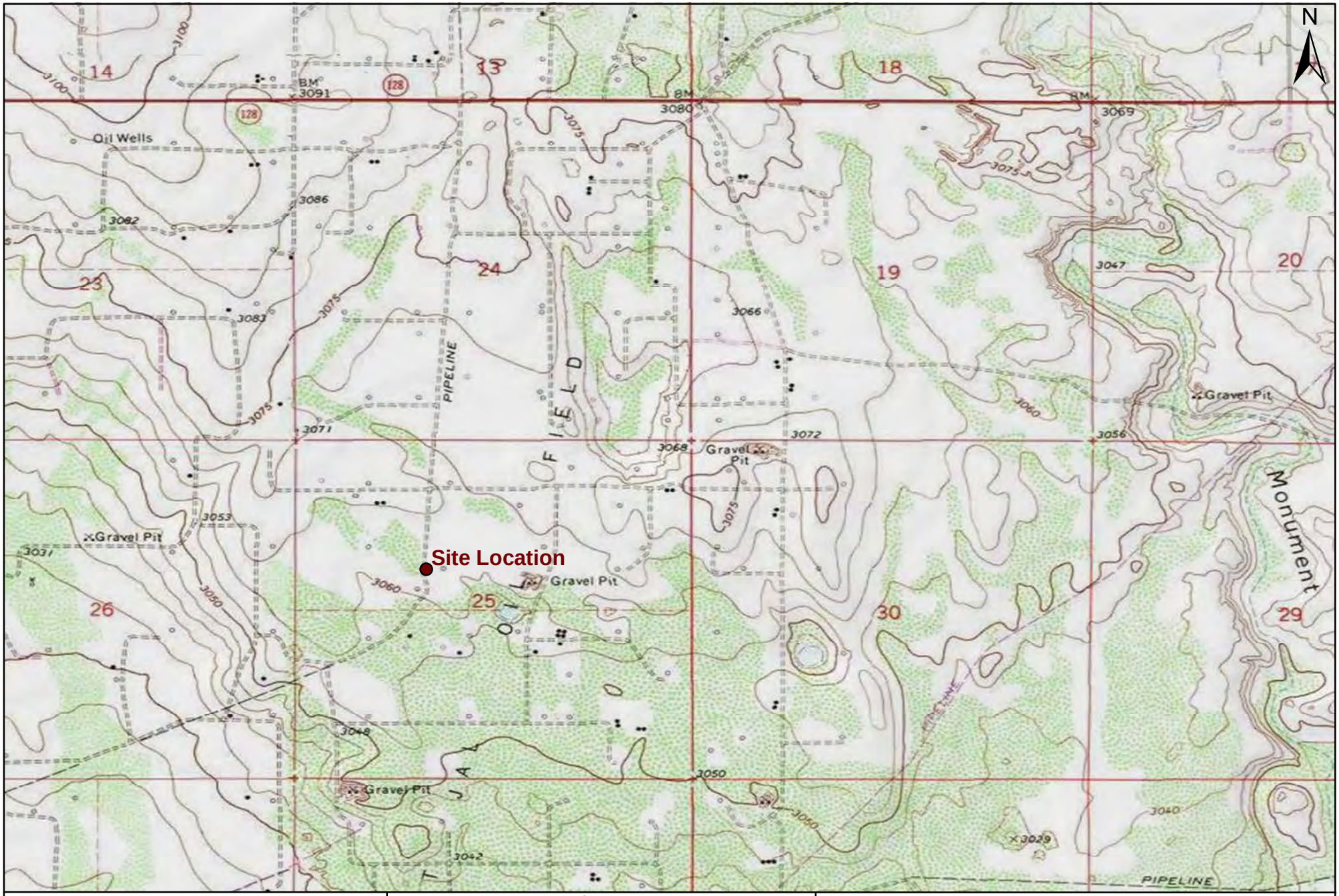
Figures



1,000500 0 1,000 2,000

Distance in Feet

Figure 1
Site Location Map
Plains All American Pipeline, LP
14 nc Vac to Jal Legacy
Lea County, New Mexico
Plains SRS #: 2009-092
NMOCD Ref. #: 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

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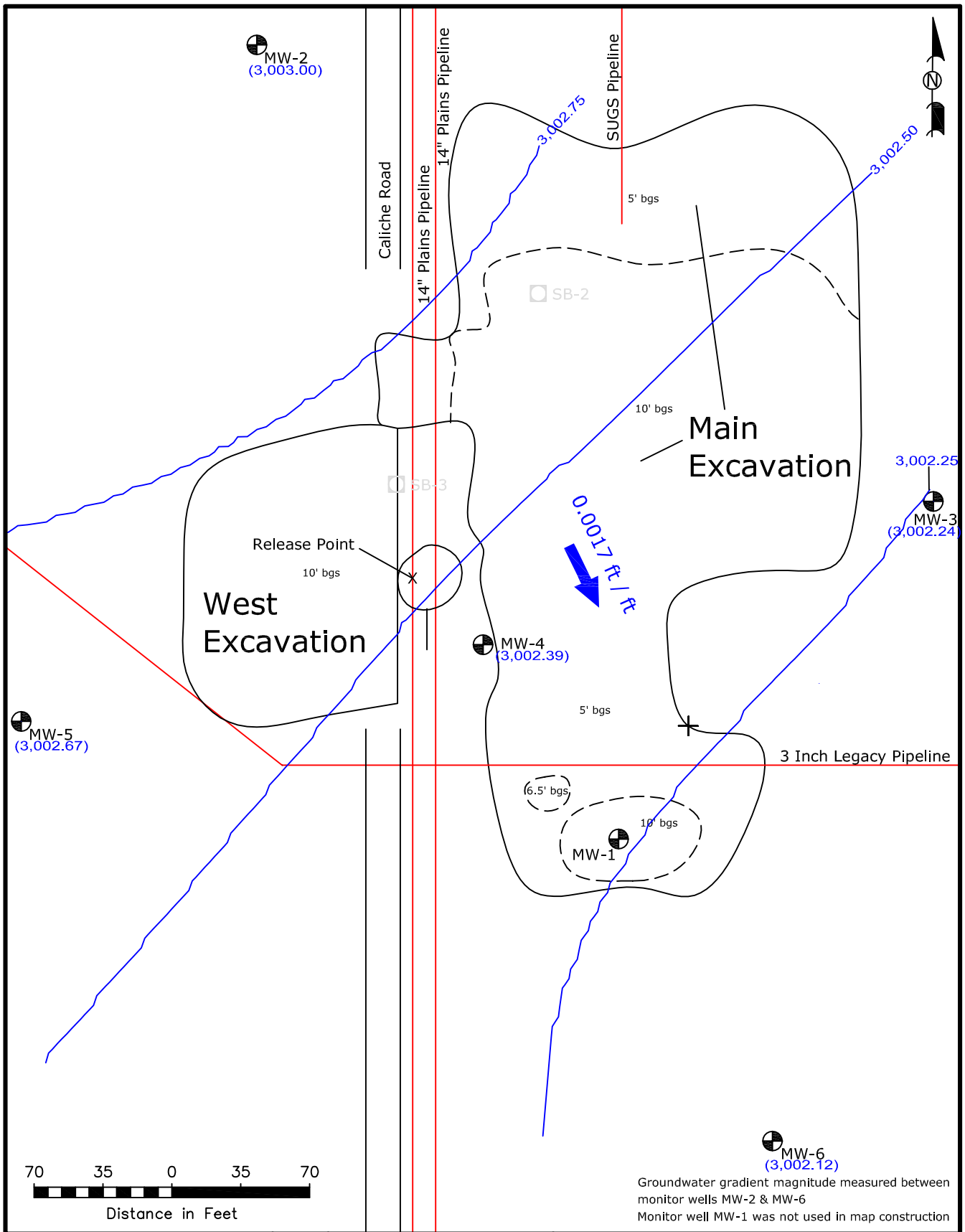
March 20, 2015	Scale: 1" = 2000'



LEGEND:
- Pipeline
- Excavation Extent
- Monitor Well Location
- Soil Boring Location
- (3801.46) Groundwater Elevation (feet)
- Groundwater Gradient Contour
- Gradient Direction & Magnitude

Figure 2A
Inferred Groundwater Gradient Map
1Q2014
Plains All American Pipeline, LP
14-Inch Vac to Jal Legacy
Lea County, NM
SRS # 2009-092
NMOCD Ref. # 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

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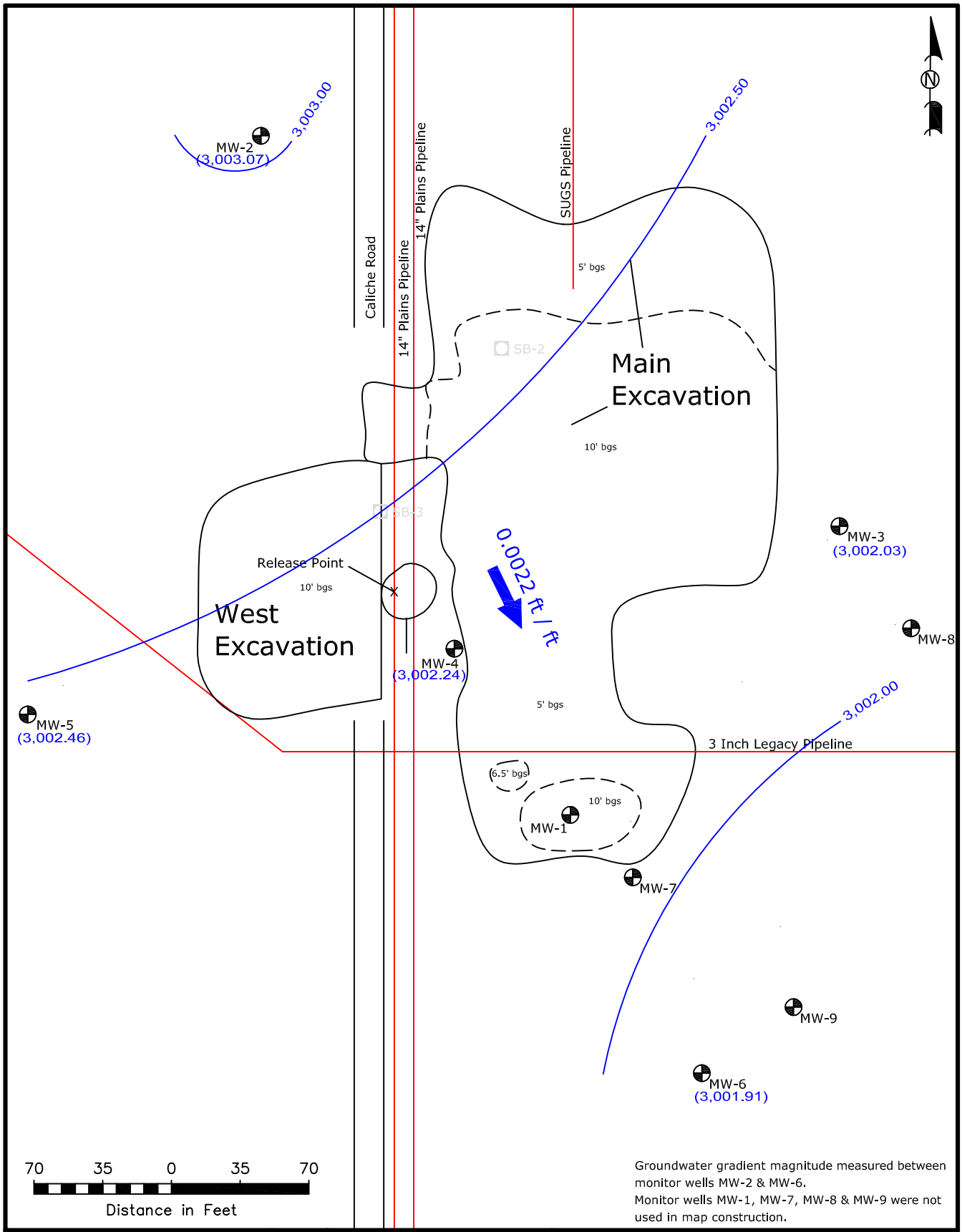
March 20, 2015		



LEGEND:
- Pipeline
- Excavation Extent
- Monitor Well Location
- Soil Boring Location
- (3801.46) Groundwater Elevation (feet)
- Groundwater Gradient Contour
- Gradient Direction & Magnitude

Figure 2B
Inferred Groundwater Gradient Map
2Q2014
Plains All American Pipeline, LP
14-Inch Vac to Jal Legacy
Lea County, NM
SRS # 2009-092
NMOCD Ref. # 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

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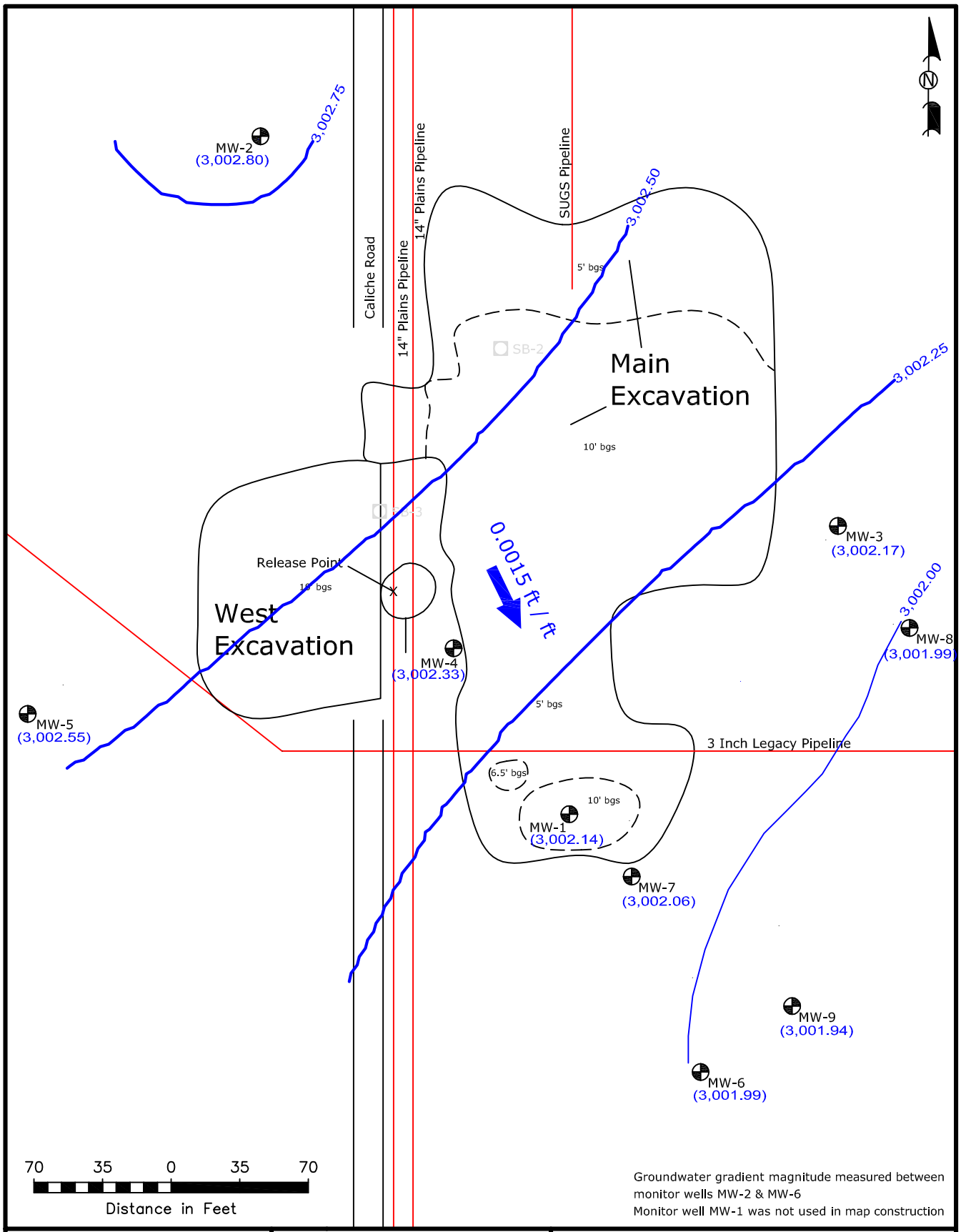
March 20, 2015		



LEGEND:
- Pipeline
- Excavation Extent
- Monitor Well Location
- Soil Boring Location
- (3801.46) Groundwater Elevation (feet)
- Groundwater Gradient Contour
- Gradient Direction & Magnitude

Figure 2C
Inferred Groundwater Gradient Map
3Q2014
Plains All American Pipeline, LP
14-Inch Vac to Jal Legacy
Lea County, NM
SRS # 2009-092
NMOCD Ref. # 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

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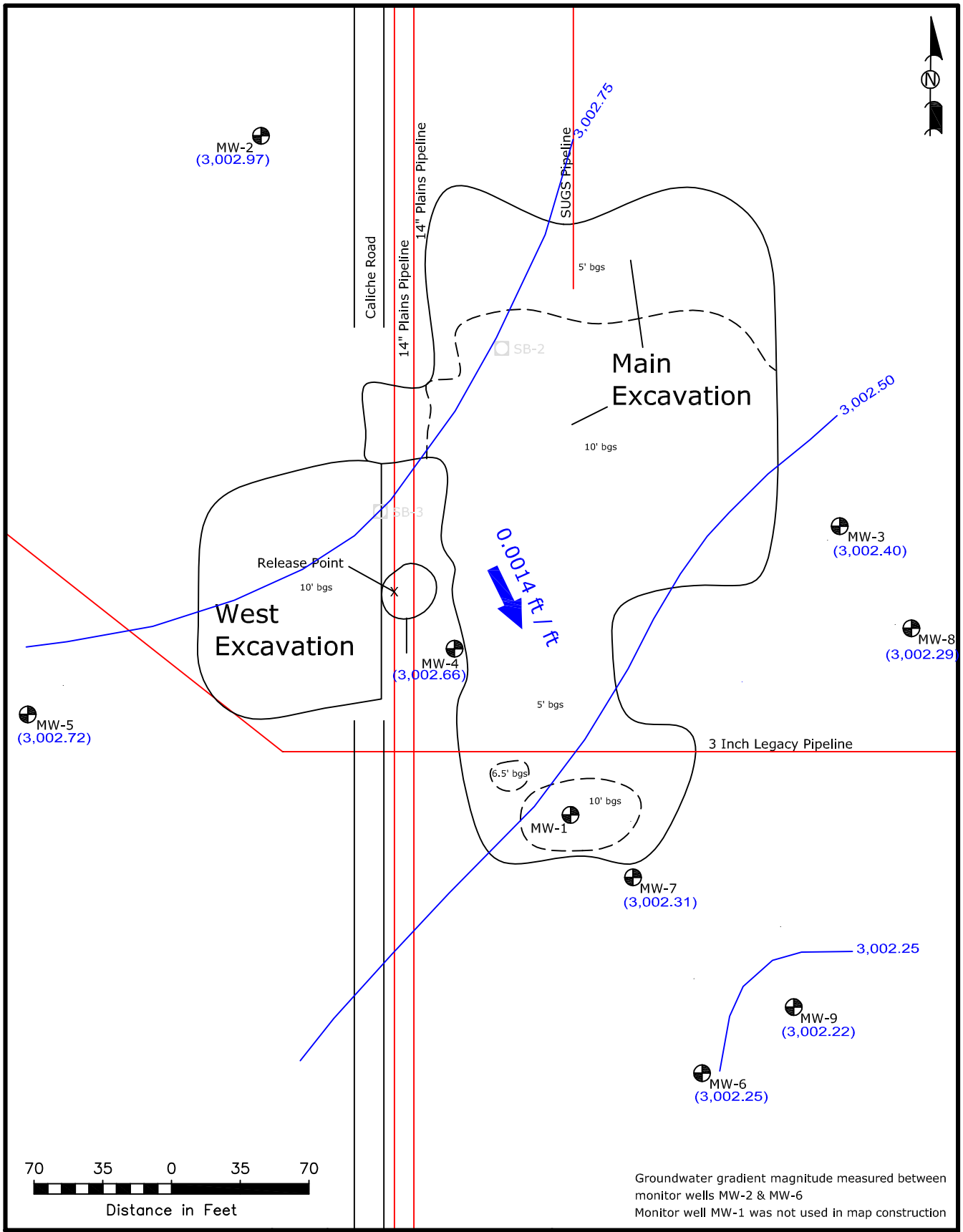
March 20, 2015		



LEGEND:
- Pipeline
- Excavation Extent
- Monitor Well Location
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- (3801.46) Groundwater Elevation (feet)
- Groundwater Gradient Contour
- Gradient Direction & Magnitude

Figure 2D
Inferred Groundwater Gradient Map
4Q2014
Plains All American Pipeline, LP
14-Inch Vac to Jal Legacy
Lea County, NM
SRS # 2009-092
NMOCD Ref. # 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

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March 27, 2015		

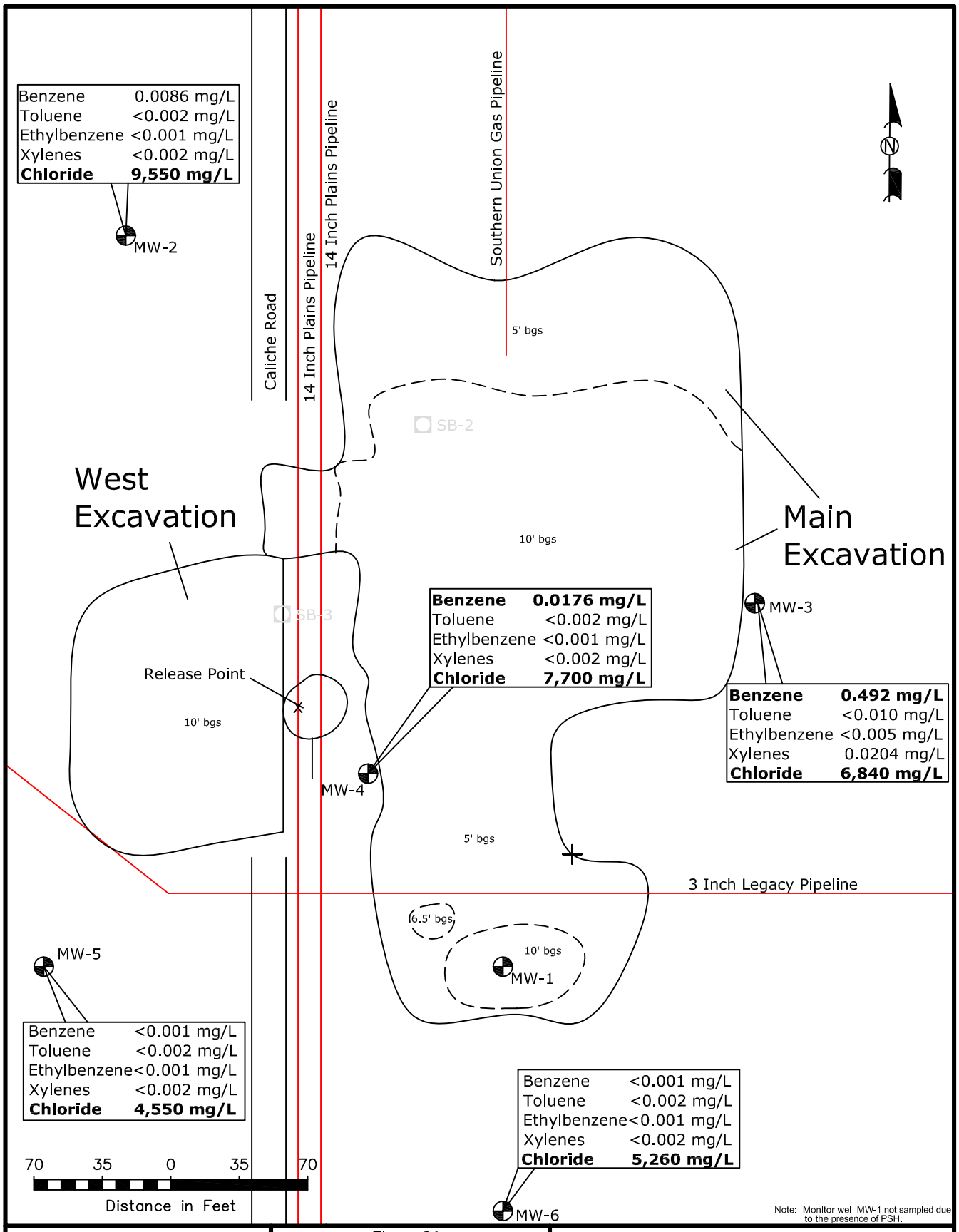

Figure 3A
Groundwater Concentration Map
1Q2014
Plains All American Pipeline, LP
14-Inch Vac to Jal Legacy
Lea County, NM
SRS # 2009-092
NMOCD Ref. # 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

Scale: 1" = 70'	Drawn By: BJA	Prepared By: BJA
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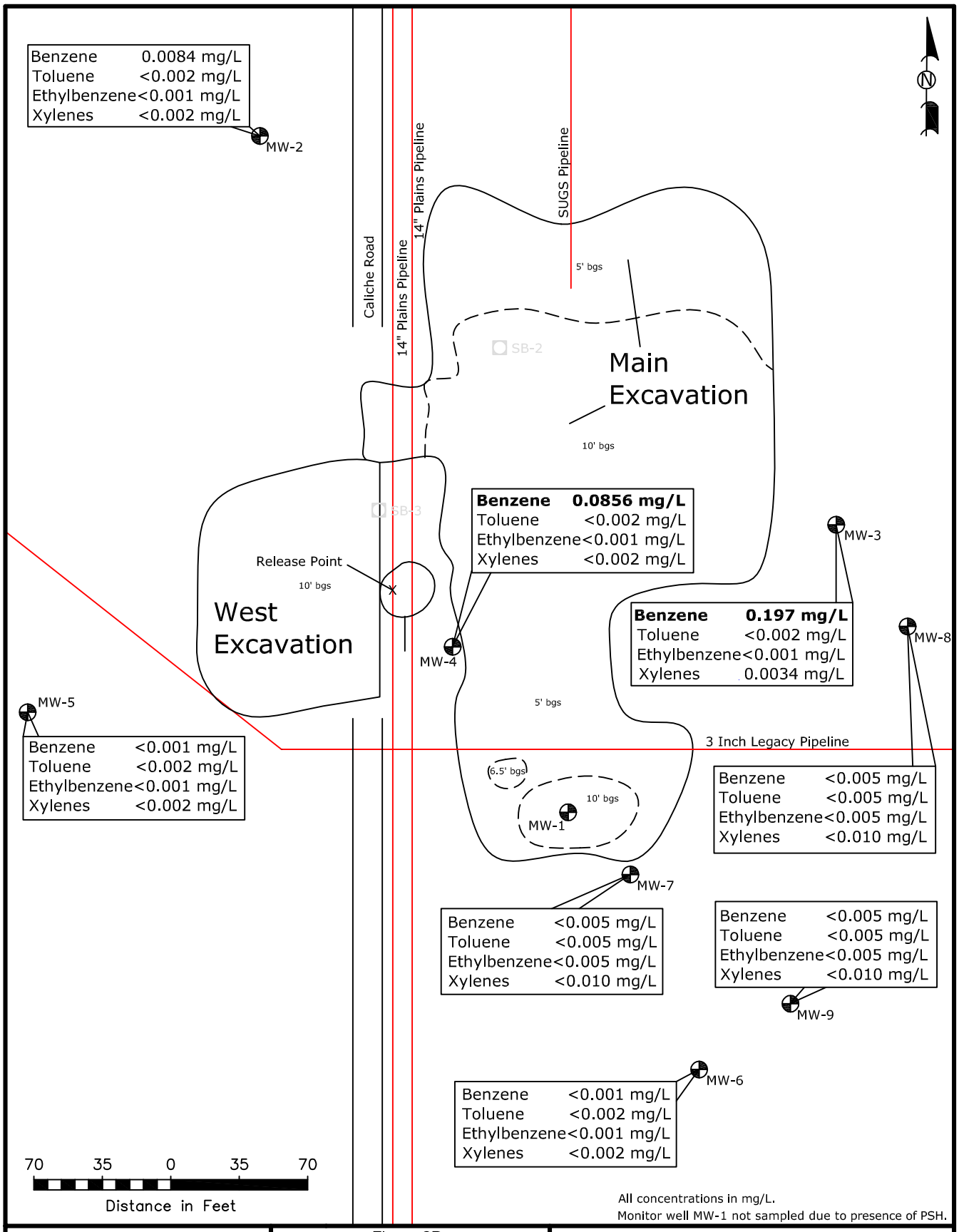

LEGEND:
- Pipeline
- Excavation Extent
- Monitor Well Location
- Soil Boring Location
- (3801.46) Groundwater Elevation (feet)
- Groundwater Gradient Contour
- Gradient Direction & Magnitude

Figure 3B
Groundwater Concentration Map
2Q2014
Plains All American Pipeline, LP
14-Inch Vac to Jal Legacy
Lea County, NM
SRS # 2009-092
NMOCD Ref. # 1RP-2162

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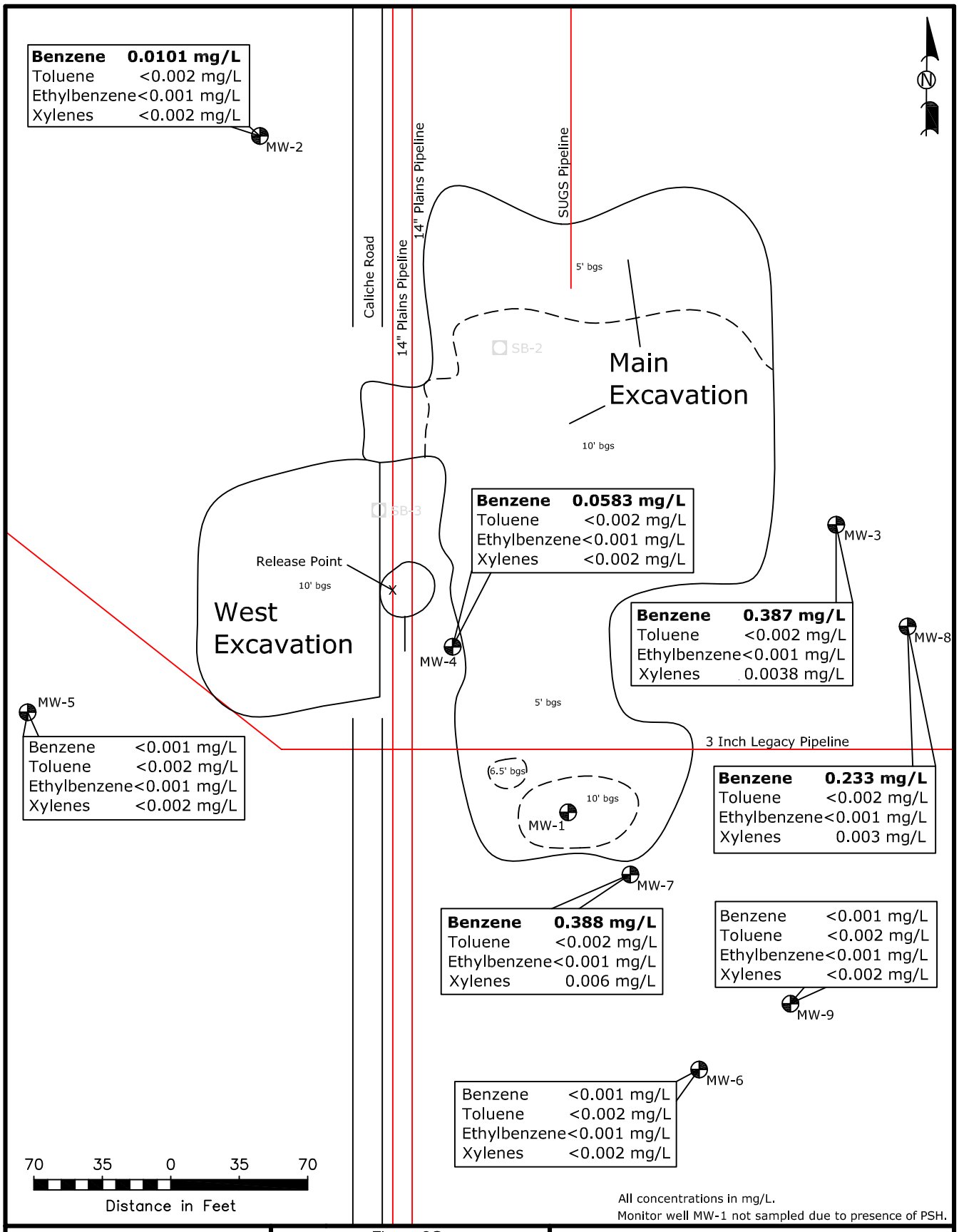

Figure 3C
Groundwater Concentration Map
3Q2014
Plains All American Pipeline, LP
14-Inch Vac to Jal Legacy
Lea County, NM
SRS # 2009-092
NMOCD Ref. # 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

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March 20, 2015		

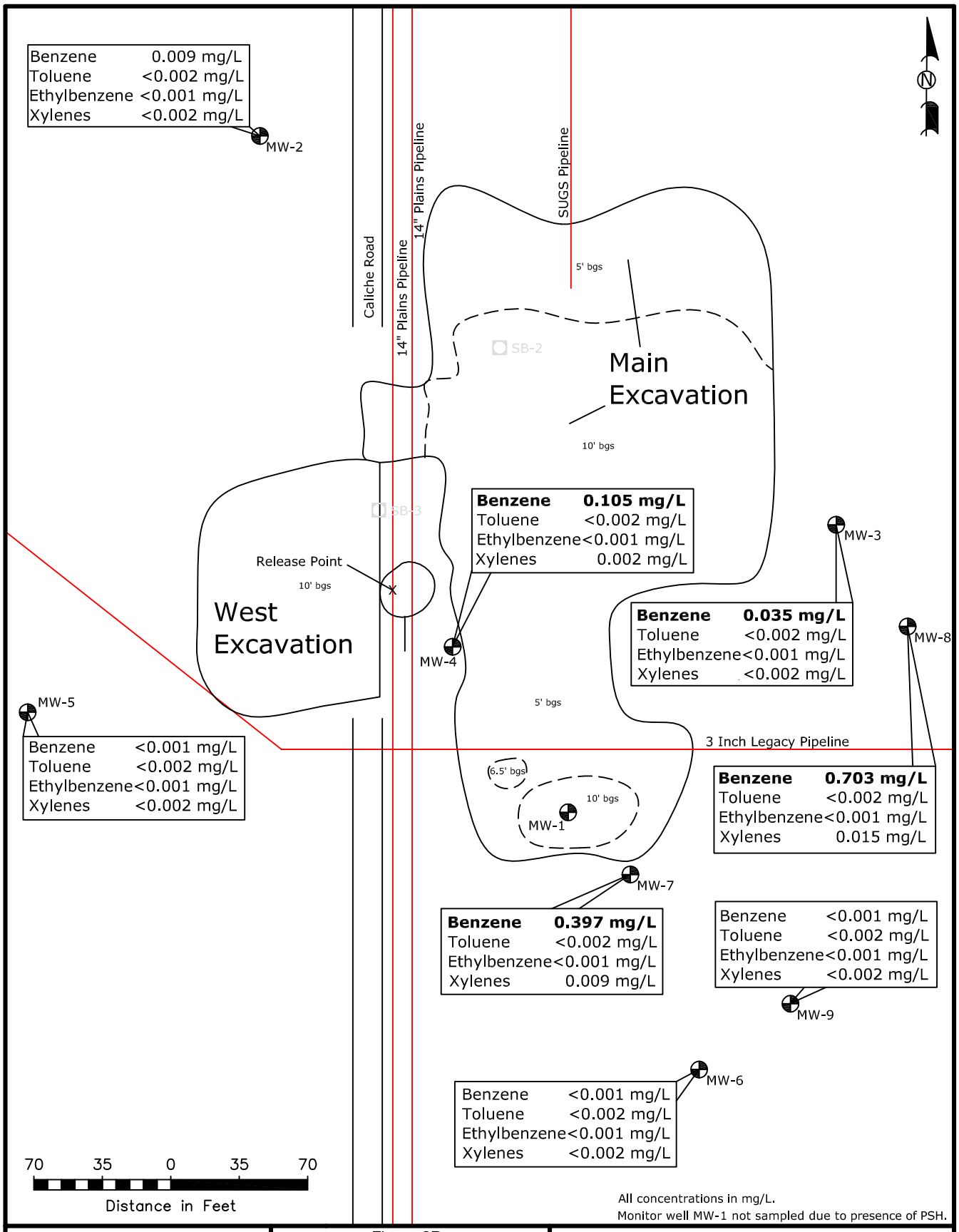

Figure 3D
Groundwater Concentration Map
4Q2014
Plains All American Pipeline, LP
14-Inch Vac to Jal Legacy
Lea County, NM
SRS # 2009-092
NMOCD Ref. # 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

Scale: 1" = 70'	Drawn By: BJA	Checked By: BRB
March 20, 2015		

Tables

TABLE 1
2014 GROUNDWATER ELEVATION DATA

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

WELL NUMBER	DATE MEASURED	CASING WELL ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	PSH THICKNESS	CORRECTED GROUNDWATER ELEVATION
MW-1	02/12/2014	3,065.33	62.56	65.19	2.63	3,002.38
	05/12/2014	3,065.33	62.57	65.21	2.64	3,002.36
	08/04/2014	3,065.33	63.05	63.98	0.93	3,002.14
	11/12/2014	3,065.33	62.81	63.52	0.71	3,002.41
MW-2	02/12/2014	3,065.28	-	62.28	-	3,003.00
	05/12/2014	3,065.28	-	62.21	-	3,003.07
	08/04/2014	3,065.28	-	62.48	-	3,002.80
	11/12/2014	3,065.28	-	62.31	-	3,002.97
MW-3	02/12/2014	3,065.43	-	63.19	-	3,002.24
	05/12/2014	3,065.43	-	63.40	-	3,002.03
	08/04/2014	3,065.43	-	63.26	-	3,002.17
	11/12/2014	3,065.43	-	63.03	-	3,002.40
MW-4	02/12/2014	3,065.15	-	62.76	-	3,002.39
	05/12/2014	3,065.15	-	62.91	-	3,002.24
	08/04/2014	3,065.15	-	62.82	-	3,002.33
	11/12/2014	3,065.15	-	62.49	-	3,002.66
MW-5	02/12/2014	3,065.95	-	63.28	-	3,002.67
	05/12/2014	3,065.95	-	63.49	-	3,002.46
	08/04/2014	3,065.95	-	63.40	-	3,002.55
	11/12/2014	3,065.95	-	63.23	-	3,002.72
MW-6	02/12/2014	3,065.35	-	63.23	-	3,002.12
	05/12/2014	3,065.35	-	63.44	-	3,001.91
	08/04/2014	3,065.35	-	63.36	-	3,001.99
	11/12/2014	3,065.35	-	63.10	-	3,002.25
MW-7	07/02/2014	3,065.38	-	77.52	-	2,987.86
	08/04/2014	3,065.38	-	63.32	-	3,002.06
	11/12/2014	3,065.38	-	63.07	-	3,002.31
MW-8	07/02/2014	3,065.10	-	77.26	-	2,987.84
	08/04/2014	3,065.10	-	63.11	-	3,001.99
	11/12/2014	3,065.10	-	62.81	-	3,002.29
MW-9	07/02/2014	3,065.42	-	77.65	-	2,987.77
	08/04/2014	3,065.42	-	63.48	-	3,001.94
	11/12/2014	3,065.42	-	63.20	-	3,002.22

- = Not applicable

TABLE 2
2014 CONCENTRATIONS OF BENZENE, BTEX, CHLORIDE & TOTAL DISSOLVED SOLIDS IN GROUNDWATER

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021B, 5030							CHLORIDE (mg/L)	TDS (mg/L)
		BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	M,P-XYLENES (mg/L)	O-XYLENES (mg/L)	TOTAL XYLENES (mg/L)	TOTAL BTEX (mg/L)		
MW-2	02/12/2014	0.0086	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0086	**9,550**	**10,800**
	05/12/2014	0.0084	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0084	-	-
	08/04/2014	**0.0101**	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0101	-	-
	11/12/2014	0.0085	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0085	**10,500**	-
MW-3	02/12/2014	**0.4920**	<0.0020	<0.0010	0.0146	0.0058	0.0204	0.5120	**6,840**	**13,600**
	05/12/2014	**0.1970**	<0.0020	<0.0010	0.0034	<0.0010	0.0034	0.2000	-	-
	08/04/2014	**0.3870**	<0.0020	<0.0010	0.0038	<0.0010	0.0038	0.3910	-	-
	11/12/2014	**0.0345**	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0345	-	-
MW-4	02/12/2014	**0.0176**	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0176	**7,700**	**15,200**
	05/12/2014	**0.0856**	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0856	-	-
	08/04/2014	**0.0583**	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0583	-	-
	11/12/2014	**0.1050**	<0.0020	<0.0010	0.0024	<0.0010	0.0024	0.1070	-	-
MW-5	02/12/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**4,550**	8,540
	05/12/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	-	-
	08/04/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	-	-
	11/12/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	-	-
MW-6	02/12/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**5,260**	9,920
	05/12/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	-	-
	08/04/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	-	-
	11/12/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	-	-

TABLE 2
2014 CONCENTRATIONS OF BENZENE, BTEX, CHLORIDE & TOTAL DISSOLVED SOLIDS IN GROUNDWATER

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021B, 5030							CHLORIDE (mg/L)	TDS (mg/L)
		BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	M,P-XYLENES (mg/L)	O-XYLENES (mg/L)	TOTAL XYLENES (mg/L)	TOTAL BTEX (mg/L)		
MW-7	07/02/2014	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	<0.0100	<0.0100	**4,850**	**13,700**
	08/04/2014	**0.3880**	<0.0020	<0.0010	0.0060	<0.0010	0.0060	0.3940	**-**	**-**
	11/12/2014	**0.3970**	<0.0020	<0.0010	0.0076	0.0011	0.0087	0.4060	**-**	**-**
MW-8	07/02/2014	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	<0.0100	<0.0100	**7,540**	**18,100**
	08/04/2014	**0.2330**	<0.0020	<0.0010	0.0029	<0.0010	0.0029	0.2360	**-**	**-**
	11/12/2014	**0.7030**	<0.0100	<0.0050	0.0150	<0.0050	0.0150	0.7180	**-**	**-**
MW-9	07/02/2014	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	<0.0100	<0.0100	**3,340**	9,680
	08/04/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**-**	**-**
	11/12/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**-**	**-**
NMOCD CRITERIA		**0.01**	**0.75**	**0.75**	**TOTAL XYLENES 0.62**				**250**	**10,000**

Note: MW-1 no longer sampled due to the presence of PSH.

- = Not analyzed.

TABLE 3
CONCENTRATIONS OF RCRA & NMWQCC METALS IN GROUNDWATER

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

All water concentrations are reported in mg/L

SAMPLE LOCATION	SAMPLE DATE		EPA METHODS 200.7, 200.8, 7470A															
		Aluminum	Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Zinc	Mercury
MW-7	7/2/2014	**52.6**	0.0206	**1.44**	**0.962**	<0.0100	**0.0621**	0.0435	0.0641	**49.8**	**0.0664**	**2.86**	<0.0100	0.103	<0.0300	<0.0100	0.308	<0.00020
MW-8	7/2/2014	**124**	**0.102**	**3.30**	0.601	<0.0100	**0.150**	**0.0830**	0.149	**104**	**0.0913**	**3.54**	<0.0100	**0.203**	<0.0300	0.0255	0.927	<0.00100
MW-9	7/2/2014	**42.2**	0.0215	**3.33**	0.743	<0.0100	**0.0506**	0.0333	0.0407	**38.7**	**0.0546**	**2.83**	<0.0100	0.081	<0.0300	<0.0100	0.256	0.00025
Maximum Contaminant Levels from NM WQCC Drinking water standards Sections 1-101.UU and 3-103.A.		5.0 mg/L	0.1 mg/L	1.0 mg/L	0.75 mg/L	0.01 mg/L	0.05 mg/L	0.05 mg/L	1.0 mg/L	1.0 mg/L	0.05 mg/L	0.2 mg/L	1.0 mg/L	0.2 mg/L	0.05 mg/L	0.05 mg/L	10 mg/L	0.002 mg/L

TABLE 4
CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

All water concentrations are in mg/L

SAMPLE LOCATION	SAMPLE DATE	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone	MTBE	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Carbon Disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane
MW-7	7/2/2014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.01
MW-8	7/2/2014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.01
MW-9	7/2/2014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.01
Maximum Contaminant Levels from NMWQCC Drinking water standards Sections 1-101.UU and 3-103.A.		**0.01 mg/L**	-	-	-	-	-	-	-	-	-	-	-	**0.01 mg/L**	-	-

TABLE 4
CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

All water concentrations are in mg/L

SAMPLE LOCATION	SAMPLE DATE	2-Chloroethyl vinyl ether	Chloroform	Chloromethane/ Methyl Chloride	2-Chlorotoluene	4-Chlorotoluene	p-Cymene(p-Isopropyltoluene)	Dibromochloromethane	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane (EDB)	Dibromomethane (methylene bromide)	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluormethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene
MW-7	7/2/2014	<0.005	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-8	7/2/2014	<0.005	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-9	7/2/2014	<0.005	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Maximum Contaminant Levels from NMWQCC Drinking water standards Sections 1-101.UU and 3-103.A.		-	0.1mg/L	-	-	-	-	-	-	0.0001 mg/L	-	-	-	-	-	0.005 mg/L	0.01 mg/L	0.005 mg/L	0.1mg/L

TABLE 4
CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

All water concentrations are in mg/L

SAMPLE LOCATION	SAMPLE DATE	trans-1,2-Dichloroethene	1,2-Dichloropropane	1,3-Dichloropropane	2,2-Dichloropropane	1,1-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	Hexachlorobutadiene	2-Hexanone	Isopropylbenzene	Methylene chloride	4-Methyl-2-pentanone (MIBK)	Naphthalene	n-Propylbenzene	Styrene	1,1,1,2-Tetrachloroethane
MW-7	7/2/2014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.05	<0.010	<0.005	<0.005	<0.005
MW-8	7/2/2014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.05	<0.010	<0.005	<0.005	<0.005
MW-9	7/2/2014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.05	<0.010	<0.005	<0.005	<0.005
Maximum Contaminant Levels from NMWQCC Drinking water standards Sections 1-101.UU and 3-103.A.		-	-	-	-	-	-	-	0.75 mg/L	-	-	-	0.1mg/L	-	0.03 mg/L	-	-	-

TABLE 4
CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

All water concentrations are in mg/L

SAMPLE LOCATION	SAMPLE DATE	1,1,2,2-Tetrachloroethane	Tetrachloroethene (PCE)	Toluene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene (TCE)	Trichlorofluoromethane	1,2,3-Trichloropropane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	o-Xylene	m,p-Xylene	Vinyl Chloride
MW-7	7/2/2014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.002
MW-8	7/2/2014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.002
MW-9	7/2/2014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.002
Maximum Contaminant Levels from NMWQCC Drinking water standards Sections 1-101.UU and 3-103.A.		**0.02 mg/L**	**-**	**0.75 mg/L**	**-**	**-**	**0.06 mg/L**	**-**	**0.01 mg/ L**	**-**	**-**	**-**	**-**	**Total Xylene 0.62 mg/L**		**0.001 mg/L**

TABLE 5
CONCENTRATIONS OF SEMI-VOLATILE COMPOUNDS IN GROUNDWATER

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

All water concentrations are reported in mg/L

SAMPLE LOCATION	SAMPLE DATE	EPA SW846-8270C, 3510															
		Acenaphthene	Acenaphthylene	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[g,h,i]perylene	Benzo[k]fluoranthene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene
MW-2	5/12/2014	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.00053	<0.000053	<0.000053
MW-3	5/12/2014	<0.000051	<0.000051	<0.000051	<0.000051	<0.000051	<0.000051	<0.000051	<0.000051	<0.000051	<0.000051	<0.000051	<0.000051	<0.000051	<0.00051	<0.000051	<0.000051
MW-4	5/12/2014	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.00053	<0.000053	<0.000053
MW-5	5/12/2014	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.00052	<0.000052	<0.000052
MW-6	5/12/2014	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.000052	<0.00052	<0.000052	<0.000052
MW-7	7/2/2014	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00050	<0.000050	<0.000050
MW-8	7/2/2014	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00050	<0.000050	<0.000050
MW-9	7/2/2014	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00050	<0.000050	<0.000050

TABLE 6
CONCENTRATIONS OF ANIONS/CATIONS IN GROUNDWATER

PLAINS ALL AMERICAN PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS #: 2009-092
NMOCD REFERENCE #: 1RP-2162

All water concentrations are reported in mg/L

SAMPLE LOCATION	SAMPLE DATE	EPA Methods 200.7, 300/300.1, E353.2, SM2320B									
		Calcium	Magnesium	Potassium	Sodium	Chloride	Sulfate	Bicarbonate	Carbonate	Nitrate	Flouride
MW-7	7/2/2014	1,050	316	40.2	1,890	**4,850**	490	230	<4.00	7.82	<80.0
MW-8	7/2/2014	1,250	256	44.4	1,170	**7,540**	**615**	192	<4.00	5.46	<80.0
MW-9	7/2/2014	697	193	31.8	1,340	**3,340**	406	317	<4.00	3.52	<80.0
Maximum Contaminant Levels from NM WQCC Drinking water standards Sections 1-101.UU and 3-103.A.		-	-	-	-	**250 mg/L**	**600 mg/L**	-	-	**10 mg/L**	**1.6 mg/L**

Appendix A
Laboratory Analytical Reports

Analytical Report 479258

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

14" Vac to Jal Legacy

SRS #2009-092

20-FEB-14

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

20-FEB-14

Project Manager: **Ben Arguijo**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No(s): **479258**
14" Vac to Jal Legacy
Project Address: NM

Ben Arguijo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 479258. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 479258 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America

Sample Cross Reference 479258

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal Legacy

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2	W	02-12-14 09:45		479258-001
MW-3	W	02-12-14 10:00		479258-002
MW-4	W	02-12-14 10:45		479258-003
MW-5	W	02-12-14 11:15		479258-004
MW-6	W	02-12-14 11:45		479258-005

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 479258

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal Legacy

Project Id: SRS #2009-092
Contact: Ben Arguijo
Project Location: NM

Date Received in Lab: Wed Feb-12-14 02:45 pm
Report Date: 20-FEB-14
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	479258-001		479258-002		479258-003		479258-004		479258-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Feb-12-14 09:45		Feb-12-14 10:00		Feb-12-14 10:45		Feb-12-14 11:15		Feb-12-14 11:45	
BTEX by EPA 8021B	***Extracted:***	Feb-18-14 15:00		Feb-18-14 15:00		Feb-18-14 15:00		Feb-18-14 15:00		Feb-18-14 15:00	
	Analyzed:	Feb-19-14 17:26		Feb-19-14 18:16		Feb-18-14 23:43		Feb-19-14 16:53		Feb-19-14 17:09	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		0.00855	0.00100	0.492	0.00500	0.0176	0.00100	ND	0.00100	ND	0.00100
Toluene		ND	0.00200	ND	0.0100	ND	0.00200	ND	0.00200	ND	0.00200
Ethylbenzene		ND	0.00100	ND	0.00500	ND	0.00100	ND	0.00100	ND	0.00100
m_p-Xylenes		ND	0.00200	0.0146	0.0100	ND	0.00200	ND	0.00200	ND	0.00200
o-Xylene		ND	0.00100	0.00580	0.00500	ND	0.00100	ND	0.00100	ND	0.00100
Total Xylenes		ND	0.00100	0.0204	0.00500	ND	0.00100	ND	0.00100	ND	0.00100
Total BTEX		0.00855	0.00100	0.512	0.00500	0.0176	0.00100	ND	0.00100	ND	0.00100
Inorganic Anions by EPA 300/300.1	***Extracted:***	Feb-14-14 13:45		Feb-14-14 14:07		Feb-14-14 14:30		Feb-14-14 14:53		Feb-14-14 15:15	
	Analyzed:	Feb-14-14 13:45		Feb-14-14 14:07		Feb-14-14 14:30		Feb-14-14 14:53		Feb-14-14 15:15	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		9550	500	6840	200	7700	200	4550	200	5260	200
TDS by SM2540C	***Extracted:***										
	Analyzed:	Feb-17-14 12:30		Feb-17-14 12:30		Feb-17-14 12:30		Feb-17-14 12:30		Feb-17-14 12:30	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total dissolved solids		10800	5.00	13600	5.00	15200	5.00	8540	5.00	9920	5.00

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: 14" Vac to Jal Legacy

Work Orders : 479258,

Project ID: SRS #2009-092

Lab Batch #: 934403 **Sample:** 479258-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/18/14 23:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0261	0.0300	87	80-120	

Lab Batch #: 934403 **Sample:** 479258-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/19/14 16:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 934403 **Sample:** 479258-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/19/14 17:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 934403 **Sample:** 479258-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/19/14 17:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0282	0.0300	94	80-120	
4-Bromofluorobenzene	0.0275	0.0300	92	80-120	

Lab Batch #: 934403 **Sample:** 479258-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/19/14 18:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0256	0.0300	85	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: 14" Vac to Jal Legacy

Work Orders : 479258,

Project ID: SRS #2009-092

Lab Batch #: 934403 **Sample:** 651313-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/18/14 18:42

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0268	0.0300	89	80-120	

Lab Batch #: 934403 **Sample:** 651313-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/18/14 18:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0310	0.0300	103	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

Lab Batch #: 934403 **Sample:** 651313-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/18/14 19:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

Lab Batch #: 934403 **Sample:** 479465-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/18/14 19:30

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	80-120	
4-Bromofluorobenzene	0.0298	0.0300	99	80-120	

Lab Batch #: 934403 **Sample:** 479465-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/18/14 19:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0313	0.0300	104	80-120	
4-Bromofluorobenzene	0.0310	0.0300	103	80-120	

* 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.

Blank Spike Recovery

Project Name: 14" Vac to Jal Legacy

Work Order #: 479258 **Project ID:** SRS #2009-092

Lab Batch #: 934244 **Sample:** 934244-1-BKS **Matrix:** Water

Date Analyzed: 02/17/2014 **Date Prepared:** 02/17/2014 **Analyst:** AMB

Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

TDS by SM2540C Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total dissolved solids	20.5	1000	992	99	80-120	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

BS / BSD Recoveries

Project Name: 14" Vac to Jal Legacy

Work Order #: 479258 **Project ID:** SRS #2009-092

Analyst: ARM **Date Prepared:** 02/18/2014 **Date Analyzed:** 02/18/2014

Lab Batch ID: 934403 **Sample:** 651313-1-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	<0.00100	0.100	0.106	106	0.100	0.104	104	2	70-125	25	
Toluene	<0.00200	0.100	0.109	109	0.100	0.106	106	3	70-125	25	
Ethylbenzene	<0.00100	0.100	0.108	108	0.100	0.106	106	2	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.214	107	0.200	0.210	105	2	70-131	25	
o-Xylene	<0.00100	0.100	0.108	108	0.100	0.106	106	2	71-133	25	

Analyst: AMB **Date Prepared:** 02/14/2014 **Date Analyzed:** 02/14/2014

Lab Batch ID: 934163 **Sample:** 651046-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<1.00	25.0	24.8	99	25.0	24.7	99	0	90-110	20	

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

Form 3 - MS Recoveries

Project Name: 14" Vac to Jal Legacy

Work Order #: 479258

Lab Batch #: 934163 **Project ID:** SRS #2009-092

Date Analyzed: 02/14/2014 **Date Prepared:** 02/14/2014 **Analyst:** AMB

QC- Sample ID: 479273-001 S **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Inorganic Anions by EPA 300 **Analytes**	**Parent Sample Result [A]**	**Spike Added [B]**	**Spiked Sample Result [C]**	**%R [D]**	**Control Limits %R**	**Flag**
Chloride	197	125	341	115	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac to Jal Legacy

Work Order # : 479258 **Project ID:** SRS #2009-092

Lab Batch ID: 934403 **QC- Sample ID:** 479465-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/18/2014 **Date Prepared:** 02/18/2014 **Analyst:** ARM

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	<0.00100	0.100	0.106	106	0.100	0.105	105	1	70-125	25	
Toluene	<0.00200	0.100	0.106	106	0.100	0.107	107	1	70-125	25	
Ethylbenzene	<0.00100	0.100	0.106	106	0.100	0.108	108	2	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.210	105	0.200	0.213	107	1	70-131	25	
o-Xylene	<0.00100	0.100	0.105	105	0.100	0.107	107	2	71-133	25	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

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.

Sample Duplicate Recovery

Project Name: 14" Vac to Jal Legacy

Work Order #: 479258

Lab Batch #: 934244 **Project ID:** SRS #2009-092

Date Analyzed: 02/17/2014 12:30 **Date Prepared:** 02/17/2014 **Analyst:** AMB

QC- Sample ID: 479341-001 D **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

TDS by SM2540C	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Total dissolved solids	1780	1820	2	10	

Lab Batch #: 934244

Date Analyzed: 02/17/2014 12:30 **Date Prepared:** 02/17/2014 **Analyst:** AMB

QC- Sample ID: 479375-001 D **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

TDS by SM2540C	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Total dissolved solids	472	481	2	10	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

XENCO Laboratories
Environmental Asbestos Radiochemistry

CHAIN OF CUSTODY RECORD

Houston: 4143 Greenbriar Dr. Stafford, TX 77477 (281)240-4200 Odessa: 12600 West I-20 East Odessa, TX 79765 (432)563-1800
Hobbs: 4008 N Grimes Hobbs, NM 88240 (575)392-7550

Page 1 of 1

LAB W.O #: 479258

Field billable Hrs :

Company:	Basin Environmental Service Technologies, LLC
Phone:	(575)396-2378
Address:	3100 Plains Hwy.
Fax:	(575)396-1429
City:	Lovington
State:	NM
Zip:	88260
PM/Attn:	Ben Arguijo
Email:	cjbryant@paalp.com, bjarguijo@basinenv.com
Project ID:	14" Vac to Jal Legacy SRS #2009-092
PO#:	PAA-C. Bryant
Invoice To:	Camille Bryant Plains All American
Quote #:	
Sampler Signature:	

Circle One Event: Daily Weekly Monthly Quarterly Semi-Annual Annual N/A

TAT Work Days = D Need results by:__________ Time: ______

(Std (5-7D)) 5Hrs 1D 2D 3D 4D **5D** **7D** 10D 14D Other______

ANALYSES REQUESTED

Sample #	Sample ID	Collect Date	Collect Time	Matrix Code ^	Field Filtered	Integrity OK (Y/N)	Total # of containers	Example Volatiles by 8260 (Cont Type* VC; Pres Type** E, I)	BTEX (VP; E,I)	Chloride (PC; I)	TDS (PC; I)							Hold Sample (CALL__) Run PAH on Highest TPH__ Only if
1	MW-2	2-12-14	9:45	GW			4		X	X	X							
2	MW-3	2-12-14	10:00	GW			4		X	X	X							
3	MW-4	2-12-14	10:45	GW			4		X	X	X							
4	MW-5	2-12-14	11:15	GW			4		X	X	X							
5	MW-6	2-12-14	11:45	GW			4		X	X	X							
6																		
7																		
8																		
9																		
0																		

\# Cont — Lab Only:

*** Container Type Codes**
VA Vial Amber; VC Vial Clear; VP Vial Pre-preserved; GA Glass Amber; GC Glass Clear; PA Plastic Amber; PC Plastic Clear; Other ______
ES Encore Sampler; TS TerraCore Sampler; AC Air Canister; TB Tedlar Bag; ZB Zip Lock Bag; PC Plastic Clear
Size(s): 2oz, 4oz, 8oz, 16oz, 32oz , 1Gal 40ml, 125 ml, 250 ml, 500 ml, 1L, Other ______

**** Preservative Type Codes**
A. None E. HCL I. Ice
B. HNO_3 F. MeOH J. MCAA C. H_2SO_4 G. $Na_2S_2O_3$ K. ZnAc&NaOH
D. NaOH H. $NaHSO_4$ L Asbc Acid&NaOH
O. ______

^ Matrix Type Codes
GW Ground Water; WW Waste Water; DW Drinking Water; SW Surface Water; OW Ocean/Sea Water; PL Product-Liquid; PS Product-Solid; SL Sludge; Other
S Soil/Sediment/Solid; W Wipe; A Air; O Oil; T Tissue; U Urine; B Blood

REMARKS

Reg. Program / Clean-up Std	STATE for Certs & Regs	QA/QC Level & Certification	EDDs	COC & Labels	Coolers Temp °C
CTLs TRRP DW NPDES LPST DryCln Other:	FL TX GA NC SC NJ PA OK LA AL NM Other:	1 **2** 3 4 CLP AFCEE QAPP NELAC DoD-ELAP Other:	ADaPT SEDD ERPIMS XLS Other:	Match Incomplete Absent Unclear	1 2.5°2 3

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	[signature]	ET	2-12-14	2:45	[signature]	MS	2/12/14	2:45pm
2								
3								
4					[signature]	Xenco	2/13/14	16/14:30

Lab Use Only	YES	NO	N/A
Non-Conformances found?		✓	
Samples intact upon arrival?	✓		
Received on Wet Ice?	✓		
Labeled with proper preservatives?	✓		
Received within holding time?	✓		
Custody seals intact?	✓		
VOCs rec'd w/o headspace?	✓		✓
Proper containers used?	✓		
pH verified-acceptable, excl VOCs?	✓		
Received on time to meet HTs?	✓		

C.O.C. Serial #

B&A Laboratories: Hobbs 575-392-7550 Dallas 214-902-0300 Houston 281-242-4200 Odessa 432-563-1800 San Antonio 210-509-3334 Phoenix 602-437-0330
FTS Service Centers: Atlanta 770-449-8800 Lakeland 863-646-8526 Tampa 803-543-8099 Philadelphia 610-955-5649 South Carolina 803-543-8099

Revision Date: Nov 12, 2009

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 02/12/2014 02:45:00 PM

Work Order #: 479258

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

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.5
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**Yes**
#6 *Custody Seals Signed and dated?	**Yes**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**Yes**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**Yes**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	**Yes**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

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

Analyst:	PH Device/Lot#:

Checklist completed by: Ruriko Konuma Date: 02/13/2014

Checklist reviewed by: Kelsey Brooks Date: 02/13/2014

Analytical Report 485273

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

14" Vac to Jal Legacy

SRS #2009-092

19-MAY-14

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

19-MAY-14

Project Manager: **Ben Arguijo**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No(s): **485273**
14" Vac to Jal Legacy
Project Address: NM

Ben Arguijo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 485273. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 485273 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 485273

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal Legacy

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2	W	05-12-14 08:30		485273-001
MW-3	W	05-12-14 09:00		485273-002
MW-4	W	05-12-14 09:30		485273-003
MW-5	W	05-12-14 10:00		485273-004
MW-6	W	05-12-14 11:00		485273-005

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-941130 PAHs by GCMS SIM

Surrogate Nitrobenzene-d5, Surrogate Terphenyl-D14 recovered below QC limits. Matrix interferences is suspected; data confirmed by re-analysis Samples affected are: 485273-002.

Surrogate 2-Fluorobiphenyl recovered below QC limits. Matrix interferences is suspected; data confirmed by re-analysis Samples affected are: 485273-002,485273-005.

Insufficient sample for re-extraction. Surrogate failure confirmed by re-analysis only.

Certificate of Analysis Summary 485273

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal Legacy

Project Id: SRS #2009-092
Contact: Ben Arguijo
Project Location: NM

Date Received in Lab: Mon May-12-14 03:00 pm
Report Date: 19-MAY-14
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	485273-001		485273-002		485273-003		485273-004		485273-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	May-12-14 08:30		May-12-14 09:00		May-12-14 09:30		May-12-14 10:00		May-12-14 11:00	
BTEX by EPA 8021B	***Extracted:***	May-15-14 16:00		May-15-14 16:00		May-15-14 16:00		May-15-14 16:00		May-15-14 16:00	
	Analyzed:	May-16-14 09:39		May-16-14 09:56		May-16-14 10:13		May-16-14 10:29		May-16-14 01:02	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		0.00836	0.00100	0.197	0.00100	0.0856	0.00100	ND	0.00100	ND	0.00100
Toluene		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200
Ethylbenzene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100
m,p-Xylenes		ND	0.00200	0.00343	0.00200	ND	0.00200	ND	0.00200	ND	0.00200
o-Xylene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100
Total Xylenes		ND	0.00100	0.00343	0.00100	ND	0.00100	ND	0.00100	ND	0.00100
Total BTEX		0.00836	0.00100	0.200	0.00100	0.0856	0.00100	ND	0.00100	ND	0.00100

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 485273

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal Legacy

Project Id: SRS #2009-092
Contact: Ben Arguijo
Project Location: NM

Date Received in Lab: Mon May-12-14 03:00 pm
Report Date: 19-MAY-14
Project Manager: Kelsey Brooks

Analysis Requested							
	Lab Id:	485273-001	485273-002	485273-003	485273-004	485273-005	
	Field Id:	MW-2	MW-3	MW-4	MW-5	MW-6	
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	
	Sampled:	May-12-14 08:30	May-12-14 09:00	May-12-14 09:30	May-12-14 10:00	May-12-14 11:00	
PAHs by GCMS SIM SUB: E871002	***Extracted:***	May-15-14 16:12	May-15-14 16:15	May-15-14 16:18	May-15-14 16:21	May-15-14 16:24	
	Analyzed:	May-16-14 12:52	May-16-14 13:10	May-16-14 13:28	May-16-14 14:03	May-16-14 14:20	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
Acenaphthene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Acenaphthylene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Anthracene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Benzo(a)anthracene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Benzo(a)pyrene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Benzo(b)fluoranthene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Benzo(g,h,i)perylene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Benzo(k)fluoranthene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Chrysene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Dibenz(a,h)anthracene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Dibenzofuran		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Fluoranthene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Fluorene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Indeno(1,2,3-c,d)Pyrene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Naphthalene		ND 0.000532	ND 0.000510	ND 0.000526	ND 0.000515	ND 0.000515	
Phenanthrene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	
Pyrene		ND 0.0000532	ND 0.0000510	ND 0.0000526	ND 0.0000515	ND 0.0000515	

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: 14" Vac to Jal Legacy

Work Orders : 485273,

Project ID: SRS #2009-092

Lab Batch #: 941148 **Sample:** 485273-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 01:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 941155 **Sample:** 485273-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 09:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0267	0.0300	89	80-120	
4-Bromofluorobenzene	0.0278	0.0300	93	80-120	

Lab Batch #: 941155 **Sample:** 485273-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 09:56

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0257	0.0300	86	80-120	

Lab Batch #: 941155 **Sample:** 485273-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 10:13

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0258	0.0300	86	80-120	

Lab Batch #: 941155 **Sample:** 485273-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 10:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0297	0.0300	99	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: 14" Vac to Jal Legacy

Work Orders : 485273,

Project ID: SRS #2009-092

Lab Batch #: 941130 **Sample:** 485273-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 12:52

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.579	1.00	58	35-114	
2-Fluorobiphenyl	0.573	1.00	57	43-116	
Terphenyl-D14	0.688	1.00	69	33-141	

Lab Batch #: 941130 **Sample:** 485273-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 13:10

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.281	1.00	28	35-114	**
2-Fluorobiphenyl	0.283	1.00	28	43-116	**
Terphenyl-D14	0.312	1.00	31	33-141	**

Lab Batch #: 941130 **Sample:** 485273-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 13:28

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.469	1.00	47	35-114	
2-Fluorobiphenyl	0.435	1.00	44	43-116	
Terphenyl-D14	0.422	1.00	42	33-141	

Lab Batch #: 941130 **Sample:** 485273-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 14:03

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.442	1.00	44	35-114	
2-Fluorobiphenyl	0.437	1.00	44	43-116	
Terphenyl-D14	0.487	1.00	49	33-141	

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

Form 2 - Surrogate Recoveries

Project Name: 14" Vac to Jal Legacy

Work Orders : 485273, **Project ID:** SRS #2009-092

Lab Batch #: 941130 **Sample:** 485273-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 14:20

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.403	1.00	40	35-114	
2-Fluorobiphenyl	0.410	1.00	41	43-116	**
Terphenyl-D14	0.448	1.00	45	33-141	

Lab Batch #: 941148 **Sample:** 655595-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/15/14 20:05

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0263	0.0300	88	80-120	
4-Bromofluorobenzene	0.0282	0.0300	94	80-120	

Lab Batch #: 941155 **Sample:** 655591-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 04:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene	0.0298	0.0300	99	80-120	

Lab Batch #: 941130 **Sample:** 655514-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 12:00

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.683	1.00	68	35-114	
2-Fluorobiphenyl	0.665	1.00	67	43-116	
Terphenyl-D14	0.748	1.00	75	33-141	

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

Form 2 - Surrogate Recoveries

Project Name: 14" Vac to Jal Legacy

Work Orders : 485273,

Project ID: SRS #2009-092

Lab Batch #: 941148 **Sample:** 655595-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/15/14 20:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0332	0.0300	111	80-120	

Lab Batch #: 941155 **Sample:** 655591-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 04:52

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0269	0.0300	90	80-120	
4-Bromofluorobenzene	0.0321	0.0300	107	80-120	

Lab Batch #: 941130 **Sample:** 655514-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 12:17

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.690	1.00	69	35-114	
2-Fluorobiphenyl	0.685	1.00	69	43-116	
Terphenyl-D14	0.810	1.00	81	33-141	

Lab Batch #: 941148 **Sample:** 655595-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/15/14 20:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0340	0.0300	113	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: 14" Vac to Jal Legacy

Work Orders : 485273,

Project ID: SRS #2009-092

Lab Batch #: 941155 **Sample:** 655591-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 05:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0325	0.0300	108	80-120	

Lab Batch #: 941130 **Sample:** 655514-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 16:07

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.698	1.00	70	35-114	
2-Fluorobiphenyl	0.684	1.00	68	43-116	
Terphenyl-D14	0.797	1.00	80	33-141	

Lab Batch #: 941148 **Sample:** 485068-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/15/14 20:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0347	0.0300	116	80-120	

Lab Batch #: 941155 **Sample:** 485208-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 05:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

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

Form 2 - Surrogate Recoveries

Project Name: 14" Vac to Jal Legacy

Work Orders : 485273, **Project ID:** SRS #2009-092

Lab Batch #: 941148 **Sample:** 485068-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/15/14 21:11

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0345	0.0300	115	80-120	

Lab Batch #: 941155 **Sample:** 485208-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/16/14 05:42

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0337	0.0300	112	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: 14" Vac to Jal Legacy

Work Order #: 485273 **Project ID:** SRS #2009-092

Analyst: ARM **Date Prepared:** 05/15/2014 **Date Analyzed:** 05/16/2014

Lab Batch ID: 941155 **Sample:** 655591-1-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	<0.00100	0.100	0.108	108	0.100	0.108	108	0	70-125	25	
Toluene	<0.00200	0.100	0.106	106	0.100	0.107	107	1	70-125	25	
Ethylbenzene	<0.00100	0.100	0.112	112	0.100	0.113	113	1	71-129	25	
m,p-Xylenes	<0.00200	0.200	0.230	115	0.200	0.231	116	0	70-131	25	
o-Xylene	<0.00100	0.100	0.117	117	0.100	0.118	118	1	71-133	25	

Analyst: ARM **Date Prepared:** 05/15/2014 **Date Analyzed:** 05/15/2014

Lab Batch ID: 941148 **Sample:** 655595-1-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	<0.00100	0.100	0.103	103	0.100	0.106	106	3	70-125	25	
Toluene	<0.00200	0.100	0.104	104	0.100	0.106	106	2	70-125	25	
Ethylbenzene	<0.00100	0.100	0.111	111	0.100	0.114	114	3	71-129	25	
m,p-Xylenes	<0.00200	0.200	0.229	115	0.200	0.235	118	3	70-131	25	
o-Xylene	<0.00100	0.100	0.115	115	0.100	0.118	118	3	71-133	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

BS / BSD Recoveries

Project Name: 14" Vac to Jal Legacy

Work Order #: 485273 **Project ID:** SRS #2009-092

Analyst: PKH **Date Prepared:** 05/15/2014 **Date Analyzed:** 05/16/2014

Lab Batch ID: 941130 **Sample:** 655514-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

PAHs by GCMS SIM 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
Acenaphthene	<0.0000500	0.00100	0.000610	61	0.00100	0.000616	62	1	57-90	25	
Acenaphthylene	<0.0000500	0.00100	0.000633	63	0.00100	0.000617	62	3	47-95	25	
Anthracene	<0.0000500	0.00100	0.000638	64	0.00100	0.000633	63	1	56-90	25	
Benzo(a)anthracene	<0.0000500	0.00100	0.000792	79	0.00100	0.000798	80	1	51-100	25	
Benzo(a)pyrene	<0.0000500	0.00100	0.000706	71	0.00100	0.000744	74	5	49-97	25	
Benzo(b)fluoranthene	<0.0000500	0.00100	0.000794	79	0.00100	0.000781	78	2	41-114	25	
Benzo(g,h,i)perylene	<0.0000500	0.00100	0.000721	72	0.00100	0.000728	73	1	51-105	25	
Benzo(k)fluoranthene	<0.0000500	0.00100	0.000648	65	0.00100	0.000647	65	0	54-103	25	
Chrysene	<0.0000500	0.00100	0.000734	73	0.00100	0.000736	74	0	60-101	25	
Dibenz(a,h)anthracene	<0.0000500	0.00100	0.000655	66	0.00100	0.000786	79	18	50-109	25	
Dibenzofuran	<0.0000500	0.00100	0.000615	62	0.00100	0.000613	61	0	55-91	25	
Fluoranthene	<0.0000500	0.00100	0.000688	69	0.00100	0.000657	66	5	58-93	25	
Fluorene	<0.0000500	0.00100	0.000626	63	0.00100	0.000598	60	5	58-93	25	
Indeno(1,2,3-c,d)Pyrene	<0.0000500	0.00100	0.000666	67	0.00100	0.000709	71	6	52-108	25	
Naphthalene	<0.000500	0.00100	0.000627	63	0.00100	0.000638	64	2	51-100	25	
Phenanthrene	<0.0000500	0.00100	0.000721	72	0.00100	0.000717	72	1	43-97	25	
Pyrene	<0.0000500	0.00100	0.000758	76	0.00100	0.000753	75	1	51-95	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

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac to Jal Legacy

Work Order # : 485273 **Project ID:** SRS #2009-092

Lab Batch ID: 941148 **QC- Sample ID:** 485068-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 05/15/2014 **Date Prepared:** 05/15/2014 **Analyst:** ARM

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	<0.00100	0.100	0.105	105	0.100	0.111	111	6	70-125	25	
Toluene	<0.00200	0.100	0.106	106	0.100	0.112	112	6	70-125	25	
Ethylbenzene	<0.00100	0.100	0.114	114	0.100	0.119	119	4	71-129	25	
m,p-Xylenes	<0.00200	0.200	0.234	117	0.200	0.245	123	5	70-131	25	
o-Xylene	<0.00100	0.100	0.117	117	0.100	0.123	123	5	71-133	25	

Lab Batch ID: 941155 **QC- Sample ID:** 485208-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 05/16/2014 **Date Prepared:** 05/15/2014 **Analyst:** ARM

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	<0.00100	0.100	0.102	102	0.100	0.0992	99	3	70-125	25	
Toluene	<0.00200	0.100	0.100	100	0.100	0.0981	98	2	70-125	25	
Ethylbenzene	<0.00100	0.100	0.106	106	0.100	0.104	104	2	71-129	25	
m,p-Xylenes	<0.00200	0.200	0.216	108	0.200	0.212	106	2	70-131	25	
o-Xylene	<0.00100	0.100	0.110	110	0.100	0.108	108	2	71-133	25	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

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.

XENCO Laboratories
Environmental Asbestos Radiochemistry

CHAIN OF CUSTODY RECORD

Houston: 4143 Greenbriar Dr. Stafford, TX 77477 (281)240-4200 Odessa: 12600 West I-20 East Odessa, TX 79765 (432)563-1800
Hobbs: 4008 N Grimes Hobbs, NM 88240 (575)392-7550

LAB W.O #: 485273
Field billable Hrs :

Company: Basin Environmental Service Technologies, LLC | Phone: (575)396-2378
Address: 3100 Plains Hwy. | Fax: (575)396-1429
City: Lovington | State: NM | Zip: 88260
PM/Attn: Ben Arguijo | Email: cjbryant@paalp.com, bjarguijo@basinenv.com
Project ID: 14" Vac to Jal Legacy SRS #2009-092 | PO#: PAA-C. Bryant
Invoice To: Camille Bryant Plains All American | Quote #:
Sampler Signature: [signature]

Circle One Event: Daily Weekly Monthly Quartely Semi-Annual Annual N/A

TAT Work Days = D Need results by:________ Time:________
Std (5-7D) 5Hrs 1D 2D 3D 4D **5D 7D** 10D 14D Other________

ANALYSES REQUESTED

Sample #	Sample ID	Collect Date	Collect Time	Matrix Code ^	Field Filtered	Integrity OK (Y/N)	Total # of containers	Example Volatiles by 8260	BTEX	PAH								Hold Sample (CALL___) on Highest TPH Run PAH Only if
Cont Type *								VC	VP	GA								
Pres Type**								E, I	E,I	I								
								# Cont	Lab Only:									
1	MW-2	5/12/14	0830	GW			4		X	X								
2	MW-3	5/12/14	0900	GW			4		X	X								
3	MW-4	5/12/14	0930	GW			4		X	X								
4	MW-5	5/12/14	1000	GW			4		X	X								
5	MW-6	5/12/14	1100	GW			4		X	X								
6																		
7																		
8																		
9																		
0																		

* Container Type Codes

VA Vial Amber, VC Vial Clear, VP Vial Pre-preserved, GA Glass Amber, GC Glass Clear, PA Plastic Amber, PC Plastic Clear, ES Encore Sampler, TS TerraCore Sampler, AC Air Canister, TB Tedlar Bag, ZB Zip Lock Bag, PC Plastic Clear, Other________

Size(s): 2oz, 4oz, 8oz, 16oz, 32oz , 1Gal 40ml, 125 ml, 250 ml, 500 ml, 1L, Other________

** Preservative Type Codes

A. None, B. HNO_3, C. H_2SO_4, D. NaOH, E. HCL, F. MeOH, G. $Na_2S_2O_3$, H. $NaHSO_4$, I. Ice, J. MCAA, K. ZnAc&NaOH, L Asbc Acid&NaOH, O.________

^ Matrix Type Codes

GW Ground Water, WW Waste Water, DW Drinking Water, SW Surface Water, OW Ocean/Sea Water, PL Product-Liquid, PS Product-Solid, SL Sludge, Other________, S Soil/Sediment/Solid, W Wipe, A Air, O Oil, T Tissue, U Urine, B Blood

REMARKS

Reg. Program / Clean-up Std	STATE for Certs & Regs	QA/QC Level & Certification	EDDs	COC & Labels	Coolers Temp °C
CTLs TRRP DW NPDES LPST DryCln Other:	FL TX GA NC SC NJ PA OK LA AL NM Other:	1 **2** 3 4 CLP AFCEE QAPP NELAC DoD-ELAP Other:	ADaPT SEDD ERPIMS XLS Other:	Match Incomplete Absent Unclear	1 ___ 2 0.0°C 3 10.9

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	[signature]	Basin Environ.	5/12/14	1500	Darla Rosendis	EMS	5-12-14	15:00
2					Minerva Rios	Xenco	5/13/14	1146
3								
4								

Lab Use Only	YES	NO	N/A
Non-Conformances found?			
Samples intact upon arrival?			
Received on Wet Ice?			
Labeled with proper preservatives?			
Received within holding time?			
Custody seals intact?			
VOCs rec'd w/o headspace?			
Proper containers used?			
pH verified-acceptable, excl VOCs?			
Received on time to meet HTs?			

C.O.C. Serial #

B&A Laboratories: Hobbs 575-392-7550 Dallas 214-902-0300 Houston 281-242-4200 Odessa 432-563-1800 San Antonio 210-509-3334 Phoenix 602-437-0330
FTS Service Centers: Atlanta 770-449-8800 Lakeland 863-646-8526 Tampa 803-543-8099 Philadelphia 610-955-5649 South Carolina 803-543-8099

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 05/12/2014 03:00:00 PM

Work Order #: 485273

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

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	0
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**No**
#5 Custody Seals intact on sample bottles?	**No**
#6 *Custody Seals Signed and dated?	**No**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**No**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**Yes**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	**Yes**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**No**

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

Analyst:	PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 05/13/2014

Checklist reviewed by: Kelsey Brooks Date: 05/13/2014

Analytical Report 488672

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

14" Vac To Jal Legacy

SRS# 2009-092

17-JUL-14

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

17-JUL-14

Project Manager: **Ben Arguijo**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No(s): **488672**
14" Vac To Jal Legacy
Project Address: Lovington, NM

Ben Arguijo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 488672. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 488672 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 488672

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac To Jal Legacy

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	07-02-14 10:30		488672-001
MW-8	W	07-02-14 11:30		488672-002
MW-9	W	07-02-14 09:30		488672-003

CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S

Project Name: 14" Vac To Jal Legacy

Project ID: *SRS# 2009-092*
Work Order Number(s): *488672*

Report Date: *17-JUL-14*
Date Received: *07/03/2014*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-945213 VOAs by SW-846 8260B
Dichlorodifluoromethane, Hexachlorobutadiene, Styrene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Samples affected are: 488672-002, -001, -003.
The Laboratory Control Sample for Dichlorodifluoromethane, Hexachlorobutadiene, Styrene is within laboratory Control Limits

Sample -002 had pH7. Analysis occured within 7day holding time criteria for unpreserved samples.

Batch: LBA-945339 Nitrogen, Nitrate by E353.2
Samples 488672-001,002, and 003 were rec. on 7-8-14 when they were already out of hold.

Batch: LBA-945767 TDS by SM2540C
Analysis added after samples had gone out of hold. AS 7/17/14

Certificate of Analysis Summary 488672

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-03-14 10:56 am
Report Date: 17-JUL-14
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	488672-001		488672-002		488672-003					
	Field Id:	MW-7		MW-8		MW-9					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Jul-02-14 10:30		Jul-02-14 11:30		Jul-02-14 09:30					
Alkalinity by SM2320B SUB: E871002	***Extracted:***										
	Analyzed:	Jul-09-14 17:02		Jul-09-14 17:02		Jul-09-14 17:02					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Alkalinity, Bicarbonate (as CaCO3)		230	4.00	192	4.00	317	4.00				
Alkalinity, Carbonate (as CaCO3)		ND	4.00	ND	4.00	ND	4.00				
Inorganic Anions by EPA 300/300.1 SUB: E871002	***Extracted:***	Jul-08-14 03:47		Jul-08-14 04:10		Jul-08-14 04:32					
	Analyzed:	Jul-08-14 03:47		Jul-08-14 04:10		Jul-08-14 04:32					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Chloride		4850	200	7540	200	3340	200				
Fluoride		ND	80.0	ND	80.0	ND	80.0				
Sulfate		490	400	615	400	406	400				
Mercury by EPA 7470A SUB: E871002	***Extracted:***	Jul-08-14 12:00		Jul-08-14 12:00		Jul-08-14 12:00					
	Analyzed:	Jul-08-14 15:54		Jul-08-14 15:56		Jul-08-14 15:58					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Mercury		ND	0.000200	ND	0.00100	0.000254	0.000200				
Metals by EPA 200.8 SUB: E871002	***Extracted:***	Jul-11-14 10:40		Jul-11-14 10:40		Jul-11-14 10:40					
	Analyzed:	Jul-11-14 20:25		Jul-11-14 20:33		Jul-11-14 20:40					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Arsenic		0.0206	0.0100	0.102	0.0100	0.0215	0.0100				
Silver		ND	0.0100	0.0255	0.0100	ND	0.0100				

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 488672

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-03-14 10:56 am
Report Date: 17-JUL-14
Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	488672-001		488672-002		488672-003				
	Field Id:	MW-7		MW-8		MW-9				
	Depth:									
	Matrix:	WATER		WATER		WATER				
	Sampled:	Jul-02-14 10:30		Jul-02-14 11:30		Jul-02-14 09:30				
Metals per ICP by EPA 200.7 SUB: E871002	***Extracted:***	Jul-09-14 13:00		Jul-09-14 13:00		Jul-09-14 13:00				
	Analyzed:	Jul-10-14 19:37		Jul-10-14 19:43		Jul-10-14 19:50				
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL			
Aluminum		52.6	0.200	124	0.200	42.2	0.200			
Barium		1.44	0.0100	3.30	0.0100	3.33	0.0100			
Boron		0.962	0.0500	0.601	0.0500	0.743	0.0500			
Cadmium		ND	0.0100	ND	0.0100	ND	0.0100			
Calcium		1050	0.200	1250	0.200	697	0.200			
Chromium		0.0621	0.0100	0.150	0.0100	0.0506	0.0100			
Cobalt		0.0435	0.0100	0.0830	0.0100	0.0333	0.0100			
Copper		0.0641	0.0200	0.149	0.0200	0.0407	0.0200			
Iron		49.8	0.200	104	0.200	38.7	0.200			
Lead		0.0664	0.0100	0.0913	0.0100	0.0546	0.0100			
Magnesium		316	0.200	256	0.200	193	0.200			
Manganese		2.86	0.0200	3.54	0.0200	2.83	0.0200			
Molybdenum		ND	0.0100	ND	0.0100	ND	0.0100			
Nickel		0.103	0.0100	0.203	0.0100	0.0809	0.0100			
Potassium		40.2	0.500	44.4	0.500	31.8	0.500			
Selenium		ND	0.0300	ND	0.0300	ND	0.0300			
Sodium		1890	0.500	1170	0.500	1340	0.500			
Zinc		0.308	0.0300	0.927	0.0300	0.256	0.0300			
Nitrogen, Nitrate by E353.2 SUB: E871002	***Extracted:***									
	Analyzed:	Jul-08-14 14:56		Jul-08-14 14:56		Jul-08-14 14:56				
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL			
Nitrate		7.82	0.100	5.46	0.100	3.52	0.100			

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 488672

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-03-14 10:56 am
Report Date: 17-JUL-14
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	488672-001		488672-002		488672-003					
	Field Id:	MW-7		MW-8		MW-9					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Jul-02-14 10:30		Jul-02-14 11:30		Jul-02-14 09:30					
PAHs by GCMS SIM SUB: E871002	***Extracted:***	Jul-09-14 13:09		Jul-09-14 13:12		Jul-09-14 13:15					
	Analyzed:	Jul-09-14 18:42		Jul-09-14 19:08		Jul-09-14 19:33					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Acenaphthene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Acenaphthylene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Anthracene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Benzo(a)anthracene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Benzo(a)pyrene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Benzo(b)fluoranthene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Benzo(g,h,i)perylene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Benzo(k)fluoranthene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Chrysene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Dibenz(a,h)anthracene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Dibenzofuran		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Fluoranthene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Fluorene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Indeno(1,2,3-c,d)Pyrene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Naphthalene		ND	0.000500	ND	0.000500	ND	0.000500				
Phenanthrene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
Pyrene		ND	0.0000500	ND	0.0000500	ND	0.0000500				
TDS by SM2540C SUB: E871002	***Extracted:***										
	Analyzed:	Jul-16-14 14:07		Jul-16-14 14:07		Jul-16-14 14:07					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Total dissolved solids		13700 K	5.00	18100 K	5.00	9680 K	5.00				

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 488672

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-03-14 10:56 am
Report Date: 17-JUL-14
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	488672-001		488672-002		488672-003					
	Field Id:	MW-7		MW-8		MW-9					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Jul-02-14 10:30		Jul-02-14 11:30		Jul-02-14 09:30					
Total Phosphorus by EPA 365.1 SUB: E871002	***Extracted:***	Jul-09-14 12:05		Jul-09-14 12:05		Jul-09-14 12:05					
	Analyzed:	Jul-09-14 13:44		Jul-09-14 14:00		Jul-09-14 13:47					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Total Phosphorus (as P)		1.86	0.0200	13.1	0.200	1.72	0.0200				

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 488672

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-03-14 10:56 am
Report Date: 17-JUL-14
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	488672-001		488672-002		488672-003					
	Field Id:	MW-7		MW-8		MW-9					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Jul-02-14 10:30		Jul-02-14 11:30		Jul-02-14 09:30					
VOAs by SW-846 8260B	***Extracted:***	Jul-08-14 14:57		Jul-08-14 15:06		Jul-08-14 15:07					
SUB: E871002	***Analyzed:***	Jul-08-14 15:14		Jul-08-14 19:43		Jul-08-14 20:10					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Benzene		ND	0.00500	ND	0.00500	ND	0.00500				
Bromobenzene		ND	0.00500	ND	0.00500	ND	0.00500				
Bromochloromethane		ND	0.00500	ND	0.00500	ND	0.00500				
Bromodichloromethane		ND	0.00500	ND	0.00500	ND	0.00500				
Bromoform		ND	0.00500	ND	0.00500	ND	0.00500				
Methyl bromide		ND	0.00500	ND	0.00500	ND	0.00500				
n-Butylbenzene		ND	0.00500	ND	0.00500	ND	0.00500				
Sec-Butylbenzene		ND	0.00500	ND	0.00500	ND	0.00500				
tert-Butylbenzene		ND	0.00500	ND	0.00500	ND	0.00500				
Carbon Tetrachloride		ND	0.00500	ND	0.00500	ND	0.00500				
Chlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500				
Chloroethane		ND	0.0100	ND	0.0100	ND	0.0100				
Chloroform		ND	0.00500	ND	0.00500	ND	0.00500				
Methyl Chloride		ND	0.0100	ND	0.0100	ND	0.0100				
2-Chlorotoluene		ND	0.00500	ND	0.00500	ND	0.00500				
4-Chlorotoluene		ND	0.00500	ND	0.00500	ND	0.00500				
p-Cymene (p-Isopropyltoluene)		ND	0.00500	ND	0.00500	ND	0.00500				
Dibromochloromethane		ND	0.00500	ND	0.00500	ND	0.00500				
1,2-Dibromo-3-Chloropropane		ND	0.00500	ND	0.00500	ND	0.00500				
1,2-Dibromoethane		ND	0.00500	ND	0.00500	ND	0.00500				
Methylene bromide		ND	0.00500	ND	0.00500	ND	0.00500				
1,2-Dichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500				
1,3-Dichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500				
1,4-Dichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500				
Dichlorodifluoromethane		ND	0.00500	ND	0.00500	ND	0.00500				

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 488672

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-03-14 10:56 am
Report Date: 17-JUL-14
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	488672-001		488672-002		488672-003					
	Field Id:	MW-7		MW-8		MW-9					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Jul-02-14 10:30		Jul-02-14 11:30		Jul-02-14 09:30					
VOAs by SW-846 8260B	***Extracted:***	Jul-08-14 14:57		Jul-08-14 15:06		Jul-08-14 15:07					
SUB: E871002	***Analyzed:***	Jul-08-14 15:14		Jul-08-14 19:43		Jul-08-14 20:10					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
1,1-Dichloroethane		ND	0.00500	ND	0.00500	ND	0.00500				
1,2-Dichloroethane		ND	0.00500	ND	0.00500	ND	0.00500				
1,1-Dichloroethene		ND	0.00500	ND	0.00500	ND	0.00500				
cis-1,2-Dichloroethylene		ND	0.00500	ND	0.00500	ND	0.00500				
trans-1,2-dichloroethylene		ND	0.00500	ND	0.00500	ND	0.00500				
1,2-Dichloropropane		ND	0.00500	ND	0.00500	ND	0.00500				
1,3-Dichloropropane		ND	0.00500	ND	0.00500	ND	0.00500				
2,2-Dichloropropane		ND	0.00500	ND	0.00500	ND	0.00500				
1,1-Dichloropropene		ND	0.00500	ND	0.00500	ND	0.00500				
cis-1,3-Dichloropropene		ND	0.00500	ND	0.00500	ND	0.00500				
trans-1,3-dichloropropene		ND	0.00500	ND	0.00500	ND	0.00500				
Ethylbenzene		ND	0.00500	ND	0.00500	ND	0.00500				
Hexachlorobutadiene		ND	0.00500	ND	0.00500	ND	0.00500				
Isopropylbenzene		ND	0.00500	ND	0.00500	ND	0.00500				
Methylene Chloride		ND	0.00500	ND	0.00500	ND	0.00500				
MTBE		ND	0.00500	ND	0.00500	ND	0.00500				
Naphthalene		ND	0.0100	ND	0.0100	ND	0.0100				
n-Propylbenzene		ND	0.00500	ND	0.00500	ND	0.00500				
Styrene		ND	0.00500	ND	0.00500	ND	0.00500				
1,1,1,2-Tetrachloroethane		ND	0.00500	ND	0.00500	ND	0.00500				
1,1,2,2-Tetrachloroethane		ND	0.00500	ND	0.00500	ND	0.00500				
Tetrachloroethylene		ND	0.00500	ND	0.00500	ND	0.00500				
Toluene		ND	0.00500	ND	0.00500	ND	0.00500				
1,2,3-Trichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500				
1,2,4-Trichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500				

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 488672

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-03-14 10:56 am
Report Date: 17-JUL-14
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	488672-001		488672-002		488672-003					
	Field Id:	MW-7		MW-8		MW-9					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Jul-02-14 10:30		Jul-02-14 11:30		Jul-02-14 09:30					
VOAs by SW-846 8260B SUB: E871002	***Extracted:***	Jul-08-14 14:57		Jul-08-14 15:06		Jul-08-14 15:07					
	Analyzed:	Jul-08-14 15:14		Jul-08-14 19:43		Jul-08-14 20:10					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
1,1,1-Trichloroethane		ND	0.00500	ND	0.00500	ND	0.00500				
1,1,2-Trichloroethane		ND	0.00500	ND	0.00500	ND	0.00500				
Trichloroethylene		ND	0.00500	ND	0.00500	ND	0.00500				
Trichlorofluoromethane		ND	0.00500	ND	0.00500	ND	0.00500				
1,2,3-Trichloropropane		ND	0.00500	ND	0.00500	ND	0.00500				
1,2,4-Trimethylbenzene		ND	0.00500	ND	0.00500	ND	0.00500				
1,3,5-Trimethylbenzene		ND	0.00500	ND	0.00500	ND	0.00500				
o-Xylene		ND	0.00500	ND	0.00500	ND	0.00500				
m,p-Xylenes		ND	0.0100	ND	0.0100	ND	0.0100				
Vinyl Chloride		ND	0.00200	ND	0.00200	ND	0.00200				

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 488672,

Project ID: SRS# 2009-092

Lab Batch #: 945213 **Sample:** 488672-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/08/14 15:14

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0526	0.0500	105	75-131	
1,2-Dichloroethane-D4	0.0505	0.0500	101	63-144	
Toluene-D8	0.0466	0.0500	93	80-117	
4-Bromofluorobenzene	0.0505	0.0500	101	74-124	

Lab Batch #: 945213 **Sample:** 488672-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/08/14 19:43

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0503	0.0500	101	75-131	
1,2-Dichloroethane-D4	0.0488	0.0500	98	63-144	
Toluene-D8	0.0470	0.0500	94	80-117	
4-Bromofluorobenzene	0.0495	0.0500	99	74-124	

Lab Batch #: 945213 **Sample:** 488672-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/08/14 20:10

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0504	0.0500	101	75-131	
1,2-Dichloroethane-D4	0.0534	0.0500	107	63-144	
Toluene-D8	0.0470	0.0500	94	80-117	
4-Bromofluorobenzene	0.0505	0.0500	101	74-124	

Lab Batch #: 945303 **Sample:** 488672-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/09/14 18:42

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.871	1.00	87	35-114	
2-Fluorobiphenyl	0.855	1.00	86	43-116	
Terphenyl-D14	0.866	1.00	87	33-141	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 488672,

Project ID: SRS# 2009-092

Lab Batch #: 945303 **Sample:** 488672-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/09/14 19:08

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.866	1.00	87	35-114	
2-Fluorobiphenyl	0.861	1.00	86	43-116	
Terphenyl-D14	0.855	1.00	86	33-141	

Lab Batch #: 945303 **Sample:** 488672-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/09/14 19:33

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.798	1.00	80	35-114	
2-Fluorobiphenyl	0.847	1.00	85	43-116	
Terphenyl-D14	0.830	1.00	83	33-141	

Lab Batch #: 945213 **Sample:** 658096-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/08/14 14:18

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0518	0.0500	104	75-131	
1,2-Dichloroethane-D4	0.0485	0.0500	97	63-144	
Toluene-D8	0.0470	0.0500	94	80-117	
4-Bromofluorobenzene	0.0515	0.0500	103	74-124	

Lab Batch #: 945303 **Sample:** 658056-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/09/14 17:25

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.812	1.00	81	35-114	
2-Fluorobiphenyl	0.932	1.00	93	43-116	
Terphenyl-D14	0.967	1.00	97	33-141	

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

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 488672,

Project ID: SRS# 2009-092

Lab Batch #: 945213 **Sample:** 658096-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/08/14 11:34

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0502	0.0500	100	75-131	
1,2-Dichloroethane-D4	0.0488	0.0500	98	63-144	
Toluene-D8	0.0473	0.0500	95	80-117	
4-Bromofluorobenzene	0.0502	0.0500	100	74-124	

Lab Batch #: 945303 **Sample:** 658056-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/09/14 17:51

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.806	1.00	81	35-114	
2-Fluorobiphenyl	0.881	1.00	88	43-116	
Terphenyl-D14	0.932	1.00	93	33-141	

Lab Batch #: 945303 **Sample:** 658056-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/09/14 18:16

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Nitrobenzene-d5	0.813	1.00	81	35-114	
2-Fluorobiphenyl	0.885	1.00	89	43-116	
Terphenyl-D14	0.921	1.00	92	33-141	

Lab Batch #: 945213 **Sample:** 488672-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/08/14 18:26

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0506	0.0500	101	75-131	
1,2-Dichloroethane-D4	0.0505	0.0500	101	63-144	
Toluene-D8	0.0464	0.0500	93	80-117	
4-Bromofluorobenzene	0.0497	0.0500	99	74-124	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 488672, **Project ID:** SRS# 2009-092

Lab Batch #: 945213 **Sample:** 488672-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/08/14 18:52

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0496	0.0500	99	75-131	
1,2-Dichloroethane-D4	0.0502	0.0500	100	63-144	
Toluene-D8	0.0471	0.0500	94	80-117	
4-Bromofluorobenzene	0.0506	0.0500	101	74-124	

* 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.

Blank Spike Recovery

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672 **Project ID:** SRS# 2009-092

Lab Batch #: 945339 **Sample:** 945339-1-BKS **Matrix:** Water

Date Analyzed: 07/08/2014 **Date Prepared:** 07/08/2014 **Analyst:** BFO

Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

Nitrogen, Nitrate by E353.2 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Nitrate	<0.100	2.00	2.11	106	90-110	

Lab Batch #: 945223 **Sample:** 658101-1-BKS **Matrix:** Water

Date Analyzed: 07/09/2014 **Date Prepared:** 07/09/2014 **Analyst:** BFO

Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

Total Phosphorus by EPA 365.1 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total Phosphorus (as P)	<0.0200	0.500	0.507	101	90-110	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

Blank Spike Recovery

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672 **Project ID:** SRS# 2009-092

Lab Batch #: 945213 **Sample:** 658096-1-BKS **Matrix:** Water

Date Analyzed: 07/08/2014 **Date Prepared:** 07/08/2014 **Analyst:** MCH

Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.00500	0.0500	0.0473	95	68-123	
Bromobenzene	<0.00500	0.0500	0.0444	89	83-124	
Bromochloromethane	<0.00500	0.0500	0.0483	97	68-119	
Bromodichloromethane	<0.00500	0.0500	0.0534	107	72-132	
Bromoform	<0.00500	0.0500	0.0495	99	65-136	
Methyl bromide	<0.00500	0.0500	0.0472	94	48-120	
n-Butylbenzene	<0.00500	0.0500	0.0472	94	82-128	
Sec-Butylbenzene	<0.00500	0.0500	0.0460	92	83-130	
tert-Butylbenzene	<0.00500	0.0500	0.0481	96	83-131	
Carbon Tetrachloride	<0.00500	0.0500	0.0544	109	68-135	
Chlorobenzene	<0.00500	0.0500	0.0447	89	78-124	
Chloroethane	<0.0100	0.0500	0.0465	93	55-120	
Chloroform	<0.00500	0.0500	0.0511	102	71-119	
Methyl Chloride	<0.0100	0.0500	0.0513	103	54-114	
2-Chlorotoluene	<0.00500	0.0500	0.0457	91	83-128	
4-Chlorotoluene	<0.00500	0.0500	0.0455	91	81-125	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0456	91	85-129	
Dibromochloromethane	<0.00500	0.0500	0.0478	96	74-135	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0455	91	62-134	
1,2-Dibromoethane	<0.00500	0.0500	0.0469	94	77-129	
Methylene bromide	<0.00500	0.0500	0.0512	102	71-124	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0446	89	81-123	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0448	90	82-126	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0452	90	80-119	
Dichlorodifluoromethane	<0.00500	0.0500	0.0579	116	59-121	
1,1-Dichloroethane	<0.00500	0.0500	0.0521	104	75-125	
1,2-Dichloroethane	<0.00500	0.0500	0.0562	112	64-130	
1,1-Dichloroethene	<0.00500	0.0500	0.0489	98	68-116	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0493	99	74-130	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0482	96	64-109	
1,2-Dichloropropane	<0.00500	0.0500	0.0481	96	72-127	
1,3-Dichloropropane	<0.00500	0.0500	0.0457	91	79-133	
2,2-Dichloropropane	<0.00500	0.0500	0.0569	114	71-134	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

Blank Spike Recovery

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672 **Project ID:** SRS# 2009-092

Lab Batch #: 945213 **Sample:** 658096-1-BKS **Matrix:** Water

Date Analyzed: 07/08/2014 **Date Prepared:** 07/08/2014 **Analyst:** MCH

Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
1,1-Dichloropropene	<0.00500	0.0500	0.0512	102	69-124	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0541	108	74-138	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0486	97	70-132	
Ethylbenzene	<0.00500	0.0500	0.0459	92	69-131	
Hexachlorobutadiene	<0.00500	0.0500	0.0427	85	74-130	
Isopropylbenzene	<0.00500	0.0500	0.0447	89	66-133	
Methylene Chloride	<0.00500	0.0500	0.0446	89	60-121	
MTBE	<0.00500	0.0500	0.0537	107	60-152	
Naphthalene	<0.0100	0.0500	0.0459	92	69-140	
n-Propylbenzene	<0.00500	0.0500	0.0480	96	86-129	
Styrene	<0.00500	0.0500	0.0476	95	79-128	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0485	97	78-131	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0435	87	80-133	
Tetrachloroethylene	<0.00500	0.0500	0.0477	95	79-122	
Toluene	<0.00500	0.0500	0.0442	88	62-132	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0445	89	76-126	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0453	91	77-127	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0525	105	72-124	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0458	92	71-135	
Trichloroethylene	<0.00500	0.0500	0.0531	106	74-123	
Trichlorofluoromethane	<0.00500	0.0500	0.0610	122	70-143	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0449	90	75-134	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0484	97	79-132	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0477	95	72-139	
o-Xylene	<0.00500	0.0500	0.0466	93	67-132	
m,p-Xylenes	<0.0100	0.100	0.0923	92	69-132	
Vinyl Chloride	<0.00200	0.0500	0.0481	96	59-124	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

BS / BSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672 **Project ID:** SRS# 2009-092

Analyst: RKO **Date Prepared:** 07/07/2014 **Date Analyzed:** 07/07/2014

Lab Batch ID: 945189 **Sample:** 657985-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<1.00	25.0	23.9	96	25.0	23.8	95	0	80-120	20	
Fluoride	<0.400	5.00	5.00	100	5.00	4.95	99	1	80-120	20	
Sulfate	<2.00	25.0	23.6	94	25.0	23.6	94	0	80-120	20	

Analyst: BHRE **Date Prepared:** 07/08/2014 **Date Analyzed:** 07/08/2014

Lab Batch ID: 945104 **Sample:** 658038-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Mercury by EPA 7470A 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
Mercury	<0.000200	0.00200	0.00174	87	0.00200	0.00175	88	1	80-120	20	

Analyst: DAB **Date Prepared:** 07/11/2014 **Date Analyzed:** 07/11/2014

Lab Batch ID: 945482 **Sample:** 658226-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Metals by EPA 200.8 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
Arsenic	<0.00200	0.100	0.102	102	0.100	0.104	104	2	85-115	20	
Silver	<0.00200	0.0500	0.0530	106	0.0500	0.0529	106	0	85-115	20	

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

BS / BSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672 **Project ID:** SRS# 2009-092

Analyst: DAB **Date Prepared:** 07/09/2014 **Date Analyzed:** 07/10/2014

Lab Batch ID: 945411 **Sample:** 658113-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Metals per ICP by EPA 200.7 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
Aluminum	<0.200	5.00	5.15	103	5.00	5.12	102	1	85-115	20	
Barium	<0.0100	1.00	0.987	99	1.00	0.984	98	0	85-115	20	
Boron	<0.0500	1.00	1.14	114	1.00	1.14	114	0	85-115	20	
Cadmium	<0.0100	1.00	1.02	102	1.00	1.02	102	0	85-115	20	
Calcium	<0.200	25.0	26.3	105	25.0	26.1	104	1	85-115	20	
Chromium	<0.0100	1.00	1.08	108	1.00	1.07	107	1	85-115	20	
Cobalt	<0.0100	1.00	0.995	100	1.00	0.989	99	1	85-115	20	
Copper	<0.0200	1.00	1.05	105	1.00	1.05	105	0	85-115	20	
Iron	<0.200	5.00	5.30	106	5.00	5.30	106	0	85-115	20	
Lead	<0.0100	1.00	1.07	107	1.00	1.06	106	1	85-115	20	
Magnesium	<0.200	25.0	26.8	107	25.0	26.7	107	0	85-115	20	
Manganese	<0.0200	1.00	1.02	102	1.00	1.01	101	1	85-115	20	
Molybdenum	<0.0100	1.00	1.11	111	1.00	1.10	110	1	85-115	20	
Nickel	<0.0100	1.00	1.03	103	1.00	1.03	103	0	85-115	20	
Potassium	<0.500	10.0	9.79	98	10.0	9.94	99	2	85-115	20	
Selenium	<0.0300	1.00	1.15	115	1.00	1.16	116	1	85-115	20	
Sodium	<0.500	25.0	25.4	102	25.0	25.3	101	0	85-115	20	
Zinc	<0.0300	1.00	1.15	115	1.00	1.16	116	1	85-115	20	

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

BS / BSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672 **Project ID:** SRS# 2009-092

Analyst: PKH **Date Prepared:** 07/09/2014 **Date Analyzed:** 07/09/2014

Lab Batch ID: 945303 **Sample:** 658056-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

PAHs by GCMS SIM 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
Acenaphthene	<0.0000500	0.00100	0.000806	81	0.00100	0.000827	83	3	57-90	25	
Acenaphthylene	<0.0000500	0.00100	0.000840	84	0.00100	0.000852	85	1	47-95	25	
Anthracene	<0.0000500	0.00100	0.000858	86	0.00100	0.000868	87	1	56-90	25	
Benzo(a)anthracene	<0.0000500	0.00100	0.000911	91	0.00100	0.000925	93	2	51-100	25	
Benzo(a)pyrene	<0.0000500	0.00100	0.000864	86	0.00100	0.000876	88	1	49-97	25	
Benzo(b)fluoranthene	<0.0000500	0.00100	0.000824	82	0.00100	0.000833	83	1	41-114	25	
Benzo(g,h,i)perylene	<0.0000500	0.00100	0.000794	79	0.00100	0.000812	81	2	51-105	25	
Benzo(k)fluoranthene	<0.0000500	0.00100	0.000818	82	0.00100	0.000838	84	2	54-103	25	
Chrysene	<0.0000500	0.00100	0.000855	86	0.00100	0.000877	88	3	60-101	25	
Dibenz(a,h)anthracene	<0.0000500	0.00100	0.000800	80	0.00100	0.000815	82	2	50-109	25	
Dibenzofuran	<0.0000500	0.00100	0.000829	83	0.00100	0.000858	86	3	55-91	25	
Fluoranthene	<0.0000500	0.00100	0.000864	86	0.00100	0.000892	89	3	58-93	25	
Fluorene	<0.0000500	0.00100	0.000833	83	0.00100	0.000847	85	2	58-93	25	
Indeno(1,2,3-c,d)Pyrene	<0.0000500	0.00100	0.000799	80	0.00100	0.000816	82	2	52-108	25	
Naphthalene	<0.000500	0.00100	0.000810	81	0.00100	0.000842	84	4	51-100	25	
Phenanthrene	<0.0000500	0.00100	0.000881	88	0.00100	0.000923	92	5	43-97	25	
Pyrene	<0.0000500	0.00100	0.000849	85	0.00100	0.000870	87	2	51-95	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

BS / BSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672 **Project ID:** SRS# 2009-092

Analyst: ANS **Date Prepared:** 07/16/2014 **Date Analyzed:** 07/16/2014

Lab Batch ID: 945767 **Sample:** 945767-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TDS by SM2540C 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
Total dissolved solids	<5.00	1000	984	98	1000	979	98	1	80-120	10	

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

Form 3 - MS Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672

Lab Batch #: 945189 **Project ID:** SRS# 2009-092

Date Analyzed: 07/08/2014 **Date Prepared:** 07/08/2014 **Analyst:** RKO

QC- Sample ID: 488629-001 S **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	170	250	451	112	80-120	
Fluoride	<4.00	50.0	53.6	107	80-120	
Sulfate	67.2	250	321	102	80-120	

Lab Batch #: 945189

Date Analyzed: 07/08/2014 **Date Prepared:** 07/08/2014 **Analyst:** RKO

QC- Sample ID: 488694-002 S **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	89.3	250	357	107	80-120	
Fluoride	<4.00	50.0	52.7	105	80-120	
Sulfate	131	250	399	107	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672

Lab Batch #: 945411 **Project ID:** SRS# 2009-092

Date Analyzed: 07/10/2014 **Date Prepared:** 07/09/2014 **Analyst:** DAB

QC- Sample ID: 488694-002 S **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Metals per ICP by EPA 200.7	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Aluminum	<0.200	5.00	5.12	102	70-130	
Barium	0.0404	1.00	1.00	96	70-130	
Boron	0.306	1.00	1.43	112	70-130	
Cadmium	<0.0100	1.00	0.988	99	70-130	
Calcium	92.5	25.0	118	102	70-130	
Chromium	<0.0100	1.00	1.03	103	70-130	
Cobalt	<0.0100	1.00	0.957	96	70-130	
Copper	<0.0200	1.00	1.00	100	70-130	
Iron	<0.200	5.00	4.90	98	70-130	
Lead	<0.0100	1.00	1.01	101	70-130	
Magnesium	16.6	25.0	42.2	102	70-130	
Manganese	0.0779	1.00	1.05	97	70-130	
Molybdenum	<0.0100	1.00	1.06	106	70-130	
Nickel	<0.0100	1.00	0.978	98	70-130	
Potassium	5.26	10.0	15.4	101	70-130	
Selenium	<0.0300	1.00	1.10	110	70-130	
Sodium	81.5	25.0	108	106	70-130	
Zinc	0.0737	1.00	1.18	111	70-130	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order # : 488672 **Project ID:** SRS# 2009-092

Lab Batch ID: 945104 **QC- Sample ID:** 488558-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 07/08/2014 **Date Prepared:** 07/08/2014 **Analyst:** BHRE

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Mercury by EPA 7470A 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
Mercury	<0.000200	0.00200	0.00183	92	0.00200	0.00180	90	2	75-125	20	

Lab Batch ID: 945482 **QC- Sample ID:** 489060-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 07/11/2014 **Date Prepared:** 07/11/2014 **Analyst:** DAB

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Metals by EPA 200.8 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
Arsenic	<0.00200	0.100	0.105	105	0.100	0.105	105	0	70-130	20	
Silver	<0.00200	0.0500	0.0522	104	0.0500	0.0520	104	0	70-130	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order # : 488672 **Project ID:** SRS# 2009-092

Lab Batch ID: 945411 **QC- Sample ID:** 488661-001 S **Batch #:** 1 **Matrix:** Waste Water

Date Analyzed: 07/10/2014 **Date Prepared:** 07/09/2014 **Analyst:** DAB

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Metals per ICP by EPA 200.7 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
Aluminum	0.269	5.00	5.89	112	5.00	6.12	117	4	70-130	20	
Barium	0.102	1.00	1.12	102	1.00	1.12	102	0	70-130	20	
Boron	0.0622	1.00	1.26	120	1.00	1.29	123	2	70-130	20	
Cadmium	<0.0100	1.00	1.06	106	1.00	1.05	105	1	70-130	20	
Calcium	240	25.0	265	100	25.0	263	92	1	70-130	20	
Chromium	0.304	1.00	1.38	108	1.00	1.37	107	1	70-130	20	
Cobalt	<0.0100	1.00	1.02	102	1.00	1.00	100	2	70-130	20	
Copper	<0.0200	1.00	1.10	110	1.00	1.10	110	0	70-130	20	
Iron	<0.200	5.00	5.19	104	5.00	5.14	103	1	70-130	20	
Lead	<0.0100	1.00	1.05	105	1.00	1.03	103	2	70-130	20	
Magnesium	6.23	25.0	33.0	107	25.0	32.5	105	2	70-130	20	
Manganese	<0.0200	1.00	1.03	103	1.00	1.01	101	2	70-130	20	
Molybdenum	0.219	1.00	1.33	111	1.00	1.32	110	1	70-130	20	
Nickel	<0.0100	1.00	1.03	103	1.00	1.02	102	1	70-130	20	
Potassium	254	10.0	270	160	10.0	273	190	1	70-130	20	X
Selenium	0.0662	1.00	1.26	119	1.00	1.25	118	1	70-130	20	
Sodium	95.6	25.0	125	118	25.0	126	122	1	70-130	20	
Zinc	0.0358	1.00	1.23	119	1.00	1.22	118	1	70-130	20	

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

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

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

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order # : 488672 **Project ID:** SRS# 2009-092

Lab Batch ID: 945223 **QC- Sample ID:** 488661-001 S **Batch #:** 1 **Matrix:** Waste Water

Date Analyzed: 07/09/2014 **Date Prepared:** 07/09/2014 **Analyst:** BFO

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Total Phosphorus by EPA 365.1 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
Total Phosphorus (as P)	0.764	0.500	1.25	97	0.500	1.27	101	2	90-110	20	

Lab Batch ID: 945223 **QC- Sample ID:** 488718-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 07/09/2014 **Date Prepared:** 07/09/2014 **Analyst:** BFO

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Total Phosphorus by EPA 365.1 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
Total Phosphorus (as P)	0.869	0.500	1.37	100	0.500	1.37	100	0	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order # : 488672 **Project ID:** SRS# 2009-092

Lab Batch ID: 945213 **QC- Sample ID:** 488672-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 07/08/2014 **Date Prepared:** 07/08/2014 **Analyst:** MCH

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260B 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	<0.00500	0.0500	0.0458	92	0.0500	0.0476	95	4	66-142	25	
Bromobenzene	<0.00500	0.0500	0.0423	85	0.0500	0.0435	87	3	75-125	25	
Bromochloromethane	<0.00500	0.0500	0.0463	93	0.0500	0.0475	95	3	60-140	25	
Bromodichloromethane	<0.00500	0.0500	0.0489	98	0.0500	0.0504	101	3	75-125	25	
Bromoform	<0.00500	0.0500	0.0479	96	0.0500	0.0509	102	6	75-125	25	
Methyl bromide	<0.00500	0.0500	0.0363	73	0.0500	0.0353	71	3	60-140	25	
n-Butylbenzene	<0.00500	0.0500	0.0409	82	0.0500	0.0434	87	6	75-125	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0400	80	0.0500	0.0427	85	7	75-125	25	
tert-Butylbenzene	<0.00500	0.0500	0.0415	83	0.0500	0.0448	90	8	75-125	25	
Carbon Tetrachloride	<0.00500	0.0500	0.0431	86	0.0500	0.0449	90	4	62-125	25	
Chlorobenzene	<0.00500	0.0500	0.0410	82	0.0500	0.0438	88	7	60-133	25	
Chloroethane	<0.0100	0.0500	0.0362	72	0.0500	0.0356	71	2	60-140	25	
Chloroform	<0.00500	0.0500	0.0470	94	0.0500	0.0483	97	3	70-130	25	
Methyl Chloride	<0.0100	0.0500	0.0379	76	0.0500	0.0380	76	0	60-140	25	
2-Chlorotoluene	<0.00500	0.0500	0.0415	83	0.0500	0.0444	89	7	73-125	25	
4-Chlorotoluene	<0.00500	0.0500	0.0416	83	0.0500	0.0431	86	4	74-125	25	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0400	80	0.0500	0.0427	85	7	75-125	25	
Dibromochloromethane	<0.00500	0.0500	0.0456	91	0.0500	0.0457	91	0	73-125	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0487	97	0.0500	0.0491	98	1	59-125	25	
1,2-Dibromoethane	<0.00500	0.0500	0.0464	93	0.0500	0.0470	94	1	73-125	25	
Methylene bromide	<0.00500	0.0500	0.0489	98	0.0500	0.0490	98	0	69-127	25	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0429	86	0.0500	0.0444	89	3	75-125	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0414	83	0.0500	0.0436	87	5	75-125	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.

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order # : 488672 **Project ID:** SRS# 2009-092

Lab Batch ID: 945213 **QC- Sample ID:** 488672-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 07/08/2014 **Date Prepared:** 07/08/2014 **Analyst:** MCH

Reporting Units: mg/L

VOAs by SW-846 8260B

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
1,4-Dichlorobenzene	<0.00500	0.0500	0.0419	84	0.0500	0.0437	87	4	75-125	25	
Dichlorodifluoromethane	<0.00500	0.0500	0.0256	51	0.0500	0.0290	58	12	70-130	25	X
1,1-Dichloroethane	<0.00500	0.0500	0.0463	93	0.0500	0.0485	97	5	72-125	25	
1,2-Dichloroethane	<0.00500	0.0500	0.0508	102	0.0500	0.0518	104	2	68-127	25	
1,1-Dichloroethene	<0.00500	0.0500	0.0364	73	0.0500	0.0371	74	2	59-172	25	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0458	92	0.0500	0.0462	92	1	75-125	25	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0393	79	0.0500	0.0434	87	10	75-125	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0445	89	0.0500	0.0465	93	4	74-125	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0453	91	0.0500	0.0467	93	3	75-125	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0439	88	0.0500	0.0472	94	7	75-125	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0423	85	0.0500	0.0446	89	5	75-125	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0486	97	0.0500	0.0505	101	4	74-125	25	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0447	89	0.0500	0.0457	91	2	66-125	25	
Ethylbenzene	<0.00500	0.0500	0.0413	83	0.0500	0.0441	88	7	75-125	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0351	70	0.0500	0.0369	74	5	75-125	25	X
Isopropylbenzene	<0.00500	0.0500	0.0397	79	0.0500	0.0420	84	6	75-125	25	
Methylene Chloride	<0.00500	0.0500	0.0390	78	0.0500	0.0421	84	8	75-125	25	
MTBE	<0.00500	0.0500	0.0529	106	0.0500	0.0583	117	10	65-135	25	
Naphthalene	<0.0100	0.0500	0.0515	103	0.0500	0.0541	108	5	70-130	25	
n-Propylbenzene	<0.00500	0.0500	0.0421	84	0.0500	0.0451	90	7	75-125	25	
Styrene	<0.00500	0.0500	<0.00500	0	0.0500	<0.00500	0	NC	75-125	25	X
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0453	91	0.0500	0.0477	95	5	72-125	25	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0455	91	0.0500	0.0477	95	5	74-125	25	
Tetrachloroethylene	<0.00500	0.0500	0.0405	81	0.0500	0.0429	86	6	71-125	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.

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order # : 488672 **Project ID:** SRS# 2009-092

Lab Batch ID: 945213 **QC- Sample ID:** 488672-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 07/08/2014 **Date Prepared:** 07/08/2014 **Analyst:** MCH

Reporting Units: mg/L

VOAs by SW-846 8260B

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
Toluene	<0.00500	0.0500	0.0395	79	0.0500	0.0421	84	6	59-139	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0459	92	0.0500	0.0480	96	4	75-137	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0454	91	0.0500	0.0468	94	3	75-135	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0440	88	0.0500	0.0461	92	5	75-125	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0460	92	0.0500	0.0482	96	5	75-127	25	
Trichloroethylene	<0.00500	0.0500	0.0449	90	0.0500	0.0481	96	7	62-137	25	
Trichlorofluoromethane	<0.00500	0.0500	0.0362	72	0.0500	0.0401	80	10	60-140	25	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0428	86	0.0500	0.0444	89	4	75-125	25	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0441	88	0.0500	0.0463	93	5	75-125	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0427	85	0.0500	0.0449	90	5	70-125	25	
o-Xylene	<0.00500	0.0500	0.0428	86	0.0500	0.0463	93	8	75-125	25	
m,p-Xylenes	<0.0100	0.100	0.0832	83	0.100	0.0887	89	6	75-125	25	
Vinyl Chloride	<0.00200	0.0500	0.0336	67	0.0500	0.0328	66	2	60-140	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.

Sample Duplicate Recovery

Project Name: 14" Vac To Jal Legacy

Work Order #: 488672

Lab Batch #: 945243 **Project ID:** SRS# 2009-092

Date Analyzed: 07/09/2014 17:02 **Date Prepared:** 07/09/2014 **Analyst:** DHE

QC- Sample ID: 488579-001 D **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Alkalinity by SM2320B Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Alkalinity, Bicarbonate (as CaCO3)	6.12	5.38	13	20	
Alkalinity, Carbonate (as CaCO3)	<4.00	<4.00	0	20	U

Lab Batch #: 945767

Date Analyzed: 07/16/2014 14:07 **Date Prepared:** 07/16/2014 **Analyst:** ANS

QC- Sample ID: 489042-003 D **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

TDS by SM2540C Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Total dissolved solids	1390	1380	1	10	

Lab Batch #: 945767

Date Analyzed: 07/16/2014 14:07 **Date Prepared:** 07/16/2014 **Analyst:** ANS

QC- Sample ID: 489144-001 D **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

TDS by SM2540C Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Total dissolved solids	2350	2290	3	10	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

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Stafford, Texas (281-240-4200) | Odessa, Texas (432-563-1800) | Lakeland, Florida (863-646-8526)

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Service Center - San Antonio, Texas (210-509-3334) | www.xenco.com

Xenco Quote # | Xenco Job # 488672

Client / Reporting Information

Company Name / Branch: Basin Environmental

Company Address: 3100 Plains Hwy., Lovington, NM 88260

Email: bjarguijo@basinenv.com | Phone No: (806)549-9597

Project Contact: Ben J. Arguijo

Samplers's Name: Robert Sawyer

Project Information

Project Name/Number: Plains SRS # 2009-092

Project Location: 14" Vac to Jal Legacy

Invoice To: Camille Bryant, Plains All American

PO Number: PAA - C. Bryant

Analytical Information

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Metals (RCRA, NM WQCC)	VOC's (8260)	SVOC's (8270)	General Chemistry
1	MW-7	n/a	7/2/14	10:30	GW	8	3		1	1				3	X	X	X	X
2	MW-8			11:30														
3	MW-9			9:30														
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Matrix Codes

A= Air
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
WW= Waste Water
W = Wipe
O = Oil

WW= Waste Water

Field Comments

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [x] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 3:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:

See attached sheet for specific analyses requested.

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler / By:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Robert Sawyer	1315		2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time: 7/3/14 1056	Received By:
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice: X

Cooler Temp. 5.5 | Thermo. Corr. Factor 2.5

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negotiated under a fully executed client contract.

NMOCD -Analytical Parameters for Initial Groundwater Sampling (3-12-08)

1. All compounds listed in US EPA SW-846 Method 8260 (VOC's)

2. All compounds listed in US EPA SW-846 Method 8270 (SVOC's)

3. General Chemistry:

   Bicarbonate Alkalinity
   Calcium
   Carbonate Alkalinity
   Chloride
   Fluoride
   Magnesium
   Nitrate
   Phosphate
   Potassium
   Sodium
   Sulfate

4. RCRA Metals:

   Arsenic
   Barium
   Cadmium
   Chromium
   Lead
   Mercury
   Selenium
   Silver

5. NMWQCC Metals:

   Aluminum
   Boron
   Cobalt
   Copper
   Iron
   Manganese
   Molybdenum
   Nickel
   Zinc

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 07/03/2014 10:56:00 AM

Work Order #: 488672

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

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.5
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**No**
#5 Custody Seals intact on sample bottles?	**No**
#6 *Custody Seals Signed and dated?	**No**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**No**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**Yes**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	**N/A**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**No**

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

Analyst:

PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 07/03/2014

Checklist reviewed by: Kelsey Brooks Date: 07/03/2014

Analytical Report 490785

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

14" Vac To Jal Legacy

SRS# 2009-092

12-AUG-14

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

12-AUG-14

Project Manager: **Ben Arguijo**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No(s): **490785**
14" Vac To Jal Legacy
Project Address: Lovington, NM

Ben Arguijo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 490785. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 490785 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 490785

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac To Jal Legacy

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2	W	08-04-14 13:55		490785-001
MW-3	W	08-04-14 14:00		490785-002
MW-4	W	08-04-14 13:20		490785-003
MW-5	W	08-04-14 14:35		490785-004
MW-6	W	08-04-14 12:15		490785-005
MW-7	W	08-04-14 11:40		490785-006
MW-8	W	08-04-14 13:15		490785-007
MW-9	W	08-04-14 11:00		490785-008

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 490785

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Tue Aug-05-14 02:44 pm
Report Date: 12-AUG-14
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	490785-001		490785-002		490785-003		490785-004		490785-005		490785-006	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6		MW-7	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	Aug-04-14 13:55		Aug-04-14 14:00		Aug-04-14 13:20		Aug-04-14 14:35		Aug-04-14 12:15		Aug-04-14 11:40	
BTEX by EPA 8021B	***Extracted:***	Aug-11-14 10:00		Aug-11-14 10:00		Aug-11-14 10:00		Aug-11-14 10:00		Aug-11-14 10:00		Aug-11-14 10:00	
	Analyzed:	Aug-11-14 13:27		Aug-11-14 13:44		Aug-11-14 14:00		Aug-11-14 14:16		Aug-11-14 14:33		Aug-11-14 14:49	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		0.0101	0.00100	0.387	0.00100	0.0583	0.00100	ND	0.00100	ND	0.00100	0.388	0.00100
Toluene		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200
Ethylbenzene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100
m_p-Xylenes		ND	0.00200	0.00378	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	0.00597	0.00200
o-Xylene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100
Total Xylenes		ND	0.00100	0.00378	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.00597	0.00100
Total BTEX		0.0101	0.00100	0.391	0.00100	0.0583	0.00100	ND	0.00100	ND	0.00100	0.394	0.00100

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 490785

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Tue Aug-05-14 02:44 pm
Report Date: 12-AUG-14
Project Manager: Kelsey Brooks

Analysis Requested							
	Lab Id:	490785-007		490785-008			
	Field Id:	MW-8		MW-9			
	Depth:						
	Matrix:	WATER		WATER			
	Sampled:	Aug-04-14 13:15		Aug-04-14 11:00			
BTEX by EPA 8021B	***Extracted:***	Aug-11-14 10:00		Aug-11-14 10:00			
	Analyzed:	Aug-11-14 15:06		Aug-11-14 15:22			
	Units/RL:	mg/L	RL	mg/L	RL		
Benzene		0.233	0.00100	ND	0.00100		
Toluene		ND	0.00200	ND	0.00200		
Ethylbenzene		ND	0.00100	ND	0.00100		
m_p-Xylenes		0.00287	0.00200	ND	0.00200		
o-Xylene		ND	0.00100	ND	0.00100		
Total Xylenes		0.00287	0.00100	ND	0.00100		
Total BTEX		0.236	0.00100	ND	0.00100		

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 490785,

Project ID: SRS# 2009-092

Lab Batch #: 947952 **Sample:** 490785-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 13:27

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	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 947952 **Sample:** 490785-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 13:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 947952 **Sample:** 490785-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 14:00

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene	0.0267	0.0300	89	80-120	

Lab Batch #: 947952 **Sample:** 490785-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 14:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0301	0.0300	100	80-120	

Lab Batch #: 947952 **Sample:** 490785-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 14:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0301	0.0300	100	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 490785,

Project ID: SRS# 2009-092

Lab Batch #: 947952 **Sample:** 490785-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 14:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0344	0.0300	115	80-120	
4-Bromofluorobenzene	0.0249	0.0300	83	80-120	

Lab Batch #: 947952 **Sample:** 490785-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 15:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0346	0.0300	115	80-120	
4-Bromofluorobenzene	0.0281	0.0300	94	80-120	

Lab Batch #: 947952 **Sample:** 490785-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 15:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0298	0.0300	99	80-120	

Lab Batch #: 947952 **Sample:** 659867-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 11:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 947952 **Sample:** 659867-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 11:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0348	0.0300	116	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 490785,

Project ID: SRS# 2009-092

Lab Batch #: 947952 **Sample:** 659867-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 11:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0352	0.0300	117	80-120	

Lab Batch #: 947952 **Sample:** 490785-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 12:05

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0330	0.0300	110	80-120	

Lab Batch #: 947952 **Sample:** 490785-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/11/14 12:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0264	0.0300	88	80-120	
4-Bromofluorobenzene	0.0335	0.0300	112	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order #: 490785 **Project ID:** SRS# 2009-092

Analyst: ARM **Date Prepared:** 08/11/2014 **Date Analyzed:** 08/11/2014

Lab Batch ID: 947952 **Sample:** 659867-1-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	<0.00100	0.100	0.0941	94	0.100	0.0997	100	6	70-125	25	
Toluene	<0.00200	0.100	0.0989	99	0.100	0.105	105	6	70-125	25	
Ethylbenzene	<0.00100	0.100	0.104	104	0.100	0.111	111	7	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.209	105	0.200	0.222	111	6	70-131	25	
o-Xylene	<0.00100	0.100	0.103	103	0.100	0.110	110	7	71-133	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

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order # : 490785 **Project ID:** SRS# 2009-092

Lab Batch ID: 947952 **QC- Sample ID:** 490785-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 08/11/2014 **Date Prepared:** 08/11/2014 **Analyst:** ARM

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	0.0101	0.100	0.0977	88	0.100	0.101	91	3	70-125	25	
Toluene	<0.00200	0.100	0.0962	96	0.100	0.0997	100	4	70-125	25	
Ethylbenzene	<0.00100	0.100	0.101	101	0.100	0.105	105	4	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.203	102	0.200	0.212	106	4	70-131	25	
o-Xylene	<0.00100	0.100	0.100	100	0.100	0.105	105	5	71-133	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

XENCO Laboratories
Environmental Asbestos Radiochemistry

Houston: 4143 Greenbriar Dr. Stafford, TX 77477 (281)240-4200 Odessa: 12600 West I-20 East Odessa, TX 79765 (432)563-1800
Hobbs: 4008 N Grimes Hobbs, NM 88240 (575)392-7550

LAB W.O#: 490785

Field billable Hrs :

Company:	Basin Environmental Service Technologies, LLC	Phone:	(575)396-2378
Address:	3100 Plains Hwy.	Fax:	(575)396-1429
City:	Lovington	State: NM	Zip: 88260
PM/Attn:	Ben Arguijo	Email:	cjbryant@paalp.com, bjarguijo@basinenv.com
Project ID:	14" Vac to Jal Legacy SRS #2009-092	PO#:	PAA-C. Bryant
Invoice To:	Camille Bryant Plains All American	Quote #:	

Sampler Signature: Daley Snyder

Circle One Event: Daily Weekly Monthly Quarterly Semi-Annual Annual N/A

TAT Work Days = D Need results by:_____ Time: _____

Std (5-7D) 5Hrs 1D 2D 3D 4D **5D 7D** 10D 14D Other_____

ANALYSES REQUESTED

Sample #	Sample ID	Collect Date	Collect Time	Matrix Code ^	Field Filtered	Integrity OK (Y/N)	Total # of containers	Cont Type * VC	VP									Hold Sample (CALL) Run PAH on Highest TPH Only If
								Pres Type** E, I	E,I									
								Example Volatiles by 8260	BTEX									
								# Cont	Lab Only:									
1	MW-2	8/4/14	13:55	GW			3		X									
2	MW-3	8/4/14	14:00	GW			3		X									
3	MW-4	8/4/14	13:20	GW			3		X									
4	MW-5	8/4/14	14:35	GW			3		X									
5	MW-6	8/4/14	12:15	GW			3		X									
6	MW-7	8/4/14	11:40	GW			3		X									
7	MW-8	8/4/14	13:15	GW			3		X									
8	MW-9	8/4/14	11:00	GW			3		X									
9																		
10																		

* Container Type Codes

VA Vial Amber ES Encore Sampler
VC Vial Clear TS TerraCore Sampler
VP Vial Pre-preserved AC Air Canister
GA Glass Amber TB Tedlar Bag
GC Glass Clear ZB Zip Lock Bag
PA Plastic Amber PC Plastic Clear
PC Plastic Clear
Other _____

Size(s): 2oz, 4oz, 8oz, 16oz, 32oz , 1Gal 40ml, 125 ml, 250 ml, 500 ml, 1L, Other _____

** Preservative Type Codes

A. None E. HCL I. Ice
B. HNO_3 F. MeOH J. MCAA C.
H_2SO_4 G. $Na_2S_2O_3$ K. ZnAc&NaOH
D. NaOH H. $NaHSO_4$ L Asbc Acid&NaOH
O. _____

^ Matrix Type Codes

GW Ground Water S Soil/Sediment/Solid
WW Waste Water W Wipe
DW Drinking Water A Air
SW Surface Water O Oil
OW Ocean/Sea Water T Tissue
PL Product-Liquid U Urine
PS Product-Solid B Blood
SL Sludge
Other

REMARKS

Reg. Program / Clean-up Std	STATE for Certs & Regs	QA/QC Level & Certification	EDDs	COC & Labels	Coolers Temp °C
CTLs TRRP DW NPDES LPST DryCln Other:	FL TX GA NC SC NJ PA OK LA AL NM Other:	1 **2** 3 4 CLP AFCEE QAPP NELAC DoD-ELAP Other:	ADaPT SEDD ERPIMS XLS Other:	Match Incomplete Absent Unclear	1 3.9 2 11 3

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	Daley Snyder	Basin Environ.	8-4-14	4:40pm	V. Castillo	MS	8-4-14	4:40
2					MRios	Xenco	8/5/14	1444
3								
4								

Lab Use Only

	YES	NO	N/A
Non-Conformances found?			
Samples intact upon arrival?			
Received on Wet Ice?			
Labeled with proper preservatives?			
Received within holding time?			
Custody seals intact?			
VOCs rec'd w/o headspace?			
Proper containers used?			
pH verified-acceptable, excl VOCs?			
Received on time to meet HTs?			

C.O.C. Serial #

B&A Laboratories: Hobbs 575-392-7550 Dallas 214-902-0300 Houston 281-242-4200 Odessa 432-563-1800 San Antonio 210-509-3334 Phoenix 602-437-0330
FTS Service Centers: Atlanta 770-449-8800 Lakeland 863-646-8526 Tampa 803-543-8099 Philadelphia 610-955-5649 South Carolina 803-543-8099

 Revision Date: Nov 12, 2009

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 08/05/2014 02:44:00 PM

Work Order #: 490785

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

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.9
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**No**
#5 Custody Seals intact on sample bottles?	**No**
#6 *Custody Seals Signed and dated?	**No**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**No**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**Yes**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	**Yes**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**No**

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

Analyst: PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 08/05/2014

Checklist reviewed by: Date:

Analytical Report 497144

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

14" Vac To Jal Legacy

SRS# 2009-092

21-NOV-14

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-14-18), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

21-NOV-14

Project Manager: **Ben Arguijo**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No(s): **497144**
14" Vac To Jal Legacy
Project Address: Lovington, NM

Ben Arguijo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 497144. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 497144 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 497144

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac To Jal Legacy

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2	W	11-12-14 13:05		497144-001
MW-3	W	11-12-14 11:00		497144-002
MW-4	W	11-12-14 12:05		497144-003
MW-5	W	11-12-14 13:55		497144-004
MW-6	W	11-12-14 13:50		497144-005
MW-7	W	11-12-14 14:30		497144-006
MW-8	W	11-12-14 10:10		497144-007
MW-9	W	11-12-14 15:10		497144-008

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 497144

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Fri Nov-14-14 03:10 pm
Report Date: 21-NOV-14
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	497144-001		497144-002		497144-003		497144-004		497144-005		497144-006	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6		MW-7	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	Nov-12-14 13:05		Nov-12-14 11:00		Nov-12-14 12:05		Nov-12-14 13:55		Nov-12-14 13:50		Nov-12-14 14:30	
BTEX by EPA 8021B	***Extracted:***	Nov-18-14 13:00		Nov-18-14 13:00		Nov-18-14 13:00		Nov-18-14 13:00		Nov-18-14 13:00		Nov-18-14 13:00	
	Analyzed:	Nov-18-14 18:38		Nov-18-14 18:54		Nov-18-14 19:10		Nov-18-14 19:26		Nov-18-14 20:15		Nov-18-14 20:32	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		0.00845	0.00100	0.0345	0.00100	0.105	0.00100	ND	0.00100	ND	0.00100	0.397	0.00100
Toluene		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200
Ethylbenzene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100
m_p-Xylenes		ND	0.00200	ND	0.00200	0.00240	0.00200	ND	0.00200	ND	0.00200	0.00760	0.00200
o-Xylene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.00113	0.00100
Total Xylenes		ND	0.00100	ND	0.00100	0.00240	0.00100	ND	0.00100	ND	0.00100	0.00873	0.00100
Total BTEX		0.00845	0.00100	0.0345	0.00100	0.107	0.00100	ND	0.00100	ND	0.00100	0.406	0.00100
Inorganic Anions by EPA 300/300.1	***Extracted:***	Nov-19-14 21:50											
	Analyzed:	Nov-19-14 21:50											
	Units/RL:	mg/L	RL										
Chloride		10500	200										

Certificate of Analysis Summary 497144

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac To Jal Legacy

Project Id: SRS# 2009-092
Contact: Ben Arguijo
Project Location: Lovington, NM

Date Received in Lab: Fri Nov-14-14 03:10 pm
Report Date: 21-NOV-14
Project Manager: Kelsey Brooks

Analysis Requested							
	Lab Id:	497144-007		497144-008			
	Field Id:	MW-8		MW-9			
	Depth:						
	Matrix:	WATER		WATER			
	Sampled:	Nov-12-14 10:10		Nov-12-14 15:10			
BTEX by EPA 8021B	***Extracted:***	Nov-18-14 13:00		Nov-18-14 13:00			
	Analyzed:	Nov-19-14 11:09		Nov-18-14 20:48			
	Units/RL:	mg/L	RL	mg/L	RL		
Benzene		0.703	0.00500	ND	0.00100		
Toluene		ND	0.0100	ND	0.00200		
Ethylbenzene		ND	0.00500	ND	0.00100		
m_p-Xylenes		0.0150	0.0100	ND	0.00200		
o-Xylene		ND	0.00500	ND	0.00100		
Total Xylenes		0.0150	0.00500	ND	0.00100		
Total BTEX		0.718	0.00500	ND	0.00100		

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 497144,

Project ID: SRS# 2009-092

Lab Batch #: 955688 **Sample:** 497144-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 18:38

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	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 955688 **Sample:** 497144-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 18:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

Lab Batch #: 955688 **Sample:** 497144-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 19:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0324	0.0300	108	80-120	
4-Bromofluorobenzene	0.0278	0.0300	93	80-120	

Lab Batch #: 955688 **Sample:** 497144-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 19:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 955688 **Sample:** 497144-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 20:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 497144,

Project ID: SRS# 2009-092

Lab Batch #: 955688 **Sample:** 497144-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 20:32

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0269	0.0300	90	80-120	

Lab Batch #: 955688 **Sample:** 497144-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 20:48

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	80-120	
4-Bromofluorobenzene	0.0273	0.0300	91	80-120	

Lab Batch #: 955688 **Sample:** 497144-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/19/14 11:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 955688 **Sample:** 664623-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 15:00

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 955688 **Sample:** 664623-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 15:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: 14" Vac To Jal Legacy

Work Orders : 497144, **Project ID:** SRS# 2009-092

Lab Batch #: 955688 **Sample:** 664623-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 15:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	80-120	
4-Bromofluorobenzene	0.0313	0.0300	104	80-120	

Lab Batch #: 955688 **Sample:** 497192-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 15:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

Lab Batch #: 955688 **Sample:** 497192-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/18/14 16:05

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	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

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

BS / BSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order #: 497144 **Project ID:** SRS# 2009-092

Analyst: ARM **Date Prepared:** 11/18/2014 **Date Analyzed:** 11/18/2014

Lab Batch ID: 955688 **Sample:** 664623-1-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	<0.00100	0.100	0.0881	88	0.100	0.0891	89	1	70-125	25	
Toluene	<0.00200	0.100	0.0943	94	0.100	0.0952	95	1	70-125	25	
Ethylbenzene	<0.00100	0.100	0.101	101	0.100	0.101	101	0	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.208	104	0.200	0.209	105	0	70-131	25	
o-Xylene	<0.00100	0.100	0.0953	95	0.100	0.0971	97	2	71-133	25	

Analyst: JUM **Date Prepared:** 11/19/2014 **Date Analyzed:** 11/19/2014

Lab Batch ID: 955839 **Sample:** 664657-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<1.00	25.0	26.8	107	25.0	22.6	90	17	90-110	20	

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

Version: 1.%

Form 3 - MS Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order #: 497144

Lab Batch #: 955839 **Project ID:** SRS# 2009-092

Date Analyzed: 11/19/2014 **Date Prepared:** 11/19/2014 **Analyst:** JUM

QC- Sample ID: 497123-001 S **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	262	500	716	91	80-120	

Lab Batch #: 955839

Date Analyzed: 11/19/2014 **Date Prepared:** 11/19/2014 **Analyst:** JUM

QC- Sample ID: 497144-001 S **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	10500	5000	15400	98	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac To Jal Legacy

Work Order # : 497144 **Project ID:** SRS# 2009-092

Lab Batch ID: 955688 **QC- Sample ID:** 497192-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 11/18/2014 **Date Prepared:** 11/18/2014 **Analyst:** ARM

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	<0.00100	0.100	0.0929	93	0.100	0.0855	86	8	70-125	25	
Toluene	<0.00200	0.100	0.100	100	0.100	0.0917	92	9	70-125	25	
Ethylbenzene	<0.00100	0.100	0.108	108	0.100	0.0975	98	10	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.221	111	0.200	0.200	100	10	70-131	25	
o-Xylene	<0.00100	0.100	0.102	102	0.100	0.0922	92	10	71-133	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.

XENCO Laboratories

CHAIN OF CUSTODY RECORD

Houston: 4143 Greenbriar Dr, Stafford, TX 77477 (281)240-4200 Odessa: 12600 West I-20 East Odessa, TX 79765 (432)563-1800
Hobbs: 4008 N Grimes Hobbs, NM 88240 (575)392-7550

LAB W.O#: 497144

Field billable Hrs :

11/14/2014 10:00 5753927553 MAIL SERVICES ETC PAGE 01/01

Final 1.000

Company:	Basin Environmental Service Technologies, LLC	Phone:	(575)396-2378
Address:	3100 Plains Hwy.	Fax:	(575)396-1429
City:	Lovington State: NM	Zip:	88260
PM/Attn:	Ben Arguijo	Email:	cjbryant@paalp.com, bjarguijo@basinenv.com
Project ID:	14" Vac to Jal Legacy SRS #2009-092	PO#:	PAA-C. Bryant
Invoice To:	Camille Bryant Plains All American	Quote #:	
Sampler Name:	D. Saxton	Circle One Event:	Daily Weekly Monthly Quartely Semi-Annual Annual N/A

TAT Work Days = D Need results by: ______ Time: ______

Std (5-7D) 5Hrs 1D 2D 3D 4D 5D 7D 10D 14D Other______

Container Type: VA Vial Amber; VC Vial Clear; VP Vial Pre-preserved; GA Glass Amber; GC Glass Clear; PA Plastic Amber; PC Plastic Clear; Other; ES Encore Sampler; TS TerraCore Sampler; AC Air Canister; TB Tedlar Bag; ZB Zip Lock Bag; PC Plastic Clear

Size(s): 2oz, 4oz, 8oz, 16oz, 32oz, 1Gal, 40ml, 125 ml, 250 ml, 500 ml, 1L, Other

Preservative Type Codes

A. None E. HCL I. Ice B. HNO_3 F. MeOH J. MCAA C. H_2SO_4 G. $Na_2S_2O_3$ K. ZnAc&NaOH D. NaOH H. $NaHSO_4$ L. Asbc Acid&NaOH O.

Matrix Type Codes

GW Ground Water; WW Waste Water; DW Drinking Water; SW Surface Water; OW Ocean/Sea Water; PL Product-Liquid; PS Product-Solid; SL Sludge; Other; S Soil/Sediment/Solid; W Wipe; A Air; O Oil; T Tissue; U Urine; B Blood

#	Sample ID	Date	Time	Matrix			#	BTEX (VP, E,I)	Chloride (PC, I)	~~TDS~~ (PC, I)							REMARKS
1	MW-2	11/12/14	1305	GW			4	X	X	~~X~~							TDS Removed on
2	MW-3	11/12/14	1100	GW			4	X	~~X~~	~~X~~							all samples
3	MW-4	11/12/14	1205	GW			4	X	~~X~~	~~X~~							Chloride Only on
4	MW-5	11/12/14	1355	GW			4	X	~~X~~	~~X~~							MW-2 Per
5	MW-6	11/12/14	1350	GW			4	X	~~X~~	~~X~~							Ben 11/13/14
6	MW-7	11/12/14	1430	GW			4	X	~~X~~	~~X~~							MB
7	MW-8	11/12/14	1010	GW			4	X	~~X~~	~~X~~							
8	MW-9	11/12/14	1510	GW			4	X	~~X~~	~~X~~							
9									MB								
0																	

CTLs TRRP DW NPDES LPST DryCln Other: | FL TX GA NC SC NJ PA OK LA AL NM Other: | 1 2 3 4 CLP AFCEE QAPP NELAC DoD-ELAP Other: | ADaPT SEDD ERPIMS XLS Other: | Match Absent Incomplete Unclear | 1.6 °C 2 3

#	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	D Saxton	Basin	11-12-14	17:00	[signature]	Basin Env.	11/12/14	1700
2	[signature]	Basin Env.	11/13/14	0845	BK Blakeney	Basin	11-13-14	0845
3	BK Blakeney	Basin	11-13-14	220	S Butler	Mail Services	11-13-14	1428
4					[signature]	Xenco	11-14-14	1310

Non-Conformances found? Samples intact upon arrival? Received on Wet Ice? Labeled with proper preservatives? Received within holding time? Custody seals intact? VOCs rec'd w/o headspace? Proper containers used? pH verified-acceptable, excl VOCs? Received on time to meet HTs?

C.O.C. Serial #

B&A Laboratories: Hobbs 575-392-7550 Dallas 214-902-0300 Houston 281-242-4200 Odessa 432-563-1800 San Antonio 210-509-3334 Phoenix 602-437-0330
FTS Service Centers: Atlanta 770-449-8800 Lakeland 863-646-8526 Tampa 803-543-8099 Philadelphia 610-955-5649 South Carolina 803-543-8099

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 11/14/2014 03:10:00 PM

Work Order #: 497144

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

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-1
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**No**
#5 Custody Seals intact on sample bottles?	**No**
#6 *Custody Seals Signed and dated?	**No**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**No**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**Yes**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**Yes**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**No**

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

Analyst:

PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 11/14/2014

Checklist reviewed by: Kelsey Brooks Date: 11/14/2014

Appendix B
Release Notification & Corrective Action (Form C-141)

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

RECEIVED
APR 20 2009
HOBBSOCD

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Plains Pipeline, LP	Contact	Jason Henry
Address	2530 Hwy 214 – Denver City, Tx 79323	Telephone No.	(575) 441-1099
Facility Name	14 – inch Vac to Jal Legacy	Facility Type	Pipeline

Surface Owner	Mineral Owner	Lease No.
Legacy Petroleum		

LOCATION OF RELEASE

NEAREST WELL API # 30-025-11759-00-00

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	25	25S	37E					Lea

Latitude N 32° 6' 10.7'' **Longitude** W 103° 7' 10.3''

NATURE OF RELEASE

Type of Release: Crude Oil	Volume of Release: 250 bbls	Volume Recovered: 0 bbls
Source of Release: 14" Steel Pipeline	Date and Hour of Occurrence: 04/09/2009	Date and Hour of Discovery: 04/09/2009 10:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson	
By Whom? Jason Henry	Date and Hour: 04/09/2009 @ 14:20	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

WATER @ 55'

Describe Cause of Problem and Remedial Action Taken.*

During the purging of the 14-inch Sweet Vac to Jal Line, a release of crude oil occurred due to external corrosion. Throughput for the subject line is 0 bbls/day because the line is inactive and was being purged at the time of the release. The depth of the pipeline at the release point is approximately 2' bgs. The H2S concentration in the crude is less than 10 ppm and the gravity of the crude is 38.

Describe Area Affected and Cleanup Action Taken.*

The released crude resulted in a surface stain that measured approximately 300' x 300'. The impacted area will be remediated per applicable guidelines.

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

Signature: Jason Henry

Printed Name: Jason Henry

Title: Remediation Coordinator

E-mail Address: jhenry@paalp.com

Date: 04/20/2009 Phone: (575) 441-1099

OIL CONSERVATION DIVISION

Approved by ~~District Supervisor:~~ ENV ENGR Geoffrey Leking

Approval Date: 04/21/09 Expiration Date: 06/22/09

Conditions of Approval: DELINEATE TO CLEANUP. SUBMIT FINAL C-141 BY 06/22/09.

Attached ☐

* Attach Additional Sheets If Necessary

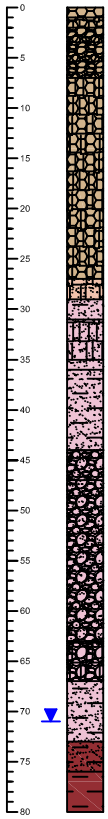
1RP - 2162 (04.4)

fGRL0912457808

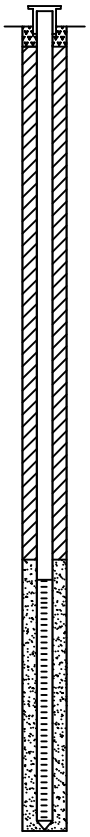
Appendix C

Monitor Well Logs

Monitor Well MW-7



Depth Below Ground Surface	Chloride Field Test	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		9.7	None	None	0' - 1' - Soft caliche 1' - 2' - Hard caliche & sandstone
5		(5.1)	None	None	2' - 7' - Gravely caliche
10		6.7	None	None	
15		6.3	None	None	7' - 27' - Medium hard caliche & sandstone
20		0.1	None	None	
25		(0.9)	None	None	
30		0.8	None	None	27' - 29' - Tan pink sandstone & silty sand 29' - 31' - Pink silty sand & clay
35		0.5	None	None	31' - 35' - Pink sandstone & silty sand 35' - 36' - Pink loose sand
40		0.5	None	None	36' - 44' - Pink silty sand & clay
45		0.4	None	None	44' - 47' - Pink silty sand & gravel
50		(0.2)	None	None	
55			None	None	47' - 63' - Pink silty sand & medium to small gravel
60			None	None	
65			None	None	63' - 67' - Pink hard cemented gravel & sandstone
70			None	None	67' - 73' - Pink silty sand & clay
75			None	None	73' - 76' - Red silty sand & clay
80			None	None	76' - 80' - Red silty clay



Date Drilled June 26, 2014
Thickness of Bentonite Seal 51 Ft
Depth of Exploratory Boring 80 Ft bgs
Depth to Groundwater 71 Ft bgs
Ground Water Elevation

Indicates the PSH level measured on
Indicates the groundwater level measured on June 26, 2014
Indicates samples selected for Laboratory Analysis.
PID Head-space reading in ppm obtained with a photo-ionization detector.

Grout Surface Seal
Bentonite Pellet Seal
Sand Pack
Screen

Completion Notes

1.) Monitor well was advanced on date using air rotary drilling techniques.
2.) Monitor well was constructed with 4" ID, 0.10-inch, factory-slotted, threaded joint, Schedule 40 PVC pipe.
3.) Well is protected with a locked stick-up steel cover and compression cap.
4.) Lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5.) Depths indicated are referenced from ground surface.
6.) Due to the non-cohesive nature of the soil at lower depths, water was injected beginning at approximately 50' bgs to prevent collapse of the borehole.

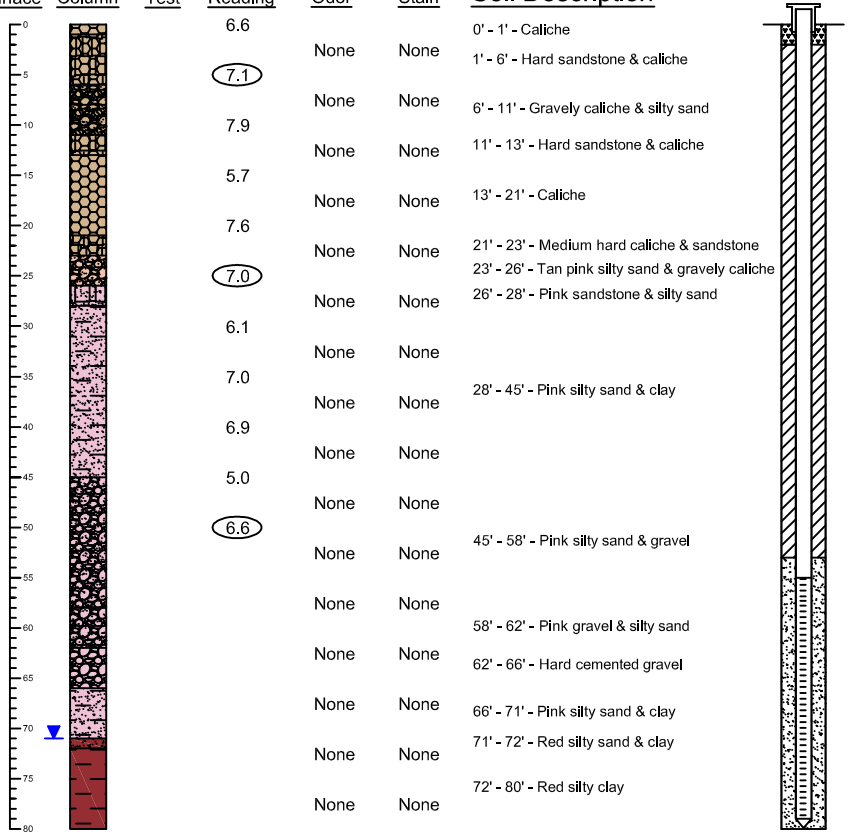
Monitor Well MW-7

Plains All American Pipeline, LP
14" Vac to Jal Legacy
Lea County, New Mexico
Plains SRS #: 2009-092
NMOCD Reference #: 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy,
Lovington, NM 88260

Prep By: BJA	Checked By: BRB
March 20, 2015	

Monitor Well MW-8



Depth Below Ground Surface	Chloride Field Test	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		6.6	None	None	0' - 1' - Caliche
5		(7.1)	None	None	1' - 6' - Hard sandstone & caliche
10		7.9	None	None	6' - 11' - Gravely caliche & silty sand
15		5.7	None	None	11' - 13' - Hard sandstone & caliche
20		7.6	None	None	13' - 21' - Caliche
25		(7.0)	None	None	21' - 23' - Medium hard caliche & sandstone
30		6.1	None	None	23' - 26' - Tan pink silty sand & gravely caliche
35		7.0	None	None	26' - 28' - Pink sandstone & silty sand
40		6.9	None	None	28' - 45' - Pink silty sand & clay
45		5.0	None	None	
50		(6.6)	None	None	
55			None	None	45' - 58' - Pink silty sand & gravel
60			None	None	58' - 62' - Pink gravel & silty sand
65			None	None	62' - 66' - Hard cemented gravel
70			None	None	66' - 71' - Pink silty sand & clay
75			None	None	71' - 72' - Red silty sand & clay
80			None	None	72' - 80' - Red silty clay

Date Drilled June 26, 2014
Thickness of Bentonite Seal 51 Ft
Depth of Exploratory Boring 80 Ft bgs
Depth to Groundwater 71 Ft bgs
Ground Water Elevation

Indicates the PSH level measured on
Indicates the groundwater level measured on June 26, 2014
Indicates samples selected for Laboratory Analysis.
PID Head-space reading in ppm obtained with a photo-ionization detector.

Grout Surface Seal
Bentonite Pellet Seal
Sand Pack
Screen

Completion Notes

1.) Monitor well was advanced on date using air rotary drilling techniques.
2.) Monitor well was constructed with 2" ID, 0.10-inch, factory-slotted, threaded joint, Schedule 40 PVC pipe.
3.) Well is protected with a locked stick-up steel cover and compression cap.
4.) Lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5.) Depths indicated are referenced from ground surface.
6.) Due to the non-cohesive nature of the soil at lower depths, water was injected beginning at approximately 50' bgs to prevent collapse of the borehole.

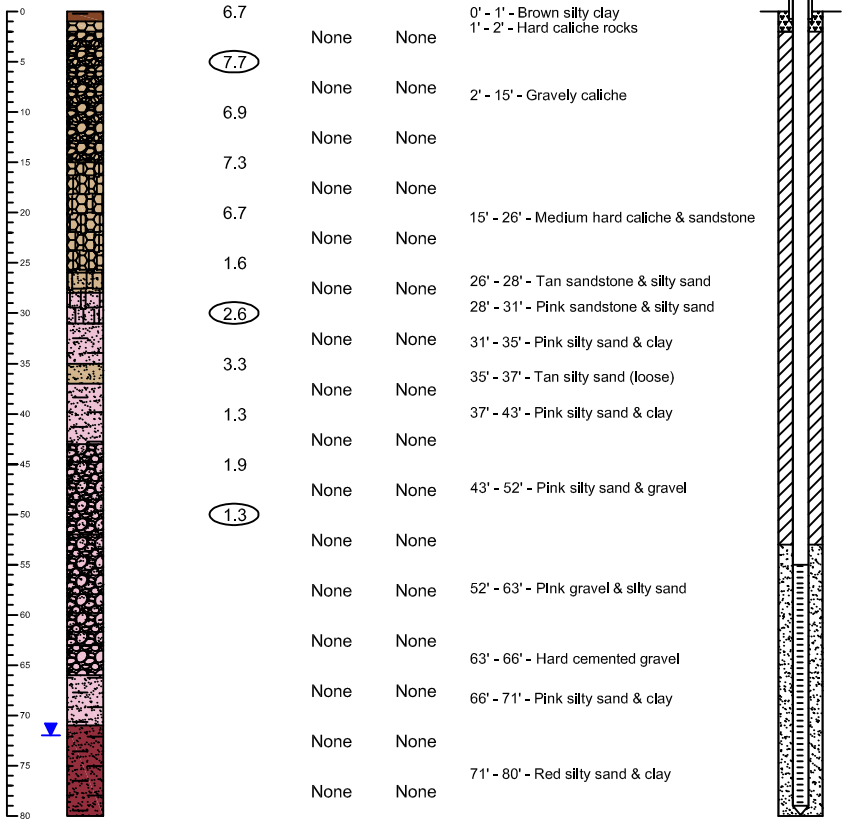
Monitor Well MW-8

Plains All American Pipeline, LP
14" Vac to Jal Legacy
Lea County, New Mexico
Plains SRS #: 2009-092
NMOCD Reference #: 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

Prep By: BJA	Checked By: BRB
March 20, 2015	

Monitor Well MW-9



Depth Below Ground Surface	Chloride Field Test	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		6.7	None	None	0' - 1' - Brown silty clay 1' - 2' - Hard caliche rocks
5		(7.7)	None	None	
10		6.9	None	None	2' - 15' - Gravely caliche
15		7.3	None	None	
20		6.7	None	None	15' - 26' - Medium hard caliche & sandstone
25		1.6	None	None	26' - 28' - Tan sandstone & silty sand
30		(2.6)	None	None	28' - 31' - Pink sandstone & silty sand
35		3.3	None	None	31' - 35' - Pink silty sand & clay
40		1.3	None	None	35' - 37' - Tan silty sand (loose) 37' - 43' - Pink silty sand & clay
45		1.9	None	None	
50		(1.3)	None	None	43' - 52' - Pink silty sand & gravel
55			None	None	
60			None	None	52' - 63' - Pink gravel & silty sand
65			None	None	63' - 66' - Hard cemented gravel
70			None	None	66' - 71' - Pink silty sand & clay
75			None	None	71' - 80' - Red silty sand & clay
80					

Date Drilled June 25, 2014
Thickness of Bentonite Seal 51 Ft
Depth of Exploratory Boring 80 Ft bgs
Depth to Groundwater 72 Ft bgs
Ground Water Elevation

Indicates the PSH level measured on
Indicates the groundwater level measured on June 26, 2014
Indicates samples selected for Laboratory Analysis.
PID Head-space reading in ppm obtained with a photo-ionization detector.

Grout Surface Seal
Bentonite Pellet Seal
Sand Pack
Screen

Completion Notes

1.) Monitor well was advanced on date using air rotary drilling techniques.
2.) Monitor well was constructed with 4" ID, 0.10-inch, factory-slotted, threaded joint, Schedule 40 PVC pipe.
3.) Well is protected with a locked stick-up steel cover and compression cap.
4.) Lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5.) Depths indicated are referenced from ground surface.
6.) Due to the non-cohesive nature of the soil at lower depths, water was injected beginning at approximately 50' bgs to prevent collapse of the borehole.

Monitor Well MW-9

Plains All American Pipeline, LP
14" Vac to Jal Legacy
Lea County, New Mexico
Plains SRS #: 2009-092
NMOCD Reference #: 1RP-2162

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

Prep By: BJA	Checked By: BRB
March 20, 2015	