1R-2162

Plains
14” Vac to Jal Legacy

Annual Report
2013

Basin Environmental Service Technologies, LLC

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Effective Solutions

2013 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 Marketing, LP
333 Clay Street, Suite 1600
Houston, Texas 77002

Prepared By:

Basin Environmental Service Technologies, LLC
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March 2014

Ben J. Arguijo
Project Manager

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INTRODUCTION

Basin Environmental Service Technologies, LLC (Basin Environmental), on behalf of Plains Marketing, 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 2013 only. For reference, a "Site Location Map" is provided as Figure 1.

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 32° 06' 10.7" North latitude and 103° 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. Monitor well MW-2 is located approximately three hundred and eighty feet (380') to the northwest (up-gradient) of monitor well MW-1. The monitor well was installed to a total depth of approximately eighty feet (80') bgs. Monitor well MW-3 is located approximately two hundred feet (200') to the northeast (cross-gradient) of monitor well MW-1. The monitor well was installed to a total depth of approximately eighty feet (80') bgs. Monitor well MW-4 is located approximately one hundred feet (100') to the northwest (up-gradient) of monitor well MW-1. The monitor well was installed to a total depth of approximately eighty feet (80') bgs. Monitor well MW-5 is located approximately two hundred and eighty feet (280') to the west-northwest (cross-gradient) of monitor well MW-1. The monitor well was installed to a total depth of approximately eighty feet (80') bgs. Monitor well MW-6 is located approximately one hundred and fifty feet (150') to the southeast (down-gradient) of monitor well MW-1. The monitor well was installed to a total depth of approximately eighty feet (80') bgs.

PSH was not observed in monitor wells MW-2, MW-3, MW-4, MW-5, or MW-6. 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.

Currently, a total of six (6) monitor wells are located at the 14-Inch Vac to Jal Legacy release site. Monitor wells MW-2, MW-3, MW-4, MW-5, and MW-6 are gauged and sampled on a quarterly schedule, while MW-1 is gauged every other week 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.

FIELD ACTIVITIES

Product Recovery Efforts

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. Approximately 184 gallons (4.4 barrels) of PSH has been recovered from MW-1 since recovery operations began in April 2012, and approximately 100 gallons (2.4 barrels) of PSH were recovered during the 2013 reporting period. The average PSH thickness measured in MW-1 during the reporting period was 2.63 feet, and the maximum PSH thickness was 2.80 feet on February 27 2013. All recovered fluids are disposed of at an NMOCD- approved disposal facility near Monument, New Mexico.

Groundwater Monitoring

The on-site monitor wells were gauged and sampled on June 7 (2Q2013), August 29 (3Q2013), and November 7, 2013 (4Q2013). During these quarterly sampling events, the monitoring wells were purged using a PVC bailer 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 disposable Teflon bailers. Water samples were stored in clean, glass containers provided by the laboratory and placed on ice in the field. Purge water was collected in a trailer-mounted polystyrene tank and disposed of at an NMOCD-approved disposal facility near Monument, New Mexico.

Locations of the groundwater monitoring wells and the inferred groundwater elevations, which were constructed from measurements collected during the 2013 quarterly sampling events, are depicted in Figures 2A through 2C. The "Groundwater Gradient Map" from the most recent sampling event (Figure 2C, November 7, 2013) indicates a general gradient of approximately 0.0015 feet/foot to the southeast as measured between monitor wells MW-2 and MW-6.

On November 7, 2013, the corrected groundwater elevation ranged between 3,002.14 and 3,002.92 feet above mean sea level in monitor wells MW-6 and MW-2, respectively. The "2013 Groundwater Elevation Data" is provided as Table 1.

LABORATORY RESULTS

Groundwater samples collected from the on-site monitor well during the quarterly monitoring events were delivered to Xenco Laboratories in Odessa, Texas, for determination of total dissolved solids (TDS), chloride, and benzene, toluene, ethylbenzene, and total xylenes (BTEX) constituent concentrations by EPA Methods SM2540C, E300, and SW846-8021b, respectively. A summary of laboratory analytical results is presented in Table 2, "Concentrations of BTEX, Chloride & TDS in Groundwater". "Groundwater Concentration" maps provided as Figure 3A through 3C. Laboratory analytical reports are provided as Appendix A.

Baseline sampling of monitor wells MW-2 through MW-6 was conducted on June 7, 2013. Laboratory analytical results from the baseline monitoring are summarized in Tables 3 through 6. Monitor Well Logs are provided as Appendix C.

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 2013 reporting period due to the presence of PSH in the monitor well.

Monitor Well MW-2

Laboratory analytical results indicated benzene concentrations ranged from less than the laboratory method detection limit (MDL) in 2Q2013 and 3Q2013 to 0.0052 mg/L in 4Q2013. 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

2Q2013 and 3Q2013 to 0.026 mg/L in 4Q2013. Chloride concentrations ranged from 8,740 mg/L in 2Q2013 to 9,620 mg/L in 3Q2013. TDS concentrations ranged from 17,700 mg/L in 4Q2013 to 19,600 mg/L in 3Q2013. Benzene and BTEX constituent concentrations were less than NMOCD regulatory standards in all groundwater samples submitted during the reporting period. Chloride and TDS concentrations exceeded NMOCD regulatory standards in all submitted groundwater samples.

Monitor Well MW-3

Laboratory analytical results indicated benzene concentrations ranged from less than the laboratory MDL in 2Q2013 to 2.10 mg/L in 4Q2013. Toluene, ethylbenzene, and total xylene concentrations were less than the appropriate laboratory MDL in all submitted groundwater samples. Chloride concentrations ranged from 6,100 mg/L in 4Q2013 to 6,250 mg/L in 3Q2013. TDS concentrations ranged from 13,600 mg/L in 3Q2013 to 15,500 mg/L in 4Q2013. Benzene concentrations exceeded NMOCD regulatory standards in 3Q2013 and 4Q2013. Toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all groundwater samples submitted during the reporting period. Chloride and TDS concentrations exceeded NMOCD regulatory standards in all submitted groundwater samples.

Monitor Well MW-4

Laboratory analytical results indicated benzene concentrations ranged from 0.0289 in 4Q2013 to 0.692 mg/L in 3Q2013. Toluene concentrations ranged from less than the laboratory MDL in 2Q2013 and 4Q2013 to 0.0027 mg/L in 3Q2013. Ethylbenzene concentrations were less than the laboratory MDL in all submitted groundwater samples. Total xylene concentrations ranged from less than the laboratory MDL in 2Q2013 and 4Q2013 to 0.0090 mg/L in 3Q2013. Chloride concentrations ranged from 4,690 mg/L in 3Q2013 to 8,860 mg/L in 4Q2013. TDS concentrations ranged from 8,610 mg/L in 3Q2013 to 21,400 mg/L in 4Q2013. Benzene concentrations exceeded NMOCD regulatory standards in all groundwater samples submitted during the reporting period. Toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all submitted groundwater samples. Chloride and TDS concentrations exceeded NMOCD regulatory standards in all submitted groundwater samples.

Monitor Well MW-5

Laboratory analytical results indicated benzene, toluene, ethylbenzene, and total xylene concentrations were less than the appropriate laboratory Chloride concentrations ranged from 4,710 mg/L in 2Q2013 to 5,080 mg/L in 4Q2013. TDS concentrations ranged from 9,730 mg/L in 3Q2013 to 10,700 mg/L in 4Q2013. Benzene and BTEX constituent concentrations were less than NMOCD regulatory standards in all groundwater samples submitted during the reporting period. Chloride and TDS concentrations exceeded NMOCD regulatory standards in all submitted groundwater samples.

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. Chloride concentrations ranged from 5,120 mg/L in 3Q2013 to 5,570 mg/L in 2Q2013. TDS concentrations ranged from 10,200 mg/L in 4Q2013 to 10,700 in 3Q2013. Benzene and BTEX constituent concentrations were less than NMOCD regulatory standards in all

groundwater samples submitted during the reporting period. Chloride and TDS concentrations exceeded NMOCD regulatory standards in all submitted groundwater samples.

SUMMARY

This report presents the results of groundwater monitoring activities for the 2013 annual monitoring period. Currently, there are six (6) groundwater monitoring wells (MW-1 through MW-6) on-site. Monitor well MW-1 was not sampled in 2013 due to the presence of PSH. Monitor wells MW-2 through MW-6 were installed in May 2013 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 2C, November 7, 2013) indicates a general gradient of approximately 0.0015 feet/foot to the southeast as measured between monitor wells MW-2 and MW-6.

A measurable thickness of PSH was detected in monitor well MW-1 throughout the 2013 reporting period. The average PSH thickness measured in MW-1 during the reporting period was 2.63 feet, and the maximum PSH thickness was2.80 feet on February 27, 2013.

During the reporting period, approximately 100 gallons (2.4 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 2013 indicated benzene concentrations were less than the NMOCD regulatory standard in monitor wells MW-2, MW-5, and MW-6. However, benzene concentrations above NMOCD standards were detected in the groundwater samples from monitor wells MW-3 (3Q2013 and 4Q2013) and MW-4 (2Q2013, 3Q2013, and 4Q2013). Toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all submitted groundwater samples. Chloride and TDS concentrations exceeded NMOCD regulatory standards in all submitted groundwater samples.

ANTICIPATED ACTIONS

PSH recovery from monitor well MW-1 will continue on twice monthly schedule. All fluids recovered from MW-1 will be disposed of at an NMOCD-permitted disposal facility.

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 and Basin Environmental believe the elevated TDS and chloride concentrations at the site are indicative of pre-existing groundwater conditions in the area. Plains hereby requests permission to cease monitoring of TDS and chloride concentrations in monitor wells MW-2 through MW-6.

Monitor wells MW-2 through MW-6 will be monitored and sampled quarterly for concentrations of BTEX. Results of the 2014 sampling events will be reported in the 2014 *Annual Monitoring Report*, which will be submitted to the NMOCD by April 1, 2015.

Plains proposes to install two (2) additional monitor wells on-site in an attempt to delineate the horizontal extent of PSH and the dissolved-phase plume. Locations of the proposed monitor wells are depicted in Figure 4, "Proposed Monitor Well Locations". Details of the drilling and subsequent

sampling events will be provided in the 2014 *Annual Monitoring Report*, which will be submitted to the NMOCD by April 1, 2015.

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 Marketing, 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 Marketing, LP.

DISTRIBUTION

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Figures

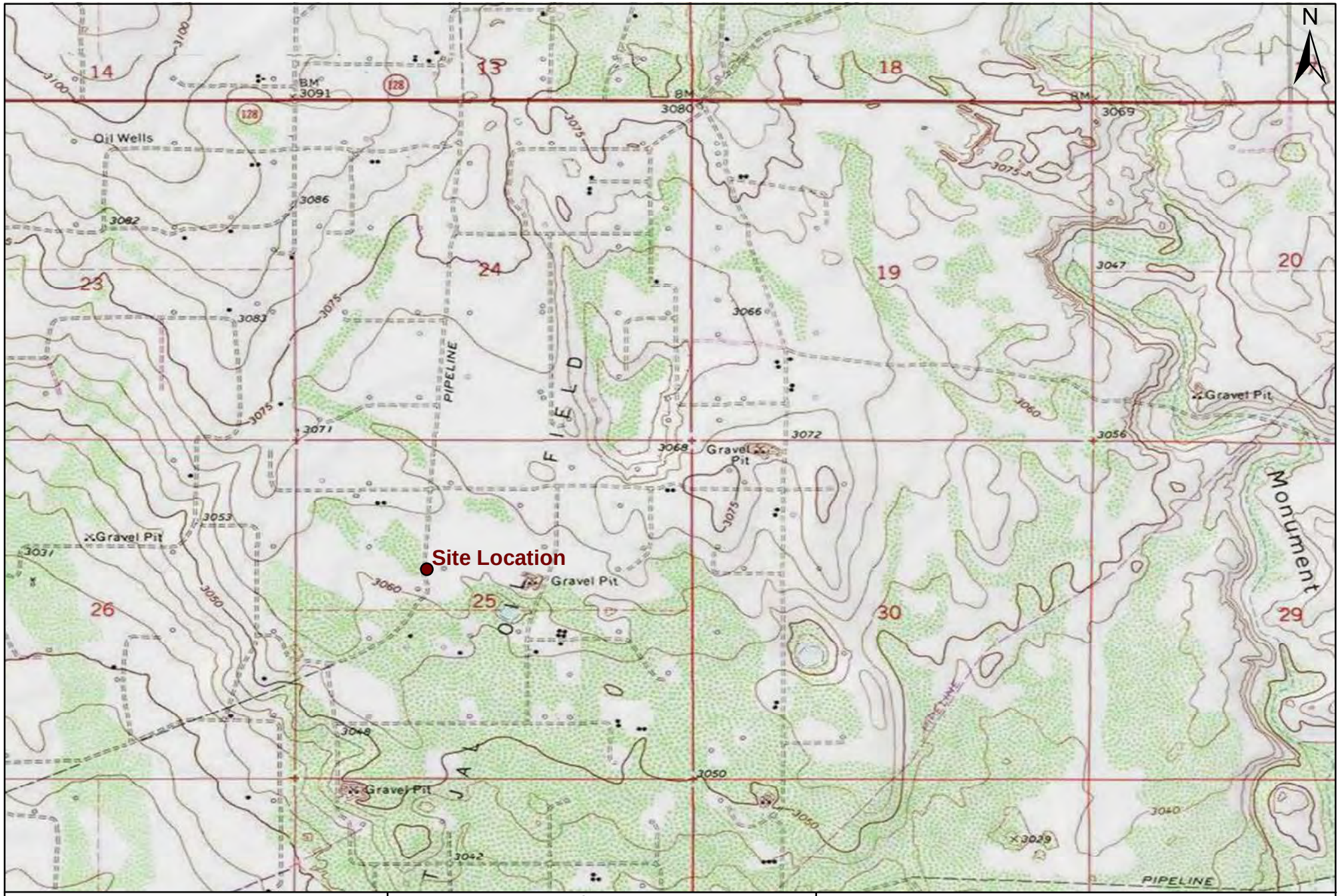

Figure 1
Site Location Map
Plains Marketing, LP
14" Vac to Jal Legacy
Lea County, New Mexico
SRS #: 2009-092
NMOCD Ref. #: 1RP-2162

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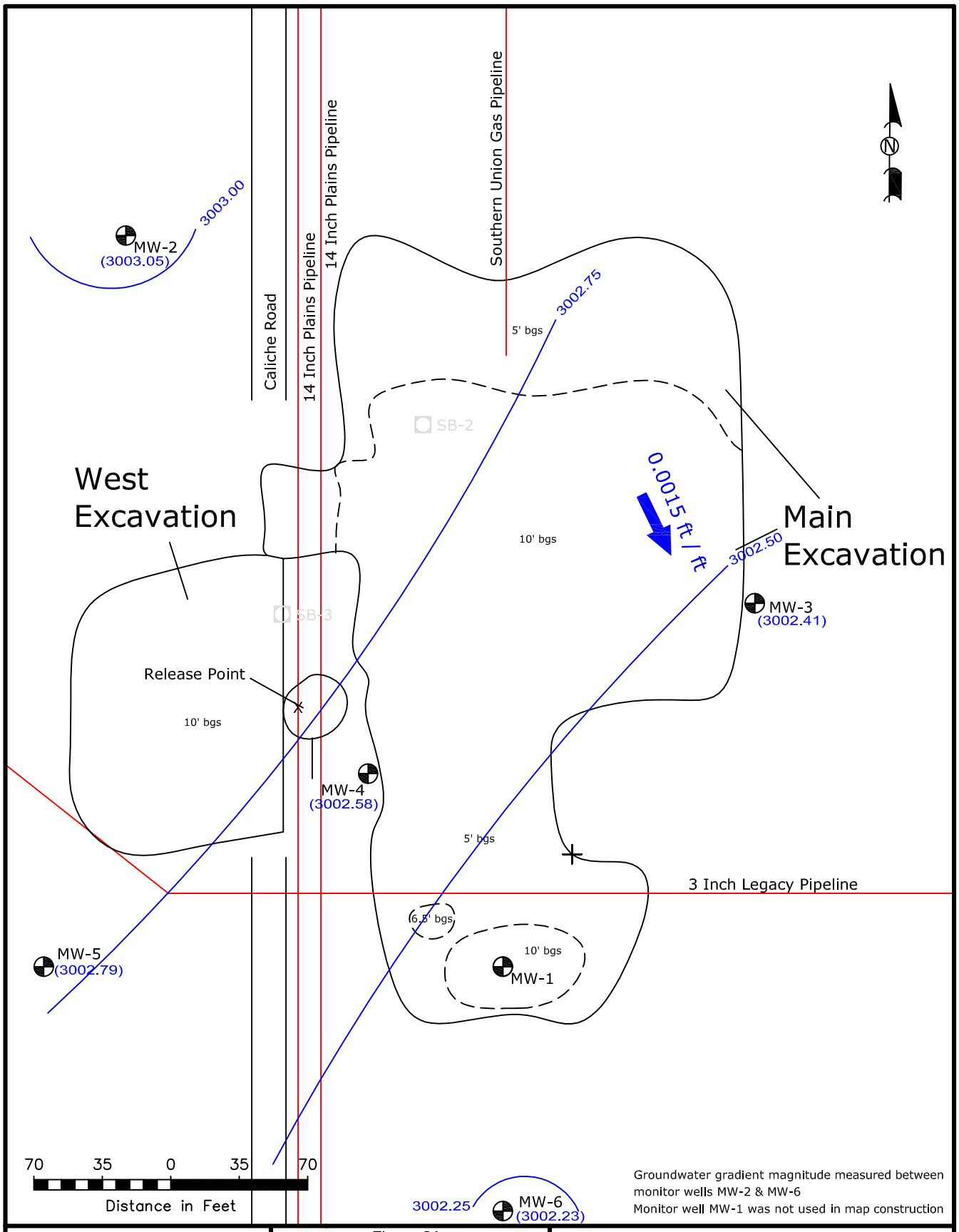

LEGEND:

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

Figure 2A
Inferred Groundwater Gradient Map
2Q2013
Plains 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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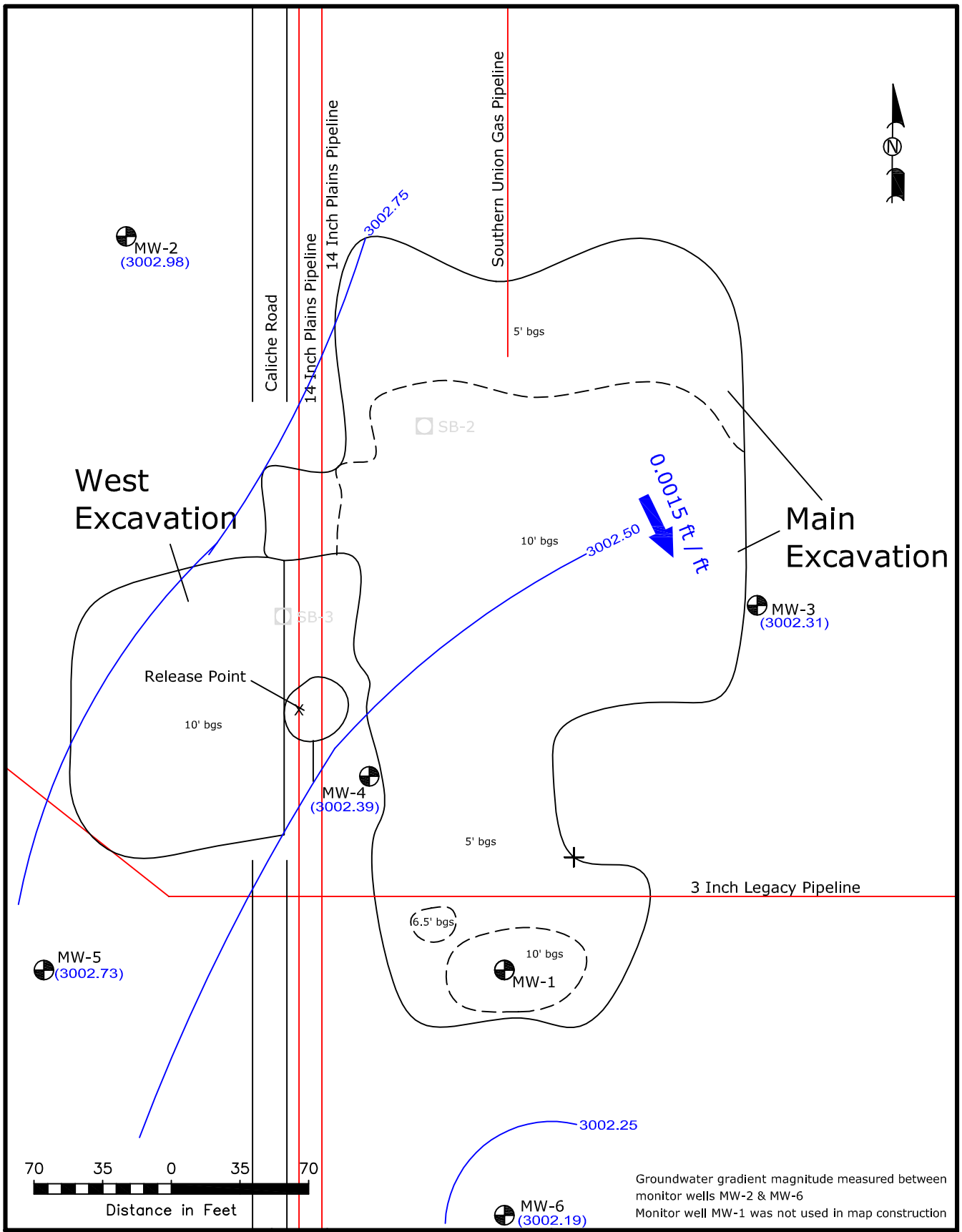
October 22, 2013		



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
3Q2013
Plains 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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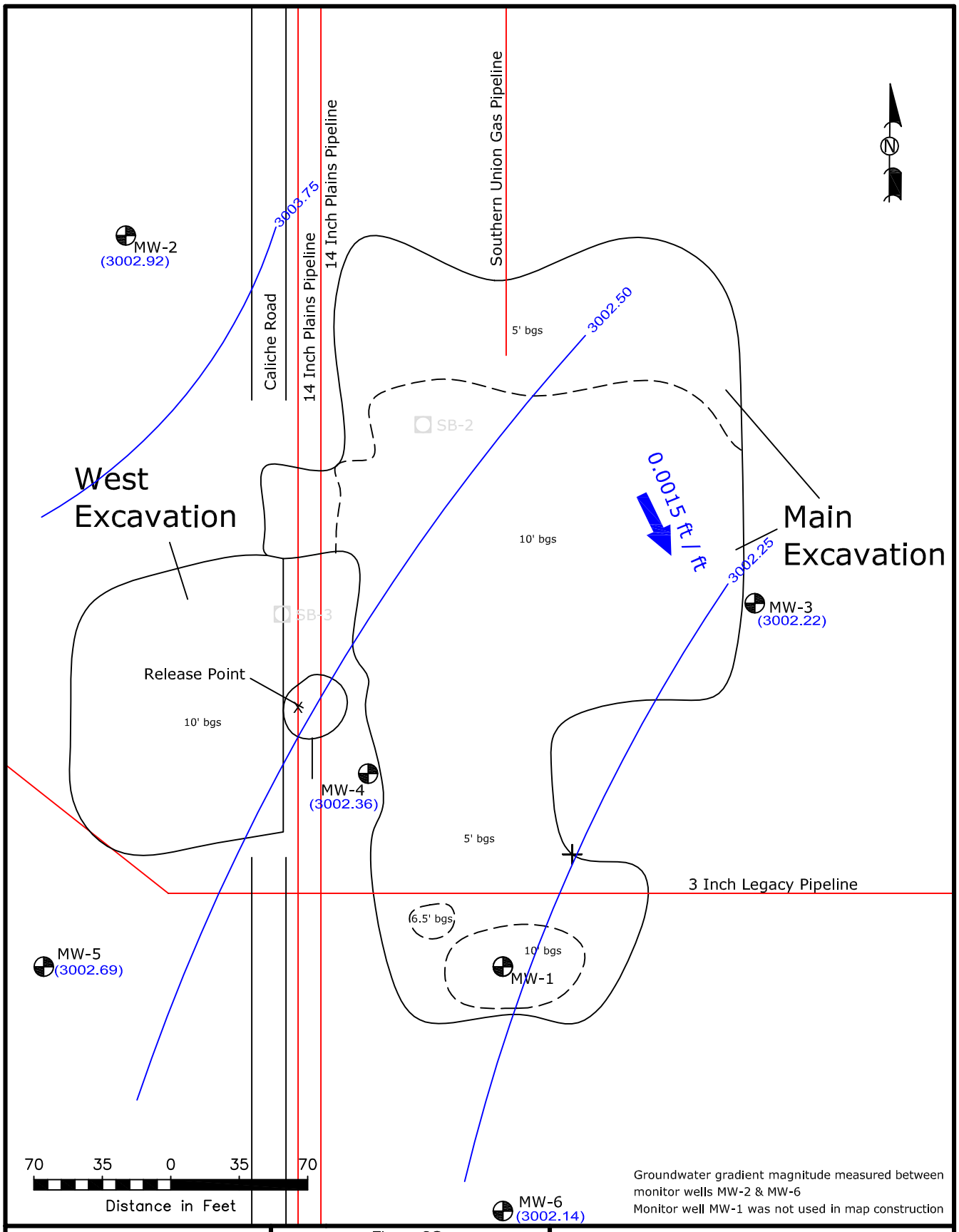

LEGEND:

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

Figure 2C
Inferred Groundwater Gradient Map
4Q2013
Plains 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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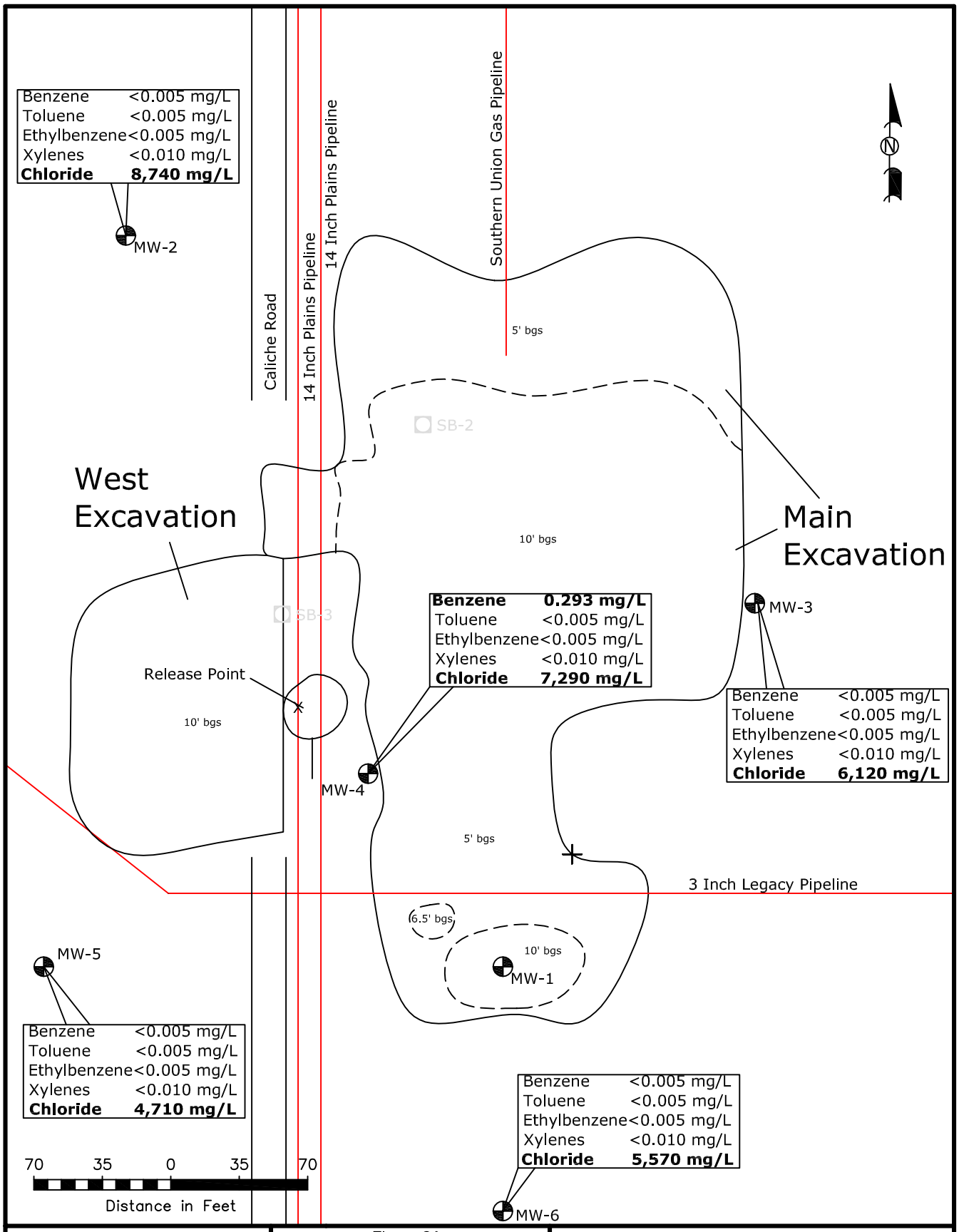
February 28, 2014		



LEGEND:
- Pipeline
- Excavation Extent
- Monitor Well Location
- Soil Boring Location

Figure 3A
Groundwater Concentration Map
2Q2013
Plains 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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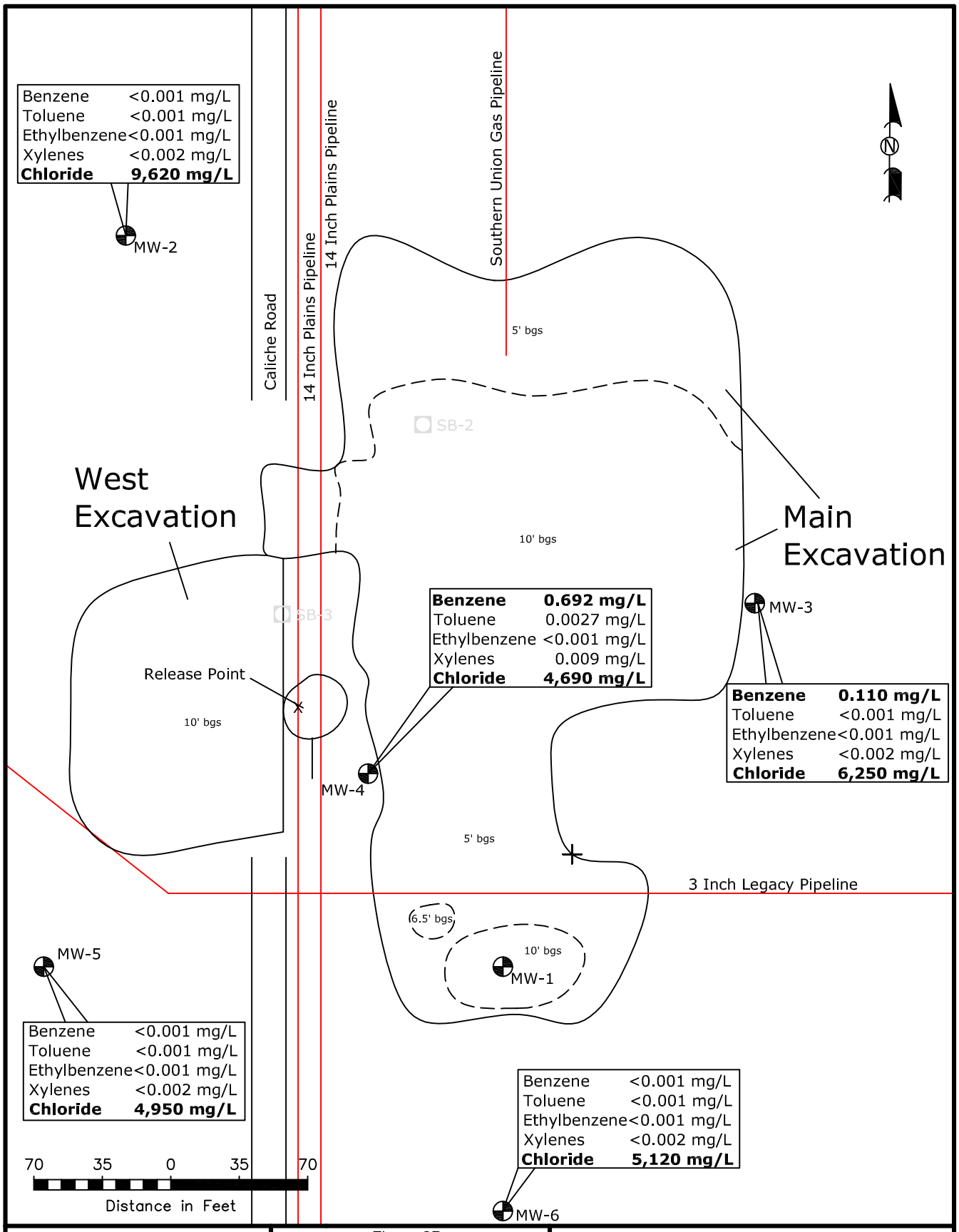
July 9, 2013		



LEGEND:
- Pipeline
- Excavation Extent
- Monitor Well Location
- Soil Boring Location

Figure 3B
Groundwater Concentration Map
3Q2013
Plains 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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October 22, 2013		

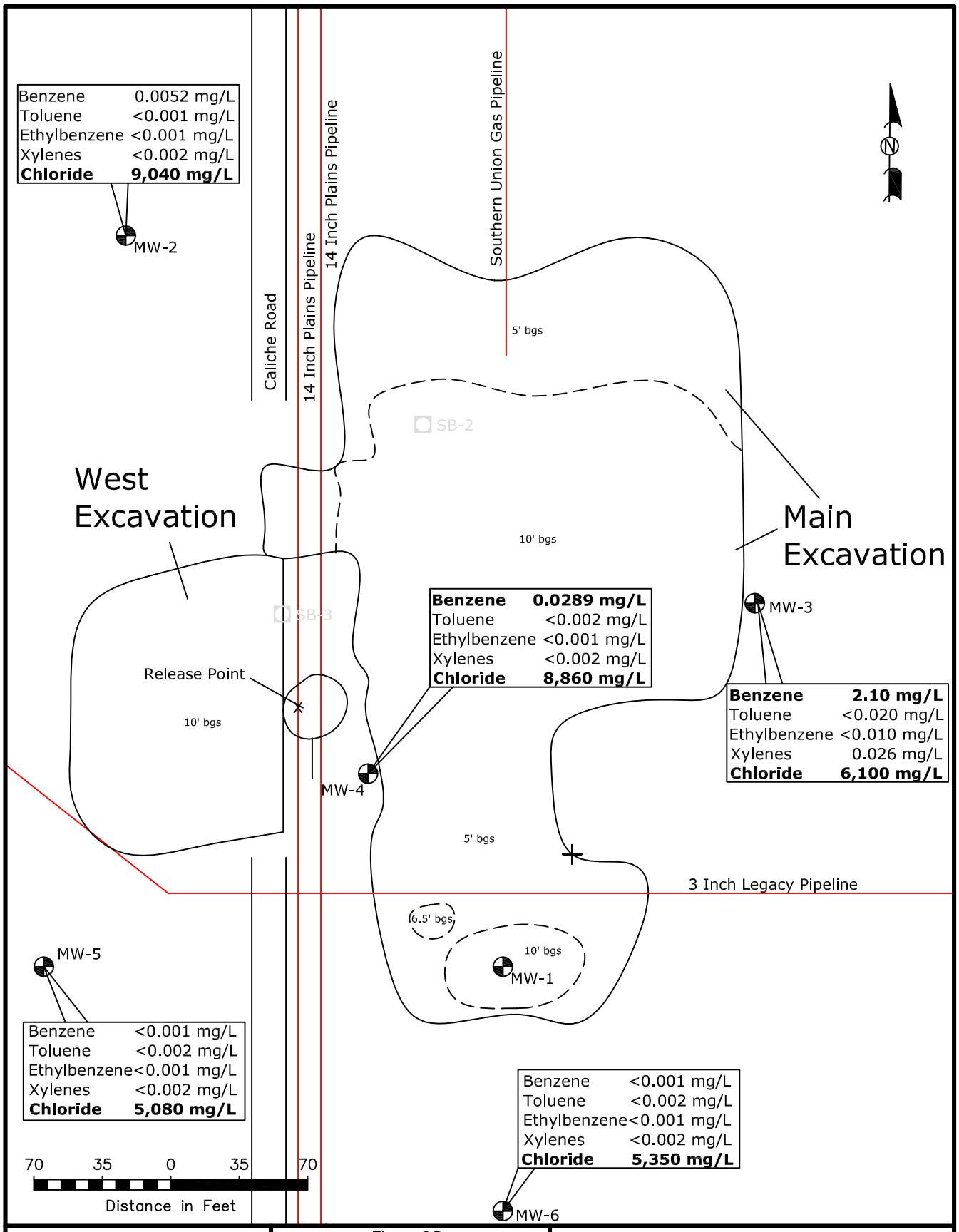

Figure 3C
Groundwater Concentration Map
4Q2013
Plains Pipeline, LP
14-Inch Vac to Jal Legacy
Lea County, NM
SRS # 2009-092
NMOCD Ref. # 1RP-2162

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

Scale: 1" = 70'	Drawn By: BJA	Prepared By: BJA
January 22, 2014		

Tables

TABLE 1

2013 GROUNDWATER ELEVATION DATA

PLAINS PIPELINE, L.P.
14" VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS NO: 2009-092
NMOCD REFERENCE NO: 1RP-2162

WELL NUMBER	DATE MEASURED	CASING WELL ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	PSH THICKNESS	CORRECTED GROUNDWATER ELEVATION
MW-1	6/7/2013	3,065.33	62.50	65.13	2.63	3,002.44
	8/29/2013	3,065.33	62.56	65.19	2.63	3,002.38
	11/7/2013	3,065.33	62.57	65.21	2.64	3,002.36
MW-2	6/7/2013	3,065.28	-	62.23	-	3,003.05
	8/29/2013	3,065.28	-	62.30	-	3,002.98
	11/7/2013	3,065.28	-	62.36	-	3,002.92
MW-3	6/7/2013	3,065.43	-	63.02	-	3,002.41
	8/29/2013	3,065.43	-	63.12	-	3,002.31
	11/7/2013	3,065.43	-	63.21	-	3,002.22
MW-4	6/7/2013	3,065.15	-	62.57	-	3,002.58
	8/29/2013	3,065.15	-	62.76	-	3,002.39
	11/7/2013	3,065.15	-	62.79	-	3,002.36
MW-5	6/7/2013	3,065.95	-	63.16	-	3,002.79
	8/29/2013	3,065.95	-	63.22	-	3,002.73
	11/7/2013	3,065.95	-	63.26	-	3,002.69
MW-6	6/7/2013	3,065.35	-	63.12	-	3,002.23
	8/29/2013	3,065.35	-	63.16	-	3,002.19
	11/7/2013	3,065.35	-	63.21	-	3,002.14

TABLE 2

2013 CONCENTRATIONS OF BENZENE, BTEX, CHLORIDE & TOTAL DISSOLVED SOLIDS IN GROUNDWATER

PLAINS PIPELINE, L.P.
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
PLAINS SRS NO. 2009-092
NMOCD REFERENCE NO: 1R-2162

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021B, 5030							CHLORIDES (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	6/7/2013	<0.005	<0.005	<0.005	<0.010	<0.005	<0.010	<0.010	**8,740**	**-**
	8/29/2013	<0.0010	<0.0010	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**9,620**	**19,600**
	11/7/2013	0.0052	<0.0200	<0.0100	0.0260	<0.0010	0.026	2.13	**9,040**	**17,700**
MW-3	6/7/2013	<0.005	<0.005	<0.005	<0.010	<0.005	<0.010	<0.010	**6,120**	**-**
	8/29/2013	**0.110**	<0.0010	<0.0010	<0.0020	<0.0010	<0.0020	0.110	**6,250**	**13,600**
	11/7/2013	**2.10**	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**6,100**	**15,500**
MW-4	6/7/2013	**0.293**	<0.005	<0.005	<0.010	<0.005	<0.010	<0.010	**7,290**	**-**
	8/29/2013	**0.692**	0.0027	<0.0010	0.0090	<0.0010	0.0090	0.704	**4,690**	**8,610**
	11/7/2013	**0.0289**	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0289	**8,860**	**21,400**
MW-5	6/7/2013	<0.005	<0.005	<0.005	<0.010	<0.005	<0.010	<0.010	**4,710**	**-**
	8/29/2013	<0.0010	<0.0010	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**4,950**	**9,730**
	11/7/2013	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**5,080**	**10,700**
MW-6	6/7/2013	<0.005	<0.005	<0.005	<0.010	<0.005	<0.010	<0.010	**5,570**	**-**
	8/29/2013	<0.0010	<0.0010	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**5,120**	**10,700**
	11/7/2013	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	**5,350**	**10,200**
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 PIPELINE, LP

14-INCH VAC TO JAL LEGACY

LEA COUNTY, NEW MEXICO

NMOCD REFERENCE NUMBER 1RP-2162

All water concentrations are reported in mg/L

SAMPLE LOCATION	SAMPLE DATE	EPA SW846-6020A, EPA 7470A																
		Aluminum	Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Zinc	Mercury
MW-2	6/7/2013	77.2	0.0206	1.03	2.32	<0.010	0.065	0.0433	0.0959	58.8	0.0611	2.30	<0.010	0.111	<0.030	<0.020	0.315	<0.0002
MW-3	6/7/2013	19.9	0.0121	0.413	1.12	<0.010	0.0202	0.0227	0.0361	13.8	0.0343	1.06	<0.010	0.0358	<0.030	<0.020	0.211	<0.0002
MW-4	6/7/2013	7.66	0.0070	0.283	1.65	<0.010	0.012	<0.010	<0.020	5.64	0.0188	0.642	<0.010	0.0178	<0.030	<0.020	0.0788	<0.0002
MW-5	6/7/2013	31.3	0.0138	0.575	1.05	<0.010	0.0283	0.0195	0.0441	24.9	0.0292	1.04	<0.010	0.0445	<0.030	<0.020	0.177	<0.0002
MW-6	6/7/2013	26.9	0.0141	0.974	1.03	<0.010	0.0385	0.024	0.0433	24.2	0.0463	1.70	0.0118	0.0744	<0.030	<0.020	0.191	<0.0002
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 PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
NMOCD REFERENCE NUMBER 1RP-2162

All water concentrations are in mg/L

Date Sampled	Sample Location	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone	MTBE	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Carbon Disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane
6/7/2013	MW-2	<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	<0.010
6/7/2013	MW-3	<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	<0.010
6/7/2013	MW-4	0.293	<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
6/7/2013	MW-5	<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	<0.010
6/7/2013	MW-6	<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	<0.010
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 PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
NMOCD REFERENCE NUMBER 1RP-2162

All water concentrations are in mg/L

Date Sampled	Sample Location	2-Chloroethyl vinyl ether	Chloroform	Chloromethane	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
6/7/2013	MW-2	<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
6/7/2013	MW-3	<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
6/7/2013	MW-4	<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
6/7/2013	MW-5	<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
6/7/2013	MW-6	<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 PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
NMOCD REFERENCE NUMBER 1RP-2162

All water concentrations are in mg/L

Date Sampled	Sample Location	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
6/7/2013	MW-2	<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	<0.005	<0.005	<0.005	<0.005
6/7/2013	MW-3	<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	<0.005	<0.005	<0.005	<0.005
6/7/2013	MW-4	<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	<0.005	<0.005	<0.005	<0.005
6/7/2013	MW-5	<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	<0.005	<0.005	<0.005	<0.005
6/7/2013	MW-6	<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	<0.005	<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 PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
NMOCD REFERENCE NUMBER 1RP-2162

All water concentrations are in mg/L

Date Sampled	Sample Location	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
6/7/2013	MW-2	<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	<0.0020
6/7/2013	MW-3	<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	<0.0020
6/7/2013	MW-4	<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	<0.0020
6/7/2013	MW-5	<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	<0.0020
6/7/2013	MW-6	<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	<0.0020
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 PIPELINE, LP

14-INCH VAC TO JAL LEGACY

LEA COUNTY, NEW MEXICO

NMOCD REFERENCE NUMBER 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	6/7/2013	<0.005	<0.005	<0.00017	<0.005	<0.00021	<0.00039	<0.005	<0.00053	<0.005	<0.005	<0.00026	<0.00032	<0.005	<0.005	<0.00029	<0.00029
MW-3	6/7/2013	<0.005	<0.005	<0.00017	<0.005	<0.00021	<0.00039	<0.005	<0.00054	<0.005	<0.005	<0.00026	<0.00032	<0.005	<0.005	<0.00029	<0.00029
MW-4	6/7/2013	<0.005	<0.005	<0.00017	<0.005	<0.00021	<0.00040	<0.005	<0.00054	<0.005	<0.005	<0.00027	<0.00032	<0.005	<0.005	<0.00029	<0.00030
MW-5	6/7/2013	<0.005	<0.005	<0.00017	<0.005	<0.00021	<0.00039	<0.005	<0.00054	<0.005	<0.005	<0.00026	<0.00032	<0.005	<0.005	<0.00029	<0.00029
MW-6	6/7/2013	<0.005	<0.005	<0.00017	<0.005	<0.00021	<0.00040	<0.005	<0.00055	<0.005	<0.005	<0.00027	<0.00033	<0.005	<0.005	<0.00030	<0.00030

TABLE 6
CONCENTRATIONS OF ANIONS/CATIONS IN GROUNDWATER
PLAINS PIPELINE, LP
14-INCH VAC TO JAL LEGACY
LEA COUNTY, NEW MEXICO
NMOCD REFERENCE NUMBER 1RP-2162

All water concentrations are reported in mg/L

SAMPLE DATE	SAMPLE LOCATION	EPA SW375.4, 325,3, 310, 160.1 SW846 6010B									
		Calcium	Magnesium	Potassium	Sodium	Chloride	Sulfate	Bicarbonate	Carbonate	Nitrate	Flouride
6/7/2013	MW-2	1,520	374	115	5,110	**8,740**	<1,000	202	<4.00	<200	<200
6/7/2013	MW-3	1,440	391	39.7	2,690	**6,120**	450	206	<4.00	<80.0	<80.0
6/7/2013	MW-4	1,200	338	45.4	3,590	**7,290**	<1,000	235	<4.00	<200	<200
6/7/2013	MW-5	935	257	32.6	2,050	**4,710**	420	156	<4.00	<40.0	<40.0
6/7/2013	MW-6	1,320	357	32.1	2,200	**5,570**	<400	159	<4.00	<80.0	<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**

Appendices

Appendix A
Laboratory Analytical Reports

Analytical Report 464818

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

14" Vac to Jal legacy

2009-092

19-JUN-13

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

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-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
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-JUN-13

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

Reference: XENCO Report No(s): **464818**
14" Vac to Jal legacy
Project Address: Lovington

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) 464818. 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. 464818 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 464818

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	06-07-13 11:10		464818-001
MW-3	W	06-07-13 12:00		464818-002
MW-4	W	06-07-13 14:00		464818-003
MW-5	W	06-07-13 12:30		464818-004
MW-6	W	06-07-13 14:45		464818-005

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-916019 Total Phosphorus by EPA 365.1
E365.1

Batch 916019, Total Phosphorus (as P) recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.
Samples affected are: 464818-005, -004, -001, -003, -002.
The Laboratory Control Sample for Total Phosphorus (as P) is within laboratory Control Limits

Batch: LBA-916204 Metals per ICP by EPA 200.7
E200.7

Batch 916204, Calcium, Sodium recovered below QC limits in the Matrix Spike. Aluminum, Iron recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Barium, Boron, Magnesium, Manganese, Potassium, Zinc recovered above QC limits in the Matrix Spike.
Samples affected are: 464818-005, -001, -004, -003, -002.
The Laboratory Control Sample for Aluminum, Magnesium, Iron, Calcium, Manganese, Sodium, Barium, Zinc, Boron, Potassium is within laboratory Control Limits

Batch: LBA-916264 SVOAs by SW-846 8270C
SW8270C

Batch 916264, di-n-Butyl Phthalate recovered below QC limits in the Blank Spike Duplicate.
Samples affected are: 464818-005, -001, -004, -003, -002.

SW8270C

Batch 916264, 2-Nitroaniline, Diethyl Phthalate, bis(2-chloroisopropyl) ether, bis(2-ethylhexyl) phthalate, di-n-Butyl Phthalate recovered below QC limits in the Matrix Spike.
Samples affected are: 464818-005, -001, -004, -003, -002.
The Laboratory Control Sample for bis(2-chloroisopropyl) ether, 2-Nitroaniline, Diethyl Phthalate, bis(2-ethylhexyl) phthalate, di-n-Butyl Phthalate is within laboratory Control Limits

Batch: LBA-916426 Inorganic Anions by EPA 300/300.1
E300

Batch 916426, Chloride recovered above QC limits in the Matrix Spike.
Samples affected are: 464818-005, -004, -001, -003, -002.
The Laboratory Control Sample for Chloride is within laboratory Control Limits

Batch: LBA-916471 VOAs by SW-846 8260B
SW8260B

Batch 916471, 1,2-Dibromo-3-Chloropropane recovered above QC limits in the Matrix Spike.
Hexachlorobutadiene, Naphthalene, cis-1,2-Dichloroethylene recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate.
Samples affected are: 464818-001, -002.
The Laboratory Control Sample for cis-1,2-Dichloroethylene, Naphthalene, Hexachlorobutadiene, 1,2-Dibromo-3-Chloropropane is within laboratory Control Limits

Batch: LBA-916486 VOAs by SW-846 8260B
SW8260B

Batch 916486, Tetrachloroethylene, Trichloroethylene, Vinyl Chloride, cis-1,2-Dichloroethylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.
Samples affected are: 464818-005, -004.
The Laboratory Control Sample for cis-1,2-Dichloroethylene, Tetrachloroethylene, Trichloroethylene, Vinyl Chloride is within laboratory Control Limits

Batch: LBA-916508 VOAs by SW-846 8260B
SW8260B

Batch 916508, Styrene recovered below QC limits in the Matrix Spike.
Samples affected are: 464818-003.
The Laboratory Control Sample for Styrene is within laboratory Control Limits

Certificate of Analysis Summary 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal legacy

Project Id: 2009-092
Contact: Ben Arguijo
Project Location: Lovington

Date Received in Lab: Mon Jun-10-13 12:30 pm
Report Date: 19-JUN-13
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	464818-001		464818-002		464818-003		464818-004		464818-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Jun-07-13 11:10		Jun-07-13 12:00		Jun-07-13 14:00		Jun-07-13 12:30		Jun-07-13 14:45	
Alkalinity by SM2320B SUB: E871002	***Extracted:***										
	Analyzed:	Jun-13-13 04:36		Jun-13-13 04:43		Jun-13-13 04:50		Jun-13-13 04:57		Jun-13-13 05:04	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Alkalinity, Bicarbonate (as CaCO3)		202	4.00	206	4.00	235	4.00	156	4.00	159	4.00
Alkalinity, Carbonate (as CaCO3)		ND	4.00	ND	4.00	ND	4.00	ND	4.00	ND	4.00
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jun-13-13 17:49		Jun-13-13 18:11		Jun-13-13 18:33		Jun-13-13 17:06		Jun-13-13 18:54	
	Analyzed:	Jun-13-13 17:49		Jun-13-13 18:11		Jun-13-13 18:33		Jun-13-13 17:06		Jun-13-13 18:54	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		8740	500	6120	200	7290	500	4710	100	5570	200
Fluoride		ND	200	ND	80.0	ND	200	ND	40.0	ND	80.0
Nitrate as N		ND	200	ND	80.0	ND	200	ND	40.0	ND	80.0
Sulfate		ND	1000	450	400	ND	1000	420	200	ND	400
Mercury, Total by EPA 245.1 SUB: E871002	***Extracted:***	Jun-12-13 10:00		Jun-12-13 10:00		Jun-12-13 10:00		Jun-12-13 10:00		Jun-12-13 10:00	
	Analyzed:	Jun-12-13 15:23		Jun-12-13 15:25		Jun-12-13 15:28		Jun-12-13 15:30		Jun-12-13 15:33	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Mercury		ND	0.000200	ND	0.000200	ND	0.000200	ND	0.000200	ND	0.000200
Metals by EPA 200.8 SUB: E871002	***Extracted:***	Jun-14-13 09:30		Jun-14-13 09:30		Jun-14-13 09:30		Jun-14-13 09:30		Jun-14-13 09:30	
	Analyzed:	Jun-15-13 03:29		Jun-15-13 03:43		Jun-15-13 04:06		Jun-15-13 04:13		Jun-15-13 04:20	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Arsenic		0.0206	0.00400	0.0121	0.00400	0.00697	0.00400	0.0138	0.00400	0.0141	0.00400

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal legacy

Project Id: 2009-092
Contact: Ben Arguijo
Project Location: Lovington

Date Received in Lab: Mon Jun-10-13 12:30 pm
Report Date: 19-JUN-13
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	464818-001		464818-002		464818-003		464818-004		464818-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Jun-07-13 11:10		Jun-07-13 12:00		Jun-07-13 14:00		Jun-07-13 12:30		Jun-07-13 14:45	
Metals per ICP by EPA 200.7 SUB: E871002	***Extracted:***	Jun-13-13 11:30		Jun-13-13 11:30		Jun-13-13 11:30		Jun-13-13 11:30		Jun-13-13 11:30	
	Analyzed:	Jun-13-13 19:02		Jun-13-13 19:15		Jun-13-13 19:21		Jun-13-13 19:39		Jun-13-13 19:45	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Aluminum		77.2	0.200	19.9	0.200	7.66	0.200	31.3	0.200	26.9	0.200
Barium		1.03	0.0100	0.413	0.0100	0.283	0.0100	0.575	0.0100	0.974	0.0100
Boron		2.32	0.0500	1.12	0.0500	1.65	0.0500	1.05	0.0500	1.03	0.0500
Cadmium		ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100
Calcium		1520	20.0	1440	20.0	1200	20.0	935	20.0	1320	20.0
Chromium		0.0650	0.0100	0.0202	0.0100	0.0120	0.0100	0.0283	0.0100	0.0385	0.0100
Cobalt		0.0433	0.0100	0.0227	0.0100	ND	0.0100	0.0195	0.0100	0.0240	0.0100
Copper		0.0959	0.0200	0.0361	0.0200	ND	0.0200	0.0441	0.0200	0.0433	0.0200
Iron		58.8	0.200	13.8	0.200	5.64	0.200	24.9	0.200	24.2	0.200
Lead		0.0611	0.0100	0.0343	0.0100	0.0188	0.0100	0.0292	0.0100	0.0463	0.0100
Magnesium		374	0.200	391	0.200	338	0.200	257	0.200	357	0.200
Manganese		2.30	0.0200	1.06	0.0200	0.642	0.0200	1.04	0.0200	1.70	0.0200
Molybdenum		ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100	0.0118	0.0100
Nickel		0.111	0.0100	0.0358	0.0100	0.0178	0.0100	0.0445	0.0100	0.0744	0.0100
Potassium		115	0.500	39.7	0.500	45.4	0.500	32.6	0.500	32.1	0.500
Selenium		ND	0.0300	ND	0.0300	ND	0.0300	ND	0.0300	ND	0.0300
Silver		ND	0.0200	ND	0.0200	ND	0.0200	ND	0.0200	ND	0.0200
Sodium		5110	50.0	2690	50.0	3590	50.0	2050	50.0	2200	50.0
Zinc		0.315	0.0300	0.211	0.0300	0.0788	0.0300	0.177	0.0300	0.191	0.0300

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal legacy

Project Id: 2009-092
Contact: Ben Arguijo
Project Location: Lovington

Date Received in Lab: Mon Jun-10-13 12:30 pm
Report Date: 19-JUN-13
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	464818-001		464818-002		464818-003		464818-004		464818-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Jun-07-13 11:10		Jun-07-13 12:00		Jun-07-13 14:00		Jun-07-13 12:30		Jun-07-13 14:45	
SVOAs by EPA 8270C	***Extracted:***	Jun-14-13 08:39		Jun-14-13 08:42		Jun-14-13 08:45		Jun-14-13 08:48		Jun-14-13 08:51	
SUB: E871002	***Analyzed:***	Jun-14-13 16:57		Jun-14-13 17:17		Jun-14-13 17:37		Jun-14-13 17:58		Jun-14-13 18:18	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Acenaphthene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Acenaphthylene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Aniline (Phenylamine, Aminobenzene)		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
Anthracene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Benzo(a)anthracene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Benzo(a)pyrene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Benzo(b)fluoranthene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Benzo(k)fluoranthene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Benzo(g,h,i)perylene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Benzoic Acid		ND	0.0309	ND	0.0313	ND	0.0316	ND	0.0313	ND	0.0319
Benzyl Butyl Phthalate		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
bis(2-chloroethoxy) methane		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
bis(2-chloroethyl) ether		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
bis(2-chloroisopropyl) ether		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
bis(2-ethylhexyl) phthalate		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
4-Bromophenyl-phenylether		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
4-chloro-3-methylphenol		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
4-Chloroaniline		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
2-Chloronaphthalene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
2-Chlorophenol		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
4-Chlorophenyl Phenyl Ether		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Chrysene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Dibenz(a,h)Anthracene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Dibenzofuran		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
di-n-Butyl Phthalate		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal legacy

Project Id: 2009-092
Contact: Ben Arguijo
Project Location: Lovington

Date Received in Lab: Mon Jun-10-13 12:30 pm
Report Date: 19-JUN-13
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	464818-001		464818-002		464818-003		464818-004		464818-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Jun-07-13 11:10		Jun-07-13 12:00		Jun-07-13 14:00		Jun-07-13 12:30		Jun-07-13 14:45	
SVOAs by EPA 8270C	***Extracted:***	Jun-14-13 08:39		Jun-14-13 08:42		Jun-14-13 08:45		Jun-14-13 08:48		Jun-14-13 08:51	
SUB: E871002	***Analyzed:***	Jun-14-13 16:57		Jun-14-13 17:17		Jun-14-13 17:37		Jun-14-13 17:58		Jun-14-13 18:18	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
1,2-Dichlorobenzene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
1,3-Dichlorobenzene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
1,4-Dichlorobenzene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
3,3-Dichlorobenzidine		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
2,4-Dichlorophenol		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Diethyl Phthalate		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Dimethyl Phthalate		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
2,4-Dimethylphenol		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
4,6-dinitro-2-methyl phenol		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
2,4-Dinitrophenol		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
2,4-Dinitrotoluene		ND	0.00258	ND	0.00260	ND	0.00263	ND	0.00260	ND	0.00266
2,6-Dinitrotoluene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
di-n-Octyl Phthalate		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Fluoranthene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Fluorene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Hexachlorobenzene		ND	0.00258	ND	0.00260	ND	0.00263	ND	0.00260	ND	0.00266
Hexachlorobutadiene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Hexachlorocyclopentadiene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Hexachloroethane		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Indeno(1,2,3-c,d)Pyrene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Isophorone		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
2-Methylnaphthalene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
2-methylphenol		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
3&4-Methylphenol		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Naphthalene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal legacy

Project Id: 2009-092
Contact: Ben Arguijo
Project Location: Lovington

Date Received in Lab: Mon Jun-10-13 12:30 pm
Report Date: 19-JUN-13
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	464818-001		464818-002		464818-003		464818-004		464818-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Jun-07-13 11:10		Jun-07-13 12:00		Jun-07-13 14:00		Jun-07-13 12:30		Jun-07-13 14:45	
SVOAs by EPA 8270C	***Extracted:***	Jun-14-13 08:39		Jun-14-13 08:42		Jun-14-13 08:45		Jun-14-13 08:48		Jun-14-13 08:51	
SUB: E871002	***Analyzed:***	Jun-14-13 16:57		Jun-14-13 17:17		Jun-14-13 17:37		Jun-14-13 17:58		Jun-14-13 18:18	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
2-Nitroaniline		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
3-Nitroaniline		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
4-Nitroaniline		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
Nitrobenzene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
2-Nitrophenol		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
4-Nitrophenol		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
N-Nitrosodi-n-Propylamine		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
N-Nitrosodiphenylamine		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Pentachlorophenol		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
Phenanthrene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Phenol		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
Pyrene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Pyridine		ND	0.0103	ND	0.0104	ND	0.0105	ND	0.0104	ND	0.0106
1,2,4-Trichlorobenzene		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
2,4,5-Trichlorophenol		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
2,4,6-Trichlorophenol		ND	0.00515	ND	0.00521	ND	0.00526	ND	0.00521	ND	0.00532
Total Phosphorus by EPA 365.1	***Extracted:***	Jun-12-13 12:18		Jun-12-13 12:18		Jun-12-13 12:18		Jun-12-13 12:18		Jun-12-13 12:18	
SUB: E871002	***Analyzed:***	Jun-12-13 15:19		Jun-12-13 15:21		Jun-12-13 15:15		Jun-12-13 15:16		Jun-12-13 15:17	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Phosphorus (as P)		4.87	0.200	2.91	0.100	0.248	0.0200	0.879	0.0200	1.26	0.0200

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal legacy

Project Id: 2009-092
Contact: Ben Arguijo
Project Location: Lovington

Date Received in Lab: Mon Jun-10-13 12:30 pm
Report Date: 19-JUN-13
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	464818-001		464818-002		464818-003		464818-004		464818-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Jun-07-13 11:10		Jun-07-13 12:00		Jun-07-13 14:00		Jun-07-13 12:30		Jun-07-13 14:45	
VOAs by SW-846 8260B	***Extracted:***	Jun-15-13 17:12		Jun-15-13 17:12		Jun-18-13 15:26		Jun-17-13 14:47		Jun-17-13 14:48	
SUB: E871002	***Analyzed:***	Jun-15-13 23:49		Jun-16-13 00:15		Jun-18-13 15:51		Jun-17-13 15:02		Jun-17-13 15:26	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.00500	ND	0.00500	0.293 D	0.0250	ND	0.00500	ND	0.00500
Bromobenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Bromochloromethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Bromodichloromethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Bromoform		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Methyl bromide		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
n-Butylbenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Sec-Butylbenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
tert-Butylbenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Carbon Tetrachloride		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Chlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Chloroethane		ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100
Chloroform		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Methyl Chloride		ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100
2-Chlorotoluene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
4-Chlorotoluene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
p-Cymene (p-Isopropyltoluene)		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Dibromochloromethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,2-Dibromo-3-Chloropropane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,2-Dibromoethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Methylene bromide		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,2-Dichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,3-Dichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,4-Dichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Dichlorodifluoromethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal legacy

Project Id: 2009-092
Contact: Ben Arguijo
Project Location: Lovington

Date Received in Lab: Mon Jun-10-13 12:30 pm
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Analysis Requested											
	Lab Id:	464818-001		464818-002		464818-003		464818-004		464818-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Jun-07-13 11:10		Jun-07-13 12:00		Jun-07-13 14:00		Jun-07-13 12:30		Jun-07-13 14:45	
VOAs by SW-846 8260B	***Extracted:***	Jun-15-13 17:12		Jun-15-13 17:12		Jun-18-13 15:26		Jun-17-13 14:47		Jun-17-13 14:48	
SUB: E871002	***Analyzed:***	Jun-15-13 23:49		Jun-16-13 00:15		Jun-18-13 15:51		Jun-17-13 15:02		Jun-17-13 15:26	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
1,1-Dichloroethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,2-Dichloroethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,1-Dichloroethene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
cis-1,2-Dichloroethylene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
trans-1,2-dichloroethylene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,2-Dichloropropane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,3-Dichloropropane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
2,2-Dichloropropane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,1-Dichloropropene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
cis-1,3-Dichloropropene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
trans-1,3-dichloropropene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Ethylbenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Hexachlorobutadiene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Isopropylbenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Methylene Chloride		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
MTBE		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Naphthalene		ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100
n-Propylbenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Styrene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,1,1,2-Tetrachloroethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,1,2,2-Tetrachloroethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Tetrachloroethylene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Toluene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,2,3-Trichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,2,4-Trichlorobenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal legacy

Project Id: 2009-092
Contact: Ben Arguijo
Project Location: Lovington

Date Received in Lab: Mon Jun-10-13 12:30 pm
Report Date: 19-JUN-13
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	464818-001		464818-002		464818-003		464818-004		464818-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Jun-07-13 11:10		Jun-07-13 12:00		Jun-07-13 14:00		Jun-07-13 12:30		Jun-07-13 14:45	
VOAs by SW-846 8260B	***Extracted:***	Jun-15-13 17:12		Jun-15-13 17:12		Jun-18-13 15:26		Jun-17-13 14:47		Jun-17-13 14:48	
SUB: E871002	***Analyzed:***	Jun-15-13 23:49		Jun-16-13 00:15		Jun-18-13 15:51		Jun-17-13 15:02		Jun-17-13 15:26	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
1,1,1-Trichloroethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,1,2-Trichloroethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Trichloroethylene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
Trichlorofluoromethane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,2,3-Trichloropropane		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,2,4-Trimethylbenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
1,3,5-Trimethylbenzene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
o-Xylene		ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500	ND	0.00500
m,p-Xylenes		ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100	ND	0.0100
Vinyl Chloride		ND	0.00200	ND	0.00200	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 quantiation 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 : 464818, 464818 **Project ID:** 2009-092

Lab Batch #: 916264 **Sample:** 464818-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 16:57

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	18.2	50.0	36	30-100	
Phenol-d6	11.4	50.0	23	15-94	
Nitrobenzene-d5	25.3	50.0	51	46-111	
2-Fluorobiphenyl	23.8	50.0	48	44-117	
2,4,6-Tribromophenol	28.1	50.0	56	48-117	
Terphenyl-D14	24.5	50.0	49	46-126	

Lab Batch #: 916264 **Sample:** 464818-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 17:17

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	17.9	50.0	36	30-100	
Phenol-d6	11.0	50.0	22	15-94	
Nitrobenzene-d5	26.6	50.0	53	46-111	
2-Fluorobiphenyl	24.4	50.0	49	44-117	
2,4,6-Tribromophenol	27.9	50.0	56	48-117	
Terphenyl-D14	25.5	50.0	51	46-126	

Lab Batch #: 916264 **Sample:** 464818-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 17:37

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	18.3	50.0	37	30-100	
Phenol-d6	11.3	50.0	23	15-94	
Nitrobenzene-d5	25.9	50.0	52	46-111	
2-Fluorobiphenyl	24.8	50.0	50	44-117	
2,4,6-Tribromophenol	29.1	50.0	58	48-117	
Terphenyl-D14	25.8	50.0	52	46-126	

* 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 : 464818, 464818 **Project ID:** 2009-092

Lab Batch #: 916264 **Sample:** 464818-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 17:58

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	16.3	50.0	33	30-100	
Phenol-d6	9.59	50.0	19	15-94	
Nitrobenzene-d5	24.2	50.0	48	46-111	
2-Fluorobiphenyl	24.2	50.0	48	44-117	
2,4,6-Tribromophenol	29.1	50.0	58	48-117	
Terphenyl-D14	26.0	50.0	52	46-126	

Lab Batch #: 916264 **Sample:** 464818-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 18:18

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	16.5	50.0	33	30-100	
Phenol-d6	9.89	50.0	20	15-94	
Nitrobenzene-d5	23.5	50.0	47	46-111	
2-Fluorobiphenyl	22.5	50.0	45	44-117	
2,4,6-Tribromophenol	25.9	50.0	52	48-117	
Terphenyl-D14	24.0	50.0	48	46-126	

Lab Batch #: 916471 **Sample:** 464818-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 23:49

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0542	0.0500	108	75-131	
1,2-Dichloroethane-D4	0.0519	0.0500	104	63-144	
Toluene-D8	0.0473	0.0500	95	80-117	
4-Bromofluorobenzene	0.0509	0.0500	102	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 : 464818, 464818 **Project ID:** 2009-092

Lab Batch #: 916471 **Sample:** 464818-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/16/13 00:15

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0561	0.0500	112	75-131	
1,2-Dichloroethane-D4	0.0529	0.0500	106	63-144	
Toluene-D8	0.0467	0.0500	93	80-117	
4-Bromofluorobenzene	0.0489	0.0500	98	74-124	

Lab Batch #: 916486 **Sample:** 464818-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 15:02

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0445	0.0500	89	75-131	
1,2-Dichloroethane-D4	0.0399	0.0500	80	63-144	
Toluene-D8	0.0487	0.0500	97	80-117	
4-Bromofluorobenzene	0.0529	0.0500	106	74-124	

Lab Batch #: 916486 **Sample:** 464818-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 15:26

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0487	0.0500	97	75-131	
1,2-Dichloroethane-D4	0.0447	0.0500	89	63-144	
Toluene-D8	0.0504	0.0500	101	80-117	
4-Bromofluorobenzene	0.0529	0.0500	106	74-124	

Lab Batch #: 916508 **Sample:** 464818-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 15:51

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0537	0.0500	107	75-131	
1,2-Dichloroethane-D4	0.0475	0.0500	95	63-144	
Toluene-D8	0.0478	0.0500	96	80-117	
4-Bromofluorobenzene	0.0515	0.0500	103	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 : 464818, 464818 **Project ID:** 2009-092

Lab Batch #: 916508 **Sample:** 464818-003 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 16:39

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0559	0.0500	112	75-131	
1,2-Dichloroethane-D4	0.0476	0.0500	95	63-144	
Toluene-D8	0.0474	0.0500	95	80-117	
4-Bromofluorobenzene	0.0471	0.0500	94	74-124	

Lab Batch #: 916264 **Sample:** 639644-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 14:54

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	22.4	50.0	45	30-100	
Phenol-d6	15.5	50.0	31	15-94	
Nitrobenzene-d5	28.6	50.0	57	46-111	
2-Fluorobiphenyl	28.1	50.0	56	44-117	
2,4,6-Tribromophenol	29.2	50.0	58	48-117	
Terphenyl-D14	28.0	50.0	56	46-126	

Lab Batch #: 916471 **Sample:** 639857-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 18:14

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0507	0.0500	101	75-131	
1,2-Dichloroethane-D4	0.0499	0.0500	100	63-144	
Toluene-D8	0.0510	0.0500	102	80-117	
4-Bromofluorobenzene	0.0539	0.0500	108	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 : 464818, 464818 **Project ID:** 2009-092

Lab Batch #: 916486 **Sample:** 639864-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 14:27

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0505	0.0500	101	75-131	
1,2-Dichloroethane-D4	0.0457	0.0500	91	63-144	
Toluene-D8	0.0499	0.0500	100	80-117	
4-Bromofluorobenzene	0.0528	0.0500	106	74-124	

Lab Batch #: 916508 **Sample:** 639872-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 15:28

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0541	0.0500	108	75-131	
1,2-Dichloroethane-D4	0.0539	0.0500	108	63-144	
Toluene-D8	0.0482	0.0500	96	80-117	
4-Bromofluorobenzene	0.0494	0.0500	99	74-124	

Lab Batch #: 916264 **Sample:** 639644-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 15:14

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	25.0	50.0	50	30-100	
Phenol-d6	17.1	50.0	34	15-94	
Nitrobenzene-d5	29.7	50.0	59	46-111	
2-Fluorobiphenyl	28.7	50.0	57	44-117	
2,4,6-Tribromophenol	32.5	50.0	65	48-117	
Terphenyl-D14	29.1	50.0	58	46-126	

* 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 : 464818, 464818 **Project ID:** 2009-092

Lab Batch #: 916471 **Sample:** 639857-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 16:30

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0495	0.0500	99	75-131	
1,2-Dichloroethane-D4	0.0499	0.0500	100	63-144	
Toluene-D8	0.0487	0.0500	97	80-117	
4-Bromofluorobenzene	0.0504	0.0500	101	74-124	

Lab Batch #: 916486 **Sample:** 639864-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 13:15

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0490	0.0500	98	75-131	
1,2-Dichloroethane-D4	0.0431	0.0500	86	63-144	
Toluene-D8	0.0477	0.0500	95	80-117	
4-Bromofluorobenzene	0.0534	0.0500	107	74-124	

Lab Batch #: 916508 **Sample:** 639872-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 14:35

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0479	0.0500	96	75-131	
1,2-Dichloroethane-D4	0.0439	0.0500	88	63-144	
Toluene-D8	0.0503	0.0500	101	80-117	
4-Bromofluorobenzene	0.0495	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 : 464818, 464818 **Project ID:** 2009-092

Lab Batch #: 916264 **Sample:** 639644-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 15:55

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	25.1	50.0	50	30-100	
Phenol-d6	17.3	50.0	35	15-94	
Nitrobenzene-d5	29.1	50.0	58	46-111	
2-Fluorobiphenyl	28.2	50.0	56	44-117	
2,4,6-Tribromophenol	31.2	50.0	62	48-117	
Terphenyl-D14	28.6	50.0	57	46-126	

Lab Batch #: 916471 **Sample:** 639857-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 16:56

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0510	0.0500	102	75-131	
1,2-Dichloroethane-D4	0.0497	0.0500	99	63-144	
Toluene-D8	0.0488	0.0500	98	80-117	
4-Bromofluorobenzene	0.0500	0.0500	100	74-124	

Lab Batch #: 916264 **Sample:** 464949-001 S / MS **Batch:** 1 **Matrix:** Solid

Units: mg/L **Date Analyzed:** 06/14/13 16:37

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	30.4	50.0	61	30-100	
Phenol-d6	26.7	50.0	53	15-94	
Nitrobenzene-d5	28.8	50.0	58	46-111	
2-Fluorobiphenyl	27.5	50.0	55	44-117	
2,4,6-Tribromophenol	32.0	50.0	64	48-117	
Terphenyl-D14	28.3	50.0	57	46-126	

* 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 : 464818, 464818 **Project ID:** 2009-092

Lab Batch #: 916471 **Sample:** 464810-005 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 21:40

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0554	0.0500	111	75-131	
1,2-Dichloroethane-D4	0.0525	0.0500	105	63-144	
Toluene-D8	0.0479	0.0500	96	80-117	
4-Bromofluorobenzene	0.0497	0.0500	99	74-124	

Lab Batch #: 916486 **Sample:** 464810-007 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 21:07

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0483	0.0500	97	75-131	
1,2-Dichloroethane-D4	0.0384	0.0500	77	63-144	
Toluene-D8	0.0499	0.0500	100	80-117	
4-Bromofluorobenzene	0.0532	0.0500	106	74-124	

Lab Batch #: 916508 **Sample:** 464818-003 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 17:03

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0517	0.0500	103	75-131	
1,2-Dichloroethane-D4	0.0460	0.0500	92	63-144	
Toluene-D8	0.0512	0.0500	102	80-117	
4-Bromofluorobenzene	0.0485	0.0500	97	74-124	

Lab Batch #: 916471 **Sample:** 464810-005 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 22:06

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0548	0.0500	110	75-131	
1,2-Dichloroethane-D4	0.0510	0.0500	102	63-144	
Toluene-D8	0.0484	0.0500	97	80-117	
4-Bromofluorobenzene	0.0487	0.0500	97	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 : 464818, 464818 **Project ID:** 2009-092

Lab Batch #: 916486 **Sample:** 464810-007 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 21:31

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0477	0.0500	95	75-131	
1,2-Dichloroethane-D4	0.0413	0.0500	83	63-144	
Toluene-D8	0.0501	0.0500	100	80-117	
4-Bromofluorobenzene	0.0505	0.0500	101	74-124	

Lab Batch #: 916508 **Sample:** 464818-003 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 17:27

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0499	0.0500	100	75-131	
1,2-Dichloroethane-D4	0.0434	0.0500	87	63-144	
Toluene-D8	0.0510	0.0500	102	80-117	
4-Bromofluorobenzene	0.0513	0.0500	103	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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916047 **Sample:** 639539-1-BKS **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** RKO

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

Mercury, Total by EPA 245.1 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Mercury	<0.000200	0.00200	0.00170	85	85-115	

Lab Batch #: 916019 **Sample:** 639550-1-BKS **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** DEP

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	0.502	100	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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916486 **Sample:** 639864-1-BKS **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0496	99	68-123	
Bromobenzene	<0.00500	0.0500	0.0549	110	83-124	
Bromochloromethane	<0.00500	0.0500	0.0526	105	68-119	
Bromodichloromethane	<0.00500	0.0500	0.0531	106	72-132	
Bromoform	<0.00500	0.0500	0.0463	93	65-136	
Methyl bromide	<0.00500	0.0500	0.0574	115	48-120	
n-Butylbenzene	<0.00500	0.0500	0.0547	109	82-128	
Sec-Butylbenzene	<0.00500	0.0500	0.0540	108	83-130	
tert-Butylbenzene	<0.00500	0.0500	0.0572	114	83-131	
Carbon Tetrachloride	<0.00500	0.0500	0.0537	107	68-135	
Chlorobenzene	<0.00500	0.0500	0.0502	100	78-124	
Chloroethane	<0.0100	0.0500	0.0470	94	55-120	
Chloroform	<0.00500	0.0500	0.0497	99	71-119	
Methyl Chloride	<0.0100	0.0500	0.0478	96	54-114	
2-Chlorotoluene	<0.00500	0.0500	0.0539	108	83-128	
4-Chlorotoluene	<0.00500	0.0500	0.0536	107	81-125	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0549	110	85-129	
Dibromochloromethane	<0.00500	0.0500	0.0527	105	74-135	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0491	98	62-134	
1,2-Dibromoethane	<0.00500	0.0500	0.0524	105	77-129	
Methylene bromide	<0.00500	0.0500	0.0510	102	71-124	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0496	99	81-123	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0522	104	82-126	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0492	98	80-119	
Dichlorodifluoromethane	<0.00500	0.0500	0.0510	102	59-121	
1,1-Dichloroethane	<0.00500	0.0500	0.0503	101	75-125	
1,2-Dichloroethane	<0.00500	0.0500	0.0497	99	64-130	
1,1-Dichloroethene	<0.00500	0.0500	0.0534	107	68-116	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0515	103	74-130	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0521	104	64-109	
1,2-Dichloropropane	<0.00500	0.0500	0.0524	105	72-127	
1,3-Dichloropropane	<0.00500	0.0500	0.0487	97	79-133	
2,2-Dichloropropane	<0.00500	0.0500	0.0607	121	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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916486 **Sample:** 639864-1-BKS **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0556	111	69-124	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0522	104	74-138	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0479	96	70-132	
Ethylbenzene	<0.00500	0.0500	0.0534	107	69-131	
Hexachlorobutadiene	<0.00500	0.0500	0.0537	107	74-130	
Isopropylbenzene	<0.00500	0.0500	0.0568	114	66-133	
Methylene Chloride	<0.00500	0.0500	0.0468	94	60-121	
MTBE	<0.00500	0.100	0.105	105	60-152	
Naphthalene	<0.0100	0.0500	0.0468	94	69-140	
n-Propylbenzene	<0.00500	0.0500	0.0553	111	86-129	
Styrene	<0.00500	0.0500	0.0569	114	79-128	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0568	114	78-131	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0513	103	80-133	
Tetrachloroethylene	<0.00500	0.0500	0.0508	102	79-122	
Toluene	<0.00500	0.0500	0.0496	99	62-132	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0523	105	76-126	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0577	115	77-127	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0517	103	72-124	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0498	100	71-135	
Trichloroethylene	<0.00500	0.0500	0.0549	110	74-123	
Trichlorofluoromethane	<0.00500	0.0500	0.0521	104	70-143	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0546	109	75-134	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0553	111	79-132	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0562	112	72-139	
o-Xylene	<0.00500	0.0500	0.0567	113	67-132	
m,p-Xylenes	<0.0100	0.100	0.107	107	69-132	
Vinyl Chloride	<0.00200	0.0500	0.0508	102	59-124	

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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916508 **Sample:** 639872-1-BKS **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.0461	92	68-123	
Bromobenzene	<0.00500	0.0500	0.0473	95	83-124	
Bromochloromethane	<0.00500	0.0500	0.0448	90	68-119	
Bromodichloromethane	<0.00500	0.0500	0.0478	96	72-132	
Bromoform	<0.00500	0.0500	0.0412	82	65-136	
Methyl bromide	<0.00500	0.0500	0.0521	104	48-120	
n-Butylbenzene	<0.00500	0.0500	0.0483	97	82-128	
Sec-Butylbenzene	<0.00500	0.0500	0.0483	97	83-130	
tert-Butylbenzene	<0.00500	0.0500	0.0501	100	83-131	
Carbon Tetrachloride	<0.00500	0.0500	0.0485	97	68-135	
Chlorobenzene	<0.00500	0.0500	0.0447	89	78-124	
Chloroethane	<0.0100	0.0500	0.0457	91	55-120	
Chloroform	<0.00500	0.0500	0.0446	89	71-119	
Methyl Chloride	<0.0100	0.0500	0.0529	106	54-114	
2-Chlorotoluene	<0.00500	0.0500	0.0489	98	83-128	
4-Chlorotoluene	<0.00500	0.0500	0.0467	93	81-125	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0482	96	85-129	
Dibromochloromethane	<0.00500	0.0500	0.0460	92	74-135	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0423	85	62-134	
1,2-Dibromoethane	<0.00500	0.0500	0.0446	89	77-129	
Methylene bromide	<0.00500	0.0500	0.0465	93	71-124	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0443	89	81-123	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0465	93	82-126	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0438	88	80-119	
Dichlorodifluoromethane	<0.00500	0.0500	0.0549	110	59-121	
1,1-Dichloroethane	<0.00500	0.0500	0.0446	89	75-125	
1,2-Dichloroethane	<0.00500	0.0500	0.0484	97	64-130	
1,1-Dichloroethene	<0.00500	0.0500	0.0479	96	68-116	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0462	92	74-130	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0467	93	64-109	
1,2-Dichloropropane	<0.00500	0.0500	0.0451	90	72-127	
1,3-Dichloropropane	<0.00500	0.0500	0.0432	86	79-133	
2,2-Dichloropropane	<0.00500	0.0500	0.0482	96	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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916508 **Sample:** 639872-1-BKS **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.0498	100	69-124	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0452	90	74-138	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0420	84	70-132	
Ethylbenzene	<0.00500	0.0500	0.0481	96	69-131	
Hexachlorobutadiene	<0.00500	0.0500	0.0457	91	74-130	
Isopropylbenzene	<0.00500	0.0500	0.0506	101	66-133	
Methylene Chloride	<0.00500	0.0500	0.0424	85	60-121	
MTBE	<0.00500	0.100	0.0851	85	60-152	
Naphthalene	<0.0100	0.0500	0.0373	75	69-140	
n-Propylbenzene	<0.00500	0.0500	0.0500	100	86-129	
Styrene	<0.00500	0.0500	0.0474	95	79-128	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0505	101	78-131	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0468	94	80-133	
Tetrachloroethylene	<0.00500	0.0500	0.0481	96	79-122	
Toluene	<0.00500	0.0500	0.0457	91	62-132	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0415	83	76-126	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0441	88	77-127	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0472	94	72-124	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0454	91	71-135	
Trichloroethylene	<0.00500	0.0500	0.0485	97	74-123	
Trichlorofluoromethane	<0.00500	0.0500	0.0503	101	70-143	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0477	95	75-134	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0489	98	79-132	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0488	98	72-139	
o-Xylene	<0.00500	0.0500	0.0466	93	67-132	
m,p-Xylenes	<0.0100	0.100	0.0955	96	69-132	
Vinyl Chloride	<0.00200	0.0500	0.0514	103	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 #: 464818, 464818 **Project ID:** 2009-092

Analyst: AMB **Date Prepared:** 06/13/2013 **Date Analyzed:** 06/13/2013

Lab Batch ID: 916426 **Sample:** 639816-1-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	24.0	96	25.0	24.0	96	0	80-120	20	
Fluoride	<0.400	5.00	4.54	91	5.00	4.60	92	1	80-120	20	
Nitrate as N	<0.400	5.00	4.78	96	5.00	4.76	95	0	90-110	20	
Sulfate	<2.00	25.0	23.6	94	25.0	23.5	94	0	80-120	20	

Analyst: MKO **Date Prepared:** 06/14/2013 **Date Analyzed:** 06/15/2013

Lab Batch ID: 916378 **Sample:** 639683-1-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	<0.00400	0.100	0.108	108	0.100	0.107	107	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 #: 464818, 464818 **Project ID:** 2009-092

Analyst: KUG **Date Prepared:** 06/13/2013 **Date Analyzed:** 06/13/2013

Lab Batch ID: 916204 **Sample:** 639625-1-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	4.94	99	5.00	4.80	96	3	85-115	20	
Barium	<0.0100	1.00	0.989	99	1.00	0.964	96	3	85-115	20	
Boron	<0.0500	1.00	1.11	111	1.00	1.08	108	3	85-115	20	
Cadmium	<0.0100	1.00	0.973	97	1.00	0.947	95	3	85-115	20	
Calcium	<0.200	25.0	24.5	98	25.0	23.3	93	5	85-115	20	
Chromium	<0.0100	1.00	1.00	100	1.00	0.975	98	3	85-115	20	
Cobalt	<0.0100	1.00	1.01	101	1.00	0.981	98	3	85-115	20	
Copper	<0.0200	1.00	1.02	102	1.00	0.982	98	4	85-115	20	
Iron	<0.200	5.00	5.05	101	5.00	4.86	97	4	85-115	20	
Lead	<0.0100	1.00	1.03	103	1.00	0.999	100	3	85-115	20	
Magnesium	<0.200	25.0	24.9	100	25.0	23.8	95	5	85-115	20	
Manganese	<0.0200	1.00	1.01	101	1.00	0.977	98	3	85-115	20	
Molybdenum	<0.0100	1.00	1.04	104	1.00	0.991	99	5	85-115	20	
Nickel	<0.0100	1.00	1.04	104	1.00	1.01	101	3	85-115	20	
Potassium	<0.500	10.0	10.2	102	10.0	9.55	96	7	85-115	20	
Selenium	<0.0300	1.00	1.04	104	1.00	1.01	101	3	85-115	20	
Silver	<0.0200	0.500	0.490	98	0.500	0.460	92	6	85-115	20	
Sodium	<0.500	25.0	25.1	100	25.0	24.1	96	4	85-115	20	
Zinc	<0.0300	1.00	1.00	100	1.00	0.970	97	3	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 #: 464818, 464818 **Project ID:** 2009-092

Analyst: CYE **Date Prepared:** 06/14/2013 **Date Analyzed:** 06/14/2013

Lab Batch ID: 916264 **Sample:** 639644-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOAs by EPA 8270C 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	<0.00500	0.0500	0.0300	60	0.0500	0.0303	61	1	54-114	25	
Acenaphthylene	<0.00500	0.0500	0.0305	61	0.0500	0.0299	60	2	53-113	25	
Aniline (Phenylamine, Aminobenzene)	<0.0100	0.0500	0.0284	57	0.0500	0.0280	56	1	35-104	25	
Anthracene	<0.00500	0.0500	0.0319	64	0.0500	0.0301	60	6	56-116	25	
Benzo(a)anthracene	<0.00500	0.0500	0.0304	61	0.0500	0.0299	60	2	59-116	25	
Benzo(a)pyrene	<0.00500	0.0500	0.0305	61	0.0500	0.0290	58	5	58-118	25	
Benzo(b)fluoranthene	<0.00500	0.0500	0.0344	69	0.0500	0.0338	68	2	54-123	25	
Benzo(k)fluoranthene	<0.00500	0.0500	0.0281	56	0.0500	0.0270	54	4	52-122	25	
Benzo(g,h,i)perylene	<0.00500	0.0500	0.0255	51	0.0500	0.0249	50	2	47-129	25	
Benzoic Acid	<0.0300	0.150	0.0351	23	0.150	0.0445	30	24	4-113	25	
Benzyl Butyl Phthalate	<0.00500	0.0500	0.0306	61	0.0500	0.0297	59	3	57-122	25	
bis(2-chloroethoxy) methane	<0.00500	0.0500	0.0297	59	0.0500	0.0294	59	1	53-112	25	
bis(2-chloroethyl) ether	<0.00500	0.0500	0.0308	62	0.0500	0.0304	61	1	57-108	25	
bis(2-chloroisopropyl) ether	<0.00500	0.0500	0.0278	56	0.0500	0.0272	54	2	54-111	25	
bis(2-ethylhexyl) phthalate	<0.00500	0.0500	0.0299	60	0.0500	0.0295	59	1	59-119	25	
4-Bromophenyl-phenylether	<0.00500	0.0500	0.0318	64	0.0500	0.0307	61	4	58-112	25	
4-chloro-3-methylphenol	<0.00500	0.0500	0.0324	65	0.0500	0.0325	65	0	58-116	25	
4-Chloroaniline	<0.0100	0.0500	0.0299	60	0.0500	0.0300	60	0	2-123	25	
2-Chloronaphthalene	<0.00500	0.0500	0.0305	61	0.0500	0.0301	60	1	58-105	25	
2-Chlorophenol	<0.00500	0.0500	0.0321	64	0.0500	0.0317	63	1	58-106	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 #: 464818, 464818 **Project ID:** 2009-092

Analyst: CYE **Date Prepared:** 06/14/2013 **Date Analyzed:** 06/14/2013

Lab Batch ID: 916264 **Sample:** 639644-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C 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
4-Chlorophenyl Phenyl Ether	<0.00500	0.0500	0.0309	62	0.0500	0.0308	62	0	59-109	25	
Chrysene	<0.00500	0.0500	0.0308	62	0.0500	0.0306	61	1	58-116	25	
Dibenz(a,h)Anthracene	<0.00500	0.0500	0.0319	64	0.0500	0.0252	50	23	46-131	25	
Dibenzofuran	<0.00500	0.0500	0.0308	62	0.0500	0.0297	59	4	56-111	25	
di-n-Butyl Phthalate	<0.00500	0.0500	0.0316	63	0.0500	0.0292	58	8	60-118	25	L
1,2-Dichlorobenzene	<0.00500	0.0500	0.0313	63	0.0500	0.0311	62	1	53-106	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0307	61	0.0500	0.0308	62	0	52-105	25	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0311	62	0.0500	0.0315	63	1	54-105	25	
3,3-Dichlorobenzidine	<0.0100	0.0500	0.0322	64	0.0500	0.0304	61	6	36-123	25	
2,4-Dichlorophenol	<0.00500	0.0500	0.0321	64	0.0500	0.0329	66	2	60-110	25	
Diethyl Phthalate	<0.00500	0.0500	0.0314	63	0.0500	0.0308	62	2	62-114	25	
Dimethyl Phthalate	<0.00500	0.0500	0.0315	63	0.0500	0.0309	62	2	59-113	25	
2,4-Dimethylphenol	<0.00500	0.0500	0.0324	65	0.0500	0.0324	65	0	50-108	25	
4,6-dinitro-2-methyl phenol	<0.0100	0.0500	0.0322	64	0.0500	0.0293	59	9	57-119	25	
2,4-Dinitrophenol	<0.0100	0.0500	0.0301	60	0.0500	0.0273	55	10	52-111	25	
2,4-Dinitrotoluene	<0.00250	0.0500	0.0330	66	0.0500	0.0330	66	0	60-116	25	
2,6-Dinitrotoluene	<0.00500	0.0500	0.0323	65	0.0500	0.0306	61	5	60-115	25	
di-n-Octyl Phthalate	<0.00500	0.0500	0.0295	59	0.0500	0.0296	59	0	49-129	25	
Fluoranthene	<0.00500	0.0500	0.0320	64	0.0500	0.0307	61	4	55-120	25	
Fluorene	<0.00500	0.0500	0.0306	61	0.0500	0.0306	61	0	56-114	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 #: 464818, 464818 **Project ID:** 2009-092

Analyst: CYE **Date Prepared:** 06/14/2013 **Date Analyzed:** 06/14/2013

Lab Batch ID: 916264 **Sample:** 639644-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C 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
Hexachlorobenzene	<0.00250	0.0500	0.0317	63	0.0500	0.0306	61	4	60-109	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0315	63	0.0500	0.0320	64	2	52-107	25	
Hexachlorocyclopentadiene	<0.00500	0.0500	0.0200	40	0.0500	0.0227	45	13	32-115	25	
Hexachloroethane	<0.00500	0.0500	0.0315	63	0.0500	0.0314	63	0	46-115	25	
Indeno(1,2,3-c,d)Pyrene	<0.00500	0.0500	0.0314	63	0.0500	0.0252	50	22	44-132	25	
Isophorone	<0.00500	0.0500	0.0306	61	0.0500	0.0301	60	2	57-107	25	
2-Methylnaphthalene	<0.00500	0.0500	0.0307	61	0.0500	0.0307	61	0	57-106	25	
2-methylphenol	<0.00500	0.0500	0.0300	60	0.0500	0.0301	60	0	52-106	25	
3&4-Methylphenol	<0.00500	0.0500	0.0285	57	0.0500	0.0281	56	1	23-140	25	
Naphthalene	<0.00500	0.0500	0.0305	61	0.0500	0.0307	61	1	53-110	25	
2-Nitroaniline	<0.0100	0.0500	0.0315	63	0.0500	0.0309	62	2	55-120	25	
3-Nitroaniline	<0.0100	0.0500	0.0313	63	0.0500	0.0302	60	4	49-120	25	
4-Nitroaniline	<0.0100	0.0500	0.0307	61	0.0500	0.0299	60	3	52-118	25	
Nitrobenzene	<0.00500	0.0500	0.0309	62	0.0500	0.0310	62	0	56-107	25	
2-Nitrophenol	<0.00500	0.0500	0.0312	62	0.0500	0.0323	65	3	57-105	25	
4-Nitrophenol	<0.0100	0.0500	0.0211	42	0.0500	0.0219	44	4	18-104	25	
N-Nitrosodi-n-Propylamine	<0.00500	0.0500	0.0319	64	0.0500	0.0318	64	0	21-137	25	
N-Nitrosodiphenylamine	<0.00500	0.0500	0.0308	62	0.0500	0.0303	61	2	50-121	25	
Pentachlorophenol	<0.0100	0.0500	0.0352	70	0.0500	0.0341	68	3	36-132	25	
Phenanthrene	<0.00500	0.0500	0.0312	62	0.0500	0.0301	60	4	56-116	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 #: 464818, 464818
Analyst: CYE
Date Prepared: 06/14/2013
Project ID: 2009-092
Date Analyzed: 06/14/2013
Lab Batch ID: 916264
Sample: 639644-1-BKS
Batch #: 1
Matrix: Water
Units: mg/L

SVOAs by EPA 8270C 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
Phenol	<0.0100	0.0500	0.0193	39	0.0500	0.0201	40	4	19-89	25	
Pyrene	<0.00500	0.0500	0.0305	61	0.0500	0.0297	59	3	57-119	25	
Pyridine	<0.0100	0.0500	0.0360	72	0.0500	0.0449	90	22	5-94	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0306	61	0.0500	0.0306	61	0	56-104	25	
2,4,5-Trichlorophenol	<0.00500	0.0500	0.0319	64	0.0500	0.0322	64	1	55-114	25	
2,4,6-Trichlorophenol	<0.00500	0.0500	0.0324	65	0.0500	0.0316	63	3	57-113	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 #: 464818, 464818 **Project ID:** 2009-092

Analyst: MCH **Date Prepared:** 06/15/2013 **Date Analyzed:** 06/15/2013

Lab Batch ID: 916471 **Sample:** 639857-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260B 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	<0.00500	0.0500	0.0502	100	0.0500	0.0489	98	3	68-123	25	
Bromobenzene	<0.00500	0.0500	0.0497	99	0.0500	0.0514	103	3	83-124	25	
Bromochloromethane	<0.00500	0.0500	0.0502	100	0.0500	0.0514	103	2	68-119	25	
Bromodichloromethane	<0.00500	0.0500	0.0526	105	0.0500	0.0532	106	1	72-132	25	
Bromoform	<0.00500	0.0500	0.0523	105	0.0500	0.0547	109	4	65-136	25	
Methyl bromide	<0.00500	0.0500	0.0466	93	0.0500	0.0527	105	12	48-120	25	
n-Butylbenzene	<0.00500	0.0500	0.0533	107	0.0500	0.0530	106	1	82-128	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0509	102	0.0500	0.0515	103	1	83-130	25	
tert-Butylbenzene	<0.00500	0.0500	0.0520	104	0.0500	0.0520	104	0	83-131	25	
Carbon Tetrachloride	<0.00500	0.0500	0.0520	104	0.0500	0.0515	103	1	68-135	25	
Chlorobenzene	<0.00500	0.0500	0.0511	102	0.0500	0.0516	103	1	78-124	25	
Chloroethane	<0.0100	0.0500	0.0473	95	0.0500	0.0519	104	9	55-120	25	
Chloroform	<0.00500	0.0500	0.0505	101	0.0500	0.0516	103	2	71-119	25	
Methyl Chloride	<0.0100	0.0500	0.0478	96	0.0500	0.0490	98	2	54-114	25	
2-Chlorotoluene	<0.00500	0.0500	0.0521	104	0.0500	0.0527	105	1	83-128	25	
4-Chlorotoluene	<0.00500	0.0500	0.0512	102	0.0500	0.0520	104	2	81-125	25	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0529	106	0.0500	0.0521	104	2	85-129	25	
Dibromochloromethane	<0.00500	0.0500	0.0543	109	0.0500	0.0552	110	2	74-135	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0524	105	0.0500	0.0539	108	3	62-134	25	
1,2-Dibromoethane	<0.00500	0.0500	0.0514	103	0.0500	0.0532	106	3	77-129	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 #: 464818, 464818 **Project ID:** 2009-092

Analyst: MCH **Date Prepared:** 06/15/2013 **Date Analyzed:** 06/15/2013

Lab Batch ID: 916471 **Sample:** 639857-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B 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
Methylene bromide	<0.00500	0.0500	0.0514	103	0.0500	0.0516	103	0	71-124	25	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0514	103	0.0500	0.0521	104	1	81-123	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0523	105	0.0500	0.0536	107	2	82-126	25	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0518	104	0.0500	0.0521	104	1	80-119	25	
Dichlorodifluoromethane	<0.00500	0.0500	0.0488	98	0.0500	0.0490	98	0	59-121	25	
1,1-Dichloroethane	<0.00500	0.0500	0.0501	100	0.0500	0.0518	104	3	75-125	25	
1,2-Dichloroethane	<0.00500	0.0500	0.0510	102	0.0500	0.0501	100	2	64-130	25	
1,1-Dichloroethene	<0.00500	0.0500	0.0504	101	0.0500	0.0502	100	0	68-116	25	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0487	97	0.0500	0.0504	101	3	74-130	25	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0480	96	0.0500	0.0491	98	2	64-109	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0490	98	0.0500	0.0487	97	1	72-127	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0511	102	0.0500	0.0512	102	0	79-133	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0503	101	0.0500	0.0516	103	3	71-134	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0529	106	0.0500	0.0508	102	4	69-124	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0530	106	0.0500	0.0522	104	2	74-138	25	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0520	104	0.0500	0.0529	106	2	70-132	25	
Ethylbenzene	<0.00500	0.0500	0.0515	103	0.0500	0.0512	102	1	69-131	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0542	108	0.0500	0.0524	105	3	74-130	25	
Isopropylbenzene	<0.00500	0.0500	0.0504	101	0.0500	0.0513	103	2	66-133	25	
Methylene Chloride	<0.00500	0.0500	0.0492	98	0.0500	0.0519	104	5	60-121	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 #: 464818, 464818 **Project ID:** 2009-092

Analyst: MCH **Date Prepared:** 06/15/2013 **Date Analyzed:** 06/15/2013

Lab Batch ID: 916471 **Sample:** 639857-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B 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
MTBE	<0.00500	0.100	0.101	101	0.100	0.105	105	4	60-152	25	
Naphthalene	<0.0100	0.0500	0.0593	119	0.0500	0.0604	121	2	69-140	25	
n-Propylbenzene	<0.00500	0.0500	0.0519	104	0.0500	0.0512	102	1	86-129	25	
Styrene	<0.00500	0.0500	0.0525	105	0.0500	0.0528	106	1	79-128	25	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0527	105	0.0500	0.0517	103	2	78-131	25	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0507	101	0.0500	0.0529	106	4	80-133	25	
Tetrachloroethylene	<0.00500	0.0500	0.0522	104	0.0500	0.0511	102	2	79-122	25	
Toluene	<0.00500	0.0500	0.0502	100	0.0500	0.0492	98	2	62-132	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0545	109	0.0500	0.0539	108	1	76-126	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0571	114	0.0500	0.0567	113	1	77-127	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0507	101	0.0500	0.0518	104	2	72-124	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0484	97	0.0500	0.0490	98	1	71-135	25	
Trichloroethylene	<0.00500	0.0500	0.0503	101	0.0500	0.0505	101	0	74-123	25	
Trichlorofluoromethane	<0.00500	0.0500	0.0524	105	0.0500	0.0525	105	0	70-143	25	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0515	103	0.0500	0.0534	107	4	75-134	25	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0517	103	0.0500	0.0512	102	1	79-132	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0507	101	0.0500	0.0515	103	2	72-139	25	
o-Xylene	<0.00500	0.0500	0.0528	106	0.0500	0.0516	103	2	67-132	25	
m,p-Xylenes	<0.0100	0.100	0.104	104	0.100	0.101	101	3	69-132	25	
Vinyl Chloride	<0.00200	0.0500	0.0485	97	0.0500	0.0495	99	2	59-124	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 Recoveries

Project Name: 14" Vac to Jal legacy

Work Order #: 464818

Lab Batch #: 916426 **Project ID:** 2009-092

Date Analyzed: 06/13/2013 **Date Prepared:** 06/13/2013 **Analyst:** AMB

QC- Sample ID: 464818-004 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	4710	2500	7810	124	80-120	X
Fluoride	<40.0	500	475	95	80-120	
Nitrate as N	<40.0	500	492	98	80-120	
Sulfate	420	2500	2860	98	80-120	

Lab Batch #: 916426

Date Analyzed: 06/13/2013 **Date Prepared:** 06/13/2013 **Analyst:** AMB

QC- Sample ID: 464831-001 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	173	250	446	109	80-120	
Fluoride	<4.00	50.0	53.4	107	80-120	
Nitrate as N	4.14	50.0	52.0	96	80-120	
Sulfate	144	250	396	101	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 #: 464818
Lab Batch #: 916204
Project ID: 2009-092
Date Analyzed: 06/13/2013
Date Prepared: 06/13/2013
Analyst: KUG
QC- Sample ID: 464818-001 S
Batch #: 1
Matrix: Water
Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

Metals per ICP by EPA 200.7 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Aluminum	77.2	5.00	120	856	70-130	X
Barium	1.03	1.00	2.06	103	70-130	
Boron	2.32	1.00	3.44	112	70-130	
Cadmium	<0.0100	1.00	1.01	101	70-130	
Calcium	1520	25.0	1290	0	70-130	X
Chromium	0.0650	1.00	0.977	91	70-130	
Cobalt	0.0433	1.00	0.952	91	70-130	
Copper	0.0959	1.00	1.11	101	70-130	
Iron	58.8	5.00	71.0	244	70-130	X
Lead	0.0611	1.00	0.939	88	70-130	
Magnesium	374	25.0	392	72	70-130	
Manganese	2.30	1.00	3.13	83	70-130	
Molybdenum	<0.0100	1.00	0.814	81	70-130	
Nickel	0.111	1.00	0.987	88	70-130	
Potassium	115	10.0	143	280	70-130	X
Selenium	<0.0300	1.00	1.05	105	70-130	
Silver	<0.0200	0.500	0.471	94	70-130	
Sodium	5110	25.0	3210	0	70-130	X
Zinc	0.315	1.00	1.34	103	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 Recoveries

Project Name: 14" Vac to Jal legacy

Work Order #: 464818
Lab Batch #: 916264
Project ID: 2009-092
Date Analyzed: 06/14/2013
Date Prepared: 06/14/2013
Analyst: CYE
QC- Sample ID: 464949-001 S
Batch #: 1
Matrix: Solid
Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

SVOAs by SW-846 8270C Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Acenaphthene	<0.0250	0.250	0.147	59	54-114	
Acenaphthylene	<0.0250	0.250	0.142	57	53-113	
Aniline (Phenylamine, Aminobenzene)	<0.0500	0.250	0.127	51	35-104	
Anthracene	<0.0250	0.250	0.145	58	56-116	
Benzo(a)anthracene	<0.0250	0.250	0.153	61	59-116	
Benzo(a)pyrene	<0.0250	0.250	0.146	58	58-118	
Benzo(b)fluoranthene	<0.0250	0.250	0.174	70	54-123	
Benzo(k)fluoranthene	<0.0250	0.250	0.139	56	52-122	
Benzo(g,h,i)perylene	<0.0250	0.250	0.121	48	47-129	
Benzoic Acid	<0.150	0.750	0.594	79	4-113	
Benzyl Butyl Phthalate	<0.0250	0.250	0.143	57	57-122	
bis(2-chloroethoxy) methane	<0.0250	0.250	0.138	55	53-112	
bis(2-chloroethyl) ether	<0.0250	0.250	0.149	60	57-108	
bis(2-chloroisopropyl) ether	<0.0250	0.250	0.131	52	54-111	X
bis(2-ethylhexyl) phthalate	<0.0250	0.250	0.144	58	59-119	X
4-Bromophenyl-phenylether	<0.0250	0.250	0.149	60	58-112	
4-chloro-3-methylphenol	0.101	0.250	0.267	66	58-116	
4-Chloroaniline	<0.0500	0.250	0.111	44	2-123	
2-Chloronaphthalene	<0.0250	0.250	0.147	59	58-105	
2-Chlorophenol	<0.0250	0.250	0.158	63	58-106	
4-Chlorophenyl Phenyl Ether	<0.0250	0.250	0.149	60	59-109	
Chrysene	<0.0250	0.250	0.147	59	58-116	
Dibenz(a,h)Anthracene	<0.0250	0.250	0.123	49	46-131	
Dibenzofuran	<0.0250	0.250	0.147	59	56-111	
di-n-Butyl Phthalate	<0.0250	0.250	0.145	58	60-118	X
1,2-Dichlorobenzene	<0.0250	0.250	0.147	59	53-106	
1,3-Dichlorobenzene	<0.0250	0.250	0.147	59	52-105	
1,4-Dichlorobenzene	<0.0250	0.250	0.148	59	54-105	
3,3-Dichlorobenzidine	<0.0500	0.250	0.132	53	36-123	
2,4-Dichlorophenol	<0.0250	0.250	0.160	64	60-110	
Diethyl Phthalate	<0.0250	0.250	0.145	58	62-114	X
Dimethyl Phthalate	<0.0250	0.250	0.148	59	59-113	
2,4-Dimethylphenol	<0.0250	0.250	0.161	64	50-108	
4,6-dinitro-2-methyl phenol	<0.0500	0.250	0.144	58	57-119	

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 #: 464818
Lab Batch #: 916264
Project ID: 2009-092
Date Analyzed: 06/14/2013
Date Prepared: 06/14/2013
Analyst: CYE
QC- Sample ID: 464949-001 S
Batch #: 1
Matrix: Solid
Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

SVOAs by SW-846 8270C Analytes		Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
2,4-Dinitrophenol	<0.0500	0.250	0.136	54	52-111	
2,4-Dinitrotoluene	<0.0125	0.250	0.152	61	60-116	
2,6-Dinitrotoluene	<0.0250	0.250	0.157	63	60-115	
di-n-Octyl Phthalate	<0.0250	0.250	0.159	64	49-129	
Fluoranthene	<0.0250	0.250	0.149	60	55-120	
Fluorene	<0.0250	0.250	0.144	58	56-114	
Hexachlorobenzene	<0.0125	0.250	0.151	60	60-109	
Hexachlorobutadiene	<0.0250	0.250	0.154	62	52-107	
Hexachlorocyclopentadiene	<0.0250	0.250	0.114	46	32-115	
Hexachloroethane	<0.0250	0.250	0.151	60	46-115	
Indeno(1,2,3-c,d)Pyrene	<0.0250	0.250	0.124	50	44-132	
Isophorone	<0.0250	0.250	0.143	57	57-107	
2-Methylnaphthalene	<0.0250	0.250	0.152	61	57-106	
2-methylphenol	<0.0250	0.250	0.152	61	52-106	
3&4-Methylphenol	<0.0250	0.250	0.152	61	23-140	
Naphthalene	<0.0250	0.250	0.148	59	53-110	
2-Nitroaniline	<0.0500	0.250	0.126	50	55-120	X
3-Nitroaniline	<0.0500	0.250	0.140	56	49-120	
4-Nitroaniline	<0.0500	0.250	0.146	58	52-118	
Nitrobenzene	<0.0250	0.250	0.149	60	56-107	
2-Nitrophenol	<0.0250	0.250	0.159	64	57-105	
4-Nitrophenol	<0.0500	0.250	0.141	56	18-104	
N-Nitrosodi-n-Propylamine	<0.0250	0.250	0.150	60	21-137	
N-Nitrosodiphenylamine	<0.0250	0.250	0.150	60	50-121	
Pentachlorophenol	<0.0500	0.250	0.174	70	36-132	
Phenanthrene	<0.0250	0.250	0.147	59	56-116	
Phenol	0.120	0.250	0.254	54	19-89	
Pyrene	<0.0250	0.250	0.144	58	57-119	
Pyridine	<0.0500	0.250	0.154	62	5-94	
1,2,4-Trichlorobenzene	<0.0250	0.250	0.151	60	56-104	
2,4,5-Trichlorophenol	<0.0250	0.250	0.158	63	55-114	
2,4,6-Trichlorophenol	<0.0250	0.250	0.156	62	57-113	

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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916047 **QC- Sample ID:** 464634-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** RKO

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Mercury, Total by EPA 245.1 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
Mercury	<0.000200	0.00200	0.00188	94	0.00200	0.00188	94	0	70-130	20	

Lab Batch ID: 916047 **QC- Sample ID:** 464749-002 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** RKO

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Mercury, Total by EPA 245.1 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
Mercury	<0.000200	0.00200	0.00186	93	0.00200	0.00186	93	0	70-130	20	

Lab Batch ID: 916378 **QC- Sample ID:** 464749-002 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/15/2013 **Date Prepared:** 06/14/2013 **Analyst:** MKO

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	0.00830	0.100	0.113	105	0.100	0.112	104	1	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916204 **QC- Sample ID:** 464699-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/13/2013 **Date Prepared:** 06/13/2013 **Analyst:** KUG

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	31.5	5.00	76.8	NC	5.00	76.1	NC	1	70-130	20	X
Barium	5.21	1.00	6.19	98	1.00	6.24	103	1	70-130	20	
Boron	0.162	1.00	1.24	108	1.00	1.31	115	5	70-130	20	
Cadmium	<0.0100	1.00	0.978	98	1.00	0.982	98	0	70-130	20	
Calcium	84.2	25.0	107	91	25.0	108	95	1	70-130	20	
Chromium	0.0131	1.00	0.979	97	1.00	0.983	97	0	70-130	20	
Cobalt	<0.0100	1.00	0.994	99	1.00	1.00	100	1	70-130	20	
Copper	0.0251	1.00	1.02	99	1.00	1.03	100	1	70-130	20	
Iron	14.4	5.00	28.6	284	5.00	28.1	274	2	70-130	20	X
Lead	0.0647	1.00	1.05	99	1.00	1.05	99	0	70-130	20	
Magnesium	14.4	25.0	43.9	118	25.0	43.6	117	1	70-130	20	
Manganese	0.289	1.00	1.30	101	1.00	1.32	103	2	70-130	20	
Molybdenum	0.0128	1.00	0.962	95	1.00	0.971	96	1	70-130	20	
Nickel	0.0222	1.00	1.02	100	1.00	1.03	101	1	70-130	20	
Potassium	28.1	10.0	38.9	108	10.0	39.2	111	1	70-130	20	
Selenium	<0.0300	1.00	1.02	102	1.00	1.03	103	1	70-130	20	
Silver	<0.0200	0.500	0.467	93	0.500	0.473	95	1	70-130	20	
Sodium	89.8	25.0	114	97	25.0	116	105	2	70-130	20	
Zinc	0.214	1.00	1.23	102	1.00	1.25	104	2	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916019 **QC- Sample ID:** 464521-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** DEP

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)	<0.0200	0.500	0.511	102	0.500	0.511	102	0	90-110	20	

Lab Batch ID: 916019 **QC- Sample ID:** 464662-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** DEP

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)	0.0625	0.500	0.456	79	0.500	0.457	79	0	90-110	20	X

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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916471 **QC- Sample ID:** 464810-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/15/2013 **Date Prepared:** 06/15/2013 **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	0.0504	101	0.0500	0.0501	100	1	66-142	25	
Bromobenzene	<0.00500	0.0500	0.0511	102	0.0500	0.0493	99	4	75-125	25	
Bromochloromethane	<0.00500	0.0500	0.0555	111	0.0500	0.0555	111	0	60-140	25	
Bromodichloromethane	<0.00500	0.0500	0.0577	115	0.0500	0.0565	113	2	75-125	25	
Bromoform	<0.00500	0.0500	0.0601	120	0.0500	0.0563	113	7	75-125	25	
Methyl bromide	<0.00500	0.0500	0.0508	102	0.0500	0.0549	110	8	60-140	25	
n-Butylbenzene	<0.00500	0.0500	0.0558	112	0.0500	0.0554	111	1	75-125	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0547	109	0.0500	0.0542	108	1	75-125	25	
tert-Butylbenzene	<0.00500	0.0500	0.0561	112	0.0500	0.0557	111	1	75-125	25	
Carbon Tetrachloride	<0.00500	0.0500	0.0594	119	0.0500	0.0594	119	0	62-125	25	
Chlorobenzene	<0.00500	0.0500	0.0518	104	0.0500	0.0514	103	1	60-133	25	
Chloroethane	<0.0100	0.0500	0.0491	98	0.0500	0.0506	101	3	60-140	25	
Chloroform	<0.00500	0.0500	0.0569	114	0.0500	0.0607	121	6	70-130	25	
Methyl Chloride	<0.0100	0.0500	0.0445	89	0.0500	0.0459	92	3	60-140	25	
2-Chlorotoluene	<0.00500	0.0500	0.0541	108	0.0500	0.0526	105	3	73-125	25	
4-Chlorotoluene	<0.00500	0.0500	0.0531	106	0.0500	0.0518	104	2	74-125	25	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0565	113	0.0500	0.0563	113	0	75-125	25	
Dibromochloromethane	<0.00500	0.0500	0.0605	121	0.0500	0.0573	115	5	73-125	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0665	133	0.0500	0.0586	117	13	59-125	25	X
1,2-Dibromoethane	<0.00500	0.0500	0.0570	114	0.0500	0.0526	105	8	73-125	25	
Methylene bromide	<0.00500	0.0500	0.0582	116	0.0500	0.0545	109	7	69-127	25	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0565	113	0.0500	0.0551	110	3	75-125	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0539	108	0.0500	0.0531	106	1	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916471 **QC- Sample ID:** 464810-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/15/2013 **Date Prepared:** 06/15/2013 **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	0.0538	108	0.0500	0.0530	106	1	75-125	25	
Dichlorodifluoromethane	<0.00500	0.0500	0.0537	107	0.0500	0.0540	108	1	70-130	25	
1,1-Dichloroethane	<0.00500	0.0500	0.0561	112	0.0500	0.0563	113	0	72-125	25	
1,2-Dichloroethane	<0.00500	0.0500	0.0611	122	0.0500	0.0576	115	6	68-127	25	
1,1-Dichloroethene	0.0150	0.0500	0.0677	105	0.0500	0.0681	106	1	59-172	25	
cis-1,2-Dichloroethylene	1.20	0.0500	1.35	NC	0.0500	1.32	NC	2	75-125	25	X
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0540	108	0.0500	0.0546	109	1	75-125	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0490	98	0.0500	0.0494	99	1	74-125	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0520	104	0.0500	0.0498	100	4	75-125	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0561	112	0.0500	0.0535	107	5	75-125	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0547	109	0.0500	0.0545	109	0	75-125	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0529	106	0.0500	0.0519	104	2	74-125	25	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0544	109	0.0500	0.0519	104	5	66-125	25	
Ethylbenzene	<0.00500	0.0500	0.0508	102	0.0500	0.0502	100	1	75-125	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0658	132	0.0500	0.0649	130	1	75-125	25	X
Isopropylbenzene	<0.00500	0.0500	0.0532	106	0.0500	0.0528	106	1	75-125	25	
Methylene Chloride	<0.00500	0.0500	0.0531	106	0.0500	0.0534	107	1	75-125	25	
MTBE	<0.00500	0.100	0.120	120	0.100	0.115	115	4	65-135	25	
Naphthalene	<0.0100	0.0500	0.0722	144	0.0500	0.0699	140	3	70-130	25	X
n-Propylbenzene	<0.00500	0.0500	0.0514	103	0.0500	0.0514	103	0	75-125	25	
Styrene	<0.00500	0.0500	0.0520	104	0.0500	0.0505	101	3	75-125	25	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0566	113	0.0500	0.0562	112	1	72-125	25	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0553	111	0.0500	0.0498	100	10	74-125	25	
Tetrachloroethylene	0.00635	0.0500	0.0593	106	0.0500	0.0581	104	2	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916471 **QC- Sample ID:** 464810-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/15/2013 **Date Prepared:** 06/15/2013 **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	0.0496	99	0.0500	0.0492	98	1	59-139	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0637	127	0.0500	0.0645	129	1	75-137	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0657	131	0.0500	0.0646	129	2	75-135	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0596	119	0.0500	0.0591	118	1	75-125	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0509	102	0.0500	0.0482	96	5	75-127	25	
Trichloroethylene	0.0294	0.0500	0.0828	107	0.0500	0.0827	107	0	62-137	25	
Trichlorofluoromethane	<0.00500	0.0500	0.0604	121	0.0500	0.0621	124	3	60-140	25	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0554	111	0.0500	0.0501	100	10	75-125	25	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0550	110	0.0500	0.0534	107	3	75-125	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0550	110	0.0500	0.0528	106	4	70-125	25	
o-Xylene	<0.00500	0.0500	0.0544	109	0.0500	0.0528	106	3	75-125	25	
m,p-Xylenes	<0.0100	0.100	0.102	102	0.100	0.103	103	1	75-125	25	
Vinyl Chloride	0.286	0.0500	0.344	116	0.0500	0.354	136	3	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.

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac to Jal legacy

Work Order # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916486 **QC- Sample ID:** 464810-007 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0469	94	0.0500	0.0482	96	3	66-142	25	
Bromobenzene	<0.00500	0.0500	0.0543	109	0.0500	0.0524	105	4	75-125	25	
Bromochloromethane	<0.00500	0.0500	0.0463	93	0.0500	0.0459	92	1	60-140	25	
Bromodichloromethane	<0.00500	0.0500	0.0541	108	0.0500	0.0533	107	1	75-125	25	
Bromoform	<0.00500	0.0500	0.0498	100	0.0500	0.0451	90	10	75-125	25	
Methyl bromide	<0.00500	0.0500	0.0462	92	0.0500	0.0470	94	2	60-140	25	
n-Butylbenzene	<0.00500	0.0500	0.0509	102	0.0500	0.0494	99	3	75-125	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0512	102	0.0500	0.0504	101	2	75-125	25	
tert-Butylbenzene	<0.00500	0.0500	0.0527	105	0.0500	0.0528	106	0	75-125	25	
Carbon Tetrachloride	<0.00500	0.0500	0.0492	98	0.0500	0.0506	101	3	62-125	25	
Chlorobenzene	<0.00500	0.0500	0.0504	101	0.0500	0.0490	98	3	60-133	25	
Chloroethane	<0.0100	0.0500	0.0432	86	0.0500	0.0449	90	4	60-140	25	
Chloroform	<0.00500	0.0500	0.0479	96	0.0500	0.0483	97	1	70-130	25	
Methyl Chloride	<0.0100	0.0500	0.0385	77	0.0500	0.0418	84	8	60-140	25	
2-Chlorotoluene	<0.00500	0.0500	0.0523	105	0.0500	0.0520	104	1	73-125	25	
4-Chlorotoluene	<0.00500	0.0500	0.0527	105	0.0500	0.0517	103	2	74-125	25	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0500	100	0.0500	0.0491	98	2	75-125	25	
Dibromochloromethane	<0.00500	0.0500	0.0527	105	0.0500	0.0542	108	3	73-125	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0513	103	0.0500	0.0475	95	8	59-125	25	
1,2-Dibromoethane	<0.00500	0.0500	0.0550	110	0.0500	0.0518	104	6	73-125	25	
Methylene bromide	<0.00500	0.0500	0.0525	105	0.0500	0.0528	106	1	69-127	25	
1,2-Dichlorobenzene	0.00705	0.0500	0.0561	98	0.0500	0.0546	95	3	75-125	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0518	104	0.0500	0.0512	102	1	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916486 **QC- Sample ID:** 464810-007 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0495	99	0.0500	0.0480	96	3	75-125	25	
Dichlorodifluoromethane	<0.00500	0.0500	0.0421	84	0.0500	0.0463	93	10	70-130	25	
1,1-Dichloroethane	<0.00500	0.0500	0.0468	94	0.0500	0.0472	94	1	72-125	25	
1,2-Dichloroethane	<0.00500	0.0500	0.0478	96	0.0500	0.0504	101	5	68-127	25	
1,1-Dichloroethene	0.0128	0.0500	0.0601	95	0.0500	0.0593	93	1	59-172	25	
cis-1,2-Dichloroethylene	5.81	0.0500	5.40	0	0.0500	4.65	0	15	75-125	25	X
trans-1,2-dichloroethylene	0.0133	0.0500	0.0592	92	0.0500	0.0596	93	1	75-125	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0501	100	0.0500	0.0518	104	3	74-125	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0492	98	0.0500	0.0497	99	1	75-125	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0593	119	0.0500	0.0576	115	3	75-125	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0493	99	0.0500	0.0525	105	6	75-125	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0498	100	0.0500	0.0491	98	1	74-125	25	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0478	96	0.0500	0.0482	96	1	66-125	25	
Ethylbenzene	<0.00500	0.0500	0.0506	101	0.0500	0.0508	102	0	75-125	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0461	92	0.0500	0.0446	89	3	75-125	25	
Isopropylbenzene	<0.00500	0.0500	0.0530	106	0.0500	0.0544	109	3	75-125	25	
Methylene Chloride	<0.00500	0.0500	0.0452	90	0.0500	0.0463	93	2	75-125	25	
MTBE	<0.00500	0.100	0.0954	95	0.100	0.0980	98	3	65-135	25	
Naphthalene	<0.0100	0.0500	0.0413	83	0.0500	0.0428	86	4	70-130	25	
n-Propylbenzene	<0.00500	0.0500	0.0532	106	0.0500	0.0522	104	2	75-125	25	
Styrene	<0.00500	0.0500	0.0523	105	0.0500	0.0524	105	0	75-125	25	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0528	106	0.0500	0.0544	109	3	72-125	25	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0583	117	0.0500	0.0538	108	8	74-125	25	
Tetrachloroethylene	15.6	0.0500	13.5	0	0.0500	11.7	0	14	71-125	25	X

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

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

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

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac to Jal legacy

Work Order # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916486 **QC- Sample ID:** 464810-007 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0499	100	0.0500	0.0504	101	1	59-139	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0447	89	0.0500	0.0452	90	1	75-137	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0487	97	0.0500	0.0472	94	3	75-135	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0468	94	0.0500	0.0477	95	2	75-125	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0532	106	0.0500	0.0523	105	2	75-127	25	
Trichloroethylene	2.69	0.0500	2.59	0	0.0500	2.29	0	12	62-137	25	X
Trichlorofluoromethane	<0.00500	0.0500	0.0462	92	0.0500	0.0452	90	2	60-140	25	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0589	118	0.0500	0.0557	111	6	75-125	25	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0510	102	0.0500	0.0515	103	1	75-125	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0523	105	0.0500	0.0504	101	4	70-125	25	
o-Xylene	<0.00500	0.0500	0.0512	102	0.0500	0.0511	102	0	75-125	25	
m,p-Xylenes	<0.0100	0.100	0.101	101	0.100	0.100	100	1	75-125	25	
Vinyl Chloride	0.0868	0.0500	0.109	44	0.0500	0.111	48	2	60-140	25	X

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

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

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

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac to Jal legacy

Work Order # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916508 **QC- Sample ID:** 464818-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.270	0.0500	0.312	84	0.0500	0.305	70	2	66-142	25	
Bromobenzene	<0.00500	0.0500	0.0458	92	0.0500	0.0483	97	5	75-125	25	
Bromochloromethane	<0.00500	0.0500	0.0448	90	0.0500	0.0436	87	3	60-140	25	
Bromodichloromethane	<0.00500	0.0500	0.0483	97	0.0500	0.0475	95	2	75-125	25	
Bromoform	<0.00500	0.0500	0.0408	82	0.0500	0.0431	86	5	75-125	25	
Methyl bromide	<0.00500	0.0500	0.0510	102	0.0500	0.0400	80	24	60-140	25	
n-Butylbenzene	<0.00500	0.0500	0.0448	90	0.0500	0.0459	92	2	75-125	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0431	86	0.0500	0.0456	91	6	75-125	25	
tert-Butylbenzene	<0.00500	0.0500	0.0432	86	0.0500	0.0456	91	5	75-125	25	
Carbon Tetrachloride	<0.00500	0.0500	0.0478	96	0.0500	0.0454	91	5	62-125	25	
Chlorobenzene	<0.00500	0.0500	0.0448	90	0.0500	0.0450	90	0	60-133	25	
Chloroethane	<0.0100	0.0500	0.0509	102	0.0500	0.0428	86	17	60-140	25	
Chloroform	<0.00500	0.0500	0.0457	91	0.0500	0.0430	86	6	70-130	25	
Methyl Chloride	<0.0100	0.0500	0.0470	94	0.0500	0.0460	92	2	60-140	25	
2-Chlorotoluene	<0.00500	0.0500	0.0437	87	0.0500	0.0467	93	7	73-125	25	
4-Chlorotoluene	<0.00500	0.0500	0.0451	90	0.0500	0.0463	93	3	74-125	25	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0433	87	0.0500	0.0452	90	4	75-125	25	
Dibromochloromethane	<0.00500	0.0500	0.0459	92	0.0500	0.0479	96	4	73-125	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0443	89	0.0500	0.0451	90	2	59-125	25	
1,2-Dibromoethane	<0.00500	0.0500	0.0458	92	0.0500	0.0477	95	4	73-125	25	
Methylene bromide	<0.00500	0.0500	0.0519	104	0.0500	0.0487	97	6	69-127	25	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0426	85	0.0500	0.0445	89	4	75-125	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0449	90	0.0500	0.0458	92	2	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916508 **QC- Sample ID:** 464818-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.0415	83	0.0500	0.0425	85	2	75-125	25	
Dichlorodifluoromethane	<0.00500	0.0500	0.0512	102	0.0500	0.0532	106	4	70-130	25	
1,1-Dichloroethane	<0.00500	0.0500	0.0466	93	0.0500	0.0449	90	4	72-125	25	
1,2-Dichloroethane	<0.00500	0.0500	0.0486	97	0.0500	0.0471	94	3	68-127	25	
1,1-Dichloroethene	<0.00500	0.0500	0.0501	100	0.0500	0.0476	95	5	59-172	25	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0461	92	0.0500	0.0444	89	4	75-125	25	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0460	92	0.0500	0.0438	88	5	75-125	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0453	91	0.0500	0.0459	92	1	74-125	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0445	89	0.0500	0.0462	92	4	75-125	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0441	88	0.0500	0.0444	89	1	75-125	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0498	100	0.0500	0.0471	94	6	75-125	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0414	83	0.0500	0.0450	90	8	74-125	25	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0427	85	0.0500	0.0466	93	9	66-125	25	
Ethylbenzene	<0.00500	0.0500	0.0469	94	0.0500	0.0482	96	3	75-125	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0414	83	0.0500	0.0406	81	2	75-125	25	
Isopropylbenzene	<0.00500	0.0500	0.0457	91	0.0500	0.0477	95	4	75-125	25	
Methylene Chloride	<0.00500	0.0500	0.0445	89	0.0500	0.0434	87	3	75-125	25	
MTBE	<0.00500	0.100	0.0919	92	0.100	0.0913	91	1	65-135	25	
Naphthalene	<0.0100	0.0500	0.0376	75	0.0500	0.0361	72	4	70-130	25	
n-Propylbenzene	<0.00500	0.0500	0.0451	90	0.0500	0.0475	95	5	75-125	25	
Styrene	<0.00500	0.0500	0.0370	74	0.0500	0.0448	90	19	75-125	25	X
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0472	94	0.0500	0.0484	97	3	72-125	25	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0455	91	0.0500	0.0499	100	9	74-125	25	
Tetrachloroethylene	<0.00500	0.0500	0.0442	88	0.0500	0.0451	90	2	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916508 **QC- Sample ID:** 464818-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.0476	95	0.0500	0.0460	92	3	59-139	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0431	86	0.0500	0.0416	83	4	75-137	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0414	83	0.0500	0.0442	88	7	75-135	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0460	92	0.0500	0.0447	89	3	75-125	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0485	97	0.0500	0.0483	97	0	75-127	25	
Trichloroethylene	<0.00500	0.0500	0.0472	94	0.0500	0.0445	89	6	62-137	25	
Trichlorofluoromethane	<0.00500	0.0500	0.0465	93	0.0500	0.0426	85	9	60-140	25	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0485	97	0.0500	0.0503	101	4	75-125	25	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0458	92	0.0500	0.0482	96	5	75-125	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0453	91	0.0500	0.0468	94	3	70-125	25	
o-Xylene	<0.00500	0.0500	0.0469	94	0.0500	0.0472	94	1	75-125	25	
m,p-Xylenes	<0.0100	0.100	0.0985	99	0.100	0.102	102	3	75-125	25	
Vinyl Chloride	<0.00200	0.0500	0.0487	97	0.0500	0.0498	100	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 #: 464818

Lab Batch #: 916182 **Project ID:** 2009-092

Date Analyzed: 06/13/2013 02:58 **Date Prepared:** 06/13/2013 **Analyst:** ALA

QC- Sample ID: 464707-001 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)	789	792	0	20	
Alkalinity, Carbonate (as CaCO3)	<4.00	<4.00	0	20	U

Lab Batch #: 916182

Date Analyzed: 06/13/2013 04:08 **Date Prepared:** 06/13/2013 **Analyst:** ALA

QC- Sample ID: 464707-011 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)	20.5	21.2	3	20	
Alkalinity, Carbonate (as CaCO3)	<4.00	<4.00	0	20	U

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 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
;roool-c

Page 1 of 1

LAB W.O#: 464818

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:	bjarguijo@basinenv.com
Project ID:	14" Vac to Jal Legacy SRS #2009-092	PO#:	PAA-J. Henry
Invoice To:	Jason Henry Plains All American	Quote #:	

Sampler Signature: Adrian Irigoyen

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	Cont Type * VC	Example Volatiles by 8260	Metals (RCRA, NMWQCC)	VOC's by 8260	SVOC's by 8270	General Chemistry							Hold Sample (CALL___) Run PAH on Highest TPH___ Only if
								Pres Type**		B,I	E,I	I	I							
								# Cont	Lab Only:											
1	MW-2	6/7/13	11:10	GW			7			X	X	X	X							
2	MW-3	6/7/13	12:00	GW			7			X	X	X	X							
3	MW-4	6/7/13	2:00	GW			7			X	X	X	X							
4	MW-5	6/7/13	12:30	GW			7			X	X	X	X							
5	MW-6	6/7/13	2:45	GW			7			X	X	X	X							
6																				
7																				
8																				
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 2.0 C.
B. HNO_3 F. MeOH J. MCAA
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

See attached sheet for specific analyses requested.

"

"

"

"

*Please report all SVOC's down to the MDL. *

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 3

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	Adrian Irigoyen	Basin	6/10/13	12:30	KBuie	MS	6/10/13	12:30
2					Shanelsmith	Xenco	6-11-13	14:00
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 #

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:

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

4. RCRA Metals:

   Arsenic
   Barium
   Cadmium
   Chromium
   Lead
   Mercury
   Selenium
   Silver

5. NMWQCC Metals:

   Copper
   Iron
   Manganese
   Zinc
   Aluminum
   Boron
   Cobalt
   Molybdenum
   Nickel

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 06/10/2013 12:30:00 PM

Work Order #: 464818

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
#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?	**Yes**

*** 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: 06/11/2013

Checklist reviewed by: Kelsey Brooks Date: 06/11/2013

Analytical Report 464818

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

14" Vac to Jal legacy

2009-092

20-JUN-13

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

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-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
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-JUN-13

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

Reference: XENCO Report No(s): **464818**
14" Vac to Jal legacy
Project Address: Lovington

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) 464818. 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. 464818 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 464818

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	06-07-13 11:10		464818-001
MW-3	W	06-07-13 12:00		464818-002
MW-4	W	06-07-13 14:00		464818-003
MW-5	W	06-07-13 12:30		464818-004
MW-6	W	06-07-13 14:45		464818-005

CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S

Project Name: 14" Vac to Jal legacy

Project ID: *2009-092*
Work Order Number(s): *464818*

Report Date: *20-JUN-13*
Date Received: *06/10/2013*

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

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-916019 Total Phosphorus by EPA 365.1
E365.1

Batch 916019, Total Phosphorus (as P) recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.
Samples affected are: 464818-005, -004, -001, -003, -002.
The Laboratory Control Sample for Total Phosphorus (as P) is within laboratory Control Limits

Batch: LBA-916204 Metals per ICP by EPA 200.7
E200.7

Batch 916204, Calcium, Sodium recovered below QC limits in the Matrix Spike. Aluminum, Iron recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Barium, Boron, Magnesium, Manganese, Potassium, Zinc recovered above QC limits in the Matrix Spike.
Samples affected are: 464818-005, -001, -004, -003, -002.
The Laboratory Control Sample for Aluminum, Magnesium, Iron, Calcium, Manganese, Sodium, Barium, Zinc, Boron, Potassium is within laboratory Control Limits

Batch: LBA-916264 SVOAs by SW-846 8270C
SW8270C

Batch 916264, di-n-Butyl Phthalate recovered below QC limits in the Blank Spike Duplicate.
Samples affected are: 464818-005, -001, -004, -003, -002.

SW8270C

Batch 916264, 2-Nitroaniline, Diethyl Phthalate, bis(2-chloroisopropyl) ether, bis(2-ethylhexyl) phthalate, di-n-Butyl Phthalate recovered below QC limits in the Matrix Spike.
Samples affected are: 464818-005, -001, -004, -003, -002.
The Laboratory Control Sample for bis(2-chloroisopropyl) ether, 2-Nitroaniline, Diethyl Phthalate, bis(2-ethylhexyl) phthalate, di-n-Butyl Phthalate is within laboratory Control Limits

Batch: LBA-916426 Inorganic Anions by EPA 300/300.1
E300

Batch 916426, Chloride recovered above QC limits in the Matrix Spike.
Samples affected are: 464818-005, -004, -001, -003, -002.
The Laboratory Control Sample for Chloride is within laboratory Control Limits

Batch: LBA-916471 VOAs by SW-846 8260B
SW8260B

Batch 916471, 1,2-Dibromo-3-Chloropropane recovered above QC limits in the Matrix Spike.
Hexachlorobutadiene, Naphthalene, cis-1,2-Dichloroethylene recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate.
Samples affected are: 464818-001, -002.
The Laboratory Control Sample for cis-1,2-Dichloroethylene, Naphthalene, Hexachlorobutadiene, 1,2-Dibromo-3-Chloropropane is within laboratory Control Limits

Batch: LBA-916486 VOAs by SW-846 8260B
SW8260B

Batch 916486, Tetrachloroethylene, Trichloroethylene, Vinyl Chloride, cis-1,2-Dichloroethylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.
Samples affected are: 464818-005, -004.
The Laboratory Control Sample for cis-1,2-Dichloroethylene, Tetrachloroethylene, Trichloroethylene, Vinyl Chloride is within laboratory Control Limits

Batch: LBA-916508 VOAs by SW-846 8260B
SW8260B

Batch 916508, Styrene recovered below QC limits in the Matrix Spike.
Samples affected are: 464818-003.
The Laboratory Control Sample for Styrene is within laboratory Control Limits

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-001 Date Collected: 06.07.13 11.10 Date Received: 06.10.13 12.30

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: AMB % Moist: Tech: AMB

Seq Number: 916426 Date Prep: 06.13.13 17.49

Prep seq: 639816

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**8740**	500	14.0	mg/L	06.13.13 17:49		500
Fluoride	16984-48-8	ND	200	18.0	mg/L	06.13.13 17:49	U	500
Nitrate as N	14797-55-8	ND	200	2.00	mg/L	06.13.13 17:49	UK	500
Sulfate	14808-79-8	ND	1000	23.0	mg/L	06.13.13 17:49	U	500

Analytical Method: Total Phosphorus by EPA 365.1 Prep Method: E365.1_P

Analyst: DEP % Moist: Tech: DEP

Seq Number: 916019 Date Prep: 06.12.13 12.18

Subcontractor: SUB: E871002 Prep seq: 639550

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Total Phosphorus (as P)	7723-14-0	**4.87**	0.200	0.0618	mg/L	06.12.13 15:19		10

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-001 Date Collected: 06.07.13 11.10 Date Received: 06.10.13 12.30

Analytical Method: Metals per ICP by EPA 200.7 Prep Method: E200.7P

Analyst: KUG % Moist: Tech: KUG

Seq Number: 916204 Date Prep: 06.13.13 11.30

Subcontractor: SUB: E871002 Prep seq: 639625

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Aluminum	7429-90-5	**77.2**	0.200	0.0847	mg/L	06.13.13 19:02		1
Barium	7440-39-3	**1.03**	0.0100	0.000483	mg/L	06.13.13 19:02		1
Boron	7440-42-8	**2.32**	0.0500	0.00158	mg/L	06.13.13 19:02		1
Cadmium	7440-43-9	ND	0.0100	0.000408	mg/L	06.13.13 19:02	U	1
Calcium	7440-70-2	**1520**	20.0	2.92	mg/L	06.14.13 16:42		100
Chromium	7440-47-3	**0.0650**	0.0100	0.00355	mg/L	06.13.13 19:02		1
Cobalt	7440-48-4	**0.0433**	0.0100	0.000695	mg/L	06.13.13 19:02		1
Copper	7440-50-8	**0.0959**	0.0200	0.00288	mg/L	06.13.13 19:02		1
Iron	7439-89-6	**58.8**	0.200	0.0188	mg/L	06.13.13 19:02		1
Lead	7439-92-1	**0.0611**	0.0100	0.00921	mg/L	06.13.13 19:02		1
Magnesium	7439-95-4	**374**	0.200	0.00686	mg/L	06.13.13 19:02		1
Manganese	7439-96-5	**2.30**	0.0200	0.00291	mg/L	06.13.13 19:02		1
Molybdenum	7439-98-7	ND	0.0100	0.000810	mg/L	06.13.13 19:02	U	1
Nickel	7440-02-0	**0.111**	0.0100	0.0000890	mg/L	06.13.13 19:02		1
Potassium	7440-09-7	**115**	0.500	0.0561	mg/L	06.13.13 19:02		1
Selenium	7782-49-2	ND	0.0300	0.00540	mg/L	06.13.13 19:02	U	1
Silver	7440-22-4	ND	0.0200	0.00193	mg/L	06.13.13 19:02	U	1
Sodium	7440-23-5	**5110**	50.0	5.41	mg/L	06.14.13 16:42		100
Zinc	7440-66-6	**0.315**	0.0300	0.00151	mg/L	06.13.13 19:02		1

Analytical Method: Metals by EPA 200.8 Prep Method: E200.8P

Analyst: MKO % Moist: Tech: MKO

Seq Number: 916378 Date Prep: 06.14.13 09.30

Subcontractor: SUB: E871002 Prep seq: 639683

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	**0.0206**	0.00400	0.000589	mg/L	06.15.13 03:29		1

Analytical Method: Alkalinity by SM2320B Prep Method:

Analyst: ALA % Moist: Tech: ALA

Seq Number: 916182 Date Prep:

Subcontractor: SUB: E871002 Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	**202**	4.00	0.954	mg/L	06.13.13 04:36		1
Alkalinity, Carbonate (as CaCO3)	ALKCARB	ND	4.00	0.954	mg/L	06.13.13 04:36	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-001 Date Collected: 06.07.13 11.10 Date Received: 06.10.13 12.30

Analytical Method: Mercury, Total by EPA 245.1 Prep Method: E245.1P

Analyst: RKO % Moist: Tech: RKO

Seq Number: 916047 Date Prep: 06.12.13 10.00

Subcontractor: SUB: E871002 Prep seq: 639539

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	ND	0.000200	0.0000291	mg/L	06.12.13 15:23	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-001 Date Collected: 06.07.13 11.10 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.39

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Acenaphthene	83-32-9	ND	0.00515	0.000379	mg/L	06.14.13 16:57	U	1
Acenaphthylene	208-96-8	ND	0.00515	0.000353	mg/L	06.14.13 16:57	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	ND	0.0103	0.00103	mg/L	06.14.13 16:57	U	1
Anthracene	120-12-7	ND	0.00515	0.000169	mg/L	06.14.13 16:57	U	1
Benzo(a)anthracene	56-55-3	ND	0.00515	0.000256	mg/L	06.14.13 16:57	U	1
Benzo(a)pyrene	50-32-8	ND	0.00515	0.000206	mg/L	06.14.13 16:57	U	1
Benzo(b)fluoranthene	205-99-2	ND	0.00515	0.000389	mg/L	06.14.13 16:57	U	1
Benzo(k)fluoranthene	207-08-9	ND	0.00515	0.000530	mg/L	06.14.13 16:57	U	1
Benzo(g,h,i)perylene	191-24-2	ND	0.00515	0.000297	mg/L	06.14.13 16:57	U	1
Benzoic Acid	65-85-0	ND	0.0309	0.000987	mg/L	06.14.13 16:57	U	1
Benzyl Butyl Phthalate	85-68-7	ND	0.00515	0.000287	mg/L	06.14.13 16:57	U	1
bis(2-chloroethoxy) methane	111-91-1	ND	0.00515	0.000454	mg/L	06.14.13 16:57	U	1
bis(2-chloroethyl) ether	111-44-4	ND	0.00515	0.000467	mg/L	06.14.13 16:57	U	1
bis(2-chloroisopropyl) ether	39638-32-9	ND	0.00515	0.000480	mg/L	06.14.13 16:57	U	1
bis(2-ethylhexyl) phthalate	117-81-7	ND	0.00515	0.000323	mg/L	06.14.13 16:57	U	1
4-Bromophenyl-phenylether	101-55-3	ND	0.00515	0.000308	mg/L	06.14.13 16:57	U	1
4-chloro-3-methylphenol	59-50-7	ND	0.00515	0.000441	mg/L	06.14.13 16:57	U	1
4-Chloroaniline	106-47-8	ND	0.0103	0.00176	mg/L	06.14.13 16:57	U	1
2-Chloronaphthalene	91-58-7	ND	0.00515	0.000331	mg/L	06.14.13 16:57	U	1
2-Chlorophenol	95-57-8	ND	0.00515	0.000422	mg/L	06.14.13 16:57	U	1
4-Chlorophenyl Phenyl Ether	7005-72-3	ND	0.00515	0.000366	mg/L	06.14.13 16:57	U	1
Chrysene	218-01-9	ND	0.00515	0.000238	mg/L	06.14.13 16:57	U	1
Dibenz(a,h)Anthracene	53-70-3	ND	0.00515	0.000204	mg/L	06.14.13 16:57	U	1
Dibenzofuran	132-64-9	ND	0.00515	0.000356	mg/L	06.14.13 16:57	U	1
di-n-Butyl Phthalate	84-74-2	ND	0.00515	0.000285	mg/L	06.14.13 16:57	UL	1
1,2-Dichlorobenzene	95-50-1	ND	0.00515	0.000426	mg/L	06.14.13 16:57	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00515	0.000508	mg/L	06.14.13 16:57	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00515	0.000666	mg/L	06.14.13 16:57	U	1
3,3-Dichlorobenzidine	91-94-1	ND	0.0103	0.00142	mg/L	06.14.13 16:57	U	1
2,4-Dichlorophenol	120-83-2	ND	0.00515	0.000271	mg/L	06.14.13 16:57	U	1
Diethyl Phthalate	84-66-2	ND	0.00515	0.000328	mg/L	06.14.13 16:57	U	1
Dimethyl Phthalate	131-11-3	ND	0.00515	0.000310	mg/L	06.14.13 16:57	U	1
2,4-Dimethylphenol	105-67-9	ND	0.00515	0.00102	mg/L	06.14.13 16:57	U	1
4,6-dinitro-2-methyl phenol	534-52-1	ND	0.0103	0.000554	mg/L	06.14.13 16:57	U	1
2,4-Dinitrophenol	51-28-5	ND	0.0103	0.00116	mg/L	06.14.13 16:57	U	1
2,4-Dinitrotoluene	121-14-2	ND	0.00515	0.000338	mg/L	06.14.13 16:57	U	1
2,6-Dinitrotoluene	606-20-2	ND	0.00515	0.000355	mg/L	06.14.13 16:57	U	1
di-n-Octyl Phthalate	117-84-0	ND	0.00515	0.000376	mg/L	06.14.13 16:57	U	1
Fluoranthene	206-44-0	ND	0.00515	0.000261	mg/L	06.14.13 16:57	U	1
Fluorene	86-73-7	ND	0.00515	0.000318	mg/L	06.14.13 16:57	U	1
Hexachlorobenzene	118-74-1	ND	0.00515	0.000252	mg/L	06.14.13 16:57	U	1
Hexachlorobutadiene	87-68-3	ND	0.00515	0.000456	mg/L	06.14.13 16:57	U	1
Hexachlorocyclopentadiene	77-47-4	ND	0.00515	0.000362	mg/L	06.14.13 16:57	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-001 Date Collected: 06.07.13 11.10 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.39

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Hexachloroethane	67-72-1	ND	0.00515	0.000555	mg/L	06.14.13 16:57	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	ND	0.00515	0.000347	mg/L	06.14.13 16:57	U	1
Isophorone	78-59-1	ND	0.00515	0.000415	mg/L	06.14.13 16:57	U	1
2-Methylnaphthalene	91-57-6	ND	0.00515	0.000509	mg/L	06.14.13 16:57	U	1
2-methylphenol	95-48-7	ND	0.00515	0.000743	mg/L	06.14.13 16:57	U	1
3&4-Methylphenol	15831-10-4	ND	0.00515	0.00100	mg/L	06.14.13 16:57	U	1
Naphthalene	91-20-3	ND	0.00515	0.000327	mg/L	06.14.13 16:57	U	1
2-Nitroaniline	88-74-4	ND	0.0103	0.000456	mg/L	06.14.13 16:57	U	1
3-Nitroaniline	99-09-2	ND	0.0103	0.000395	mg/L	06.14.13 16:57	U	1
4-Nitroaniline	100-01-6	ND	0.0103	0.000294	mg/L	06.14.13 16:57	U	1
Nitrobenzene	98-95-3	ND	0.00515	0.000539	mg/L	06.14.13 16:57	U	1
2-Nitrophenol	88-75-5	ND	0.00515	0.000502	mg/L	06.14.13 16:57	U	1
4-Nitrophenol	100-02-7	ND	0.0103	0.000361	mg/L	06.14.13 16:57	U	1
N-Nitrosodi-n-Propylamine	621-64-7	ND	0.00515	0.000103	mg/L	06.14.13 16:57	U	1
N-Nitrosodiphenylamine	86-30-6	ND	0.00515	0.000473	mg/L	06.14.13 16:57	U	1
Pentachlorophenol	87-86-5	ND	0.0103	0.000575	mg/L	06.14.13 16:57	U	1
Phenanthrene	85-01-8	ND	0.00515	0.000286	mg/L	06.14.13 16:57	U	1
Phenol	108-95-2	ND	0.0103	0.000503	mg/L	06.14.13 16:57	U	1
Pyrene	129-00-0	ND	0.00515	0.000290	mg/L	06.14.13 16:57	U	1
Pyridine	110-86-1	ND	0.0103	0.00160	mg/L	06.14.13 16:57	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00515	0.000391	mg/L	06.14.13 16:57	U	1
2,4,5-Trichlorophenol	95-95-4	ND	0.00515	0.000564	mg/L	06.14.13 16:57	U	1
2,4,6-Trichlorophenol	88-06-2	ND	0.00515	0.000392	mg/L	06.14.13 16:57	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorophenol	36	30 - 100	%		
Phenol-d6	23	15 - 94	%		
Nitrobenzene-d5	51	46 - 111	%		
2-Fluorobiphenyl	48	44 - 117	%		
2,4,6-Tribromophenol	56	48 - 117	%		
Terphenyl-D14	49	46 - 126	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-001 Date Collected: 06.07.13 11.10 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: MCH % Moist: Tech: MCH

Seq Number: 916471 Date Prep: 06.15.13 17.12

Subcontractor: SUB: E871002 Prep seq: 639857

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	ND	0.00500	0.0000970	mg/L	06.15.13 23:49	U	1
Bromobenzene	108-86-1	ND	0.00500	0.000129	mg/L	06.15.13 23:49	U	1
Bromochloromethane	74-97-5	ND	0.00500	0.000159	mg/L	06.15.13 23:49	U	1
Bromodichloromethane	75-27-4	ND	0.00500	0.000139	mg/L	06.15.13 23:49	U	1
Bromoform	75-25-2	ND	0.00500	0.000340	mg/L	06.15.13 23:49	U	1
Methyl bromide	74-83-9	ND	0.00500	0.000291	mg/L	06.15.13 23:49	U	1
n-Butylbenzene	104-51-8	ND	0.00500	0.000190	mg/L	06.15.13 23:49	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	0.000120	mg/L	06.15.13 23:49	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	0.000200	mg/L	06.15.13 23:49	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	0.000140	mg/L	06.15.13 23:49	U	1
Chlorobenzene	108-90-7	ND	0.00500	0.0000915	mg/L	06.15.13 23:49	U	1
Chloroethane	75-00-3	ND	0.0100	0.000206	mg/L	06.15.13 23:49	U	1
Chloroform	67-66-3	ND	0.00500	0.000206	mg/L	06.15.13 23:49	U	1
Methyl Chloride	74-87-3	ND	0.0100	0.000105	mg/L	06.15.13 23:49	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	0.000101	mg/L	06.15.13 23:49	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	0.0000840	mg/L	06.15.13 23:49	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	0.0000779	mg/L	06.15.13 23:49	U	1
Dibromochloromethane	124-48-1	ND	0.00500	0.000139	mg/L	06.15.13 23:49	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	0.00143	mg/L	06.15.13 23:49	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	0.000360	mg/L	06.15.13 23:49	U	1
Methylene bromide	74-95-3	ND	0.00500	0.000156	mg/L	06.15.13 23:49	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	0.000240	mg/L	06.15.13 23:49	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	0.000190	mg/L	06.15.13 23:49	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	0.000122	mg/L	06.15.13 23:49	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	0.000105	mg/L	06.15.13 23:49	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	0.000103	mg/L	06.15.13 23:49	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	0.0000897	mg/L	06.15.13 23:49	U	1
1,1-Dichloroethene	75-35-4	ND	0.00500	0.000111	mg/L	06.15.13 23:49	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	0.000118	mg/L	06.15.13 23:49	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	0.000113	mg/L	06.15.13 23:49	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	0.000123	mg/L	06.15.13 23:49	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	0.000110	mg/L	06.15.13 23:49	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	0.0000878	mg/L	06.15.13 23:49	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	0.000410	mg/L	06.15.13 23:49	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	0.000250	mg/L	06.15.13 23:49	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	0.000300	mg/L	06.15.13 23:49	U	1
Ethylbenzene	100-41-4	ND	0.00500	0.0000800	mg/L	06.15.13 23:49	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	0.000187	mg/L	06.15.13 23:49	U	1
Isopropylbenzene	98-82-8	ND	0.00500	0.0000829	mg/L	06.15.13 23:49	U	1
Methylene Chloride	75-09-2	ND	0.00500	0.000251	mg/L	06.15.13 23:49	U	1
MTBE	1634-04-4	ND	0.00500	0.000430	mg/L	06.15.13 23:49	U	1
Naphthalene	91-20-3	ND	0.0100	0.000142	mg/L	06.15.13 23:49	U	1
n-Propylbenzene	103-65-1	ND	0.00500	0.000180	mg/L	06.15.13 23:49	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-001 Date Collected: 06.07.13 11.10 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: MCH % Moist: Tech: MCH

Seq Number: 916471 Date Prep: 06.15.13 17.12

Subcontractor: SUB: E871002 Prep seq: 639857

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Styrene	100-42-5	ND	0.00500	0.000140	mg/L	06.15.13 23:49	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	0.000280	mg/L	06.15.13 23:49	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	0.000420	mg/L	06.15.13 23:49	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	0.000196	mg/L	06.15.13 23:49	U	1
Toluene	108-88-3	ND	0.00500	0.000164	mg/L	06.15.13 23:49	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	0.0000878	mg/L	06.15.13 23:49	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	0.000146	mg/L	06.15.13 23:49	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	0.000103	mg/L	06.15.13 23:49	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	0.000138	mg/L	06.15.13 23:49	U	1
Trichloroethylene	79-01-6	ND	0.00500	0.000130	mg/L	06.15.13 23:49	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	0.0000984	mg/L	06.15.13 23:49	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	0.000590	mg/L	06.15.13 23:49	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	0.0000470	mg/L	06.15.13 23:49	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	0.0000829	mg/L	06.15.13 23:49	U	1
o-Xylene	95-47-6	ND	0.00500	0.000103	mg/L	06.15.13 23:49	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	0.000470	mg/L	06.15.13 23:49	U	1
Vinyl Chloride	75-01-4	ND	0.00200	0.000102	mg/L	06.15.13 23:49	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	108	75 - 131	%		
1,2-Dichloroethane-D4	104	63 - 144	%		
Toluene-D8	95	80 - 117	%		
4-Bromofluorobenzene	102	74 - 124	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 464818-002 Date Collected: 06.07.13 12.00 Date Received: 06.10.13 12.30

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: AMB % Moist: Tech: AMB

Seq Number: 916426 Date Prep: 06.13.13 18.11

Prep seq: 639816

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**6120**	200	5.60	mg/L	06.13.13 18:11		200
Fluoride	16984-48-8	ND	80.0	7.20	mg/L	06.13.13 18:11	U	200
Nitrate as N	14797-55-8	ND	80.0	0.800	mg/L	06.13.13 18:11	UK	200
Sulfate	14808-79-8	**450**	400	9.20	mg/L	06.13.13 18:11		200

Analytical Method: Total Phosphorus by EPA 365.1 Prep Method: E365.1_P

Analyst: DEP % Moist: Tech: DEP

Seq Number: 916019 Date Prep: 06.12.13 12.18

Subcontractor: SUB: E871002 Prep seq: 639550

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Total Phosphorus (as P)	7723-14-0	**2.91**	0.100	0.0309	mg/L	06.12.13 15:21		5

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 464818-002 Date Collected: 06.07.13 12.00 Date Received: 06.10.13 12.30

Analytical Method: Metals per ICP by EPA 200.7 Prep Method: E200.7P

Analyst: KUG % Moist: Tech: KUG

Seq Number: 916204 Date Prep: 06.13.13 11.30

Subcontractor: SUB: E871002 Prep seq: 639625

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Aluminum	7429-90-5	**19.9**	0.200	0.0847	mg/L	06.13.13 19:15		1
Barium	7440-39-3	**0.413**	0.0100	0.000483	mg/L	06.13.13 19:15		1
Boron	7440-42-8	**1.12**	0.0500	0.00158	mg/L	06.13.13 19:15		1
Cadmium	7440-43-9	ND	0.0100	0.000408	mg/L	06.13.13 19:15	U	1
Calcium	7440-70-2	**1440**	20.0	2.92	mg/L	06.14.13 16:48		100
Chromium	7440-47-3	**0.0202**	0.0100	0.00355	mg/L	06.13.13 19:15		1
Cobalt	7440-48-4	**0.0227**	0.0100	0.000695	mg/L	06.13.13 19:15		1
Copper	7440-50-8	**0.0361**	0.0200	0.00288	mg/L	06.13.13 19:15		1
Iron	7439-89-6	**13.8**	0.200	0.0188	mg/L	06.13.13 19:15		1
Lead	7439-92-1	**0.0343**	0.0100	0.00921	mg/L	06.13.13 19:15		1
Magnesium	7439-95-4	**391**	0.200	0.00686	mg/L	06.13.13 19:15		1
Manganese	7439-96-5	**1.06**	0.0200	0.00291	mg/L	06.13.13 19:15		1
Molybdenum	7439-98-7	ND	0.0100	0.000810	mg/L	06.13.13 19:15	U	1
Nickel	7440-02-0	**0.0358**	0.0100	0.0000890	mg/L	06.13.13 19:15		1
Potassium	7440-09-7	**39.7**	0.500	0.0561	mg/L	06.13.13 19:15		1
Selenium	7782-49-2	ND	0.0300	0.00540	mg/L	06.13.13 19:15	U	1
Silver	7440-22-4	ND	0.0200	0.00193	mg/L	06.13.13 19:15	U	1
Sodium	7440-23-5	**2690**	50.0	5.41	mg/L	06.14.13 16:48		100
Zinc	7440-66-6	**0.211**	0.0300	0.00151	mg/L	06.13.13 19:15		1

Analytical Method: Metals by EPA 200.8 Prep Method: E200.8P

Analyst: MKO % Moist: Tech: MKO

Seq Number: 916378 Date Prep: 06.14.13 09.30

Subcontractor: SUB: E871002 Prep seq: 639683

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	**0.0121**	0.00400	0.000589	mg/L	06.15.13 03:43		1

Analytical Method: Alkalinity by SM2320B Prep Method:

Analyst: ALA % Moist: Tech: ALA

Seq Number: 916182 Date Prep:

Subcontractor: SUB: E871002 Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	**206**	4.00	0.954	mg/L	06.13.13 04:43		1
Alkalinity, Carbonate (as CaCO3)	ALKCARB	ND	4.00	0.954	mg/L	06.13.13 04:43	U	1

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PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 464818-002 Date Collected: 06.07.13 12.00 Date Received: 06.10.13 12.30

Analytical Method: Mercury, Total by EPA 245.1 Prep Method: E245.1P

Analyst: RKO % Moist: Tech: RKO

Seq Number: 916047 Date Prep: 06.12.13 10.00

Subcontractor: SUB: E871002 Prep seq: 639539

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	ND	0.000200	0.0000291	mg/L	06.12.13 15:25	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 464818-002 Date Collected: 06.07.13 12.00 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.42

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Acenaphthene	83-32-9	ND	0.00521	0.000383	mg/L	06.14.13 17:17	U	1
Acenaphthylene	208-96-8	ND	0.00521	0.000356	mg/L	06.14.13 17:17	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	ND	0.0104	0.00104	mg/L	06.14.13 17:17	U	1
Anthracene	120-12-7	ND	0.00521	0.000171	mg/L	06.14.13 17:17	U	1
Benzo(a)anthracene	56-55-3	ND	0.00521	0.000258	mg/L	06.14.13 17:17	U	1
Benzo(a)pyrene	50-32-8	ND	0.00521	0.000208	mg/L	06.14.13 17:17	U	1
Benzo(b)fluoranthene	205-99-2	ND	0.00521	0.000393	mg/L	06.14.13 17:17	U	1
Benzo(k)fluoranthene	207-08-9	ND	0.00521	0.000535	mg/L	06.14.13 17:17	U	1
Benzo(g,h,i)perylene	191-24-2	ND	0.00521	0.000300	mg/L	06.14.13 17:17	U	1
Benzoic Acid	65-85-0	ND	0.0313	0.000997	mg/L	06.14.13 17:17	U	1
Benzyl Butyl Phthalate	85-68-7	ND	0.00521	0.000290	mg/L	06.14.13 17:17	U	1
bis(2-chloroethoxy) methane	111-91-1	ND	0.00521	0.000458	mg/L	06.14.13 17:17	U	1
bis(2-chloroethyl) ether	111-44-4	ND	0.00521	0.000472	mg/L	06.14.13 17:17	U	1
bis(2-chloroisopropyl) ether	39638-32-9	ND	0.00521	0.000485	mg/L	06.14.13 17:17	U	1
bis(2-ethylhexyl) phthalate	117-81-7	ND	0.00521	0.000326	mg/L	06.14.13 17:17	U	1
4-Bromophenyl-phenylether	101-55-3	ND	0.00521	0.000311	mg/L	06.14.13 17:17	U	1
4-chloro-3-methylphenol	59-50-7	ND	0.00521	0.000446	mg/L	06.14.13 17:17	U	1
4-Chloroaniline	106-47-8	ND	0.0104	0.00178	mg/L	06.14.13 17:17	U	1
2-Chloronaphthalene	91-58-7	ND	0.00521	0.000334	mg/L	06.14.13 17:17	U	1
2-Chlorophenol	95-57-8	ND	0.00521	0.000426	mg/L	06.14.13 17:17	U	1
4-Chlorophenyl Phenyl Ether	7005-72-3	ND	0.00521	0.000370	mg/L	06.14.13 17:17	U	1
Chrysene	218-01-9	ND	0.00521	0.000241	mg/L	06.14.13 17:17	U	1
Dibenz(a,h)Anthracene	53-70-3	ND	0.00521	0.000206	mg/L	06.14.13 17:17	U	1
Dibenzofuran	132-64-9	ND	0.00521	0.000359	mg/L	06.14.13 17:17	U	1
di-n-Butyl Phthalate	84-74-2	ND	0.00521	0.000288	mg/L	06.14.13 17:17	UL	1
1,2-Dichlorobenzene	95-50-1	ND	0.00521	0.000430	mg/L	06.14.13 17:17	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00521	0.000514	mg/L	06.14.13 17:17	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00521	0.000673	mg/L	06.14.13 17:17	U	1
3,3-Dichlorobenzidine	91-94-1	ND	0.0104	0.00144	mg/L	06.14.13 17:17	U	1
2,4-Dichlorophenol	120-83-2	ND	0.00521	0.000274	mg/L	06.14.13 17:17	U	1
Diethyl Phthalate	84-66-2	ND	0.00521	0.000331	mg/L	06.14.13 17:17	U	1
Dimethyl Phthalate	131-11-3	ND	0.00521	0.000314	mg/L	06.14.13 17:17	U	1
2,4-Dimethylphenol	105-67-9	ND	0.00521	0.00103	mg/L	06.14.13 17:17	U	1
4,6-dinitro-2-methyl phenol	534-52-1	ND	0.0104	0.000559	mg/L	06.14.13 17:17	U	1
2,4-Dinitrophenol	51-28-5	ND	0.0104	0.00117	mg/L	06.14.13 17:17	U	1
2,4-Dinitrotoluene	121-14-2	ND	0.00521	0.000342	mg/L	06.14.13 17:17	U	1
2,6-Dinitrotoluene	606-20-2	ND	0.00521	0.000358	mg/L	06.14.13 17:17	U	1
di-n-Octyl Phthalate	117-84-0	ND	0.00521	0.000380	mg/L	06.14.13 17:17	U	1
Fluoranthene	206-44-0	ND	0.00521	0.000264	mg/L	06.14.13 17:17	U	1
Fluorene	86-73-7	ND	0.00521	0.000321	mg/L	06.14.13 17:17	U	1
Hexachlorobenzene	118-74-1	ND	0.00521	0.000254	mg/L	06.14.13 17:17	U	1
Hexachlorobutadiene	87-68-3	ND	0.00521	0.000460	mg/L	06.14.13 17:17	U	1
Hexachlorocyclopentadiene	77-47-4	ND	0.00521	0.000366	mg/L	06.14.13 17:17	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 464818-002 Date Collected: 06.07.13 12.00 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.42

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Hexachloroethane	67-72-1	ND	0.00521	0.000560	mg/L	06.14.13 17:17	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	ND	0.00521	0.000351	mg/L	06.14.13 17:17	U	1
Isophorone	78-59-1	ND	0.00521	0.000420	mg/L	06.14.13 17:17	U	1
2-Methylnaphthalene	91-57-6	ND	0.00521	0.000515	mg/L	06.14.13 17:17	U	1
2-methylphenol	95-48-7	ND	0.00521	0.000751	mg/L	06.14.13 17:17	U	1
3&4-Methylphenol	15831-10-4	ND	0.00521	0.00101	mg/L	06.14.13 17:17	U	1
Naphthalene	91-20-3	ND	0.00521	0.000330	mg/L	06.14.13 17:17	U	1
2-Nitroaniline	88-74-4	ND	0.0104	0.000460	mg/L	06.14.13 17:17	U	1
3-Nitroaniline	99-09-2	ND	0.0104	0.000399	mg/L	06.14.13 17:17	U	1
4-Nitroaniline	100-01-6	ND	0.0104	0.000297	mg/L	06.14.13 17:17	U	1
Nitrobenzene	98-95-3	ND	0.00521	0.000545	mg/L	06.14.13 17:17	U	1
2-Nitrophenol	88-75-5	ND	0.00521	0.000507	mg/L	06.14.13 17:17	U	1
4-Nitrophenol	100-02-7	ND	0.0104	0.000365	mg/L	06.14.13 17:17	U	1
N-Nitrosodi-n-Propylamine	621-64-7	ND	0.00521	0.000104	mg/L	06.14.13 17:17	U	1
N-Nitrosodiphenylamine	86-30-6	ND	0.00521	0.000478	mg/L	06.14.13 17:17	U	1
Pentachlorophenol	87-86-5	ND	0.0104	0.000581	mg/L	06.14.13 17:17	U	1
Phenanthrene	85-01-8	ND	0.00521	0.000289	mg/L	06.14.13 17:17	U	1
Phenol	108-95-2	ND	0.0104	0.000508	mg/L	06.14.13 17:17	U	1
Pyrene	129-00-0	ND	0.00521	0.000293	mg/L	06.14.13 17:17	U	1
Pyridine	110-86-1	ND	0.0104	0.00161	mg/L	06.14.13 17:17	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00521	0.000395	mg/L	06.14.13 17:17	U	1
2,4,5-Trichlorophenol	95-95-4	ND	0.00521	0.000570	mg/L	06.14.13 17:17	U	1
2,4,6-Trichlorophenol	88-06-2	ND	0.00521	0.000396	mg/L	06.14.13 17:17	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorophenol	36	30 - 100	%		
Phenol-d6	22	15 - 94	%		
Nitrobenzene-d5	53	46 - 111	%		
2-Fluorobiphenyl	49	44 - 117	%		
2,4,6-Tribromophenol	56	48 - 117	%		
Terphenyl-D14	51	46 - 126	%		

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PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 464818-002 Date Collected: 06.07.13 12.00 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: MCH % Moist: Tech: MCH

Seq Number: 916471 Date Prep: 06.15.13 17.12

Subcontractor: SUB: E871002 Prep seq: 639857

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	ND	0.00500	0.0000970	mg/L	06.16.13 00:15	U	1
Bromobenzene	108-86-1	ND	0.00500	0.000129	mg/L	06.16.13 00:15	U	1
Bromochloromethane	74-97-5	ND	0.00500	0.000159	mg/L	06.16.13 00:15	U	1
Bromodichloromethane	75-27-4	ND	0.00500	0.000139	mg/L	06.16.13 00:15	U	1
Bromoform	75-25-2	ND	0.00500	0.000340	mg/L	06.16.13 00:15	U	1
Methyl bromide	74-83-9	ND	0.00500	0.000291	mg/L	06.16.13 00:15	U	1
n-Butylbenzene	104-51-8	ND	0.00500	0.000190	mg/L	06.16.13 00:15	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	0.000120	mg/L	06.16.13 00:15	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	0.000200	mg/L	06.16.13 00:15	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	0.000140	mg/L	06.16.13 00:15	U	1
Chlorobenzene	108-90-7	ND	0.00500	0.0000915	mg/L	06.16.13 00:15	U	1
Chloroethane	75-00-3	ND	0.0100	0.000206	mg/L	06.16.13 00:15	U	1
Chloroform	67-66-3	ND	0.00500	0.000206	mg/L	06.16.13 00:15	U	1
Methyl Chloride	74-87-3	ND	0.0100	0.000105	mg/L	06.16.13 00:15	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	0.000101	mg/L	06.16.13 00:15	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	0.0000840	mg/L	06.16.13 00:15	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	0.0000779	mg/L	06.16.13 00:15	U	1
Dibromochloromethane	124-48-1	ND	0.00500	0.000139	mg/L	06.16.13 00:15	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	0.00143	mg/L	06.16.13 00:15	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	0.000360	mg/L	06.16.13 00:15	U	1
Methylene bromide	74-95-3	ND	0.00500	0.000156	mg/L	06.16.13 00:15	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	0.000240	mg/L	06.16.13 00:15	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	0.000190	mg/L	06.16.13 00:15	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	0.000122	mg/L	06.16.13 00:15	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	0.000105	mg/L	06.16.13 00:15	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	0.000103	mg/L	06.16.13 00:15	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	0.0000897	mg/L	06.16.13 00:15	U	1
1,1-Dichloroethene	75-35-4	ND	0.00500	0.000111	mg/L	06.16.13 00:15	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	0.000118	mg/L	06.16.13 00:15	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	0.000113	mg/L	06.16.13 00:15	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	0.000123	mg/L	06.16.13 00:15	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	0.000110	mg/L	06.16.13 00:15	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	0.0000878	mg/L	06.16.13 00:15	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	0.000410	mg/L	06.16.13 00:15	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	0.000250	mg/L	06.16.13 00:15	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	0.000300	mg/L	06.16.13 00:15	U	1
Ethylbenzene	100-41-4	ND	0.00500	0.0000800	mg/L	06.16.13 00:15	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	0.000187	mg/L	06.16.13 00:15	U	1
Isopropylbenzene	98-82-8	ND	0.00500	0.0000829	mg/L	06.16.13 00:15	U	1
Methylene Chloride	75-09-2	ND	0.00500	0.000251	mg/L	06.16.13 00:15	U	1
MTBE	1634-04-4	ND	0.00500	0.000430	mg/L	06.16.13 00:15	U	1
Naphthalene	91-20-3	ND	0.0100	0.000142	mg/L	06.16.13 00:15	U	1
n-Propylbenzene	103-65-1	ND	0.00500	0.000180	mg/L	06.16.13 00:15	U	1

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PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 464818-002 Date Collected: 06.07.13 12.00 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: MCH % Moist: Tech: MCH

Seq Number: 916471 Date Prep: 06.15.13 17.12

Subcontractor: SUB: E871002 Prep seq: 639857

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Styrene	100-42-5	ND	0.00500	0.000140	mg/L	06.16.13 00:15	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	0.000280	mg/L	06.16.13 00:15	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	0.000420	mg/L	06.16.13 00:15	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	0.000196	mg/L	06.16.13 00:15	U	1
Toluene	108-88-3	ND	0.00500	0.000164	mg/L	06.16.13 00:15	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	0.0000878	mg/L	06.16.13 00:15	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	0.000146	mg/L	06.16.13 00:15	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	0.000103	mg/L	06.16.13 00:15	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	0.000138	mg/L	06.16.13 00:15	U	1
Trichloroethylene	79-01-6	ND	0.00500	0.000130	mg/L	06.16.13 00:15	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	0.0000984	mg/L	06.16.13 00:15	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	0.000590	mg/L	06.16.13 00:15	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	0.0000470	mg/L	06.16.13 00:15	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	0.0000829	mg/L	06.16.13 00:15	U	1
o-Xylene	95-47-6	ND	0.00500	0.000103	mg/L	06.16.13 00:15	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	0.000470	mg/L	06.16.13 00:15	U	1
Vinyl Chloride	75-01-4	ND	0.00200	0.000102	mg/L	06.16.13 00:15	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	112	75 - 131	%		
1,2-Dichloroethane-D4	106	63 - 144	%		
Toluene-D8	93	80 - 117	%		
4-Bromofluorobenzene	98	74 - 124	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-003 Date Collected: 06.07.13 14.00 Date Received: 06.10.13 12.30

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: AMB % Moist: Tech: AMB

Seq Number: 916426 Date Prep: 06.13.13 18.33

Prep seq: 639816

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**7290**	500	14.0	mg/L	06.13.13 18:33		500
Fluoride	16984-48-8	ND	200	18.0	mg/L	06.13.13 18:33	U	500
Nitrate as N	14797-55-8	ND	200	2.00	mg/L	06.13.13 18:33	UK	500
Sulfate	14808-79-8	ND	1000	23.0	mg/L	06.13.13 18:33	U	500

Analytical Method: Total Phosphorus by EPA 365.1 Prep Method: E365.1_P

Analyst: DEP % Moist: Tech: DEP

Seq Number: 916019 Date Prep: 06.12.13 12.18

Subcontractor: SUB: E871002 Prep seq: 639550

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Total Phosphorus (as P)	7723-14-0	**0.248**	0.0200	0.00618	mg/L	06.12.13 15:15		1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-003 Date Collected: 06.07.13 14.00 Date Received: 06.10.13 12.30

Analytical Method: Metals per ICP by EPA 200.7 Prep Method: E200.7P

Analyst: KUG % Moist: Tech: KUG

Seq Number: 916204 Date Prep: 06.13.13 11.30

Subcontractor: SUB: E871002 Prep seq: 639625

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Aluminum	7429-90-5	**7.66**	0.200	0.0847	mg/L	06.13.13 19:21		1
Barium	7440-39-3	**0.283**	0.0100	0.000483	mg/L	06.13.13 19:21		1
Boron	7440-42-8	**1.65**	0.0500	0.00158	mg/L	06.13.13 19:21		1
Cadmium	7440-43-9	ND	0.0100	0.000408	mg/L	06.13.13 19:21	U	1
Calcium	7440-70-2	**1200**	20.0	2.92	mg/L	06.14.13 16:54		100
Chromium	7440-47-3	**0.0120**	0.0100	0.00355	mg/L	06.13.13 19:21		1
Cobalt	7440-48-4	ND	0.0100	0.000695	mg/L	06.13.13 19:21	U	1
Copper	7440-50-8	ND	0.0200	0.00288	mg/L	06.13.13 19:21	U	1
Iron	7439-89-6	**5.64**	0.200	0.0188	mg/L	06.13.13 19:21		1
Lead	7439-92-1	**0.0188**	0.0100	0.00921	mg/L	06.13.13 19:21		1
Magnesium	7439-95-4	**338**	0.200	0.00686	mg/L	06.13.13 19:21		1
Manganese	7439-96-5	**0.642**	0.0200	0.00291	mg/L	06.13.13 19:21		1
Molybdenum	7439-98-7	ND	0.0100	0.000810	mg/L	06.13.13 19:21	U	1
Nickel	7440-02-0	**0.0178**	0.0100	0.0000890	mg/L	06.13.13 19:21		1
Potassium	7440-09-7	**45.4**	0.500	0.0561	mg/L	06.13.13 19:21		1
Selenium	7782-49-2	ND	0.0300	0.00540	mg/L	06.13.13 19:21	U	1
Silver	7440-22-4	ND	0.0200	0.00193	mg/L	06.13.13 19:21	U	1
Sodium	7440-23-5	**3590**	50.0	5.41	mg/L	06.14.13 16:54		100
Zinc	7440-66-6	**0.0788**	0.0300	0.00151	mg/L	06.13.13 19:21		1

Analytical Method: Metals by EPA 200.8 Prep Method: E200.8P

Analyst: MKO % Moist: Tech: MKO

Seq Number: 916378 Date Prep: 06.14.13 09.30

Subcontractor: SUB: E871002 Prep seq: 639683

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	**0.00697**	0.00400	0.000589	mg/L	06.15.13 04:06		1

Analytical Method: Alkalinity by SM2320B Prep Method:

Analyst: ALA % Moist: Tech: ALA

Seq Number: 916182 Date Prep:

Subcontractor: SUB: E871002 Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	**235**	4.00	0.954	mg/L	06.13.13 04:50		1
Alkalinity, Carbonate (as CaCO3)	ALKCARB	ND	4.00	0.954	mg/L	06.13.13 04:50	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-003 Date Collected: 06.07.13 14.00 Date Received: 06.10.13 12.30

Analytical Method: Mercury, Total by EPA 245.1 Prep Method: E245.1P

Analyst: RKO % Moist: Tech: RKO

Seq Number: 916047 Date Prep: 06.12.13 10.00

Subcontractor: SUB: E871002 Prep seq: 639539

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	ND	0.000200	0.0000291	mg/L	06.12.13 15:28	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-003 Date Collected: 06.07.13 14.00 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.45

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Acenaphthene	83-32-9	ND	0.00526	0.000387	mg/L	06.14.13 17:37	U	1
Acenaphthylene	208-96-8	ND	0.00526	0.000360	mg/L	06.14.13 17:37	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	ND	0.0105	0.00105	mg/L	06.14.13 17:37	U	1
Anthracene	120-12-7	ND	0.00526	0.000173	mg/L	06.14.13 17:37	U	1
Benzo(a)anthracene	56-55-3	ND	0.00526	0.000261	mg/L	06.14.13 17:37	U	1
Benzo(a)pyrene	50-32-8	ND	0.00526	0.000211	mg/L	06.14.13 17:37	U	1
Benzo(b)fluoranthene	205-99-2	ND	0.00526	0.000397	mg/L	06.14.13 17:37	U	1
Benzo(k)fluoranthene	207-08-9	ND	0.00526	0.000541	mg/L	06.14.13 17:37	U	1
Benzo(g,h,i)perylene	191-24-2	ND	0.00526	0.000303	mg/L	06.14.13 17:37	U	1
Benzoic Acid	65-85-0	ND	0.0316	0.00101	mg/L	06.14.13 17:37	U	1
Benzyl Butyl Phthalate	85-68-7	ND	0.00526	0.000293	mg/L	06.14.13 17:37	U	1
bis(2-chloroethoxy) methane	111-91-1	ND	0.00526	0.000463	mg/L	06.14.13 17:37	U	1
bis(2-chloroethyl) ether	111-44-4	ND	0.00526	0.000477	mg/L	06.14.13 17:37	U	1
bis(2-chloroisopropyl) ether	39638-32-9	ND	0.00526	0.000491	mg/L	06.14.13 17:37	U	1
bis(2-ethylhexyl) phthalate	117-81-7	ND	0.00526	0.000329	mg/L	06.14.13 17:37	U	1
4-Bromophenyl-phenylether	101-55-3	ND	0.00526	0.000315	mg/L	06.14.13 17:37	U	1
4-chloro-3-methylphenol	59-50-7	ND	0.00526	0.000451	mg/L	06.14.13 17:37	U	1
4-Chloroaniline	106-47-8	ND	0.0105	0.00180	mg/L	06.14.13 17:37	U	1
2-Chloronaphthalene	91-58-7	ND	0.00526	0.000338	mg/L	06.14.13 17:37	U	1
2-Chlorophenol	95-57-8	ND	0.00526	0.000431	mg/L	06.14.13 17:37	U	1
4-Chlorophenyl Phenyl Ether	7005-72-3	ND	0.00526	0.000374	mg/L	06.14.13 17:37	U	1
Chrysene	218-01-9	ND	0.00526	0.000243	mg/L	06.14.13 17:37	U	1
Dibenz(a,h)Anthracene	53-70-3	ND	0.00526	0.000208	mg/L	06.14.13 17:37	U	1
Dibenzofuran	132-64-9	ND	0.00526	0.000363	mg/L	06.14.13 17:37	U	1
di-n-Butyl Phthalate	84-74-2	ND	0.00526	0.000291	mg/L	06.14.13 17:37	UL	1
1,2-Dichlorobenzene	95-50-1	ND	0.00526	0.000435	mg/L	06.14.13 17:37	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00526	0.000519	mg/L	06.14.13 17:37	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00526	0.000680	mg/L	06.14.13 17:37	U	1
3,3-Dichlorobenzidine	91-94-1	ND	0.0105	0.00145	mg/L	06.14.13 17:37	U	1
2,4-Dichlorophenol	120-83-2	ND	0.00526	0.000277	mg/L	06.14.13 17:37	U	1
Diethyl Phthalate	84-66-2	ND	0.00526	0.000335	mg/L	06.14.13 17:37	U	1
Dimethyl Phthalate	131-11-3	ND	0.00526	0.000317	mg/L	06.14.13 17:37	U	1
2,4-Dimethylphenol	105-67-9	ND	0.00526	0.00104	mg/L	06.14.13 17:37	U	1
4,6-dinitro-2-methyl phenol	534-52-1	ND	0.0105	0.000565	mg/L	06.14.13 17:37	U	1
2,4-Dinitrophenol	51-28-5	ND	0.0105	0.00118	mg/L	06.14.13 17:37	U	1
2,4-Dinitrotoluene	121-14-2	ND	0.00526	0.000345	mg/L	06.14.13 17:37	U	1
2,6-Dinitrotoluene	606-20-2	ND	0.00526	0.000362	mg/L	06.14.13 17:37	U	1
di-n-Octyl Phthalate	117-84-0	ND	0.00526	0.000384	mg/L	06.14.13 17:37	U	1
Fluoranthene	206-44-0	ND	0.00526	0.000266	mg/L	06.14.13 17:37	U	1
Fluorene	86-73-7	ND	0.00526	0.000324	mg/L	06.14.13 17:37	U	1
Hexachlorobenzene	118-74-1	ND	0.00526	0.000257	mg/L	06.14.13 17:37	U	1
Hexachlorobutadiene	87-68-3	ND	0.00526	0.000465	mg/L	06.14.13 17:37	U	1
Hexachlorocyclopentadiene	77-47-4	ND	0.00526	0.000369	mg/L	06.14.13 17:37	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-003 Date Collected: 06.07.13 14.00 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.45

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Hexachloroethane	67-72-1	ND	0.00526	0.000566	mg/L	06.14.13 17:37	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	ND	0.00526	0.000355	mg/L	06.14.13 17:37	U	1
Isophorone	78-59-1	ND	0.00526	0.000424	mg/L	06.14.13 17:37	U	1
2-Methylnaphthalene	91-57-6	ND	0.00526	0.000520	mg/L	06.14.13 17:37	U	1
2-methylphenol	95-48-7	ND	0.00526	0.000759	mg/L	06.14.13 17:37	U	1
3&4-Methylphenol	15831-10-4	ND	0.00526	0.00102	mg/L	06.14.13 17:37	U	1
Naphthalene	91-20-3	ND	0.00526	0.000334	mg/L	06.14.13 17:37	U	1
2-Nitroaniline	88-74-4	ND	0.0105	0.000465	mg/L	06.14.13 17:37	U	1
3-Nitroaniline	99-09-2	ND	0.0105	0.000403	mg/L	06.14.13 17:37	U	1
4-Nitroaniline	100-01-6	ND	0.0105	0.000300	mg/L	06.14.13 17:37	U	1
Nitrobenzene	98-95-3	ND	0.00526	0.000551	mg/L	06.14.13 17:37	U	1
2-Nitrophenol	88-75-5	ND	0.00526	0.000513	mg/L	06.14.13 17:37	U	1
4-Nitrophenol	100-02-7	ND	0.0105	0.000368	mg/L	06.14.13 17:37	U	1
N-Nitrosodi-n-Propylamine	621-64-7	ND	0.00526	0.000105	mg/L	06.14.13 17:37	U	1
N-Nitrosodiphenylamine	86-30-6	ND	0.00526	0.000483	mg/L	06.14.13 17:37	U	1
Pentachlorophenol	87-86-5	ND	0.0105	0.000587	mg/L	06.14.13 17:37	U	1
Phenanthrene	85-01-8	ND	0.00526	0.000292	mg/L	06.14.13 17:37	U	1
Phenol	108-95-2	ND	0.0105	0.000514	mg/L	06.14.13 17:37	U	1
Pyrene	129-00-0	ND	0.00526	0.000296	mg/L	06.14.13 17:37	U	1
Pyridine	110-86-1	ND	0.0105	0.00163	mg/L	06.14.13 17:37	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00526	0.000399	mg/L	06.14.13 17:37	U	1
2,4,5-Trichlorophenol	95-95-4	ND	0.00526	0.000576	mg/L	06.14.13 17:37	U	1
2,4,6-Trichlorophenol	88-06-2	ND	0.00526	0.000400	mg/L	06.14.13 17:37	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorophenol	37	30 - 100	%		
Phenol-d6	23	15 - 94	%		
Nitrobenzene-d5	52	46 - 111	%		
2-Fluorobiphenyl	50	44 - 117	%		
2,4,6-Tribromophenol	58	48 - 117	%		
Terphenyl-D14	52	46 - 126	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-003 Date Collected: 06.07.13 14.00 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916508 Date Prep: 06.18.13 15.26

Subcontractor: SUB: E871002 Prep seq: 639872

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	**0.293**	0.0250	0.000485	mg/L	06.18.13 16:39	D	5
Bromobenzene	108-86-1	ND	0.00500	0.000129	mg/L	06.18.13 15:51	U	1
Bromochloromethane	74-97-5	ND	0.00500	0.000159	mg/L	06.18.13 15:51	U	1
Bromodichloromethane	75-27-4	ND	0.00500	0.000139	mg/L	06.18.13 15:51	U	1
Bromoform	75-25-2	ND	0.00500	0.000340	mg/L	06.18.13 15:51	U	1
Methyl bromide	74-83-9	ND	0.00500	0.000291	mg/L	06.18.13 15:51	U	1
n-Butylbenzene	104-51-8	ND	0.00500	0.000190	mg/L	06.18.13 15:51	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	0.000120	mg/L	06.18.13 15:51	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	0.000200	mg/L	06.18.13 15:51	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	0.000140	mg/L	06.18.13 15:51	U	1
Chlorobenzene	108-90-7	ND	0.00500	0.0000915	mg/L	06.18.13 15:51	U	1
Chloroethane	75-00-3	ND	0.0100	0.000206	mg/L	06.18.13 15:51	U	1
Chloroform	67-66-3	ND	0.00500	0.000206	mg/L	06.18.13 15:51	U	1
Methyl Chloride	74-87-3	ND	0.0100	0.000105	mg/L	06.18.13 15:51	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	0.000101	mg/L	06.18.13 15:51	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	0.0000840	mg/L	06.18.13 15:51	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	0.0000779	mg/L	06.18.13 15:51	U	1
Dibromochloromethane	124-48-1	ND	0.00500	0.000139	mg/L	06.18.13 15:51	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	0.00143	mg/L	06.18.13 15:51	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	0.000360	mg/L	06.18.13 15:51	U	1
Methylene bromide	74-95-3	ND	0.00500	0.000156	mg/L	06.18.13 15:51	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	0.000240	mg/L	06.18.13 15:51	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	0.000190	mg/L	06.18.13 15:51	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	0.000122	mg/L	06.18.13 15:51	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	0.000105	mg/L	06.18.13 15:51	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	0.000103	mg/L	06.18.13 15:51	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	0.0000897	mg/L	06.18.13 15:51	U	1
1,1-Dichloroethene	75-35-4	ND	0.00500	0.000111	mg/L	06.18.13 15:51	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	0.000118	mg/L	06.18.13 15:51	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	0.000113	mg/L	06.18.13 15:51	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	0.000123	mg/L	06.18.13 15:51	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	0.000110	mg/L	06.18.13 15:51	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	0.0000878	mg/L	06.18.13 15:51	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	0.000410	mg/L	06.18.13 15:51	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	0.000250	mg/L	06.18.13 15:51	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	0.000300	mg/L	06.18.13 15:51	U	1
Ethylbenzene	100-41-4	ND	0.00500	0.0000800	mg/L	06.18.13 15:51	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	0.000187	mg/L	06.18.13 15:51	U	1
Isopropylbenzene	98-82-8	ND	0.00500	0.0000829	mg/L	06.18.13 15:51	U	1
Methylene Chloride	75-09-2	ND	0.00500	0.000251	mg/L	06.18.13 15:51	U	1
MTBE	1634-04-4	ND	0.00500	0.000430	mg/L	06.18.13 15:51	U	1
Naphthalene	91-20-3	ND	0.0100	0.000142	mg/L	06.18.13 15:51	U	1
n-Propylbenzene	103-65-1	ND	0.00500	0.000180	mg/L	06.18.13 15:51	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-003 Date Collected: 06.07.13 14.00 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916508 Date Prep: 06.18.13 15.26

Subcontractor: SUB: E871002 Prep seq: 639872

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Styrene	100-42-5	ND	0.00500	0.000140	mg/L	06.18.13 15:51	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	0.000280	mg/L	06.18.13 15:51	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	0.000420	mg/L	06.18.13 15:51	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	0.000196	mg/L	06.18.13 15:51	U	1
Toluene	108-88-3	ND	0.00500	0.000164	mg/L	06.18.13 15:51	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	0.0000878	mg/L	06.18.13 15:51	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	0.000146	mg/L	06.18.13 15:51	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	0.000103	mg/L	06.18.13 15:51	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	0.000138	mg/L	06.18.13 15:51	U	1
Trichloroethylene	79-01-6	ND	0.00500	0.000130	mg/L	06.18.13 15:51	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	0.0000984	mg/L	06.18.13 15:51	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	0.000590	mg/L	06.18.13 15:51	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	0.0000470	mg/L	06.18.13 15:51	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	0.0000829	mg/L	06.18.13 15:51	U	1
o-Xylene	95-47-6	ND	0.00500	0.000103	mg/L	06.18.13 15:51	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	0.000470	mg/L	06.18.13 15:51	U	1
Vinyl Chloride	75-01-4	ND	0.00200	0.000102	mg/L	06.18.13 15:51	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	107	75 - 131	%		
1,2-Dichloroethane-D4	95	63 - 144	%		
Toluene-D8	96	80 - 117	%		
4-Bromofluorobenzene	103	74 - 124	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-004 Date Collected: 06.07.13 12.30 Date Received: 06.10.13 12.30

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: AMB % Moist: Tech: AMB

Seq Number: 916426 Date Prep: 06.13.13 17.06

Prep seq: 639816

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**4710**	100	2.80	mg/L	06.13.13 17:06		100
Fluoride	16984-48-8	ND	40.0	3.60	mg/L	06.13.13 17:06	U	100
Nitrate as N	14797-55-8	ND	40.0	0.400	mg/L	06.13.13 17:06	UK	100
Sulfate	14808-79-8	**420**	200	4.60	mg/L	06.13.13 17:06		100

Analytical Method: Total Phosphorus by EPA 365.1 Prep Method: E365.1_P

Analyst: DEP % Moist: Tech: DEP

Seq Number: 916019 Date Prep: 06.12.13 12.18

Subcontractor: SUB: E871002 Prep seq: 639550

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Total Phosphorus (as P)	7723-14-0	**0.879**	0.0200	0.00618	mg/L	06.12.13 15:16		1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-004 Date Collected: 06.07.13 12.30 Date Received: 06.10.13 12.30

Analytical Method: Metals per ICP by EPA 200.7 Prep Method: E200.7P

Analyst: KUG % Moist: Tech: KUG

Seq Number: 916204 Date Prep: 06.13.13 11.30

Subcontractor: SUB: E871002 Prep seq: 639625

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Aluminum	7429-90-5	**31.3**	0.200	0.0847	mg/L	06.13.13 19:39		1
Barium	7440-39-3	**0.575**	0.0100	0.000483	mg/L	06.13.13 19:39		1
Boron	7440-42-8	**1.05**	0.0500	0.00158	mg/L	06.13.13 19:39		1
Cadmium	7440-43-9	ND	0.0100	0.000408	mg/L	06.13.13 19:39	U	1
Calcium	7440-70-2	**935**	20.0	2.92	mg/L	06.14.13 17:00		100
Chromium	7440-47-3	**0.0283**	0.0100	0.00355	mg/L	06.13.13 19:39		1
Cobalt	7440-48-4	**0.0195**	0.0100	0.000695	mg/L	06.13.13 19:39		1
Copper	7440-50-8	**0.0441**	0.0200	0.00288	mg/L	06.13.13 19:39		1
Iron	7439-89-6	**24.9**	0.200	0.0188	mg/L	06.13.13 19:39		1
Lead	7439-92-1	**0.0292**	0.0100	0.00921	mg/L	06.13.13 19:39		1
Magnesium	7439-95-4	**257**	0.200	0.00686	mg/L	06.13.13 19:39		1
Manganese	7439-96-5	**1.04**	0.0200	0.00291	mg/L	06.13.13 19:39		1
Molybdenum	7439-98-7	ND	0.0100	0.000810	mg/L	06.13.13 19:39	U	1
Nickel	7440-02-0	**0.0445**	0.0100	0.0000890	mg/L	06.13.13 19:39		1
Potassium	7440-09-7	**32.6**	0.500	0.0561	mg/L	06.13.13 19:39		1
Selenium	7782-49-2	ND	0.0300	0.00540	mg/L	06.13.13 19:39	U	1
Silver	7440-22-4	ND	0.0200	0.00193	mg/L	06.13.13 19:39	U	1
Sodium	7440-23-5	**2050**	50.0	5.41	mg/L	06.14.13 17:00		100
Zinc	7440-66-6	**0.177**	0.0300	0.00151	mg/L	06.13.13 19:39		1

Analytical Method: Metals by EPA 200.8 Prep Method: E200.8P

Analyst: MKO % Moist: Tech: MKO

Seq Number: 916378 Date Prep: 06.14.13 09.30

Subcontractor: SUB: E871002 Prep seq: 639683

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	**0.0138**	0.00400	0.000589	mg/L	06.15.13 04:13		1

Analytical Method: Alkalinity by SM2320B Prep Method:

Analyst: ALA % Moist: Tech: ALA

Seq Number: 916182 Date Prep:

Subcontractor: SUB: E871002 Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	**156**	4.00	0.954	mg/L	06.13.13 04:57		1
Alkalinity, Carbonate (as CaCO3)	ALKCARB	ND	4.00	0.954	mg/L	06.13.13 04:57	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-004 Date Collected: 06.07.13 12.30 Date Received: 06.10.13 12.30

Analytical Method: Mercury, Total by EPA 245.1 Prep Method: E245.1P

Analyst: RKO % Moist: Tech: RKO

Seq Number: 916047 Date Prep: 06.12.13 10.00

Subcontractor: SUB: E871002 Prep seq: 639539

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	ND	0.000200	0.0000291	mg/L	06.12.13 15:30	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-004 Date Collected: 06.07.13 12.30 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.48

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Acenaphthene	83-32-9	ND	0.00521	0.000383	mg/L	06.14.13 17:58	U	1
Acenaphthylene	208-96-8	ND	0.00521	0.000356	mg/L	06.14.13 17:58	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	ND	0.0104	0.00104	mg/L	06.14.13 17:58	U	1
Anthracene	120-12-7	ND	0.00521	0.000171	mg/L	06.14.13 17:58	U	1
Benzo(a)anthracene	56-55-3	ND	0.00521	0.000258	mg/L	06.14.13 17:58	U	1
Benzo(a)pyrene	50-32-8	ND	0.00521	0.000208	mg/L	06.14.13 17:58	U	1
Benzo(b)fluoranthene	205-99-2	ND	0.00521	0.000393	mg/L	06.14.13 17:58	U	1
Benzo(k)fluoranthene	207-08-9	ND	0.00521	0.000535	mg/L	06.14.13 17:58	U	1
Benzo(g,h,i)perylene	191-24-2	ND	0.00521	0.000300	mg/L	06.14.13 17:58	U	1
Benzoic Acid	65-85-0	ND	0.0313	0.000997	mg/L	06.14.13 17:58	U	1
Benzyl Butyl Phthalate	85-68-7	ND	0.00521	0.000290	mg/L	06.14.13 17:58	U	1
bis(2-chloroethoxy) methane	111-91-1	ND	0.00521	0.000458	mg/L	06.14.13 17:58	U	1
bis(2-chloroethyl) ether	111-44-4	ND	0.00521	0.000472	mg/L	06.14.13 17:58	U	1
bis(2-chloroisopropyl) ether	39638-32-9	ND	0.00521	0.000485	mg/L	06.14.13 17:58	U	1
bis(2-ethylhexyl) phthalate	117-81-7	ND	0.00521	0.000326	mg/L	06.14.13 17:58	U	1
4-Bromophenyl-phenylether	101-55-3	ND	0.00521	0.000311	mg/L	06.14.13 17:58	U	1
4-chloro-3-methylphenol	59-50-7	ND	0.00521	0.000446	mg/L	06.14.13 17:58	U	1
4-Chloroaniline	106-47-8	ND	0.0104	0.00178	mg/L	06.14.13 17:58	U	1
2-Chloronaphthalene	91-58-7	ND	0.00521	0.000334	mg/L	06.14.13 17:58	U	1
2-Chlorophenol	95-57-8	ND	0.00521	0.000426	mg/L	06.14.13 17:58	U	1
4-Chlorophenyl Phenyl Ether	7005-72-3	ND	0.00521	0.000370	mg/L	06.14.13 17:58	U	1
Chrysene	218-01-9	ND	0.00521	0.000241	mg/L	06.14.13 17:58	U	1
Dibenz(a,h)Anthracene	53-70-3	ND	0.00521	0.000206	mg/L	06.14.13 17:58	U	1
Dibenzofuran	132-64-9	ND	0.00521	0.000359	mg/L	06.14.13 17:58	U	1
di-n-Butyl Phthalate	84-74-2	ND	0.00521	0.000288	mg/L	06.14.13 17:58	UL	1
1,2-Dichlorobenzene	95-50-1	ND	0.00521	0.000430	mg/L	06.14.13 17:58	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00521	0.000514	mg/L	06.14.13 17:58	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00521	0.000673	mg/L	06.14.13 17:58	U	1
3,3-Dichlorobenzidine	91-94-1	ND	0.0104	0.00144	mg/L	06.14.13 17:58	U	1
2,4-Dichlorophenol	120-83-2	ND	0.00521	0.000274	mg/L	06.14.13 17:58	U	1
Diethyl Phthalate	84-66-2	ND	0.00521	0.000331	mg/L	06.14.13 17:58	U	1
Dimethyl Phthalate	131-11-3	ND	0.00521	0.000314	mg/L	06.14.13 17:58	U	1
2,4-Dimethylphenol	105-67-9	ND	0.00521	0.00103	mg/L	06.14.13 17:58	U	1
4,6-dinitro-2-methyl phenol	534-52-1	ND	0.0104	0.000559	mg/L	06.14.13 17:58	U	1
2,4-Dinitrophenol	51-28-5	ND	0.0104	0.00117	mg/L	06.14.13 17:58	U	1
2,4-Dinitrotoluene	121-14-2	ND	0.00521	0.000342	mg/L	06.14.13 17:58	U	1
2,6-Dinitrotoluene	606-20-2	ND	0.00521	0.000358	mg/L	06.14.13 17:58	U	1
di-n-Octyl Phthalate	117-84-0	ND	0.00521	0.000380	mg/L	06.14.13 17:58	U	1
Fluoranthene	206-44-0	ND	0.00521	0.000264	mg/L	06.14.13 17:58	U	1
Fluorene	86-73-7	ND	0.00521	0.000321	mg/L	06.14.13 17:58	U	1
Hexachlorobenzene	118-74-1	ND	0.00521	0.000254	mg/L	06.14.13 17:58	U	1
Hexachlorobutadiene	87-68-3	ND	0.00521	0.000460	mg/L	06.14.13 17:58	U	1
Hexachlorocyclopentadiene	77-47-4	ND	0.00521	0.000366	mg/L	06.14.13 17:58	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-004 Date Collected: 06.07.13 12.30 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.48

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Hexachloroethane	67-72-1	ND	0.00521	0.000560	mg/L	06.14.13 17:58	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	ND	0.00521	0.000351	mg/L	06.14.13 17:58	U	1
Isophorone	78-59-1	ND	0.00521	0.000420	mg/L	06.14.13 17:58	U	1
2-Methylnaphthalene	91-57-6	ND	0.00521	0.000515	mg/L	06.14.13 17:58	U	1
2-methylphenol	95-48-7	ND	0.00521	0.000751	mg/L	06.14.13 17:58	U	1
3&4-Methylphenol	15831-10-4	ND	0.00521	0.00101	mg/L	06.14.13 17:58	U	1
Naphthalene	91-20-3	ND	0.00521	0.000330	mg/L	06.14.13 17:58	U	1
2-Nitroaniline	88-74-4	ND	0.0104	0.000460	mg/L	06.14.13 17:58	U	1
3-Nitroaniline	99-09-2	ND	0.0104	0.000399	mg/L	06.14.13 17:58	U	1
4-Nitroaniline	100-01-6	ND	0.0104	0.000297	mg/L	06.14.13 17:58	U	1
Nitrobenzene	98-95-3	ND	0.00521	0.000545	mg/L	06.14.13 17:58	U	1
2-Nitrophenol	88-75-5	ND	0.00521	0.000507	mg/L	06.14.13 17:58	U	1
4-Nitrophenol	100-02-7	ND	0.0104	0.000365	mg/L	06.14.13 17:58	U	1
N-Nitrosodi-n-Propylamine	621-64-7	ND	0.00521	0.000104	mg/L	06.14.13 17:58	U	1
N-Nitrosodiphenylamine	86-30-6	ND	0.00521	0.000478	mg/L	06.14.13 17:58	U	1
Pentachlorophenol	87-86-5	ND	0.0104	0.000581	mg/L	06.14.13 17:58	U	1
Phenanthrene	85-01-8	ND	0.00521	0.000289	mg/L	06.14.13 17:58	U	1
Phenol	108-95-2	ND	0.0104	0.000508	mg/L	06.14.13 17:58	U	1
Pyrene	129-00-0	ND	0.00521	0.000293	mg/L	06.14.13 17:58	U	1
Pyridine	110-86-1	ND	0.0104	0.00161	mg/L	06.14.13 17:58	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00521	0.000395	mg/L	06.14.13 17:58	U	1
2,4,5-Trichlorophenol	95-95-4	ND	0.00521	0.000570	mg/L	06.14.13 17:58	U	1
2,4,6-Trichlorophenol	88-06-2	ND	0.00521	0.000396	mg/L	06.14.13 17:58	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorophenol	33	30 - 100	%		
Phenol-d6	19	15 - 94	%		
Nitrobenzene-d5	48	46 - 111	%		
2-Fluorobiphenyl	48	44 - 117	%		
2,4,6-Tribromophenol	58	48 - 117	%		
Terphenyl-D14	52	46 - 126	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-004 Date Collected: 06.07.13 12.30 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916486 Date Prep: 06.17.13 14.47

Subcontractor: SUB: E871002 Prep seq: 639864

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	ND	0.00500	0.0000970	mg/L	06.17.13 15:02	U	1
Bromobenzene	108-86-1	ND	0.00500	0.000129	mg/L	06.17.13 15:02	U	1
Bromochloromethane	74-97-5	ND	0.00500	0.000159	mg/L	06.17.13 15:02	U	1
Bromodichloromethane	75-27-4	ND	0.00500	0.000139	mg/L	06.17.13 15:02	U	1
Bromoform	75-25-2	ND	0.00500	0.000340	mg/L	06.17.13 15:02	U	1
Methyl bromide	74-83-9	ND	0.00500	0.000291	mg/L	06.17.13 15:02	U	1
n-Butylbenzene	104-51-8	ND	0.00500	0.000190	mg/L	06.17.13 15:02	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	0.000120	mg/L	06.17.13 15:02	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	0.000200	mg/L	06.17.13 15:02	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	0.000140	mg/L	06.17.13 15:02	U	1
Chlorobenzene	108-90-7	ND	0.00500	0.0000915	mg/L	06.17.13 15:02	U	1
Chloroethane	75-00-3	ND	0.0100	0.000206	mg/L	06.17.13 15:02	U	1
Chloroform	67-66-3	ND	0.00500	0.000206	mg/L	06.17.13 15:02	U	1
Methyl Chloride	74-87-3	ND	0.0100	0.000105	mg/L	06.17.13 15:02	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	0.000101	mg/L	06.17.13 15:02	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	0.0000840	mg/L	06.17.13 15:02	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	0.0000779	mg/L	06.17.13 15:02	U	1
Dibromochloromethane	124-48-1	ND	0.00500	0.000139	mg/L	06.17.13 15:02	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	0.00143	mg/L	06.17.13 15:02	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	0.000360	mg/L	06.17.13 15:02	U	1
Methylene bromide	74-95-3	ND	0.00500	0.000156	mg/L	06.17.13 15:02	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	0.000240	mg/L	06.17.13 15:02	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	0.000190	mg/L	06.17.13 15:02	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	0.000122	mg/L	06.17.13 15:02	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	0.000105	mg/L	06.17.13 15:02	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	0.000103	mg/L	06.17.13 15:02	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	0.0000897	mg/L	06.17.13 15:02	U	1
1,1-Dichloroethene	75-35-4	ND	0.00500	0.000111	mg/L	06.17.13 15:02	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	0.000118	mg/L	06.17.13 15:02	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	0.000113	mg/L	06.17.13 15:02	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	0.000123	mg/L	06.17.13 15:02	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	0.000110	mg/L	06.17.13 15:02	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	0.0000878	mg/L	06.17.13 15:02	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	0.000410	mg/L	06.17.13 15:02	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	0.000250	mg/L	06.17.13 15:02	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	0.000300	mg/L	06.17.13 15:02	U	1
Ethylbenzene	100-41-4	ND	0.00500	0.0000800	mg/L	06.17.13 15:02	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	0.000187	mg/L	06.17.13 15:02	U	1
Isopropylbenzene	98-82-8	ND	0.00500	0.0000829	mg/L	06.17.13 15:02	U	1
Methylene Chloride	75-09-2	ND	0.00500	0.000251	mg/L	06.17.13 15:02	U	1
MTBE	1634-04-4	ND	0.00500	0.000430	mg/L	06.17.13 15:02	U	1
Naphthalene	91-20-3	ND	0.0100	0.000142	mg/L	06.17.13 15:02	U	1
n-Propylbenzene	103-65-1	ND	0.00500	0.000180	mg/L	06.17.13 15:02	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-004 Date Collected: 06.07.13 12.30 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916486 Date Prep: 06.17.13 14.47

Subcontractor: SUB: E871002 Prep seq: 639864

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Styrene	100-42-5	ND	0.00500	0.000140	mg/L	06.17.13 15:02	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	0.000280	mg/L	06.17.13 15:02	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	0.000420	mg/L	06.17.13 15:02	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	0.000196	mg/L	06.17.13 15:02	U	1
Toluene	108-88-3	ND	0.00500	0.000164	mg/L	06.17.13 15:02	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	0.0000878	mg/L	06.17.13 15:02	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	0.000146	mg/L	06.17.13 15:02	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	0.000103	mg/L	06.17.13 15:02	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	0.000138	mg/L	06.17.13 15:02	U	1
Trichloroethylene	79-01-6	ND	0.00500	0.000130	mg/L	06.17.13 15:02	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	0.0000984	mg/L	06.17.13 15:02	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	0.000590	mg/L	06.17.13 15:02	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	0.0000470	mg/L	06.17.13 15:02	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	0.0000829	mg/L	06.17.13 15:02	U	1
o-Xylene	95-47-6	ND	0.00500	0.000103	mg/L	06.17.13 15:02	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	0.000470	mg/L	06.17.13 15:02	U	1
Vinyl Chloride	75-01-4	ND	0.00200	0.000102	mg/L	06.17.13 15:02	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	89	75 - 131	%		
1,2-Dichloroethane-D4	80	63 - 144	%		
Toluene-D8	97	80 - 117	%		
4-Bromofluorobenzene	106	74 - 124	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-005 Date Collected: 06.07.13 14.45 Date Received: 06.10.13 12.30

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: AMB % Moist: Tech: AMB

Seq Number: 916426 Date Prep: 06.13.13 18.54

Prep seq: 639816

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**5570**	200	5.60	mg/L	06.13.13 18:54		200
Fluoride	16984-48-8	ND	80.0	7.20	mg/L	06.13.13 18:54	U	200
Nitrate as N	14797-55-8	ND	80.0	0.800	mg/L	06.13.13 18:54	UK	200
Sulfate	14808-79-8	ND	400	9.20	mg/L	06.13.13 18:54	U	200

Analytical Method: Total Phosphorus by EPA 365.1 Prep Method: E365.1_P

Analyst: DEP % Moist: Tech: DEP

Seq Number: 916019 Date Prep: 06.12.13 12.18

Subcontractor: SUB: E871002 Prep seq: 639550

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Total Phosphorus (as P)	7723-14-0	**1.26**	0.0200	0.00618	mg/L	06.12.13 15:17		1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-005 Date Collected: 06.07.13 14.45 Date Received: 06.10.13 12.30

Analytical Method: Metals per ICP by EPA 200.7 Prep Method: E200.7P

Analyst: KUG % Moist: Tech: KUG

Seq Number: 916204 Date Prep: 06.13.13 11.30

Subcontractor: SUB: E871002 Prep seq: 639625

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Aluminum	7429-90-5	**26.9**	0.200	0.0847	mg/L	06.13.13 19:45		1
Barium	7440-39-3	**0.974**	0.0100	0.000483	mg/L	06.13.13 19:45		1
Boron	7440-42-8	**1.03**	0.0500	0.00158	mg/L	06.13.13 19:45		1
Cadmium	7440-43-9	ND	0.0100	0.000408	mg/L	06.13.13 19:45	U	1
Calcium	7440-70-2	**1320**	20.0	2.92	mg/L	06.14.13 17:06		100
Chromium	7440-47-3	**0.0385**	0.0100	0.00355	mg/L	06.13.13 19:45		1
Cobalt	7440-48-4	**0.0240**	0.0100	0.000695	mg/L	06.13.13 19:45		1
Copper	7440-50-8	**0.0433**	0.0200	0.00288	mg/L	06.13.13 19:45		1
Iron	7439-89-6	**24.2**	0.200	0.0188	mg/L	06.13.13 19:45		1
Lead	7439-92-1	**0.0463**	0.0100	0.00921	mg/L	06.13.13 19:45		1
Magnesium	7439-95-4	**357**	0.200	0.00686	mg/L	06.13.13 19:45		1
Manganese	7439-96-5	**1.70**	0.0200	0.00291	mg/L	06.13.13 19:45		1
Molybdenum	7439-98-7	**0.0118**	0.0100	0.000810	mg/L	06.13.13 19:45		1
Nickel	7440-02-0	**0.0744**	0.0100	0.0000890	mg/L	06.13.13 19:45		1
Potassium	7440-09-7	**32.1**	0.500	0.0561	mg/L	06.13.13 19:45		1
Selenium	7782-49-2	ND	0.0300	0.00540	mg/L	06.13.13 19:45	U	1
Silver	7440-22-4	ND	0.0200	0.00193	mg/L	06.13.13 19:45	U	1
Sodium	7440-23-5	**2200**	50.0	5.41	mg/L	06.14.13 17:06		100
Zinc	7440-66-6	**0.191**	0.0300	0.00151	mg/L	06.13.13 19:45		1

Analytical Method: Metals by EPA 200.8 Prep Method: E200.8P

Analyst: MKO % Moist: Tech: MKO

Seq Number: 916378 Date Prep: 06.14.13 09.30

Subcontractor: SUB: E871002 Prep seq: 639683

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	**0.0141**	0.00400	0.000589	mg/L	06.15.13 04:20		1

Analytical Method: Alkalinity by SM2320B Prep Method:

Analyst: ALA % Moist: Tech: ALA

Seq Number: 916182 Date Prep:

Subcontractor: SUB: E871002 Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	**159**	4.00	0.954	mg/L	06.13.13 05:04		1
Alkalinity, Carbonate (as CaCO3)	ALKCARB	ND	4.00	0.954	mg/L	06.13.13 05:04	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id:	**MW-6**	Matrix:	Water	Sample Depth:	
Lab Sample Id:	464818-005	Date Collected:	06.07.13 14.45	Date Received:	06.10.13 12.30
Analytical Method:	Mercury, Total by EPA 245.1			Prep Method:	E245.1P
Analyst:	RKO	% Moist:		Tech:	RKO
Seq Number:	916047	Date Prep:	06.12.13 10.00		
Subcontractor:	SUB: E871002	Prep seq:	639539		

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	ND	0.000200	0.0000291	mg/L	06.12.13 15:33	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-005 Date Collected: 06.07.13 14.45 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.51

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Acenaphthene	83-32-9	ND	0.00532	0.000391	mg/L	06.14.13 18:18	U	1
Acenaphthylene	208-96-8	ND	0.00532	0.000364	mg/L	06.14.13 18:18	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	ND	0.0106	0.00106	mg/L	06.14.13 18:18	U	1
Anthracene	120-12-7	ND	0.00532	0.000174	mg/L	06.14.13 18:18	U	1
Benzo(a)anthracene	56-55-3	ND	0.00532	0.000264	mg/L	06.14.13 18:18	U	1
Benzo(a)pyrene	50-32-8	ND	0.00532	0.000213	mg/L	06.14.13 18:18	U	1
Benzo(b)fluoranthene	205-99-2	ND	0.00532	0.000401	mg/L	06.14.13 18:18	U	1
Benzo(k)fluoranthene	207-08-9	ND	0.00532	0.000547	mg/L	06.14.13 18:18	U	1
Benzo(g,h,i)perylene	191-24-2	ND	0.00532	0.000306	mg/L	06.14.13 18:18	U	1
Benzoic Acid	65-85-0	ND	0.0319	0.00102	mg/L	06.14.13 18:18	U	1
Benzyl Butyl Phthalate	85-68-7	ND	0.00532	0.000296	mg/L	06.14.13 18:18	U	1
bis(2-chloroethoxy) methane	111-91-1	ND	0.00532	0.000468	mg/L	06.14.13 18:18	U	1
bis(2-chloroethyl) ether	111-44-4	ND	0.00532	0.000482	mg/L	06.14.13 18:18	U	1
bis(2-chloroisopropyl) ether	39638-32-9	ND	0.00532	0.000496	mg/L	06.14.13 18:18	U	1
bis(2-ethylhexyl) phthalate	117-81-7	ND	0.00532	0.000333	mg/L	06.14.13 18:18	U	1
4-Bromophenyl-phenylether	101-55-3	ND	0.00532	0.000318	mg/L	06.14.13 18:18	U	1
4-chloro-3-methylphenol	59-50-7	ND	0.00532	0.000455	mg/L	06.14.13 18:18	U	1
4-Chloroaniline	106-47-8	ND	0.0106	0.00181	mg/L	06.14.13 18:18	U	1
2-Chloronaphthalene	91-58-7	ND	0.00532	0.000341	mg/L	06.14.13 18:18	U	1
2-Chlorophenol	95-57-8	ND	0.00532	0.000435	mg/L	06.14.13 18:18	U	1
4-Chlorophenyl Phenyl Ether	7005-72-3	ND	0.00532	0.000378	mg/L	06.14.13 18:18	U	1
Chrysene	218-01-9	ND	0.00532	0.000246	mg/L	06.14.13 18:18	U	1
Dibenz(a,h)Anthracene	53-70-3	ND	0.00532	0.000211	mg/L	06.14.13 18:18	U	1
Dibenzofuran	132-64-9	ND	0.00532	0.000367	mg/L	06.14.13 18:18	U	1
di-n-Butyl Phthalate	84-74-2	ND	0.00532	0.000294	mg/L	06.14.13 18:18	UL	1
1,2-Dichlorobenzene	95-50-1	ND	0.00532	0.000439	mg/L	06.14.13 18:18	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00532	0.000524	mg/L	06.14.13 18:18	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00532	0.000687	mg/L	06.14.13 18:18	U	1
3,3-Dichlorobenzidine	91-94-1	ND	0.0106	0.00147	mg/L	06.14.13 18:18	U	1
2,4-Dichlorophenol	120-83-2	ND	0.00532	0.000280	mg/L	06.14.13 18:18	U	1
Diethyl Phthalate	84-66-2	ND	0.00532	0.000338	mg/L	06.14.13 18:18	U	1
Dimethyl Phthalate	131-11-3	ND	0.00532	0.000320	mg/L	06.14.13 18:18	U	1
2,4-Dimethylphenol	105-67-9	ND	0.00532	0.00105	mg/L	06.14.13 18:18	U	1
4,6-dinitro-2-methyl phenol	534-52-1	ND	0.0106	0.000571	mg/L	06.14.13 18:18	U	1
2,4-Dinitrophenol	51-28-5	ND	0.0106	0.00120	mg/L	06.14.13 18:18	U	1
2,4-Dinitrotoluene	121-14-2	ND	0.00532	0.000349	mg/L	06.14.13 18:18	U	1
2,6-Dinitrotoluene	606-20-2	ND	0.00532	0.000366	mg/L	06.14.13 18:18	U	1
di-n-Octyl Phthalate	117-84-0	ND	0.00532	0.000388	mg/L	06.14.13 18:18	U	1
Fluoranthene	206-44-0	ND	0.00532	0.000269	mg/L	06.14.13 18:18	U	1
Fluorene	86-73-7	ND	0.00532	0.000328	mg/L	06.14.13 18:18	U	1
Hexachlorobenzene	118-74-1	ND	0.00532	0.000260	mg/L	06.14.13 18:18	U	1
Hexachlorobutadiene	87-68-3	ND	0.00532	0.000470	mg/L	06.14.13 18:18	U	1
Hexachlorocyclopentadiene	77-47-4	ND	0.00532	0.000373	mg/L	06.14.13 18:18	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-005 Date Collected: 06.07.13 14.45 Date Received: 06.10.13 12.30

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.51

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Hexachloroethane	67-72-1	ND	0.00532	0.000572	mg/L	06.14.13 18:18	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	ND	0.00532	0.000359	mg/L	06.14.13 18:18	U	1
Isophorone	78-59-1	ND	0.00532	0.000429	mg/L	06.14.13 18:18	U	1
2-Methylnaphthalene	91-57-6	ND	0.00532	0.000526	mg/L	06.14.13 18:18	U	1
2-methylphenol	95-48-7	ND	0.00532	0.000767	mg/L	06.14.13 18:18	U	1
3&4-Methylphenol	15831-10-4	ND	0.00532	0.00103	mg/L	06.14.13 18:18	U	1
Naphthalene	91-20-3	ND	0.00532	0.000337	mg/L	06.14.13 18:18	U	1
2-Nitroaniline	88-74-4	ND	0.0106	0.000470	mg/L	06.14.13 18:18	U	1
3-Nitroaniline	99-09-2	ND	0.0106	0.000407	mg/L	06.14.13 18:18	U	1
4-Nitroaniline	100-01-6	ND	0.0106	0.000303	mg/L	06.14.13 18:18	U	1
Nitrobenzene	98-95-3	ND	0.00532	0.000556	mg/L	06.14.13 18:18	U	1
2-Nitrophenol	88-75-5	ND	0.00532	0.000518	mg/L	06.14.13 18:18	U	1
4-Nitrophenol	100-02-7	ND	0.0106	0.000372	mg/L	06.14.13 18:18	U	1
N-Nitrosodi-n-Propylamine	621-64-7	ND	0.00532	0.000106	mg/L	06.14.13 18:18	U	1
N-Nitrosodiphenylamine	86-30-6	ND	0.00532	0.000488	mg/L	06.14.13 18:18	U	1
Pentachlorophenol	87-86-5	ND	0.0106	0.000594	mg/L	06.14.13 18:18	U	1
Phenanthrene	85-01-8	ND	0.00532	0.000295	mg/L	06.14.13 18:18	U	1
Phenol	108-95-2	ND	0.0106	0.000519	mg/L	06.14.13 18:18	U	1
Pyrene	129-00-0	ND	0.00532	0.000299	mg/L	06.14.13 18:18	U	1
Pyridine	110-86-1	ND	0.0106	0.00165	mg/L	06.14.13 18:18	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00532	0.000403	mg/L	06.14.13 18:18	U	1
2,4,5-Trichlorophenol	95-95-4	ND	0.00532	0.000582	mg/L	06.14.13 18:18	U	1
2,4,6-Trichlorophenol	88-06-2	ND	0.00532	0.000404	mg/L	06.14.13 18:18	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorophenol	33	30 - 100	%		
Phenol-d6	20	15 - 94	%		
Nitrobenzene-d5	47	46 - 111	%		
2-Fluorobiphenyl	45	44 - 117	%		
2,4,6-Tribromophenol	52	48 - 117	%		
Terphenyl-D14	48	46 - 126	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

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

Lab Sample Id: 464818-005 Date Collected: 06.07.13 14.45 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916486 Date Prep: 06.17.13 14.48

Subcontractor: SUB: E871002 Prep seq: 639864

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	ND	0.00500	0.0000970	mg/L	06.17.13 15:26	U	1
Bromobenzene	108-86-1	ND	0.00500	0.000129	mg/L	06.17.13 15:26	U	1
Bromochloromethane	74-97-5	ND	0.00500	0.000159	mg/L	06.17.13 15:26	U	1
Bromodichloromethane	75-27-4	ND	0.00500	0.000139	mg/L	06.17.13 15:26	U	1
Bromoform	75-25-2	ND	0.00500	0.000340	mg/L	06.17.13 15:26	U	1
Methyl bromide	74-83-9	ND	0.00500	0.000291	mg/L	06.17.13 15:26	U	1
n-Butylbenzene	104-51-8	ND	0.00500	0.000190	mg/L	06.17.13 15:26	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	0.000120	mg/L	06.17.13 15:26	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	0.000200	mg/L	06.17.13 15:26	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	0.000140	mg/L	06.17.13 15:26	U	1
Chlorobenzene	108-90-7	ND	0.00500	0.0000915	mg/L	06.17.13 15:26	U	1
Chloroethane	75-00-3	ND	0.0100	0.000206	mg/L	06.17.13 15:26	U	1
Chloroform	67-66-3	ND	0.00500	0.000206	mg/L	06.17.13 15:26	U	1
Methyl Chloride	74-87-3	ND	0.0100	0.000105	mg/L	06.17.13 15:26	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	0.000101	mg/L	06.17.13 15:26	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	0.0000840	mg/L	06.17.13 15:26	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	0.0000779	mg/L	06.17.13 15:26	U	1
Dibromochloromethane	124-48-1	ND	0.00500	0.000139	mg/L	06.17.13 15:26	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	0.00143	mg/L	06.17.13 15:26	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	0.000360	mg/L	06.17.13 15:26	U	1
Methylene bromide	74-95-3	ND	0.00500	0.000156	mg/L	06.17.13 15:26	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	0.000240	mg/L	06.17.13 15:26	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	0.000190	mg/L	06.17.13 15:26	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	0.000122	mg/L	06.17.13 15:26	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	0.000105	mg/L	06.17.13 15:26	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	0.000103	mg/L	06.17.13 15:26	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	0.0000897	mg/L	06.17.13 15:26	U	1
1,1-Dichloroethene	75-35-4	ND	0.00500	0.000111	mg/L	06.17.13 15:26	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	0.000118	mg/L	06.17.13 15:26	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	0.000113	mg/L	06.17.13 15:26	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	0.000123	mg/L	06.17.13 15:26	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	0.000110	mg/L	06.17.13 15:26	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	0.0000878	mg/L	06.17.13 15:26	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	0.000410	mg/L	06.17.13 15:26	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	0.000250	mg/L	06.17.13 15:26	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	0.000300	mg/L	06.17.13 15:26	U	1
Ethylbenzene	100-41-4	ND	0.00500	0.0000800	mg/L	06.17.13 15:26	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	0.000187	mg/L	06.17.13 15:26	U	1
Isopropylbenzene	98-82-8	ND	0.00500	0.0000829	mg/L	06.17.13 15:26	U	1
Methylene Chloride	75-09-2	ND	0.00500	0.000251	mg/L	06.17.13 15:26	U	1
MTBE	1634-04-4	ND	0.00500	0.000430	mg/L	06.17.13 15:26	U	1
Naphthalene	91-20-3	ND	0.0100	0.000142	mg/L	06.17.13 15:26	U	1
n-Propylbenzene	103-65-1	ND	0.00500	0.000180	mg/L	06.17.13 15:26	U	1

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

Lab Sample Id: 464818-005 Date Collected: 06.07.13 14.45 Date Received: 06.10.13 12.30

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916486 Date Prep: 06.17.13 14.48

Subcontractor: SUB: E871002 Prep seq: 639864

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Styrene	100-42-5	ND	0.00500	0.000140	mg/L	06.17.13 15:26	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	0.000280	mg/L	06.17.13 15:26	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	0.000420	mg/L	06.17.13 15:26	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	0.000196	mg/L	06.17.13 15:26	U	1
Toluene	108-88-3	ND	0.00500	0.000164	mg/L	06.17.13 15:26	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	0.0000878	mg/L	06.17.13 15:26	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	0.000146	mg/L	06.17.13 15:26	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	0.000103	mg/L	06.17.13 15:26	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	0.000138	mg/L	06.17.13 15:26	U	1
Trichloroethylene	79-01-6	ND	0.00500	0.000130	mg/L	06.17.13 15:26	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	0.0000984	mg/L	06.17.13 15:26	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	0.000590	mg/L	06.17.13 15:26	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	0.0000470	mg/L	06.17.13 15:26	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	0.0000829	mg/L	06.17.13 15:26	U	1
o-Xylene	95-47-6	ND	0.00500	0.000103	mg/L	06.17.13 15:26	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	0.000470	mg/L	06.17.13 15:26	U	1
Vinyl Chloride	75-01-4	ND	0.00200	0.000102	mg/L	06.17.13 15:26	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	97	75 - 131	%		
1,2-Dichloroethane-D4	89	63 - 144	%		
Toluene-D8	101	80 - 117	%		
4-Bromofluorobenzene	106	74 - 124	%		

Sample Id: **639539-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639539-1-BLK Date Collected: Date Received:

Analytical Method: Mercury, Total by EPA 245.1 Prep Method: E245.1P

Analyst: RKO % Moist: Tech: RKO

Seq Number: 916047 Date Prep: 06.12.13 10.00

Subcontractor: SUB: E871002 Prep seq: 639539

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	ND	0.000200	0.0000291	mg/L	06.12.13 14:17	U	1

Sample Id: **639550-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639550-1-BLK Date Collected: Date Received:

Analytical Method: Total Phosphorus by EPA 365.1 Prep Method: E365.1_P

Analyst: DEP % Moist: Tech: DEP

Seq Number: 916019 Date Prep: 06.12.13 12.18

Subcontractor: SUB: E871002 Prep seq: 639550

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Total Phosphorus (as P)	7723-14-0	ND	0.0200	0.00618	mg/L	06.12.13 14:38	U	1

Sample Id: **639625-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639625-1-BLK Date Collected: Date Received:

Analytical Method: Metals per ICP by EPA 200.7 Prep Method: E200.7P

Analyst: KUG % Moist: Tech: KUG

Seq Number: 916204 Date Prep: 06.13.13 11.30

Subcontractor: SUB: E871002 Prep seq: 639625

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Aluminum	7429-90-5	ND	0.200	0.0847	mg/L	06.13.13 17:16	U	1
Barium	7440-39-3	ND	0.0100	0.000483	mg/L	06.13.13 17:16	U	1
Boron	7440-42-8	ND	0.0500	0.00158	mg/L	06.13.13 17:16	U	1
Cadmium	7440-43-9	ND	0.0100	0.000408	mg/L	06.13.13 17:16	U	1
Calcium	7440-70-2	ND	0.200	0.0292	mg/L	06.13.13 17:16	U	1
Chromium	7440-47-3	ND	0.0100	0.00355	mg/L	06.13.13 17:16	U	1
Cobalt	7440-48-4	ND	0.0100	0.000695	mg/L	06.13.13 17:16	U	1
Copper	7440-50-8	ND	0.0200	0.00288	mg/L	06.13.13 17:16	U	1
Iron	7439-89-6	ND	0.200	0.0188	mg/L	06.13.13 17:16	U	1
Lead	7439-92-1	ND	0.0100	0.00921	mg/L	06.13.13 17:16	U	1
Magnesium	7439-95-4	ND	0.200	0.00686	mg/L	06.13.13 17:16	U	1
Manganese	7439-96-5	ND	0.0200	0.00291	mg/L	06.13.13 17:16	U	1
Molybdenum	7439-98-7	ND	0.0100	0.000810	mg/L	06.13.13 17:16	U	1
Nickel	7440-02-0	ND	0.0100	0.0000890	mg/L	06.13.13 17:16	U	1
Potassium	7440-09-7	ND	0.500	0.0561	mg/L	06.13.13 17:16	U	1
Selenium	7782-49-2	ND	0.0300	0.00540	mg/L	06.13.13 17:16	U	1
Silver	7440-22-4	ND	0.0200	0.00193	mg/L	06.13.13 17:16	U	1
Sodium	7440-23-5	ND	0.500	0.0541	mg/L	06.13.13 17:16	U	1
Zinc	7440-66-6	ND	0.0300	0.00151	mg/L	06.13.13 17:16	U	1

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14" Vac to Jal legacy

Sample Id: **639644-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639644-1-BLK Date Collected: Date Received:

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.30

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Acenaphthene	83-32-9	ND	0.00500	0.000368	mg/L	06.14.13 14:54	U	1
Acenaphthylene	208-96-8	ND	0.00500	0.000342	mg/L	06.14.13 14:54	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	ND	0.0100	0.00100	mg/L	06.14.13 14:54	U	1
Anthracene	120-12-7	ND	0.00500	0.000164	mg/L	06.14.13 14:54	U	1
Benzo(a)anthracene	56-55-3	ND	0.00500	0.000248	mg/L	06.14.13 14:54	U	1
Benzo(a)pyrene	50-32-8	ND	0.00500	0.000200	mg/L	06.14.13 14:54	U	1
Benzo(b)fluoranthene	205-99-2	ND	0.00500	0.000377	mg/L	06.14.13 14:54	U	1
Benzo(k)fluoranthene	207-08-9	ND	0.00500	0.000514	mg/L	06.14.13 14:54	U	1
Benzo(g,h,i)perylene	191-24-2	ND	0.00500	0.000288	mg/L	06.14.13 14:54	U	1
Benzoic Acid	65-85-0	ND	0.0300	0.000957	mg/L	06.14.13 14:54	U	1
Benzyl Butyl Phthalate	85-68-7	ND	0.00500	0.000278	mg/L	06.14.13 14:54	U	1
bis(2-chloroethoxy) methane	111-91-1	ND	0.00500	0.000440	mg/L	06.14.13 14:54	U	1
bis(2-chloroethyl) ether	111-44-4	ND	0.00500	0.000453	mg/L	06.14.13 14:54	U	1
bis(2-chloroisopropyl) ether	39638-32-9	ND	0.00500	0.000466	mg/L	06.14.13 14:54	U	1
bis(2-ethylhexyl) phthalate	117-81-7	ND	0.00500	0.000313	mg/L	06.14.13 14:54	U	1
4-Bromophenyl-phenylether	101-55-3	ND	0.00500	0.000299	mg/L	06.14.13 14:54	U	1
4-chloro-3-methylphenol	59-50-7	ND	0.00500	0.000428	mg/L	06.14.13 14:54	U	1
4-Chloroaniline	106-47-8	ND	0.0100	0.00171	mg/L	06.14.13 14:54	U	1
2-Chloronaphthalene	91-58-7	ND	0.00500	0.000321	mg/L	06.14.13 14:54	U	1
2-Chlorophenol	95-57-8	ND	0.00500	0.000409	mg/L	06.14.13 14:54	U	1
4-Chlorophenyl Phenyl Ether	7005-72-3	ND	0.00500	0.000355	mg/L	06.14.13 14:54	U	1
Chrysene	218-01-9	ND	0.00500	0.000231	mg/L	06.14.13 14:54	U	1
Dibenz(a,h)Anthracene	53-70-3	ND	0.00500	0.000198	mg/L	06.14.13 14:54	U	1
Dibenzofuran	132-64-9	ND	0.00500	0.000345	mg/L	06.14.13 14:54	U	1
di-n-Butyl Phthalate	84-74-2	ND	0.00500	0.000276	mg/L	06.14.13 14:54	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	0.000413	mg/L	06.14.13 14:54	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	0.000493	mg/L	06.14.13 14:54	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	0.000646	mg/L	06.14.13 14:54	U	1
3,3-Dichlorobenzidine	91-94-1	ND	0.0100	0.00138	mg/L	06.14.13 14:54	U	1
2,4-Dichlorophenol	120-83-2	ND	0.00500	0.000263	mg/L	06.14.13 14:54	U	1
Diethyl Phthalate	84-66-2	ND	0.00500	0.000318	mg/L	06.14.13 14:54	U	1
Dimethyl Phthalate	131-11-3	ND	0.00500	0.000301	mg/L	06.14.13 14:54	U	1
2,4-Dimethylphenol	105-67-9	ND	0.00500	0.000985	mg/L	06.14.13 14:54	U	1
4,6-dinitro-2-methyl phenol	534-52-1	ND	0.0100	0.000537	mg/L	06.14.13 14:54	U	1
2,4-Dinitrophenol	51-28-5	ND	0.0100	0.00112	mg/L	06.14.13 14:54	U	1
2,4-Dinitrotoluene	121-14-2	ND	0.00250	0.000328	mg/L	06.14.13 14:54	U	1
2,6-Dinitrotoluene	606-20-2	ND	0.00500	0.000344	mg/L	06.14.13 14:54	U	1
di-n-Octyl Phthalate	117-84-0	ND	0.00500	0.000365	mg/L	06.14.13 14:54	U	1
Fluoranthene	206-44-0	ND	0.00500	0.000253	mg/L	06.14.13 14:54	U	1
Fluorene	86-73-7	ND	0.00500	0.000308	mg/L	06.14.13 14:54	U	1
Hexachlorobenzene	118-74-1	ND	0.00250	0.000244	mg/L	06.14.13 14:54	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	0.000442	mg/L	06.14.13 14:54	U	1
Hexachlorocyclopentadiene	77-47-4	ND	0.00500	0.000351	mg/L	06.14.13 14:54	U	1

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14" Vac to Jal legacy

Sample Id: **639644-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639644-1-BLK Date Collected: Date Received:

Analytical Method: SVOAs by EPA 8270C Prep Method: 3510C

Analyst: CYE % Moist: Tech: CYE

Seq Number: 916264 Date Prep: 06.14.13 08.30

Subcontractor: SUB: E871002 Prep seq: 639644

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Hexachloroethane	67-72-1	ND	0.00500	0.000538	mg/L	06.14.13 14:54	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	ND	0.00500	0.000337	mg/L	06.14.13 14:54	U	1
Isophorone	78-59-1	ND	0.00500	0.000403	mg/L	06.14.13 14:54	U	1
2-Methylnaphthalene	91-57-6	ND	0.00500	0.000494	mg/L	06.14.13 14:54	U	1
2-methylphenol	95-48-7	ND	0.00500	0.000721	mg/L	06.14.13 14:54	U	1
3&4-Methylphenol	15831-10-4	ND	0.00500	0.000972	mg/L	06.14.13 14:54	U	1
Naphthalene	91-20-3	ND	0.00500	0.000317	mg/L	06.14.13 14:54	U	1
2-Nitroaniline	88-74-4	ND	0.0100	0.000442	mg/L	06.14.13 14:54	U	1
3-Nitroaniline	99-09-2	ND	0.0100	0.000383	mg/L	06.14.13 14:54	U	1
4-Nitroaniline	100-01-6	ND	0.0100	0.000285	mg/L	06.14.13 14:54	U	1
Nitrobenzene	98-95-3	ND	0.00500	0.000523	mg/L	06.14.13 14:54	U	1
2-Nitrophenol	88-75-5	ND	0.00500	0.000487	mg/L	06.14.13 14:54	U	1
4-Nitrophenol	100-02-7	ND	0.0100	0.000350	mg/L	06.14.13 14:54	U	1
N-Nitrosodi-n-Propylamine	621-64-7	ND	0.00500	0.000100	mg/L	06.14.13 14:54	U	1
N-Nitrosodiphenylamine	86-30-6	ND	0.00500	0.000459	mg/L	06.14.13 14:54	U	1
Pentachlorophenol	87-86-5	ND	0.0100	0.000558	mg/L	06.14.13 14:54	U	1
Phenanthrene	85-01-8	ND	0.00500	0.000277	mg/L	06.14.13 14:54	U	1
Phenol	108-95-2	ND	0.0100	0.000488	mg/L	06.14.13 14:54	U	1
Pyrene	129-00-0	ND	0.00500	0.000281	mg/L	06.14.13 14:54	U	1
Pyridine	110-86-1	ND	0.0100	0.00155	mg/L	06.14.13 14:54	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	0.000379	mg/L	06.14.13 14:54	U	1
2,4,5-Trichlorophenol	95-95-4	ND	0.00500	0.000547	mg/L	06.14.13 14:54	U	1
2,4,6-Trichlorophenol	88-06-2	ND	0.00500	0.000380	mg/L	06.14.13 14:54	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorophenol	45	30 - 100	%		
Phenol-d6	31	15 - 94	%		
Nitrobenzene-d5	57	46 - 111	%		
2-Fluorobiphenyl	56	44 - 117	%		
2,4,6-Tribromophenol	58	48 - 117	%		
Terphenyl-D14	56	46 - 126	%		

Sample Id: **639683-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639683-1-BLK Date Collected: Date Received:

Analytical Method: Metals by EPA 200.8 Prep Method: E200.8P

Analyst: MKO % Moist: Tech: MKO

Seq Number: 916378 Date Prep: 06.14.13 09.30

Subcontractor: SUB: E871002 Prep seq: 639683

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	ND	0.00400	0.000589	mg/L	06.15.13 01:07	U	1

Sample Id: **639816-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639816-1-BLK Date Collected: Date Received:

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: AMB % Moist: Tech: AMB

Seq Number: 916426 Date Prep: 06.13.13 11.18

Prep seq: 639816

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	ND	1.00	0.0280	mg/L	06.13.13 16:01	U	1
Fluoride	16984-48-8	ND	0.400	0.0360	mg/L	06.13.13 16:01	U	1
Nitrate as N	14797-55-8	ND	0.400	0.00400	mg/L	06.13.13 16:01	U	1
Sulfate	14808-79-8	ND	2.00	0.0460	mg/L	06.13.13 16:01	U	1

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14" Vac to Jal legacy

Sample Id: **639857-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639857-1-BLK Date Collected: Date Received:

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: MCH % Moist: Tech: MCH

Seq Number: 916471 Date Prep: 06.15.13 15.52

Subcontractor: SUB: E871002 Prep seq: 639857

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	ND	0.00500	0.0000970	mg/L	06.15.13 18:14	U	1
Bromobenzene	108-86-1	ND	0.00500	0.000129	mg/L	06.15.13 18:14	U	1
Bromochloromethane	74-97-5	ND	0.00500	0.000159	mg/L	06.15.13 18:14	U	1
Bromodichloromethane	75-27-4	ND	0.00500	0.000139	mg/L	06.15.13 18:14	U	1
Bromoform	75-25-2	ND	0.00500	0.000340	mg/L	06.15.13 18:14	U	1
Methyl bromide	74-83-9	ND	0.00500	0.000291	mg/L	06.15.13 18:14	U	1
n-Butylbenzene	104-51-8	ND	0.00500	0.000190	mg/L	06.15.13 18:14	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	0.000120	mg/L	06.15.13 18:14	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	0.000200	mg/L	06.15.13 18:14	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	0.000140	mg/L	06.15.13 18:14	U	1
Chlorobenzene	108-90-7	ND	0.00500	0.0000915	mg/L	06.15.13 18:14	U	1
Chloroethane	75-00-3	ND	0.0100	0.000206	mg/L	06.15.13 18:14	U	1
Chloroform	67-66-3	ND	0.00500	0.000206	mg/L	06.15.13 18:14	U	1
Methyl Chloride	74-87-3	ND	0.0100	0.000105	mg/L	06.15.13 18:14	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	0.000101	mg/L	06.15.13 18:14	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	0.0000840	mg/L	06.15.13 18:14	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	0.0000779	mg/L	06.15.13 18:14	U	1
Dibromochloromethane	124-48-1	ND	0.00500	0.000139	mg/L	06.15.13 18:14	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	0.00143	mg/L	06.15.13 18:14	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	0.000360	mg/L	06.15.13 18:14	U	1
Methylene bromide	74-95-3	ND	0.00500	0.000156	mg/L	06.15.13 18:14	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	0.000240	mg/L	06.15.13 18:14	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	0.000190	mg/L	06.15.13 18:14	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	0.000122	mg/L	06.15.13 18:14	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	0.000105	mg/L	06.15.13 18:14	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	0.000103	mg/L	06.15.13 18:14	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	0.0000897	mg/L	06.15.13 18:14	U	1
1,1-Dichloroethene	75-35-4	ND	0.00500	0.000111	mg/L	06.15.13 18:14	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	0.000118	mg/L	06.15.13 18:14	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	0.000113	mg/L	06.15.13 18:14	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	0.000123	mg/L	06.15.13 18:14	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	0.000110	mg/L	06.15.13 18:14	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	0.0000878	mg/L	06.15.13 18:14	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	0.000410	mg/L	06.15.13 18:14	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	0.000250	mg/L	06.15.13 18:14	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	0.000300	mg/L	06.15.13 18:14	U	1
Ethylbenzene	100-41-4	ND	0.00500	0.0000800	mg/L	06.15.13 18:14	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	0.000187	mg/L	06.15.13 18:14	U	1
Isopropylbenzene	98-82-8	ND	0.00500	0.0000829	mg/L	06.15.13 18:14	U	1
Methylene Chloride	75-09-2	ND	0.00500	0.000251	mg/L	06.15.13 18:14	U	1
MTBE	1634-04-4	ND	0.00500	0.000430	mg/L	06.15.13 18:14	U	1
Naphthalene	91-20-3	ND	0.0100	0.000142	mg/L	06.15.13 18:14	U	1
n-Propylbenzene	103-65-1	ND	0.00500	0.000180	mg/L	06.15.13 18:14	U	1

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **639857-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639857-1-BLK Date Collected: Date Received:

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: MCH % Moist: Tech: MCH

Seq Number: 916471 Date Prep: 06.15.13 15.52

Subcontractor: SUB: E871002 Prep seq: 639857

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Styrene	100-42-5	ND	0.00500	0.000140	mg/L	06.15.13 18:14	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	0.000280	mg/L	06.15.13 18:14	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	0.000420	mg/L	06.15.13 18:14	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	0.000196	mg/L	06.15.13 18:14	U	1
Toluene	108-88-3	ND	0.00500	0.000164	mg/L	06.15.13 18:14	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	0.0000878	mg/L	06.15.13 18:14	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	0.000146	mg/L	06.15.13 18:14	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	0.000103	mg/L	06.15.13 18:14	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	0.000138	mg/L	06.15.13 18:14	U	1
Trichloroethylene	79-01-6	ND	0.00500	0.000130	mg/L	06.15.13 18:14	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	0.0000984	mg/L	06.15.13 18:14	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	0.000590	mg/L	06.15.13 18:14	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	0.0000470	mg/L	06.15.13 18:14	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	0.0000829	mg/L	06.15.13 18:14	U	1
o-Xylene	95-47-6	ND	0.00500	0.000103	mg/L	06.15.13 18:14	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	0.000470	mg/L	06.15.13 18:14	U	1
Vinyl Chloride	75-01-4	ND	0.00200	0.000102	mg/L	06.15.13 18:14	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	101	75 - 131	%		
1,2-Dichloroethane-D4	100	63 - 144	%		
Toluene-D8	102	80 - 117	%		
4-Bromofluorobenzene	108	74 - 124	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **639864-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639864-1-BLK Date Collected: Date Received:

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916486 Date Prep: 06.17.13 13.25

Subcontractor: SUB: E871002 Prep seq: 639864

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	ND	0.00500	0.0000970	mg/L	06.17.13 14:27	U	1
Bromobenzene	108-86-1	ND	0.00500	0.000129	mg/L	06.17.13 14:27	U	1
Bromochloromethane	74-97-5	ND	0.00500	0.000159	mg/L	06.17.13 14:27	U	1
Bromodichloromethane	75-27-4	ND	0.00500	0.000139	mg/L	06.17.13 14:27	U	1
Bromoform	75-25-2	ND	0.00500	0.000340	mg/L	06.17.13 14:27	U	1
Methyl bromide	74-83-9	ND	0.00500	0.000291	mg/L	06.17.13 14:27	U	1
n-Butylbenzene	104-51-8	ND	0.00500	0.000190	mg/L	06.17.13 14:27	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	0.000120	mg/L	06.17.13 14:27	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	0.000200	mg/L	06.17.13 14:27	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	0.000140	mg/L	06.17.13 14:27	U	1
Chlorobenzene	108-90-7	ND	0.00500	0.0000915	mg/L	06.17.13 14:27	U	1
Chloroethane	75-00-3	ND	0.0100	0.000206	mg/L	06.17.13 14:27	U	1
Chloroform	67-66-3	ND	0.00500	0.000206	mg/L	06.17.13 14:27	U	1
Methyl Chloride	74-87-3	ND	0.0100	0.000105	mg/L	06.17.13 14:27	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	0.000101	mg/L	06.17.13 14:27	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	0.0000840	mg/L	06.17.13 14:27	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	0.0000779	mg/L	06.17.13 14:27	U	1
Dibromochloromethane	124-48-1	ND	0.00500	0.000139	mg/L	06.17.13 14:27	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	0.00143	mg/L	06.17.13 14:27	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	0.000360	mg/L	06.17.13 14:27	U	1
Methylene bromide	74-95-3	ND	0.00500	0.000156	mg/L	06.17.13 14:27	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	0.000240	mg/L	06.17.13 14:27	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	0.000190	mg/L	06.17.13 14:27	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	0.000122	mg/L	06.17.13 14:27	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	0.000105	mg/L	06.17.13 14:27	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	0.000103	mg/L	06.17.13 14:27	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	0.0000897	mg/L	06.17.13 14:27	U	1
1,1-Dichloroethene	75-35-4	ND	0.00500	0.000111	mg/L	06.17.13 14:27	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	0.000118	mg/L	06.17.13 14:27	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	0.000113	mg/L	06.17.13 14:27	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	0.000123	mg/L	06.17.13 14:27	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	0.000110	mg/L	06.17.13 14:27	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	0.0000878	mg/L	06.17.13 14:27	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	0.000410	mg/L	06.17.13 14:27	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	0.000250	mg/L	06.17.13 14:27	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	0.000300	mg/L	06.17.13 14:27	U	1
Ethylbenzene	100-41-4	ND	0.00500	0.0000800	mg/L	06.17.13 14:27	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	0.000187	mg/L	06.17.13 14:27	U	1
Isopropylbenzene	98-82-8	ND	0.00500	0.0000829	mg/L	06.17.13 14:27	U	1
Methylene Chloride	75-09-2	ND	0.00500	0.000251	mg/L	06.17.13 14:27	U	1
MTBE	1634-04-4	ND	0.00500	0.000430	mg/L	06.17.13 14:27	U	1
Naphthalene	91-20-3	ND	0.0100	0.000142	mg/L	06.17.13 14:27	U	1
n-Propylbenzene	103-65-1	ND	0.00500	0.000180	mg/L	06.17.13 14:27	U	1

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PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **639864-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639864-1-BLK Date Collected: Date Received:

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916486 Date Prep: 06.17.13 13.25

Subcontractor: SUB: E871002 Prep seq: 639864

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Styrene	100-42-5	ND	0.00500	0.000140	mg/L	06.17.13 14:27	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	0.000280	mg/L	06.17.13 14:27	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	0.000420	mg/L	06.17.13 14:27	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	0.000196	mg/L	06.17.13 14:27	U	1
Toluene	108-88-3	ND	0.00500	0.000164	mg/L	06.17.13 14:27	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	0.0000878	mg/L	06.17.13 14:27	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	0.000146	mg/L	06.17.13 14:27	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	0.000103	mg/L	06.17.13 14:27	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	0.000138	mg/L	06.17.13 14:27	U	1
Trichloroethylene	79-01-6	ND	0.00500	0.000130	mg/L	06.17.13 14:27	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	0.0000984	mg/L	06.17.13 14:27	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	0.000590	mg/L	06.17.13 14:27	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	0.0000470	mg/L	06.17.13 14:27	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	0.0000829	mg/L	06.17.13 14:27	U	1
o-Xylene	95-47-6	ND	0.00500	0.000103	mg/L	06.17.13 14:27	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	0.000470	mg/L	06.17.13 14:27	U	1
Vinyl Chloride	75-01-4	ND	0.00200	0.000102	mg/L	06.17.13 14:27	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	101	75 - 131	%		
1,2-Dichloroethane-D4	91	63 - 144	%		
Toluene-D8	100	80 - 117	%		
4-Bromofluorobenzene	106	74 - 124	%		

Certificate of Analytical Results 464818

PLAINS ALL AMERICAN EH&S, Midland, TX

14" Vac to Jal legacy

Sample Id: **639872-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639872-1-BLK Date Collected: Date Received:

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916508 Date Prep: 06.18.13 14.20

Subcontractor: SUB: E871002 Prep seq: 639872

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	ND	0.00500	0.0000970	mg/L	06.18.13 15:28	U	1
Bromobenzene	108-86-1	ND	0.00500	0.000129	mg/L	06.18.13 15:28	U	1
Bromochloromethane	74-97-5	ND	0.00500	0.000159	mg/L	06.18.13 15:28	U	1
Bromodichloromethane	75-27-4	ND	0.00500	0.000139	mg/L	06.18.13 15:28	U	1
Bromoform	75-25-2	ND	0.00500	0.000340	mg/L	06.18.13 15:28	U	1
Methyl bromide	74-83-9	ND	0.00500	0.000291	mg/L	06.18.13 15:28	U	1
n-Butylbenzene	104-51-8	ND	0.00500	0.000190	mg/L	06.18.13 15:28	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	0.000120	mg/L	06.18.13 15:28	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	0.000200	mg/L	06.18.13 15:28	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	0.000140	mg/L	06.18.13 15:28	U	1
Chlorobenzene	108-90-7	ND	0.00500	0.0000915	mg/L	06.18.13 15:28	U	1
Chloroethane	75-00-3	ND	0.0100	0.000206	mg/L	06.18.13 15:28	U	1
Chloroform	67-66-3	ND	0.00500	0.000206	mg/L	06.18.13 15:28	U	1
Methyl Chloride	74-87-3	ND	0.0100	0.000105	mg/L	06.18.13 15:28	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	0.000101	mg/L	06.18.13 15:28	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	0.0000840	mg/L	06.18.13 15:28	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	0.0000779	mg/L	06.18.13 15:28	U	1
Dibromochloromethane	124-48-1	ND	0.00500	0.000139	mg/L	06.18.13 15:28	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	0.00143	mg/L	06.18.13 15:28	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	0.000360	mg/L	06.18.13 15:28	U	1
Methylene bromide	74-95-3	ND	0.00500	0.000156	mg/L	06.18.13 15:28	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	0.000240	mg/L	06.18.13 15:28	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	0.000190	mg/L	06.18.13 15:28	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	0.000122	mg/L	06.18.13 15:28	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	0.000105	mg/L	06.18.13 15:28	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	0.000103	mg/L	06.18.13 15:28	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	0.0000897	mg/L	06.18.13 15:28	U	1
1,1-Dichloroethene	75-35-4	ND	0.00500	0.000111	mg/L	06.18.13 15:28	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	0.000118	mg/L	06.18.13 15:28	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	0.000113	mg/L	06.18.13 15:28	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	0.000123	mg/L	06.18.13 15:28	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	0.000110	mg/L	06.18.13 15:28	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	0.0000878	mg/L	06.18.13 15:28	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	0.000410	mg/L	06.18.13 15:28	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	0.000250	mg/L	06.18.13 15:28	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	0.000300	mg/L	06.18.13 15:28	U	1
Ethylbenzene	100-41-4	ND	0.00500	0.0000800	mg/L	06.18.13 15:28	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	0.000187	mg/L	06.18.13 15:28	U	1
Isopropylbenzene	98-82-8	ND	0.00500	0.0000829	mg/L	06.18.13 15:28	U	1
Methylene Chloride	75-09-2	ND	0.00500	0.000251	mg/L	06.18.13 15:28	U	1
MTBE	1634-04-4	ND	0.00500	0.000430	mg/L	06.18.13 15:28	U	1
Naphthalene	91-20-3	ND	0.0100	0.000142	mg/L	06.18.13 15:28	U	1
n-Propylbenzene	103-65-1	ND	0.00500	0.000180	mg/L	06.18.13 15:28	U	1

Sample Id: **639872-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 639872-1-BLK Date Collected: Date Received:

Analytical Method: VOAs by SW-846 8260B Prep Method: 5030B

Analyst: ZHO % Moist: Tech: ZHO

Seq Number: 916508 Date Prep: 06.18.13 14.20

Subcontractor: SUB: E871002 Prep seq: 639872

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Styrene	100-42-5	ND	0.00500	0.000140	mg/L	06.18.13 15:28	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	0.000280	mg/L	06.18.13 15:28	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	0.000420	mg/L	06.18.13 15:28	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	0.000196	mg/L	06.18.13 15:28	U	1
Toluene	108-88-3	ND	0.00500	0.000164	mg/L	06.18.13 15:28	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	0.0000878	mg/L	06.18.13 15:28	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	0.000146	mg/L	06.18.13 15:28	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	0.000103	mg/L	06.18.13 15:28	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	0.000138	mg/L	06.18.13 15:28	U	1
Trichloroethylene	79-01-6	ND	0.00500	0.000130	mg/L	06.18.13 15:28	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	0.0000984	mg/L	06.18.13 15:28	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	0.000590	mg/L	06.18.13 15:28	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	0.0000470	mg/L	06.18.13 15:28	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	0.0000829	mg/L	06.18.13 15:28	U	1
o-Xylene	95-47-6	ND	0.00500	0.000103	mg/L	06.18.13 15:28	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	0.000470	mg/L	06.18.13 15:28	U	1
Vinyl Chloride	75-01-4	ND	0.00200	0.000102	mg/L	06.18.13 15:28	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	108	75 - 131	%		
1,2-Dichloroethane-D4	108	63 - 144	%		
Toluene-D8	96	80 - 117	%		
4-Bromofluorobenzene	99	74 - 124	%		

Sample Id: **916182-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 916182-1-BLK Date Collected: Date Received:

Analytical Method: Alkalinity by SM2320B Prep Method:

Analyst: ALA % Moist: Tech: ALA

Seq Number: 916182 Date Prep:

Subcontractor: SUB: E871002 Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	ND	4.00	0.954	mg/L	06.13.13 02:24	U	1
Alkalinity, Carbonate (as CaCO3)	ALKCARB	ND	4.00	0.954	mg/L	06.13.13 02:24	U	1

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantiation 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 : 464818,

Project ID: 2009-092

Lab Batch #: 916264 **Sample:** 639644-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 14:54

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	22.4	50.0	45	30-100	
Phenol-d6	15.5	50.0	31	15-94	
Nitrobenzene-d5	28.6	50.0	57	46-111	
2-Fluorobiphenyl	28.1	50.0	56	44-117	
2,4,6-Tribromophenol	29.2	50.0	58	48-117	
Terphenyl-D14	28.0	50.0	56	46-126	

Lab Batch #: 916264 **Sample:** 639644-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 15:14

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	25.0	50.0	50	30-100	
Phenol-d6	17.1	50.0	34	15-94	
Nitrobenzene-d5	29.7	50.0	59	46-111	
2-Fluorobiphenyl	28.7	50.0	57	44-117	
2,4,6-Tribromophenol	32.5	50.0	65	48-117	
Terphenyl-D14	29.1	50.0	58	46-126	

Lab Batch #: 916264 **Sample:** 639644-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/14/13 15:55

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	25.1	50.0	50	30-100	
Phenol-d6	17.3	50.0	35	15-94	
Nitrobenzene-d5	29.1	50.0	58	46-111	
2-Fluorobiphenyl	28.2	50.0	56	44-117	
2,4,6-Tribromophenol	31.2	50.0	62	48-117	
Terphenyl-D14	28.6	50.0	57	46-126	

* 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 : 464818,

Project ID: 2009-092

Lab Batch #: 916264 **Sample:** 464949-001 S / MS **Batch:** 1 **Matrix:** Solid

Units: mg/L **Date Analyzed:** 06/14/13 16:37

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	30.4	50.0	61	30-100	
Phenol-d6	26.7	50.0	53	15-94	
Nitrobenzene-d5	28.8	50.0	58	46-111	
2-Fluorobiphenyl	27.5	50.0	55	44-117	
2,4,6-Tribromophenol	32.0	50.0	64	48-117	
Terphenyl-D14	28.3	50.0	57	46-126	

Lab Batch #: 916471 **Sample:** 639857-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 16:30

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0495	0.0500	99	75-131	
1,2-Dichloroethane-D4	0.0499	0.0500	100	63-144	
Toluene-D8	0.0487	0.0500	97	80-117	
4-Bromofluorobenzene	0.0504	0.0500	101	74-124	

Lab Batch #: 916471 **Sample:** 639857-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 16:56

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0510	0.0500	102	75-131	
1,2-Dichloroethane-D4	0.0497	0.0500	99	63-144	
Toluene-D8	0.0488	0.0500	98	80-117	
4-Bromofluorobenzene	0.0500	0.0500	100	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 : 464818,

Project ID: 2009-092

Lab Batch #: 916471 **Sample:** 639857-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 18:14

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0507	0.0500	101	75-131	
1,2-Dichloroethane-D4	0.0499	0.0500	100	63-144	
Toluene-D8	0.0510	0.0500	102	80-117	
4-Bromofluorobenzene	0.0539	0.0500	108	74-124	

Lab Batch #: 916471 **Sample:** 464810-005 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 21:40

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0554	0.0500	111	75-131	
1,2-Dichloroethane-D4	0.0525	0.0500	105	63-144	
Toluene-D8	0.0479	0.0500	96	80-117	
4-Bromofluorobenzene	0.0497	0.0500	99	74-124	

Lab Batch #: 916471 **Sample:** 464810-005 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/15/13 22:06

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0548	0.0500	110	75-131	
1,2-Dichloroethane-D4	0.0510	0.0500	102	63-144	
Toluene-D8	0.0484	0.0500	97	80-117	
4-Bromofluorobenzene	0.0487	0.0500	97	74-124	

Lab Batch #: 916486 **Sample:** 639864-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 13:15

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0490	0.0500	98	75-131	
1,2-Dichloroethane-D4	0.0431	0.0500	86	63-144	
Toluene-D8	0.0477	0.0500	95	80-117	
4-Bromofluorobenzene	0.0534	0.0500	107	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 : 464818, **Project ID:** 2009-092

Lab Batch #: 916486 **Sample:** 639864-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 14:27

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0505	0.0500	101	75-131	
1,2-Dichloroethane-D4	0.0457	0.0500	91	63-144	
Toluene-D8	0.0499	0.0500	100	80-117	
4-Bromofluorobenzene	0.0528	0.0500	106	74-124	

Lab Batch #: 916486 **Sample:** 464810-007 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 21:07

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0483	0.0500	97	75-131	
1,2-Dichloroethane-D4	0.0384	0.0500	77	63-144	
Toluene-D8	0.0499	0.0500	100	80-117	
4-Bromofluorobenzene	0.0532	0.0500	106	74-124	

Lab Batch #: 916486 **Sample:** 464810-007 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/17/13 21:31

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0477	0.0500	95	75-131	
1,2-Dichloroethane-D4	0.0413	0.0500	83	63-144	
Toluene-D8	0.0501	0.0500	100	80-117	
4-Bromofluorobenzene	0.0505	0.0500	101	74-124	

Lab Batch #: 916508 **Sample:** 639872-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 14:35

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0479	0.0500	96	75-131	
1,2-Dichloroethane-D4	0.0439	0.0500	88	63-144	
Toluene-D8	0.0503	0.0500	101	80-117	
4-Bromofluorobenzene	0.0495	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 : 464818,

Project ID: 2009-092

Lab Batch #: 916508 **Sample:** 639872-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 15:28

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0541	0.0500	108	75-131	
1,2-Dichloroethane-D4	0.0539	0.0500	108	63-144	
Toluene-D8	0.0482	0.0500	96	80-117	
4-Bromofluorobenzene	0.0494	0.0500	99	74-124	

Lab Batch #: 916508 **Sample:** 464818-003 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 17:03

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0517	0.0500	103	75-131	
1,2-Dichloroethane-D4	0.0460	0.0500	92	63-144	
Toluene-D8	0.0512	0.0500	102	80-117	
4-Bromofluorobenzene	0.0485	0.0500	97	74-124	

Lab Batch #: 916508 **Sample:** 464818-003 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 06/18/13 17:27

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0499	0.0500	100	75-131	
1,2-Dichloroethane-D4	0.0434	0.0500	87	63-144	
Toluene-D8	0.0510	0.0500	102	80-117	
4-Bromofluorobenzene	0.0513	0.0500	103	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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916047 **Sample:** 639539-1-BKS **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** RKO

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

Mercury, Total by EPA 245.1 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Mercury	<0.000200	0.00200	0.00170	85	85-115	

Lab Batch #: 916019 **Sample:** 639550-1-BKS **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** DEP

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	0.502	100	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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916486 **Sample:** 639864-1-BKS **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0496	99	68-123	
Bromobenzene	<0.00500	0.0500	0.0549	110	83-124	
Bromochloromethane	<0.00500	0.0500	0.0526	105	68-119	
Bromodichloromethane	<0.00500	0.0500	0.0531	106	72-132	
Bromoform	<0.00500	0.0500	0.0463	93	65-136	
Methyl bromide	<0.00500	0.0500	0.0574	115	48-120	
n-Butylbenzene	<0.00500	0.0500	0.0547	109	82-128	
Sec-Butylbenzene	<0.00500	0.0500	0.0540	108	83-130	
tert-Butylbenzene	<0.00500	0.0500	0.0572	114	83-131	
Carbon Tetrachloride	<0.00500	0.0500	0.0537	107	68-135	
Chlorobenzene	<0.00500	0.0500	0.0502	100	78-124	
Chloroethane	<0.0100	0.0500	0.0470	94	55-120	
Chloroform	<0.00500	0.0500	0.0497	99	71-119	
Methyl Chloride	<0.0100	0.0500	0.0478	96	54-114	
2-Chlorotoluene	<0.00500	0.0500	0.0539	108	83-128	
4-Chlorotoluene	<0.00500	0.0500	0.0536	107	81-125	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0549	110	85-129	
Dibromochloromethane	<0.00500	0.0500	0.0527	105	74-135	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0491	98	62-134	
1,2-Dibromoethane	<0.00500	0.0500	0.0524	105	77-129	
Methylene bromide	<0.00500	0.0500	0.0510	102	71-124	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0496	99	81-123	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0522	104	82-126	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0492	98	80-119	
Dichlorodifluoromethane	<0.00500	0.0500	0.0510	102	59-121	
1,1-Dichloroethane	<0.00500	0.0500	0.0503	101	75-125	
1,2-Dichloroethane	<0.00500	0.0500	0.0497	99	64-130	
1,1-Dichloroethene	<0.00500	0.0500	0.0534	107	68-116	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0515	103	74-130	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0521	104	64-109	
1,2-Dichloropropane	<0.00500	0.0500	0.0524	105	72-127	
1,3-Dichloropropane	<0.00500	0.0500	0.0487	97	79-133	
2,2-Dichloropropane	<0.00500	0.0500	0.0607	121	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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916486 **Sample:** 639864-1-BKS **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0556	111	69-124	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0522	104	74-138	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0479	96	70-132	
Ethylbenzene	<0.00500	0.0500	0.0534	107	69-131	
Hexachlorobutadiene	<0.00500	0.0500	0.0537	107	74-130	
Isopropylbenzene	<0.00500	0.0500	0.0568	114	66-133	
Methylene Chloride	<0.00500	0.0500	0.0468	94	60-121	
MTBE	<0.00500	0.100	0.105	105	60-152	
Naphthalene	<0.0100	0.0500	0.0468	94	69-140	
n-Propylbenzene	<0.00500	0.0500	0.0553	111	86-129	
Styrene	<0.00500	0.0500	0.0569	114	79-128	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0568	114	78-131	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0513	103	80-133	
Tetrachloroethylene	<0.00500	0.0500	0.0508	102	79-122	
Toluene	<0.00500	0.0500	0.0496	99	62-132	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0523	105	76-126	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0577	115	77-127	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0517	103	72-124	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0498	100	71-135	
Trichloroethylene	<0.00500	0.0500	0.0549	110	74-123	
Trichlorofluoromethane	<0.00500	0.0500	0.0521	104	70-143	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0546	109	75-134	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0553	111	79-132	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0562	112	72-139	
o-Xylene	<0.00500	0.0500	0.0567	113	67-132	
m,p-Xylenes	<0.0100	0.100	0.107	107	69-132	
Vinyl Chloride	<0.00200	0.0500	0.0508	102	59-124	

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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916508 **Sample:** 639872-1-BKS **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.0461	92	68-123	
Bromobenzene	<0.00500	0.0500	0.0473	95	83-124	
Bromochloromethane	<0.00500	0.0500	0.0448	90	68-119	
Bromodichloromethane	<0.00500	0.0500	0.0478	96	72-132	
Bromoform	<0.00500	0.0500	0.0412	82	65-136	
Methyl bromide	<0.00500	0.0500	0.0521	104	48-120	
n-Butylbenzene	<0.00500	0.0500	0.0483	97	82-128	
Sec-Butylbenzene	<0.00500	0.0500	0.0483	97	83-130	
tert-Butylbenzene	<0.00500	0.0500	0.0501	100	83-131	
Carbon Tetrachloride	<0.00500	0.0500	0.0485	97	68-135	
Chlorobenzene	<0.00500	0.0500	0.0447	89	78-124	
Chloroethane	<0.0100	0.0500	0.0457	91	55-120	
Chloroform	<0.00500	0.0500	0.0446	89	71-119	
Methyl Chloride	<0.0100	0.0500	0.0529	106	54-114	
2-Chlorotoluene	<0.00500	0.0500	0.0489	98	83-128	
4-Chlorotoluene	<0.00500	0.0500	0.0467	93	81-125	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0482	96	85-129	
Dibromochloromethane	<0.00500	0.0500	0.0460	92	74-135	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0423	85	62-134	
1,2-Dibromoethane	<0.00500	0.0500	0.0446	89	77-129	
Methylene bromide	<0.00500	0.0500	0.0465	93	71-124	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0443	89	81-123	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0465	93	82-126	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0438	88	80-119	
Dichlorodifluoromethane	<0.00500	0.0500	0.0549	110	59-121	
1,1-Dichloroethane	<0.00500	0.0500	0.0446	89	75-125	
1,2-Dichloroethane	<0.00500	0.0500	0.0484	97	64-130	
1,1-Dichloroethene	<0.00500	0.0500	0.0479	96	68-116	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0462	92	74-130	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0467	93	64-109	
1,2-Dichloropropane	<0.00500	0.0500	0.0451	90	72-127	
1,3-Dichloropropane	<0.00500	0.0500	0.0432	86	79-133	
2,2-Dichloropropane	<0.00500	0.0500	0.0482	96	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 #: 464818 **Project ID:** 2009-092

Lab Batch #: 916508 **Sample:** 639872-1-BKS **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.0498	100	69-124	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0452	90	74-138	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0420	84	70-132	
Ethylbenzene	<0.00500	0.0500	0.0481	96	69-131	
Hexachlorobutadiene	<0.00500	0.0500	0.0457	91	74-130	
Isopropylbenzene	<0.00500	0.0500	0.0506	101	66-133	
Methylene Chloride	<0.00500	0.0500	0.0424	85	60-121	
MTBE	<0.00500	0.100	0.0851	85	60-152	
Naphthalene	<0.0100	0.0500	0.0373	75	69-140	
n-Propylbenzene	<0.00500	0.0500	0.0500	100	86-129	
Styrene	<0.00500	0.0500	0.0474	95	79-128	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0505	101	78-131	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0468	94	80-133	
Tetrachloroethylene	<0.00500	0.0500	0.0481	96	79-122	
Toluene	<0.00500	0.0500	0.0457	91	62-132	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0415	83	76-126	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0441	88	77-127	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0472	94	72-124	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0454	91	71-135	
Trichloroethylene	<0.00500	0.0500	0.0485	97	74-123	
Trichlorofluoromethane	<0.00500	0.0500	0.0503	101	70-143	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0477	95	75-134	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0489	98	79-132	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0488	98	72-139	
o-Xylene	<0.00500	0.0500	0.0466	93	67-132	
m,p-Xylenes	<0.0100	0.100	0.0955	96	69-132	
Vinyl Chloride	<0.00200	0.0500	0.0514	103	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 #: 464818 **Project ID:** 2009-092

Analyst: AMB **Date Prepared:** 06/13/2013 **Date Analyzed:** 06/13/2013

Lab Batch ID: 916426 **Sample:** 639816-1-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	24.0	96	25.0	24.0	96	0	80-120	20	
Fluoride	<0.400	5.00	4.54	91	5.00	4.60	92	1	80-120	20	
Nitrate as N	<0.400	5.00	4.78	96	5.00	4.76	95	0	90-110	20	
Sulfate	<2.00	25.0	23.6	94	25.0	23.5	94	0	80-120	20	

Analyst: MKO **Date Prepared:** 06/14/2013 **Date Analyzed:** 06/15/2013

Lab Batch ID: 916378 **Sample:** 639683-1-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	<0.00400	0.100	0.108	108	0.100	0.107	107	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 #: 464818 **Project ID:** 2009-092

Analyst: KUG **Date Prepared:** 06/13/2013 **Date Analyzed:** 06/13/2013

Lab Batch ID: 916204 **Sample:** 639625-1-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	4.94	99	5.00	4.80	96	3	85-115	20	
Barium	<0.0100	1.00	0.989	99	1.00	0.964	96	3	85-115	20	
Boron	<0.0500	1.00	1.11	111	1.00	1.08	108	3	85-115	20	
Cadmium	<0.0100	1.00	0.973	97	1.00	0.947	95	3	85-115	20	
Calcium	<0.200	25.0	24.5	98	25.0	23.3	93	5	85-115	20	
Chromium	<0.0100	1.00	1.00	100	1.00	0.975	98	3	85-115	20	
Cobalt	<0.0100	1.00	1.01	101	1.00	0.981	98	3	85-115	20	
Copper	<0.0200	1.00	1.02	102	1.00	0.982	98	4	85-115	20	
Iron	<0.200	5.00	5.05	101	5.00	4.86	97	4	85-115	20	
Lead	<0.0100	1.00	1.03	103	1.00	0.999	100	3	85-115	20	
Magnesium	<0.200	25.0	24.9	100	25.0	23.8	95	5	85-115	20	
Manganese	<0.0200	1.00	1.01	101	1.00	0.977	98	3	85-115	20	
Molybdenum	<0.0100	1.00	1.04	104	1.00	0.991	99	5	85-115	20	
Nickel	<0.0100	1.00	1.04	104	1.00	1.01	101	3	85-115	20	
Potassium	<0.500	10.0	10.2	102	10.0	9.55	96	7	85-115	20	
Selenium	<0.0300	1.00	1.04	104	1.00	1.01	101	3	85-115	20	
Silver	<0.0200	0.500	0.490	98	0.500	0.460	92	6	85-115	20	
Sodium	<0.500	25.0	25.1	100	25.0	24.1	96	4	85-115	20	
Zinc	<0.0300	1.00	1.00	100	1.00	0.970	97	3	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 #: 464818 **Project ID:** 2009-092

Analyst: CYE **Date Prepared:** 06/14/2013 **Date Analyzed:** 06/14/2013

Lab Batch ID: 916264 **Sample:** 639644-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOAs by EPA 8270C 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	<0.000368	0.0500	0.0300	60	0.0500	0.0303	61	1	54-114	25	
Acenaphthylene	<0.000342	0.0500	0.0305	61	0.0500	0.0299	60	2	53-113	25	
Aniline (Phenylamine, Aminobenzene)	<0.00100	0.0500	0.0284	57	0.0500	0.0280	56	1	35-104	25	
Anthracene	<0.000164	0.0500	0.0319	64	0.0500	0.0301	60	6	56-116	25	
Benzo(a)anthracene	<0.000248	0.0500	0.0304	61	0.0500	0.0299	60	2	59-116	25	
Benzo(a)pyrene	<0.000200	0.0500	0.0305	61	0.0500	0.0290	58	5	58-118	25	
Benzo(b)fluoranthene	<0.000377	0.0500	0.0344	69	0.0500	0.0338	68	2	54-123	25	
Benzo(k)fluoranthene	<0.000514	0.0500	0.0281	56	0.0500	0.0270	54	4	52-122	25	
Benzo(g,h,i)perylene	<0.000288	0.0500	0.0255	51	0.0500	0.0249	50	2	47-129	25	
Benzoic Acid	<0.000957	0.150	0.0351	23	0.150	0.0445	30	24	4-113	25	
Benzyl Butyl Phthalate	<0.000278	0.0500	0.0306	61	0.0500	0.0297	59	3	57-122	25	
bis(2-chloroethoxy) methane	<0.000440	0.0500	0.0297	59	0.0500	0.0294	59	1	53-112	25	
bis(2-chloroethyl) ether	<0.000453	0.0500	0.0308	62	0.0500	0.0304	61	1	57-108	25	
bis(2-chloroisopropyl) ether	<0.000466	0.0500	0.0278	56	0.0500	0.0272	54	2	54-111	25	
bis(2-ethylhexyl) phthalate	<0.000313	0.0500	0.0299	60	0.0500	0.0295	59	1	59-119	25	
4-Bromophenyl-phenylether	<0.000299	0.0500	0.0318	64	0.0500	0.0307	61	4	58-112	25	
4-chloro-3-methylphenol	<0.000428	0.0500	0.0324	65	0.0500	0.0325	65	0	58-116	25	
4-Chloroaniline	<0.00171	0.0500	0.0299	60	0.0500	0.0300	60	0	2-123	25	
2-Chloronaphthalene	<0.000321	0.0500	0.0305	61	0.0500	0.0301	60	1	58-105	25	
2-Chlorophenol	<0.000409	0.0500	0.0321	64	0.0500	0.0317	63	1	58-106	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 #: 464818 **Project ID:** 2009-092

Analyst: CYE **Date Prepared:** 06/14/2013 **Date Analyzed:** 06/14/2013

Lab Batch ID: 916264 **Sample:** 639644-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C 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
4-Chlorophenyl Phenyl Ether	<0.000355	0.0500	0.0309	62	0.0500	0.0308	62	0	59-109	25	
Chrysene	<0.000231	0.0500	0.0308	62	0.0500	0.0306	61	1	58-116	25	
Dibenz(a,h)Anthracene	<0.000198	0.0500	0.0319	64	0.0500	0.0252	50	23	46-131	25	
Dibenzofuran	<0.000345	0.0500	0.0308	62	0.0500	0.0297	59	4	56-111	25	
di-n-Butyl Phthalate	<0.000276	0.0500	0.0316	63	0.0500	0.0292	58	8	60-118	25	L
1,2-Dichlorobenzene	<0.000413	0.0500	0.0313	63	0.0500	0.0311	62	1	53-106	25	
1,3-Dichlorobenzene	<0.000493	0.0500	0.0307	61	0.0500	0.0308	62	0	52-105	25	
1,4-Dichlorobenzene	<0.000646	0.0500	0.0311	62	0.0500	0.0315	63	1	54-105	25	
3,3-Dichlorobenzidine	<0.00138	0.0500	0.0322	64	0.0500	0.0304	61	6	36-123	25	
2,4-Dichlorophenol	<0.000263	0.0500	0.0321	64	0.0500	0.0329	66	2	60-110	25	
Diethyl Phthalate	<0.000318	0.0500	0.0314	63	0.0500	0.0308	62	2	62-114	25	
Dimethyl Phthalate	<0.000301	0.0500	0.0315	63	0.0500	0.0309	62	2	59-113	25	
2,4-Dimethylphenol	<0.000985	0.0500	0.0324	65	0.0500	0.0324	65	0	50-108	25	
4,6-dinitro-2-methyl phenol	<0.000537	0.0500	0.0322	64	0.0500	0.0293	59	9	57-119	25	
2,4-Dinitrophenol	<0.00112	0.0500	0.0301	60	0.0500	0.0273	55	10	52-111	25	
2,4-Dinitrotoluene	<0.000328	0.0500	0.0330	66	0.0500	0.0330	66	0	60-116	25	
2,6-Dinitrotoluene	<0.000344	0.0500	0.0323	65	0.0500	0.0306	61	5	60-115	25	
di-n-Octyl Phthalate	<0.000365	0.0500	0.0295	59	0.0500	0.0296	59	0	49-129	25	
Fluoranthene	<0.000253	0.0500	0.0320	64	0.0500	0.0307	61	4	55-120	25	
Fluorene	<0.000308	0.0500	0.0306	61	0.0500	0.0306	61	0	56-114	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 #: 464818 **Project ID:** 2009-092

Analyst: CYE **Date Prepared:** 06/14/2013 **Date Analyzed:** 06/14/2013

Lab Batch ID: 916264 **Sample:** 639644-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C 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
Hexachlorobenzene	<0.000244	0.0500	0.0317	63	0.0500	0.0306	61	4	60-109	25	
Hexachlorobutadiene	<0.000442	0.0500	0.0315	63	0.0500	0.0320	64	2	52-107	25	
Hexachlorocyclopentadiene	<0.000351	0.0500	0.0200	40	0.0500	0.0227	45	13	32-115	25	
Hexachloroethane	<0.000538	0.0500	0.0315	63	0.0500	0.0314	63	0	46-115	25	
Indeno(1,2,3-c,d)Pyrene	<0.000337	0.0500	0.0314	63	0.0500	0.0252	50	22	44-132	25	
Isophorone	<0.000403	0.0500	0.0306	61	0.0500	0.0301	60	2	57-107	25	
2-Methylnaphthalene	<0.000494	0.0500	0.0307	61	0.0500	0.0307	61	0	57-106	25	
2-methylphenol	<0.000721	0.0500	0.0300	60	0.0500	0.0301	60	0	52-106	25	
3&4-Methylphenol	<0.000972	0.0500	0.0285	57	0.0500	0.0281	56	1	23-140	25	
Naphthalene	<0.000317	0.0500	0.0305	61	0.0500	0.0307	61	1	53-110	25	
2-Nitroaniline	<0.000442	0.0500	0.0315	63	0.0500	0.0309	62	2	55-120	25	
3-Nitroaniline	<0.000383	0.0500	0.0313	63	0.0500	0.0302	60	4	49-120	25	
4-Nitroaniline	<0.000285	0.0500	0.0307	61	0.0500	0.0299	60	3	52-118	25	
Nitrobenzene	<0.000523	0.0500	0.0309	62	0.0500	0.0310	62	0	56-107	25	
2-Nitrophenol	<0.000487	0.0500	0.0312	62	0.0500	0.0323	65	3	57-105	25	
4-Nitrophenol	<0.000350	0.0500	0.0211	42	0.0500	0.0219	44	4	18-104	25	
N-Nitrosodi-n-Propylamine	<0.000100	0.0500	0.0319	64	0.0500	0.0318	64	0	21-137	25	
N-Nitrosodiphenylamine	<0.000459	0.0500	0.0308	62	0.0500	0.0303	61	2	50-121	25	
Pentachlorophenol	<0.000558	0.0500	0.0352	70	0.0500	0.0341	68	3	36-132	25	
Phenanthrene	<0.000277	0.0500	0.0312	62	0.0500	0.0301	60	4	56-116	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 #: 464818
Project ID: 2009-092
Analyst: CYE
Date Prepared: 06/14/2013
Date Analyzed: 06/14/2013
Lab Batch ID: 916264
Sample: 639644-1-BKS
Batch #: 1
Matrix: Water
Units: mg/L

SVOAs by EPA 8270C 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
Phenol	<0.000488	0.0500	0.0193	39	0.0500	0.0201	40	4	19-89	25	
Pyrene	<0.000281	0.0500	0.0305	61	0.0500	0.0297	59	3	57-119	25	
Pyridine	<0.00155	0.0500	0.0360	72	0.0500	0.0449	90	22	5-94	25	
1,2,4-Trichlorobenzene	<0.000379	0.0500	0.0306	61	0.0500	0.0306	61	0	56-104	25	
2,4,5-Trichlorophenol	<0.000547	0.0500	0.0319	64	0.0500	0.0322	64	1	55-114	25	
2,4,6-Trichlorophenol	<0.000380	0.0500	0.0324	65	0.0500	0.0316	63	3	57-113	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 #: 464818 **Project ID:** 2009-092

Analyst: MCH **Date Prepared:** 06/15/2013 **Date Analyzed:** 06/15/2013

Lab Batch ID: 916471 **Sample:** 639857-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260B 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	<0.00500	0.0500	0.0502	100	0.0500	0.0489	98	3	68-123	25	
Bromobenzene	<0.00500	0.0500	0.0497	99	0.0500	0.0514	103	3	83-124	25	
Bromochloromethane	<0.00500	0.0500	0.0502	100	0.0500	0.0514	103	2	68-119	25	
Bromodichloromethane	<0.00500	0.0500	0.0526	105	0.0500	0.0532	106	1	72-132	25	
Bromoform	<0.00500	0.0500	0.0523	105	0.0500	0.0547	109	4	65-136	25	
Methyl bromide	<0.00500	0.0500	0.0466	93	0.0500	0.0527	105	12	48-120	25	
n-Butylbenzene	<0.00500	0.0500	0.0533	107	0.0500	0.0530	106	1	82-128	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0509	102	0.0500	0.0515	103	1	83-130	25	
tert-Butylbenzene	<0.00500	0.0500	0.0520	104	0.0500	0.0520	104	0	83-131	25	
Carbon Tetrachloride	<0.00500	0.0500	0.0520	104	0.0500	0.0515	103	1	68-135	25	
Chlorobenzene	<0.00500	0.0500	0.0511	102	0.0500	0.0516	103	1	78-124	25	
Chloroethane	<0.0100	0.0500	0.0473	95	0.0500	0.0519	104	9	55-120	25	
Chloroform	<0.00500	0.0500	0.0505	101	0.0500	0.0516	103	2	71-119	25	
Methyl Chloride	<0.0100	0.0500	0.0478	96	0.0500	0.0490	98	2	54-114	25	
2-Chlorotoluene	<0.00500	0.0500	0.0521	104	0.0500	0.0527	105	1	83-128	25	
4-Chlorotoluene	<0.00500	0.0500	0.0512	102	0.0500	0.0520	104	2	81-125	25	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0529	106	0.0500	0.0521	104	2	85-129	25	
Dibromochloromethane	<0.00500	0.0500	0.0543	109	0.0500	0.0552	110	2	74-135	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0524	105	0.0500	0.0539	108	3	62-134	25	
1,2-Dibromoethane	<0.00500	0.0500	0.0514	103	0.0500	0.0532	106	3	77-129	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 #: 464818 **Project ID:** 2009-092

Analyst: MCH **Date Prepared:** 06/15/2013 **Date Analyzed:** 06/15/2013

Lab Batch ID: 916471 **Sample:** 639857-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B 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
Methylene bromide	<0.00500	0.0500	0.0514	103	0.0500	0.0516	103	0	71-124	25	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0514	103	0.0500	0.0521	104	1	81-123	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0523	105	0.0500	0.0536	107	2	82-126	25	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0518	104	0.0500	0.0521	104	1	80-119	25	
Dichlorodifluoromethane	<0.00500	0.0500	0.0488	98	0.0500	0.0490	98	0	59-121	25	
1,1-Dichloroethane	<0.00500	0.0500	0.0501	100	0.0500	0.0518	104	3	75-125	25	
1,2-Dichloroethane	<0.00500	0.0500	0.0510	102	0.0500	0.0501	100	2	64-130	25	
1,1-Dichloroethene	<0.00500	0.0500	0.0504	101	0.0500	0.0502	100	0	68-116	25	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0487	97	0.0500	0.0504	101	3	74-130	25	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0480	96	0.0500	0.0491	98	2	64-109	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0490	98	0.0500	0.0487	97	1	72-127	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0511	102	0.0500	0.0512	102	0	79-133	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0503	101	0.0500	0.0516	103	3	71-134	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0529	106	0.0500	0.0508	102	4	69-124	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0530	106	0.0500	0.0522	104	2	74-138	25	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0520	104	0.0500	0.0529	106	2	70-132	25	
Ethylbenzene	<0.00500	0.0500	0.0515	103	0.0500	0.0512	102	1	69-131	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0542	108	0.0500	0.0524	105	3	74-130	25	
Isopropylbenzene	<0.00500	0.0500	0.0504	101	0.0500	0.0513	103	2	66-133	25	
Methylene Chloride	<0.00500	0.0500	0.0492	98	0.0500	0.0519	104	5	60-121	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 #: 464818 **Project ID:** 2009-092

Analyst: MCH **Date Prepared:** 06/15/2013 **Date Analyzed:** 06/15/2013

Lab Batch ID: 916471 **Sample:** 639857-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B 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
MTBE	<0.00500	0.100	0.101	101	0.100	0.105	105	4	60-152	25	
Naphthalene	<0.0100	0.0500	0.0593	119	0.0500	0.0604	121	2	69-140	25	
n-Propylbenzene	<0.00500	0.0500	0.0519	104	0.0500	0.0512	102	1	86-129	25	
Styrene	<0.00500	0.0500	0.0525	105	0.0500	0.0528	106	1	79-128	25	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0527	105	0.0500	0.0517	103	2	78-131	25	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0507	101	0.0500	0.0529	106	4	80-133	25	
Tetrachloroethylene	<0.00500	0.0500	0.0522	104	0.0500	0.0511	102	2	79-122	25	
Toluene	<0.00500	0.0500	0.0502	100	0.0500	0.0492	98	2	62-132	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0545	109	0.0500	0.0539	108	1	76-126	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0571	114	0.0500	0.0567	113	1	77-127	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0507	101	0.0500	0.0518	104	2	72-124	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0484	97	0.0500	0.0490	98	1	71-135	25	
Trichloroethylene	<0.00500	0.0500	0.0503	101	0.0500	0.0505	101	0	74-123	25	
Trichlorofluoromethane	<0.00500	0.0500	0.0524	105	0.0500	0.0525	105	0	70-143	25	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0515	103	0.0500	0.0534	107	4	75-134	25	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0517	103	0.0500	0.0512	102	1	79-132	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0507	101	0.0500	0.0515	103	2	72-139	25	
o-Xylene	<0.00500	0.0500	0.0528	106	0.0500	0.0516	103	2	67-132	25	
m,p-Xylenes	<0.0100	0.100	0.104	104	0.100	0.101	101	3	69-132	25	
Vinyl Chloride	<0.00200	0.0500	0.0485	97	0.0500	0.0495	99	2	59-124	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 Recoveries

Project Name: 14" Vac to Jal legacy

Work Order #: 464818

Lab Batch #: 916426 **Project ID:** 2009-092

Date Analyzed: 06/13/2013 **Date Prepared:** 06/13/2013 **Analyst:** AMB

QC- Sample ID: 464818-004 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	4710	2500	7810	124	80-120	X
Fluoride	<40.0	500	475	95	80-120	
Nitrate as N	<40.0	500	492	98	80-120	
Sulfate	420	2500	2860	98	80-120	

Lab Batch #: 916426

Date Analyzed: 06/13/2013 **Date Prepared:** 06/13/2013 **Analyst:** AMB

QC- Sample ID: 464831-001 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	173	250	446	109	80-120	
Fluoride	<4.00	50.0	53.4	107	80-120	
Nitrate as N	4.14	50.0	52.0	96	80-120	
Sulfate	144	250	396	101	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 #: 464818
Lab Batch #: 916204
Project ID: 2009-092
Date Analyzed: 06/13/2013
Date Prepared: 06/13/2013
Analyst: KUG
QC- Sample ID: 464818-001 S
Batch #: 1
Matrix: Water
Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

Metals per ICP by EPA 200.7 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Aluminum	77.2	5.00	120	856	70-130	X
Barium	1.03	1.00	2.06	103	70-130	
Boron	2.32	1.00	3.44	112	70-130	
Cadmium	<0.0100	1.00	1.01	101	70-130	
Calcium	1520	25.0	1290	0	70-130	X
Chromium	0.0650	1.00	0.977	91	70-130	
Cobalt	0.0433	1.00	0.952	91	70-130	
Copper	0.0959	1.00	1.11	101	70-130	
Iron	58.8	5.00	71.0	244	70-130	X
Lead	0.0611	1.00	0.939	88	70-130	
Magnesium	374	25.0	392	72	70-130	
Manganese	2.30	1.00	3.13	83	70-130	
Molybdenum	<0.0100	1.00	0.814	81	70-130	
Nickel	0.111	1.00	0.987	88	70-130	
Potassium	115	10.0	143	280	70-130	X
Selenium	<0.0300	1.00	1.05	105	70-130	
Silver	<0.0200	0.500	0.471	94	70-130	
Sodium	5110	25.0	3210	0	70-130	X
Zinc	0.315	1.00	1.34	103	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 Recoveries

Project Name: 14" Vac to Jal legacy

Work Order #: 464818
Lab Batch #: 916264
Project ID: 2009-092
Date Analyzed: 06/14/2013
Date Prepared: 06/14/2013
Analyst: CYE
QC- Sample ID: 464949-001 S
Batch #: 1
Matrix: Solid
Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

SVOAs by SW-846 8270C Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Acenaphthene	<0.00184	0.250	0.147	59	54-114	
Acenaphthylene	<0.00171	0.250	0.142	57	53-113	
Aniline (Phenylamine, Aminobenzene)	<0.00500	0.250	0.127	51	35-104	
Anthracene	<0.000820	0.250	0.145	58	56-116	
Benzo(a)anthracene	<0.00124	0.250	0.153	61	59-116	
Benzo(a)pyrene	<0.00100	0.250	0.146	58	58-118	
Benzo(b)fluoranthene	<0.00189	0.250	0.174	70	54-123	
Benzo(k)fluoranthene	<0.00257	0.250	0.139	56	52-122	
Benzo(g,h,i)perylene	<0.00144	0.250	0.121	48	47-129	
Benzoic Acid	<0.00479	0.750	0.594	79	4-113	
Benzyl Butyl Phthalate	<0.00139	0.250	0.143	57	57-122	
bis(2-chloroethoxy) methane	<0.00220	0.250	0.138	55	53-112	
bis(2-chloroethyl) ether	<0.00227	0.250	0.149	60	57-108	
bis(2-chloroisopropyl) ether	<0.00233	0.250	0.131	52	54-111	X
bis(2-ethylhexyl) phthalate	<0.00157	0.250	0.144	58	59-119	X
4-Bromophenyl-phenylether	<0.00150	0.250	0.149	60	58-112	
4-chloro-3-methylphenol	0.101	0.250	0.267	66	58-116	
4-Chloroaniline	<0.00853	0.250	0.111	44	2-123	
2-Chloronaphthalene	<0.00161	0.250	0.147	59	58-105	
2-Chlorophenol	<0.00205	0.250	0.158	63	58-106	
4-Chlorophenyl Phenyl Ether	<0.00178	0.250	0.149	60	59-109	
Chrysene	<0.00116	0.250	0.147	59	58-116	
Dibenz(a,h)Anthracene	<0.000990	0.250	0.123	49	46-131	
Dibenzofuran	<0.00173	0.250	0.147	59	56-111	
di-n-Butyl Phthalate	<0.00138	0.250	0.145	58	60-118	X
1,2-Dichlorobenzene	<0.00207	0.250	0.147	59	53-106	
1,3-Dichlorobenzene	<0.00247	0.250	0.147	59	52-105	
1,4-Dichlorobenzene	<0.00323	0.250	0.148	59	54-105	
3,3-Dichlorobenzidine	<0.00691	0.250	0.132	53	36-123	
2,4-Dichlorophenol	<0.00132	0.250	0.160	64	60-110	
Diethyl Phthalate	<0.00159	0.250	0.145	58	62-114	X
Dimethyl Phthalate	<0.00151	0.250	0.148	59	59-113	
2,4-Dimethylphenol	<0.00493	0.250	0.161	64	50-108	
4,6-dinitro-2-methyl phenol	<0.00269	0.250	0.144	58	57-119	

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 #: 464818
Lab Batch #: 916264
Project ID: 2009-092
Date Analyzed: 06/14/2013
Date Prepared: 06/14/2013
Analyst: CYE
QC- Sample ID: 464949-001 S
Batch #: 1
Matrix: Solid
Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

SVOAs by SW-846 8270C Analytes		Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
2,4-Dinitrophenol	<0.00562	0.250	0.136	54	52-111	
2,4-Dinitrotoluene	<0.00164	0.250	0.152	61	60-116	
2,6-Dinitrotoluene	<0.00172	0.250	0.157	63	60-115	
di-n-Octyl Phthalate	<0.00183	0.250	0.159	64	49-129	
Fluoranthene	<0.00127	0.250	0.149	60	55-120	
Fluorene	<0.00154	0.250	0.144	58	56-114	
Hexachlorobenzene	<0.00122	0.250	0.151	60	60-109	
Hexachlorobutadiene	<0.00221	0.250	0.154	62	52-107	
Hexachlorocyclopentadiene	<0.00176	0.250	0.114	46	32-115	
Hexachloroethane	<0.00269	0.250	0.151	60	46-115	
Indeno(1,2,3-c,d)Pyrene	<0.00169	0.250	0.124	50	44-132	
Isophorone	<0.00202	0.250	0.143	57	57-107	
2-Methylnaphthalene	<0.00247	0.250	0.152	61	57-106	
2-methylphenol	<0.00361	0.250	0.152	61	52-106	
3&4-Methylphenol	<0.00486	0.250	0.152	61	23-140	
Naphthalene	<0.00159	0.250	0.148	59	53-110	
2-Nitroaniline	<0.00221	0.250	0.126	50	55-120	X
3-Nitroaniline	<0.00192	0.250	0.140	56	49-120	
4-Nitroaniline	<0.00143	0.250	0.146	58	52-118	
Nitrobenzene	<0.00262	0.250	0.149	60	56-107	
2-Nitrophenol	<0.00244	0.250	0.159	64	57-105	
4-Nitrophenol	<0.00175	0.250	0.141	56	18-104	
N-Nitrosodi-n-Propylamine	<0.000500	0.250	0.150	60	21-137	
N-Nitrosodiphenylamine	<0.00230	0.250	0.150	60	50-121	
Pentachlorophenol	<0.00279	0.250	0.174	70	36-132	
Phenanthrene	<0.00139	0.250	0.147	59	56-116	
Phenol	0.120	0.250	0.254	54	19-89	
Pyrene	<0.00141	0.250	0.144	58	57-119	
Pyridine	<0.00774	0.250	0.154	62	5-94	
1,2,4-Trichlorobenzene	<0.00190	0.250	0.151	60	56-104	
2,4,5-Trichlorophenol	<0.00274	0.250	0.158	63	55-114	
2,4,6-Trichlorophenol	<0.00190	0.250	0.156	62	57-113	

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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916047 **QC- Sample ID:** 464634-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** RKO

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Mercury, Total by EPA 245.1 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
Mercury	<0.000200	0.00200	0.00188	94	0.00200	0.00188	94	0	70-130	20	

Lab Batch ID: 916047 **QC- Sample ID:** 464749-002 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** RKO

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Mercury, Total by EPA 245.1 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
Mercury	<0.000200	0.00200	0.00186	93	0.00200	0.00186	93	0	70-130	20	

Lab Batch ID: 916378 **QC- Sample ID:** 464749-002 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/15/2013 **Date Prepared:** 06/14/2013 **Analyst:** MKO

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	0.00830	0.100	0.113	105	0.100	0.112	104	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916204 **QC- Sample ID:** 464699-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/13/2013 **Date Prepared:** 06/13/2013 **Analyst:** KUG

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	31.5	5.00	76.8	NC	5.00	76.1	NC	1	70-130	20	X
Barium	5.21	1.00	6.19	98	1.00	6.24	103	1	70-130	20	
Boron	0.162	1.00	1.24	108	1.00	1.31	115	5	70-130	20	
Cadmium	<0.0100	1.00	0.978	98	1.00	0.982	98	0	70-130	20	
Calcium	84.2	25.0	107	91	25.0	108	95	1	70-130	20	
Chromium	0.0131	1.00	0.979	97	1.00	0.983	97	0	70-130	20	
Cobalt	<0.0100	1.00	0.994	99	1.00	1.00	100	1	70-130	20	
Copper	0.0251	1.00	1.02	99	1.00	1.03	100	1	70-130	20	
Iron	14.4	5.00	28.6	284	5.00	28.1	274	2	70-130	20	X
Lead	0.0647	1.00	1.05	99	1.00	1.05	99	0	70-130	20	
Magnesium	14.4	25.0	43.9	118	25.0	43.6	117	1	70-130	20	
Manganese	0.289	1.00	1.30	101	1.00	1.32	103	2	70-130	20	
Molybdenum	0.0128	1.00	0.962	95	1.00	0.971	96	1	70-130	20	
Nickel	0.0222	1.00	1.02	100	1.00	1.03	101	1	70-130	20	
Potassium	28.1	10.0	38.9	108	10.0	39.2	111	1	70-130	20	
Selenium	<0.0300	1.00	1.02	102	1.00	1.03	103	1	70-130	20	
Silver	<0.0200	0.500	0.467	93	0.500	0.473	95	1	70-130	20	
Sodium	89.8	25.0	114	97	25.0	116	105	2	70-130	20	
Zinc	0.214	1.00	1.23	102	1.00	1.25	104	2	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916019 **QC- Sample ID:** 464521-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** DEP

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)	<0.0200	0.500	0.511	102	0.500	0.511	102	0	90-110	20	

Lab Batch ID: 916019 **QC- Sample ID:** 464662-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/12/2013 **Date Prepared:** 06/12/2013 **Analyst:** DEP

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)	0.0625	0.500	0.456	79	0.500	0.457	79	0	90-110	20	X

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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916471 **QC- Sample ID:** 464810-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/15/2013 **Date Prepared:** 06/15/2013 **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	0.0504	101	0.0500	0.0501	100	1	66-142	25	
Bromobenzene	<0.00500	0.0500	0.0511	102	0.0500	0.0493	99	4	75-125	25	
Bromochloromethane	<0.00500	0.0500	0.0555	111	0.0500	0.0555	111	0	60-140	25	
Bromodichloromethane	<0.00500	0.0500	0.0577	115	0.0500	0.0565	113	2	75-125	25	
Bromoform	<0.00500	0.0500	0.0601	120	0.0500	0.0563	113	7	75-125	25	
Methyl bromide	<0.00500	0.0500	0.0508	102	0.0500	0.0549	110	8	60-140	25	
n-Butylbenzene	<0.00500	0.0500	0.0558	112	0.0500	0.0554	111	1	75-125	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0547	109	0.0500	0.0542	108	1	75-125	25	
tert-Butylbenzene	<0.00500	0.0500	0.0561	112	0.0500	0.0557	111	1	75-125	25	
Carbon Tetrachloride	<0.00500	0.0500	0.0594	119	0.0500	0.0594	119	0	62-125	25	
Chlorobenzene	<0.00500	0.0500	0.0518	104	0.0500	0.0514	103	1	60-133	25	
Chloroethane	<0.0100	0.0500	0.0491	98	0.0500	0.0506	101	3	60-140	25	
Chloroform	<0.00500	0.0500	0.0569	114	0.0500	0.0607	121	6	70-130	25	
Methyl Chloride	<0.0100	0.0500	0.0445	89	0.0500	0.0459	92	3	60-140	25	
2-Chlorotoluene	<0.00500	0.0500	0.0541	108	0.0500	0.0526	105	3	73-125	25	
4-Chlorotoluene	<0.00500	0.0500	0.0531	106	0.0500	0.0518	104	2	74-125	25	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0565	113	0.0500	0.0563	113	0	75-125	25	
Dibromochloromethane	<0.00500	0.0500	0.0605	121	0.0500	0.0573	115	5	73-125	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0665	133	0.0500	0.0586	117	13	59-125	25	X
1,2-Dibromoethane	<0.00500	0.0500	0.0570	114	0.0500	0.0526	105	8	73-125	25	
Methylene bromide	<0.00500	0.0500	0.0582	116	0.0500	0.0545	109	7	69-127	25	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0565	113	0.0500	0.0551	110	3	75-125	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0539	108	0.0500	0.0531	106	1	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916471 **QC- Sample ID:** 464810-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/15/2013 **Date Prepared:** 06/15/2013 **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	0.0538	108	0.0500	0.0530	106	1	75-125	25	
Dichlorodifluoromethane	<0.00500	0.0500	0.0537	107	0.0500	0.0540	108	1	70-130	25	
1,1-Dichloroethane	<0.00500	0.0500	0.0561	112	0.0500	0.0563	113	0	72-125	25	
1,2-Dichloroethane	<0.00500	0.0500	0.0611	122	0.0500	0.0576	115	6	68-127	25	
1,1-Dichloroethene	0.0150	0.0500	0.0677	105	0.0500	0.0681	106	1	59-172	25	
cis-1,2-Dichloroethylene	1.20	0.0500	1.35	NC	0.0500	1.32	NC	2	75-125	25	X
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0540	108	0.0500	0.0546	109	1	75-125	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0490	98	0.0500	0.0494	99	1	74-125	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0520	104	0.0500	0.0498	100	4	75-125	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0561	112	0.0500	0.0535	107	5	75-125	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0547	109	0.0500	0.0545	109	0	75-125	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0529	106	0.0500	0.0519	104	2	74-125	25	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0544	109	0.0500	0.0519	104	5	66-125	25	
Ethylbenzene	<0.00500	0.0500	0.0508	102	0.0500	0.0502	100	1	75-125	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0658	132	0.0500	0.0649	130	1	75-125	25	X
Isopropylbenzene	<0.00500	0.0500	0.0532	106	0.0500	0.0528	106	1	75-125	25	
Methylene Chloride	<0.00500	0.0500	0.0531	106	0.0500	0.0534	107	1	75-125	25	
MTBE	<0.00500	0.100	0.120	120	0.100	0.115	115	4	65-135	25	
Naphthalene	<0.0100	0.0500	0.0722	144	0.0500	0.0699	140	3	70-130	25	X
n-Propylbenzene	<0.00500	0.0500	0.0514	103	0.0500	0.0514	103	0	75-125	25	
Styrene	<0.00500	0.0500	0.0520	104	0.0500	0.0505	101	3	75-125	25	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0566	113	0.0500	0.0562	112	1	72-125	25	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0553	111	0.0500	0.0498	100	10	74-125	25	
Tetrachloroethylene	0.00635	0.0500	0.0593	106	0.0500	0.0581	104	2	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916471 **QC- Sample ID:** 464810-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/15/2013 **Date Prepared:** 06/15/2013 **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	0.0496	99	0.0500	0.0492	98	1	59-139	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0637	127	0.0500	0.0645	129	1	75-137	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0657	131	0.0500	0.0646	129	2	75-135	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0596	119	0.0500	0.0591	118	1	75-125	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0509	102	0.0500	0.0482	96	5	75-127	25	
Trichloroethylene	0.0294	0.0500	0.0828	107	0.0500	0.0827	107	0	62-137	25	
Trichlorofluoromethane	<0.00500	0.0500	0.0604	121	0.0500	0.0621	124	3	60-140	25	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0554	111	0.0500	0.0501	100	10	75-125	25	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0550	110	0.0500	0.0534	107	3	75-125	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0550	110	0.0500	0.0528	106	4	70-125	25	
o-Xylene	<0.00500	0.0500	0.0544	109	0.0500	0.0528	106	3	75-125	25	
m,p-Xylenes	<0.0100	0.100	0.102	102	0.100	0.103	103	1	75-125	25	
Vinyl Chloride	0.286	0.0500	0.344	116	0.0500	0.354	136	3	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.

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac to Jal legacy

Work Order # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916486 **QC- Sample ID:** 464810-007 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0469	94	0.0500	0.0482	96	3	66-142	25	
Bromobenzene	<0.00500	0.0500	0.0543	109	0.0500	0.0524	105	4	75-125	25	
Bromochloromethane	<0.00500	0.0500	0.0463	93	0.0500	0.0459	92	1	60-140	25	
Bromodichloromethane	<0.00500	0.0500	0.0541	108	0.0500	0.0533	107	1	75-125	25	
Bromoform	<0.00500	0.0500	0.0498	100	0.0500	0.0451	90	10	75-125	25	
Methyl bromide	<0.00500	0.0500	0.0462	92	0.0500	0.0470	94	2	60-140	25	
n-Butylbenzene	<0.00500	0.0500	0.0509	102	0.0500	0.0494	99	3	75-125	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0512	102	0.0500	0.0504	101	2	75-125	25	
tert-Butylbenzene	<0.00500	0.0500	0.0527	105	0.0500	0.0528	106	0	75-125	25	
Carbon Tetrachloride	<0.00500	0.0500	0.0492	98	0.0500	0.0506	101	3	62-125	25	
Chlorobenzene	<0.00500	0.0500	0.0504	101	0.0500	0.0490	98	3	60-133	25	
Chloroethane	<0.0100	0.0500	0.0432	86	0.0500	0.0449	90	4	60-140	25	
Chloroform	<0.00500	0.0500	0.0479	96	0.0500	0.0483	97	1	70-130	25	
Methyl Chloride	<0.0100	0.0500	0.0385	77	0.0500	0.0418	84	8	60-140	25	
2-Chlorotoluene	<0.00500	0.0500	0.0523	105	0.0500	0.0520	104	1	73-125	25	
4-Chlorotoluene	<0.00500	0.0500	0.0527	105	0.0500	0.0517	103	2	74-125	25	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0500	100	0.0500	0.0491	98	2	75-125	25	
Dibromochloromethane	<0.00500	0.0500	0.0527	105	0.0500	0.0542	108	3	73-125	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0513	103	0.0500	0.0475	95	8	59-125	25	
1,2-Dibromoethane	<0.00500	0.0500	0.0550	110	0.0500	0.0518	104	6	73-125	25	
Methylene bromide	<0.00500	0.0500	0.0525	105	0.0500	0.0528	106	1	69-127	25	
1,2-Dichlorobenzene	0.00705	0.0500	0.0561	98	0.0500	0.0546	95	3	75-125	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0518	104	0.0500	0.0512	102	1	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916486 **QC- Sample ID:** 464810-007 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0495	99	0.0500	0.0480	96	3	75-125	25	
Dichlorodifluoromethane	<0.00500	0.0500	0.0421	84	0.0500	0.0463	93	10	70-130	25	
1,1-Dichloroethane	<0.00500	0.0500	0.0468	94	0.0500	0.0472	94	1	72-125	25	
1,2-Dichloroethane	<0.00500	0.0500	0.0478	96	0.0500	0.0504	101	5	68-127	25	
1,1-Dichloroethene	0.0128	0.0500	0.0601	95	0.0500	0.0593	93	1	59-172	25	
cis-1,2-Dichloroethylene	5.81	0.0500	5.40	0	0.0500	4.65	0	15	75-125	25	X
trans-1,2-dichloroethylene	0.0133	0.0500	0.0592	92	0.0500	0.0596	93	1	75-125	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0501	100	0.0500	0.0518	104	3	74-125	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0492	98	0.0500	0.0497	99	1	75-125	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0593	119	0.0500	0.0576	115	3	75-125	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0493	99	0.0500	0.0525	105	6	75-125	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0498	100	0.0500	0.0491	98	1	74-125	25	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0478	96	0.0500	0.0482	96	1	66-125	25	
Ethylbenzene	<0.00500	0.0500	0.0506	101	0.0500	0.0508	102	0	75-125	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0461	92	0.0500	0.0446	89	3	75-125	25	
Isopropylbenzene	<0.00500	0.0500	0.0530	106	0.0500	0.0544	109	3	75-125	25	
Methylene Chloride	<0.00500	0.0500	0.0452	90	0.0500	0.0463	93	2	75-125	25	
MTBE	<0.00500	0.100	0.0954	95	0.100	0.0980	98	3	65-135	25	
Naphthalene	<0.0100	0.0500	0.0413	83	0.0500	0.0428	86	4	70-130	25	
n-Propylbenzene	<0.00500	0.0500	0.0532	106	0.0500	0.0522	104	2	75-125	25	
Styrene	<0.00500	0.0500	0.0523	105	0.0500	0.0524	105	0	75-125	25	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0528	106	0.0500	0.0544	109	3	72-125	25	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0583	117	0.0500	0.0538	108	8	74-125	25	
Tetrachloroethylene	15.6	0.0500	13.5	0	0.0500	11.7	0	14	71-125	25	X

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

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

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

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac to Jal legacy

Work Order # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916486 **QC- Sample ID:** 464810-007 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/17/2013 **Date Prepared:** 06/17/2013 **Analyst:** ZHO

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	0.0499	100	0.0500	0.0504	101	1	59-139	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0447	89	0.0500	0.0452	90	1	75-137	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0487	97	0.0500	0.0472	94	3	75-135	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0468	94	0.0500	0.0477	95	2	75-125	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0532	106	0.0500	0.0523	105	2	75-127	25	
Trichloroethylene	2.69	0.0500	2.59	0	0.0500	2.29	0	12	62-137	25	X
Trichlorofluoromethane	<0.00500	0.0500	0.0462	92	0.0500	0.0452	90	2	60-140	25	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0589	118	0.0500	0.0557	111	6	75-125	25	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0510	102	0.0500	0.0515	103	1	75-125	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0523	105	0.0500	0.0504	101	4	70-125	25	
o-Xylene	<0.00500	0.0500	0.0512	102	0.0500	0.0511	102	0	75-125	25	
m,p-Xylenes	<0.0100	0.100	0.101	101	0.100	0.100	100	1	75-125	25	
Vinyl Chloride	0.0868	0.0500	0.109	44	0.0500	0.111	48	2	60-140	25	X

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

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

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

Form 3 - MS / MSD Recoveries

Project Name: 14" Vac to Jal legacy

Work Order # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916508 **QC- Sample ID:** 464818-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.270	0.0500	0.312	84	0.0500	0.305	70	2	66-142	25	
Bromobenzene	<0.00500	0.0500	0.0458	92	0.0500	0.0483	97	5	75-125	25	
Bromochloromethane	<0.00500	0.0500	0.0448	90	0.0500	0.0436	87	3	60-140	25	
Bromodichloromethane	<0.00500	0.0500	0.0483	97	0.0500	0.0475	95	2	75-125	25	
Bromoform	<0.00500	0.0500	0.0408	82	0.0500	0.0431	86	5	75-125	25	
Methyl bromide	<0.00500	0.0500	0.0510	102	0.0500	0.0400	80	24	60-140	25	
n-Butylbenzene	<0.00500	0.0500	0.0448	90	0.0500	0.0459	92	2	75-125	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0431	86	0.0500	0.0456	91	6	75-125	25	
tert-Butylbenzene	<0.00500	0.0500	0.0432	86	0.0500	0.0456	91	5	75-125	25	
Carbon Tetrachloride	<0.00500	0.0500	0.0478	96	0.0500	0.0454	91	5	62-125	25	
Chlorobenzene	<0.00500	0.0500	0.0448	90	0.0500	0.0450	90	0	60-133	25	
Chloroethane	<0.0100	0.0500	0.0509	102	0.0500	0.0428	86	17	60-140	25	
Chloroform	<0.00500	0.0500	0.0457	91	0.0500	0.0430	86	6	70-130	25	
Methyl Chloride	<0.0100	0.0500	0.0470	94	0.0500	0.0460	92	2	60-140	25	
2-Chlorotoluene	<0.00500	0.0500	0.0437	87	0.0500	0.0467	93	7	73-125	25	
4-Chlorotoluene	<0.00500	0.0500	0.0451	90	0.0500	0.0463	93	3	74-125	25	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0433	87	0.0500	0.0452	90	4	75-125	25	
Dibromochloromethane	<0.00500	0.0500	0.0459	92	0.0500	0.0479	96	4	73-125	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0443	89	0.0500	0.0451	90	2	59-125	25	
1,2-Dibromoethane	<0.00500	0.0500	0.0458	92	0.0500	0.0477	95	4	73-125	25	
Methylene bromide	<0.00500	0.0500	0.0519	104	0.0500	0.0487	97	6	69-127	25	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0426	85	0.0500	0.0445	89	4	75-125	25	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0449	90	0.0500	0.0458	92	2	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916508 **QC- Sample ID:** 464818-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.0415	83	0.0500	0.0425	85	2	75-125	25	
Dichlorodifluoromethane	<0.00500	0.0500	0.0512	102	0.0500	0.0532	106	4	70-130	25	
1,1-Dichloroethane	<0.00500	0.0500	0.0466	93	0.0500	0.0449	90	4	72-125	25	
1,2-Dichloroethane	<0.00500	0.0500	0.0486	97	0.0500	0.0471	94	3	68-127	25	
1,1-Dichloroethene	<0.00500	0.0500	0.0501	100	0.0500	0.0476	95	5	59-172	25	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0461	92	0.0500	0.0444	89	4	75-125	25	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0460	92	0.0500	0.0438	88	5	75-125	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0453	91	0.0500	0.0459	92	1	74-125	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0445	89	0.0500	0.0462	92	4	75-125	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0441	88	0.0500	0.0444	89	1	75-125	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0498	100	0.0500	0.0471	94	6	75-125	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0414	83	0.0500	0.0450	90	8	74-125	25	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0427	85	0.0500	0.0466	93	9	66-125	25	
Ethylbenzene	<0.00500	0.0500	0.0469	94	0.0500	0.0482	96	3	75-125	25	
Hexachlorobutadiene	<0.00500	0.0500	0.0414	83	0.0500	0.0406	81	2	75-125	25	
Isopropylbenzene	<0.00500	0.0500	0.0457	91	0.0500	0.0477	95	4	75-125	25	
Methylene Chloride	<0.00500	0.0500	0.0445	89	0.0500	0.0434	87	3	75-125	25	
MTBE	<0.00500	0.100	0.0919	92	0.100	0.0913	91	1	65-135	25	
Naphthalene	<0.0100	0.0500	0.0376	75	0.0500	0.0361	72	4	70-130	25	
n-Propylbenzene	<0.00500	0.0500	0.0451	90	0.0500	0.0475	95	5	75-125	25	
Styrene	<0.00500	0.0500	0.0370	74	0.0500	0.0448	90	19	75-125	25	X
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0472	94	0.0500	0.0484	97	3	72-125	25	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0455	91	0.0500	0.0499	100	9	74-125	25	
Tetrachloroethylene	<0.00500	0.0500	0.0442	88	0.0500	0.0451	90	2	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 # : 464818 **Project ID:** 2009-092

Lab Batch ID: 916508 **QC- Sample ID:** 464818-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/18/2013 **Date Prepared:** 06/18/2013 **Analyst:** ZHO

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	0.0476	95	0.0500	0.0460	92	3	59-139	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0431	86	0.0500	0.0416	83	4	75-137	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0414	83	0.0500	0.0442	88	7	75-135	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0460	92	0.0500	0.0447	89	3	75-125	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0485	97	0.0500	0.0483	97	0	75-127	25	
Trichloroethylene	<0.00500	0.0500	0.0472	94	0.0500	0.0445	89	6	62-137	25	
Trichlorofluoromethane	<0.00500	0.0500	0.0465	93	0.0500	0.0426	85	9	60-140	25	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0485	97	0.0500	0.0503	101	4	75-125	25	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0458	92	0.0500	0.0482	96	5	75-125	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0453	91	0.0500	0.0468	94	3	70-125	25	
o-Xylene	<0.00500	0.0500	0.0469	94	0.0500	0.0472	94	1	75-125	25	
m,p-Xylenes	<0.0100	0.100	0.0985	99	0.100	0.102	102	3	75-125	25	
Vinyl Chloride	<0.00200	0.0500	0.0487	97	0.0500	0.0498	100	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 #: 464818

Lab Batch #: 916182 **Project ID:** 2009-092

Date Analyzed: 06/13/2013 02:58 **Date Prepared:** 06/13/2013 **Analyst:** ALA

QC- Sample ID: 464707-001 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)	789	792	0	20	
Alkalinity, Carbonate (as CaCO3)	<4.00	<4.00	0	20	U

Lab Batch #: 916182

Date Analyzed: 06/13/2013 04:08 **Date Prepared:** 06/13/2013 **Analyst:** ALA

QC- Sample ID: 464707-011 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)	20.5	21.2	3	20	
Alkalinity, Carbonate (as CaCO3)	<4.00	<4.00	0	20	U

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 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
;roool-c

Page 1 of 1

LAB W.O#: 464818

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:	bjarguijo@basinenv.com
Project ID:	14" Vac to Jal Legacy SRS #2009-092	PO#:	PAA-J. Henry
Invoice To:	Jason Henry Plains All American	Quote #:	

Sampler Signature: Adrian Irigoyen

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	Metals (RCRA, NMWQCC)	VOC's by 8260	SVOC's by 8270	General Chemistry					Hold Sample (CALL___) Run PAH on Highest TPH___ Only if
Cont Type * VC									PC	VP	GA	PC					
Pres Type**									B,I	E,I	I	I					
# Cont									Lab Only:								
1	MW-2	6/7/13	11:10	GW			7		X	X	X	X					
2	MW-3	6/7/13	12:00	GW			7		X	X	X	X					
3	MW-4	6/7/13	2:00	GW			7		X	X	X	X					
4	MW-5	6/7/13	12:30	GW			7		X	X	X	X					
5	MW-6	6/7/13	2:45	GW			7		X	X	X	X					
6																	
7																	
8																	
9																	
10																	

* 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, E. HCL, I. Ice 2.0 C., B. HNO_3, F. MeOH, J. MCAA, 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, S Soil/Sediment/Solid, W Wipe, A Air, O Oil, T Tissue, U Urine, B Blood
Other _____

REMARKS

See attached sheet for specific analyses requested.

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*Please report all SVOC's down to the MDL. *

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 4.8 2 3

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	Adrian Irigoyen	Basin	6/10/13	12:30	KBrittain	MS	6/10/13	12:30
2					Shannon Smith	Xenco	6-11-13	14:00
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

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:

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

4. RCRA Metals:

   Arsenic
   Barium
   Cadmium
   Chromium
   Lead
   Mercury
   Selenium
   Silver

5. NMWQCC Metals:

   Copper
   Iron
   Manganese
   Zinc
   Aluminum
   Boron
   Cobalt
   Molybdenum
   Nickel

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 06/10/2013 12:30:00 PM

Work Order #: 464818

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
#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?	**Yes**

*** 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: 06/11/2013

Checklist reviewed by: Kelsey Brooks Date: 06/11/2013

Analytical Report 469599

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

14 " Vac to Jal

09-SEP-13

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-13-14-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

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-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
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)

09-SEP-13

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

Reference: XENCO Report No(s): **469599**
14 " Vac to Jal
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) 469599. 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. 469599 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 469599

PLAINS ALL AMERICAN EH&S, Midland, TX

14 " Vac to Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2	W	08-29-13 11:00		469599-001
MW-3	W	08-29-13 11:30		469599-002
MW-4	W	08-29-13 13:00		469599-003
MW-5	W	08-29-13 12:15		469599-004
MW-6	W	08-29-13 13:30		469599-005

CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S

Project Name: 14 " Vac to Jal

Project ID:
Work Order Number(s): *469599*

Report Date: *09-SEP-13*
Date Received: *08/31/2013*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 469599

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14 " Vac to Jal

Project Id:
Contact: Ben Arguijo
Project Location: Lovington NM

Date Received in Lab: Sat Aug-31-13 12:00 am
Report Date: 09-SEP-13
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	469599-001		469599-002		469599-003		469599-004		469599-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Aug-29-13 11:00		Aug-29-13 11:30		Aug-29-13 13:00		Aug-29-13 12:15		Aug-29-13 13:30	
BTEX by SW 8260B SUB: TX104704215	***Extracted:***	Sep-07-13 14:30		Sep-07-13 14:34		Sep-07-13 14:35		Sep-09-13 12:00		Sep-07-13 14:37	
	Analyzed:	Sep-07-13 15:17		Sep-07-13 16:59		Sep-07-13 17:25		Sep-09-13 12:41		Sep-07-13 18:15	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.00100	0.110	0.00100	0.692 D	0.00500	ND	0.00100	ND	0.00100
Toluene		ND	0.00100	ND	0.00100	0.00274	0.00100	ND	0.00100	ND	0.00100
Ethylbenzene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100
m,p-Xylenes		ND	0.00200	ND	0.00200	0.00896	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	ND	0.00100	0.00896	0.00100	ND	0.00100	ND	0.00100
Total BTEX		ND	0.00100	0.110	0.00100	0.704	0.00100	ND	0.00100	ND	0.00100
Inorganic Anions by EPA 300/300.1	***Extracted:***	Sep-05-13 13:00		Sep-05-13 13:00		Sep-05-13 13:00		Sep-05-13 13:00		Sep-05-13 13:00	
	Analyzed:	Sep-05-13 18:48		Sep-05-13 19:11		Sep-05-13 19:34		Sep-05-13 20:42		Sep-05-13 21:04	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		9620	200	6250	200	4690	200	4950	200	5120	200
TDS by SM2540C SUB: TX104704215	***Extracted:***										
	Analyzed:	Sep-05-13 15:05		Sep-05-13 15:05		Sep-05-13 15:05		Sep-05-13 15:05		Sep-05-13 15:05	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total dissolved solids		19600	5.00	13600	5.00	8610	5.00	9730	5.00	10700	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 quantiation 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

Work Orders : 469599,

Project ID:

Lab Batch #: 922281 **Sample:** 469599-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/07/13 15:17

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0489	0.0500	98	75-131	
1,2-Dichloroethane-D4	0.0501	0.0500	100	63-144	
Toluene-D8	0.0502	0.0500	100	80-117	
4-Bromofluorobenzene	0.0517	0.0500	103	74-124	

Lab Batch #: 922281 **Sample:** 469599-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/07/13 16:59

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0487	0.0500	97	75-131	
1,2-Dichloroethane-D4	0.0495	0.0500	99	63-144	
Toluene-D8	0.0518	0.0500	104	80-117	
4-Bromofluorobenzene	0.0484	0.0500	97	74-124	

Lab Batch #: 922281 **Sample:** 469599-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/07/13 17:25

SURROGATE RECOVERY STUDY

BTEX by SW 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	0.0463	0.0500	93	63-144	
Toluene-D8	0.0546	0.0500	109	80-117	
4-Bromofluorobenzene	0.0481	0.0500	96	74-124	

Lab Batch #: 922281 **Sample:** 469599-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/07/13 18:15

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0523	0.0500	105	75-131	
1,2-Dichloroethane-D4	0.0528	0.0500	106	63-144	
Toluene-D8	0.0521	0.0500	104	80-117	
4-Bromofluorobenzene	0.0495	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

Work Orders : 469599,

Project ID:

Lab Batch #: 922297 **Sample:** 469599-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/09/13 12:41

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0517	0.0500	103	75-131	
1,2-Dichloroethane-D4	0.0531	0.0500	106	63-144	
Toluene-D8	0.0470	0.0500	94	80-117	
4-Bromofluorobenzene	0.0485	0.0500	97	74-124	

Lab Batch #: 922297 **Sample:** 469599-003 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/09/13 13:06

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0519	0.0500	104	75-131	
1,2-Dichloroethane-D4	0.0496	0.0500	99	63-144	
Toluene-D8	0.0486	0.0500	97	80-117	
4-Bromofluorobenzene	0.0510	0.0500	102	74-124	

Lab Batch #: 922281 **Sample:** 643565-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/07/13 14:50

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0475	0.0500	95	75-131	
1,2-Dichloroethane-D4	0.0503	0.0500	101	63-144	
Toluene-D8	0.0493	0.0500	99	80-117	
4-Bromofluorobenzene	0.0521	0.0500	104	74-124	

Lab Batch #: 922297 **Sample:** 643579-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/09/13 11:24

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0513	0.0500	103	75-131	
1,2-Dichloroethane-D4	0.0474	0.0500	95	63-144	
Toluene-D8	0.0486	0.0500	97	80-117	
4-Bromofluorobenzene	0.0510	0.0500	102	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

Work Orders : 469599,

Project ID:

Lab Batch #: 922281 **Sample:** 643565-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/07/13 13:58

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0516	0.0500	103	75-131	
1,2-Dichloroethane-D4	0.0521	0.0500	104	63-144	
Toluene-D8	0.0499	0.0500	100	80-117	
4-Bromofluorobenzene	0.0508	0.0500	102	74-124	

Lab Batch #: 922297 **Sample:** 643579-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/09/13 10:33

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0501	0.0500	100	75-131	
1,2-Dichloroethane-D4	0.0500	0.0500	100	63-144	
Toluene-D8	0.0501	0.0500	100	80-117	
4-Bromofluorobenzene	0.0500	0.0500	100	74-124	

Lab Batch #: 922281 **Sample:** 469599-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/07/13 15:43

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0482	0.0500	96	75-131	
1,2-Dichloroethane-D4	0.0485	0.0500	97	63-144	
Toluene-D8	0.0514	0.0500	103	80-117	
4-Bromofluorobenzene	0.0509	0.0500	102	74-124	

Lab Batch #: 922297 **Sample:** 469669-001 S / MS **Batch:** 1 **Matrix:** Waste Water

Units: mg/L **Date Analyzed:** 09/09/13 13:57

SURROGATE RECOVERY STUDY

BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0492	0.0500	98	75-131	
1,2-Dichloroethane-D4	0.0443	0.0500	89	63-144	
Toluene-D8	0.0483	0.0500	97	80-117	
4-Bromofluorobenzene	0.0548	0.0500	110	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

Work Orders : 469599,

Project ID:

Lab Batch #: 922281 **Sample:** 469599-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 09/07/13 16:09

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0508	0.0500	102	75-131	
1,2-Dichloroethane-D4	0.0510	0.0500	102	63-144	
Toluene-D8	0.0514	0.0500	103	80-117	
4-Bromofluorobenzene	0.0493	0.0500	99	74-124	

Lab Batch #: 922297 **Sample:** 469669-001 SD / MSD **Batch:** 1 **Matrix:** Waste Water

Units: mg/L **Date Analyzed:** 09/09/13 14:22

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0498	0.0500	100	75-131	
1,2-Dichloroethane-D4	0.0503	0.0500	101	63-144	
Toluene-D8	0.0502	0.0500	100	80-117	
4-Bromofluorobenzene	0.0507	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

Work Order #: 469599 **Project ID:**

Lab Batch #: 922281 **Sample:** 643565-1-BKS **Matrix:** Water

Date Analyzed: 09/07/2013 **Date Prepared:** 09/07/2013 **Analyst:** SAD

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

BTEX by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.00100	0.100	0.0944	94	66-142	
Toluene	<0.00100	0.100	0.0933	93	59-139	
Ethylbenzene	<0.00100	0.100	0.101	101	75-125	
m,p-Xylenes	<0.00200	0.200	0.204	102	75-125	
o-Xylene	<0.00100	0.100	0.0969	97	75-125	

Lab Batch #: 922297 **Sample:** 643579-1-BKS **Matrix:** Water

Date Analyzed: 09/09/2013 **Date Prepared:** 09/09/2013 **Analyst:** SAD

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

BTEX by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.00100	0.100	0.104	104	66-142	
Toluene	<0.00100	0.100	0.107	107	59-139	
Ethylbenzene	<0.00100	0.100	0.116	116	75-125	
m,p-Xylenes	<0.00200	0.200	0.229	115	75-125	
o-Xylene	<0.00100	0.100	0.112	112	75-125	

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

Work Order #: 469599

Project ID:

Analyst: JUM **Date Prepared:** 09/05/2013 **Date Analyzed:** 09/05/2013

Lab Batch ID: 922217 **Sample:** 643514-1-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	26.7	107	25.0	26.7	107	0	90-110	20	

Analyst: ANS **Date Prepared:** 09/05/2013 **Date Analyzed:** 09/05/2013

Lab Batch ID: 922072 **Sample:** 922072-1-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	933	93	1000	914	91	2	80-120	30	

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

Work Order #: 469599

Lab Batch #: 922217

Project ID:

Date Analyzed: 09/05/2013

Date Prepared: 09/05/2013

Analyst: JUM

QC- Sample ID: 469538-001 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	167	125	307	112	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

Work Order # : 469599 **Project ID:**

Lab Batch ID: 922281 **QC- Sample ID:** 469599-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 09/07/2013 **Date Prepared:** 09/07/2013 **Analyst:** SAD

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 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	<0.00100	0.100	0.0930	93	0.100	0.101	101	8	66-142	20	
Toluene	<0.00100	0.100	0.0892	89	0.100	0.0989	99	10	59-139	20	
Ethylbenzene	<0.00100	0.100	0.0977	98	0.100	0.108	108	10	75-125	20	
m,p-Xylenes	<0.00200	0.200	0.199	100	0.200	0.215	108	8	75-125	20	
o-Xylene	<0.00100	0.100	0.0969	97	0.100	0.110	110	13	75-125	20	

Lab Batch ID: 922297 **QC- Sample ID:** 469669-001 S **Batch #:** 1 **Matrix:** Waste Water

Date Analyzed: 09/09/2013 **Date Prepared:** 09/09/2013 **Analyst:** SAD

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by SW 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	<0.00100	0.100	0.112	112	0.100	0.111	111	1	66-142	20	
Toluene	0.00140	0.100	0.107	106	0.100	0.110	109	3	59-139	20	
Ethylbenzene	<0.00100	0.100	0.122	122	0.100	0.119	119	2	75-125	20	
m,p-Xylenes	<0.00200	0.200	0.243	122	0.200	0.235	118	3	75-125	20	
o-Xylene	<0.00100	0.100	0.111	111	0.100	0.117	117	5	75-125	20	

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

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

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

Sample Duplicate Recovery

Project Name: 14 " Vac to Jal

Work Order #: 469599

Lab Batch #: 922072 **Project ID:**

Date Analyzed: 09/05/2013 15:05 **Date Prepared:** 09/05/2013 **Analyst:** ANS

QC- Sample ID: 469599-001 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	19600	19500	1	30	

Lab Batch #: 922072

Date Analyzed: 09/05/2013 15:05 **Date Prepared:** 09/05/2013 **Analyst:** ANS

QC- Sample ID: 469683-002 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	593	649	9	30	

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

BRL - Below Reporting Limit

469599

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

;roool-c

Page 1 of 1

LAB W.O # :

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:	bjarguijo@basinenv.com
Project ID:	14" Vac to Jal Legacy SRS #2009-092	PO#:	PAA-J. Henry
Invoice To:	Jason Henry Plains All American	Quote #:	

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

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

Sampler Signature:

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

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	Chloride	TDS							Hold Sample (CALL___) Run PAH on Highest TPH___ Only If
							# Cont	Lab Only:	VP	PC	PC							
								Cont Type * VC	VP	PC	PC							
								Pres Type**	E,I	I	I							
1	MW-2	8/29/13	11:00	GW			4		X	X	X							
2	MW-3	8/29/13	11:30	GW			4		X	X	X							
3	MW-4	8/29/13	1:00	GW			4		X	X	X							
4	MW-5	8/29/13	12:15	GW			4		X	X	X							
5	MW-6	8/29/13	1:30	GW			4		X	X	X							
6																		
7																		
8																		
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 2 3

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1		ET	8/30/13	9:50		MS	8/30/13	950
2								
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: 08/31/2013 12:00:00 AM

Work Order #: 469599

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)?	8.6
#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)?	**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?	**N/A**

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

Analyst:	PH Device/Lot#:

Checklist completed by: Candace James Date: 09/03/2013
Candace James

Checklist reviewed by: Kelsey Brooks Date: 09/03/2013
Kelsey Brooks

Analytical Report 473756

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

14" Vac to Jal Legacy

SRS#2009-092

18-NOV-13

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-13-15-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

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-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
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)

18-NOV-13

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

Reference: XENCO Report No(s): **473756**
14" Vac to Jal Legacy
Project Address: New Mexico

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) 473756. 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. 473756 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 473756

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	11-07-13 09:00		473756-001
MW-3	W	11-07-13 09:30		473756-002
MW-4	W	11-07-13 10:30		473756-003
MW-5	W	11-07-13 10:00		473756-004
MW-6	W	11-07-13 11:00		473756-005

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 473756

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: 14" Vac to Jal Legacy

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

Date Received in Lab: Fri Nov-08-13 01:50 pm
Report Date: 18-NOV-13
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	473756-001		473756-002		473756-003		473756-004		473756-005	
	Field Id:	MW-2		MW-3		MW-4		MW-5		MW-6	
	Depth:										
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	Sampled:	Nov-07-13 09:00		Nov-07-13 09:30		Nov-07-13 10:30		Nov-07-13 10:00		Nov-07-13 11:00	
BTEX by EPA 8021	***Extracted:***	Nov-11-13 14:00		Nov-11-13 14:00		Nov-11-13 14:00		Nov-11-13 14:00		Nov-11-13 14:00	
	Analyzed:	Nov-11-13 16:56		Nov-12-13 21:24		Nov-15-13 22:01		Nov-15-13 22:17		Nov-11-13 17:59	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		0.00516	0.00100	2.10	0.0100	0.0289	0.00100	ND	0.00100	ND	0.00100
Toluene		ND	0.00200	ND	0.0200	ND	0.00200	ND	0.00200	ND	0.00200
Ethylbenzene		ND	0.00100	ND	0.0100	ND	0.00100	ND	0.00100	ND	0.00100
m_p-Xylenes		ND	0.00200	0.0260	0.0200	ND	0.00200	ND	0.00200	ND	0.00200
o-Xylene		ND	0.00100	ND	0.0100	ND	0.00100	ND	0.00100	ND	0.00100
Xylenes, Total		ND	0.00100	0.0260	0.0100	ND	0.00100	ND	0.00100	ND	0.00100
Total BTEX		0.00516	0.00100	2.13	0.0100	0.0289	0.00100	ND	0.00100	ND	0.00100
Inorganic Anions by EPA 300/300.1	***Extracted:***	Nov-13-13 01:25		Nov-13-13 01:47		Nov-13-13 02:10		Nov-13-13 02:33		Nov-13-13 02:55	
	Analyzed:	Nov-13-13 01:25		Nov-13-13 01:47		Nov-13-13 02:10		Nov-13-13 02:33		Nov-13-13 02:55	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		9040	200	6100	200	8860	200	5080	100	5350	100
TDS by SM2540C	***Extracted:***										
	Analyzed:	Nov-12-13 13:00		Nov-12-13 13:00		Nov-12-13 13:00		Nov-12-13 13:00		Nov-12-13 13:00	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total dissolved solids		17700	5.00	15500	5.00	21400	5.00	10700	5.00	10200	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 : 473756,

Project ID: SRS#2009-092

Lab Batch #: 927505 **Sample:** 473756-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/11/13 16:56

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 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	0.0285	0.0300	95	80-120	

Lab Batch #: 927505 **Sample:** 473756-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/11/13 17:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

Lab Batch #: 927505 **Sample:** 473756-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/12/13 21:24

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0325	0.0300	108	80-120	
4-Bromofluorobenzene	0.0256	0.0300	85	80-120	

Lab Batch #: 927505 **Sample:** 473756-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/15/13 22:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 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	0.0285	0.0300	95	80-120	

Lab Batch #: 927505 **Sample:** 473756-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/15/13 22:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 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	0.0289	0.0300	96	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 : 473756,

Project ID: SRS#2009-092

Lab Batch #: 927505 **Sample:** 646758-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/11/13 16:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	80-120	
4-Bromofluorobenzene	0.0275	0.0300	92	80-120	

Lab Batch #: 927505 **Sample:** 646758-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/11/13 15:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 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	0.0309	0.0300	103	80-120	

Lab Batch #: 927505 **Sample:** 646758-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/11/13 15:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 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	0.0294	0.0300	98	80-120	

Lab Batch #: 927505 **Sample:** 473756-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/11/13 15:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 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	0.0309	0.0300	103	80-120	

Lab Batch #: 927505 **Sample:** 473756-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/11/13 16:07

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 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	0.0317	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.

Blank Spike Recovery

Project Name: 14" Vac to Jal Legacy

Work Order #: 473756 **Project ID:** SRS#2009-092

Lab Batch #: 927465 **Sample:** 927465-1-BKS **Matrix:** Water

Date Analyzed: 11/12/2013 **Date Prepared:** 11/12/2013 **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	5.50	1000	984	98	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 #: 473756 **Project ID:** SRS#2009-092

Analyst: ARM **Date Prepared:** 11/11/2013 **Date Analyzed:** 11/11/2013

Lab Batch ID: 927505 **Sample:** 646758-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021 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	0.0897	90	0.100	0.0929	93	4	70-125	25	
Toluene	<0.00200	0.100	0.0918	92	0.100	0.0944	94	3	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0983	98	0.100	0.101	101	3	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.200	100	0.200	0.205	103	2	70-131	25	
o-Xylene	<0.00100	0.100	0.101	101	0.100	0.103	103	2	71-133	25	

Analyst: AMB **Date Prepared:** 11/12/2013 **Date Analyzed:** 11/12/2013

Lab Batch ID: 927480 **Sample:** 646844-1-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	23.3	93	25.0	23.3	93	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 #: 473756

Lab Batch #: 927480 **Project ID:** SRS#2009-092

Date Analyzed: 11/13/2013 **Date Prepared:** 11/13/2013 **Analyst:** AMB

QC- Sample ID: 473770-001 S **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	331	500	827	99	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 # : 473756 **Project ID:** SRS#2009-092

Lab Batch ID: 927505 **QC- Sample ID:** 473756-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 11/11/2013 **Date Prepared:** 11/11/2013 **Analyst:** ARM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021 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	0.00516	0.100	0.0977	93	0.100	0.0969	92	1	70-125	25	
Toluene	<0.00200	0.100	0.0961	96	0.100	0.0984	98	2	70-125	25	
Ethylbenzene	<0.00100	0.100	0.102	102	0.100	0.106	106	4	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.208	104	0.200	0.216	108	4	70-131	25	
o-Xylene	<0.00100	0.100	0.104	104	0.100	0.109	109	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.

Sample Duplicate Recovery

Project Name: 14" Vac to Jal Legacy

Work Order #: 473756

Lab Batch #: 927465 **Project ID:** SRS#2009-092

Date Analyzed: 11/12/2013 13:00 **Date Prepared:** 11/12/2013 **Analyst:** AMB

QC- Sample ID: 473756-001 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	17700	18800	6	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

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 11/08/2013 01:50:00 PM

Work Order #: 473756

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
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6 *Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 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?	**N/A**

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

Analyst:	PH Device/Lot#:

Checklist completed by: Candace James Date: 11/11/2013
Candace James

Checklist reviewed by: Kelsey Brooks Date: 11/11/2013
Kelsey Brooks

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
;roool-c

LAB W.O#: 473756

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:	bjarguijo@basinenv.com
Project ID:	14" Vac to Jal Legacy SRS #2009-092	PO#:	PAA-J. Henry
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	Cont Type * VC	Example Volatiles by 8260	BTEX	Chloride	TDS							Hold Sample (CALL___) Run PAH on Highest TPH___ Only If
								Pres Type**		E,I	I	I							
								# Cont	Lab Only:										
1	MW-2	11/7/13	0900	GW			4			X	X	X							
2	MW-3	11/7/13	0930	GW			4			X	X	X							
3	MW-4	11/7/13	1030	GW			4			X	X	X							
4	MW-5	11/7/13	1000	GW			4			X	X	X							
5	MW-6	11/7/13	1100	GW			4			X	X	X							
6																			
7																			
8																			
9																			
0																			

* 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	Lab received 1 3.0 2 3 8.0

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1		ET	11/8/13	1:50	Reta Reed	MS	11-8-13	1:50
2		Xenco	11/9/13	12:30				
3								
4								

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

C.O.C. Serial #

 Revision Date: Nov 12, 2009

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 11/08/2013 01:50:00 PM

Work Order #: 473756

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
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6 *Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 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?	**N/A**

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

Analyst:	PH Device/Lot#:

Checklist completed by: Candace James Date: 11/11/2013
Candace James

Checklist reviewed by: Kelsey Brooks Date: 11/11/2013
Kelsey Brooks

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

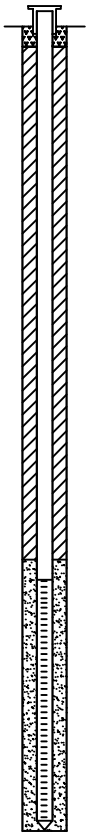
1RP - 2162 (04.4)

fGRL0912457808

Appendix C
Monitor Well Logs

Monitor Well MW-2

Depth Below Ground Surface	Soil Column	Chloride Field Test	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0						0' - 1' - Caliche
				None	None	1' - 4' - Medium hard caliche layers
5			0.4			4' - 6' - Tan red silty sand & sandstone
				None	None	
10			(1.1)			
				None	None	6' - 18' - Medium hard caliche layers
15			0.8			
				None	None	
20			(0.6)			
				None	None	18' - 26' - Tan silty sand & caliche
25			0.0			
				None	None	26' - 27' - Tan red silty clay & sand
30			0.1			
				None	None	27' - 38' - Tan red silty sand & gravel
35			0.0			
				None	None	
40			(0.9)			
				None	None	
45			0.0			
				None	None	
50			0.0			
				None	None	
55			(0.2)			38' - 73' - Tan silty sand & gravel
				None	None	
60						
				None	None	
65						
				None	None	
70						
				None	None	
75						73' - 80' - Red silty sand & clay
				None	None	
80						



Date Drilled May 6, 2013
Thickness of Bentonite Seal 51 Ft
Depth of Exploratory Boring 80 Ft bgs
Depth to Groundwater 80 Ft bgs
Ground Water Elevation

▼ Indicates the PSH level measured on
▼ Indicates the groundwater level measured on May 9, 2013
⬭ 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 56' bgs to prevent collapse of the borehole.

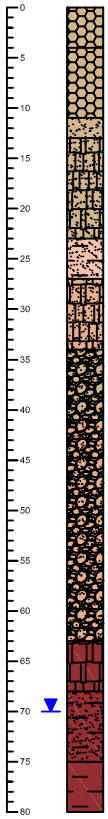
Monitor Well MW-2

Plains Marketing, LP
14" Vac to Jal Legacy
Lea County, New Mexico
SRS #2009-092
NMOCD Reference #: 1RP-2162

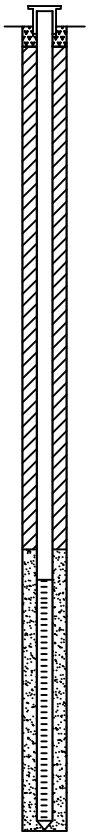
Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

Prep By: BJA	Checked By: BRB
June 7, 2013	

Monitor Well MW-3



Depth Below Ground Surface	Chloride Field Test	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0 - 5		0.0	None	None	0' - 4' - Caliche (Hard)
5 - 10		0.1	None	None	4' - 11' - Medium hard caliche layers
10 - 15		0.2	None	None	11' - 13' - Tan silty sand
15 - 20		0.2	None	None	13' - 23' - Tand sandstone & silty sand
20 - 25		0.9	None	None	23' - 27' - Tan plnk sllty sand & clay
25 - 30		0.5	None	None	27' - 34' - Tan red silty sand & sandstone
30 - 35		0.4	None	None	34' - 41' - Tan silty sand & gravel ·
35 - 40		0.6	None	None	
40 - 45		0.9	None	None	
45 - 50		1.2	None	None	41' - 63' - Tan red silty sand & gravel
50 - 55		0.0	None	None	
55 - 60		0.6	None	None	
60 - 65			None	None	63' - 68' - Hard red sandstone
65 - 70			None	None	68' - 75' - Red silty clay & sand
70 - 75			None	None	75' - 80' - Red clay
75 - 80					



Date Drilled May 6, 2013
Thickness of Bentonite Seal 50 Ft
Depth of Exploratory Boring 80 Ft bgs
Depth to Groundwater 80 Ft bgs
Ground Water Elevation

Indicates the PSH level measured on
Indicates the groundwater level measured on May 9, 2013
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 61' bgs to prevent collapse of the borehole.

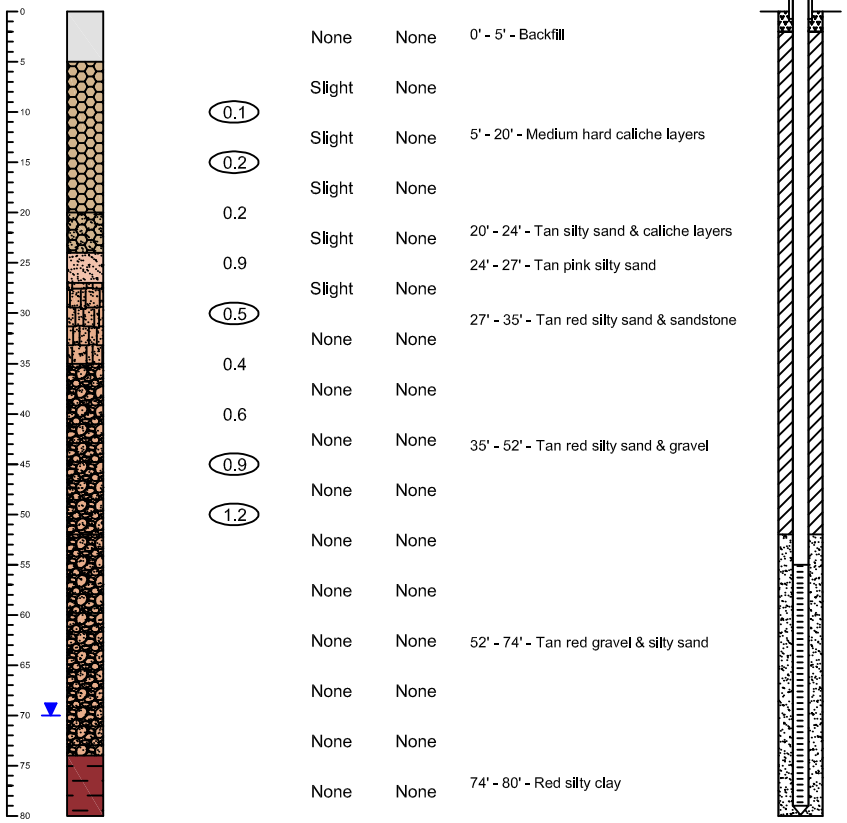
Monitor Well MW-3

Plains Marketing, LP
14" Vac to Jal Legacy
Lea County, New Mexico
SRS #2009-092
NMOCD Reference #: 1RP-2162

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

Prep By: BJA	Checked By: BRB
June 7, 2013	

Monitor Well MW-4



Depth Below Ground Surface	Chloride Field Test	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0			None	None	0' - 5' - Backfill
5			Slight	None	
10		0.1	Slight	None	5' - 20' - Medium hard caliche layers
15		0.2	Slight	None	
20		0.2	Slight	None	20' - 24' - Tan silty sand & caliche layers
25		0.9	Slight	None	24' - 27' - Tan pink silty sand
30		0.5	None	None	27' - 35' - Tan red silty sand & sandstone
35		0.4	None	None	
40		0.6	None	None	35' - 52' - Tan red silty sand & gravel
45		0.9	None	None	
50		1.2	None	None	
55			None	None	
60			None	None	52' - 74' - Tan red gravel & silty sand
65			None	None	
70			None	None	
75			None	None	74' - 80' - Red silty clay
80					

Date Drilled May 7, 2013
Thickness of Bentonite Seal 50 Ft
Depth of Exploratory Boring 80 Ft bgs
Depth to Groundwater 80 Ft bgs
Ground Water Elevation

Indicates the PSH level measured on
Indicates the groundwater level measured on May 9, 2013
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 51' bgs to prevent collapse of the borehole.

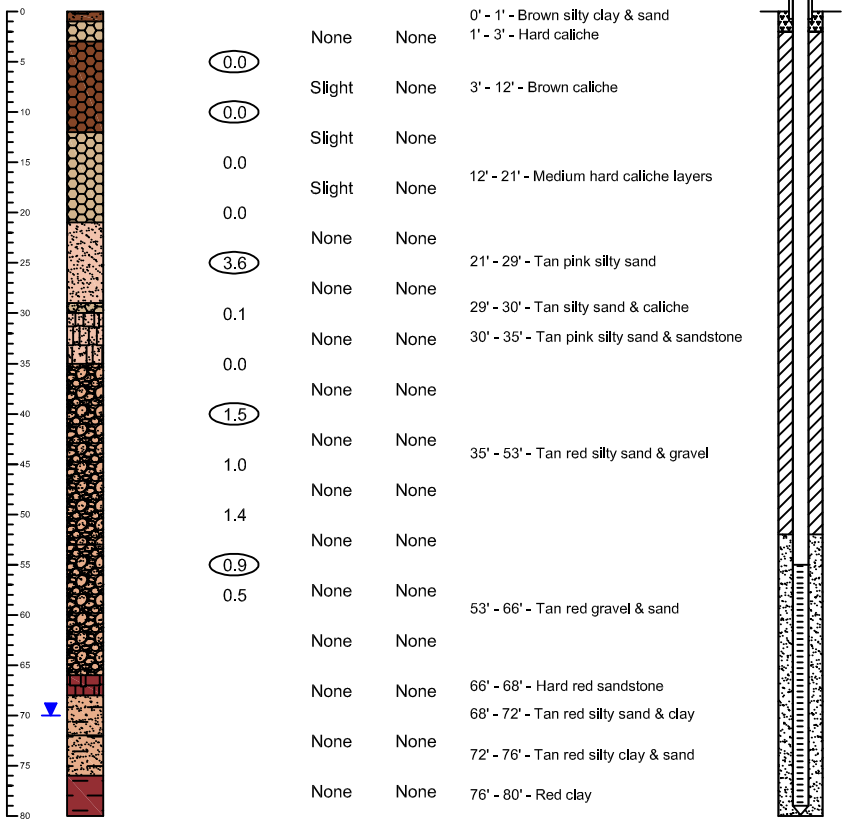
Monitor Well MW-4

Plains Marketing, LP
14" Vac to Jal Legacy
Lea County, New Mexico
SRS #2009-092
NMOCD Reference #: 1RP-2162

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

Prep By: BJA	Checked By: BRB
June 7, 2013	

Monitor Well MW-5



Depth Below Ground Surface	Chloride Field Test	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
			None	None	0' - 1' - Brown silty clay & sand 1' - 3' - Hard caliche
		0.0	Slight	None	3' - 12' - Brown caliche
		0.0	Slight	None	
		0.0	Slight	None	12' - 21' - Medium hard caliche layers
		0.0	None	None	
		3.6	None	None	21' - 29' - Tan pink silty sand
		0.1	None	None	29' - 30' - Tan silty sand & caliche
		0.0	None	None	30' - 35' - Tan pink silty sand & sandstone
		1.5	None	None	
		1.0	None	None	35' - 53' - Tan red silty sand & gravel
		1.4	None	None	
		0.9	None	None	
		0.5	None	None	53' - 66' - Tan red gravel & sand
			None	None	
			None	None	66' - 68' - Hard red sandstone
			None	None	68' - 72' - Tan red silty sand & clay
			None	None	72' - 76' - Tan red silty clay & sand
			None	None	76' - 80' - Red clay

Date Drilled May 8, 2013
Thickness of Bentonite Seal 50 Ft
Depth of Exploratory Boring 80 Ft bgs
Depth to Groundwater 80 Ft bgs
Ground Water Elevation

Indicates the PSH level measured on
Indicates the groundwater level measured on May 9, 2013
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 59' bgs to prevent collapse of the borehole.

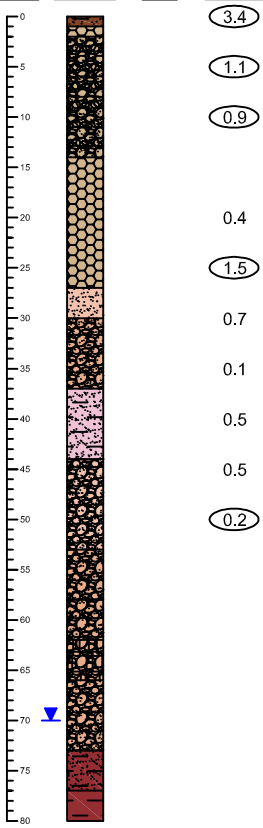
Monitor Well MW-5

Plains Marketing, LP
14" Vac to Jal Legacy
Lea County, New Mexico
SRS #2009-092
NMOCD Reference #: 1RP-2162

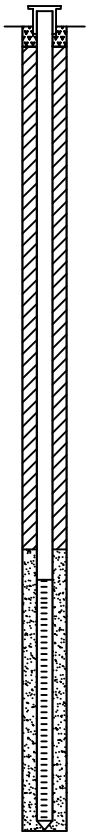
Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

Prep By: BJA	Checked By: BRB
June 7, 2013	

Monitor Well MW-6



Depth Below Ground Surface	Chloride Field Test	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
		3.4	None	None	0' - 1' - Brown silty clay & sand 1' - 2' - Hard caliche
		1.1	None	None	2' - 14' - Gravely & sand caliche
		0.9	None	None	
			None	None	
		0.4	None	None	14' - 27' - Medium hard caliche layers
		1.5	None	None	
		0.7	None	None	27' - 30' - Tan pink silty sand
		0.1	None	None	30' - 37' - Tan red silty sand & gravel
		0.5	None	None	37' - 44' - Pink & red silty clay & sand
		0.5	None	None	
		0.2	None	None	44' - 53' - Tan pink silty sand & gravel
			None	None	53' - 58' - Gravel & sand
			None	None	58' - 62' - Tan red silty sand & gravel
			None	None	62' - 66' - Hard sandstone & gravel
			None	None	66' - 73' - Tan red silty sand & gravel
			None	None	73' - 77' - Red silty clay & sand
			None	None	77' - 80' - Red clay



Date Drilled May 8, 2013
Thickness of Bentonite Seal 50 Ft
Depth of Exploratory Boring 80 Ft bgs
Depth to Groundwater 80 Ft bgs
Ground Water Elevation

Indicates the PSH level measured on
Indicates the groundwater level measured on May 9, 2013
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 51' bgs to prevent collapse of the borehole.

Monitor Well MW-6

Plains Marketing, LP
14" Vac to Jal Legacy
Lea County, New Mexico
SRS #2009-092
NMOCD Reference #: 1RP-2162

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

Prep By: BJA	Checked By: BRB
June 7, 2013	