

**2R - 53**

# **Annual Report**

**2014**



# PLAINS ALL AMERICAN

February 12, 2015

Mr. Jim Griswold  
New Mexico Oil Conservation Division  
Environmental Bureau  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Re: Plains All American – 2014 Annual Monitoring Report  
1 Site in Eddy County, New Mexico

Dear Mr. Griswold:

Plains All American is an operator of crude oil pipelines and terminal facilities in the state of New Mexico. Plains All American actively monitors certain historical release sites exhibiting groundwater impacts, consistent with assessments and work plans developed in consultation with the New Mexico Oil Conservation Division (NMOCD). In accordance with the rules and regulations of the NMOCD, Plains All American hereby submits an Annual Monitoring report for the following site:

Ballard Grayburg 5-Inch      2R-0053      Section 10, T18S, R29E, Eddy County

Please note that the 2014 Annual Monitoring Report for the subject site includes a request for site closure, soil remediation activities were closed by the NMOCD in May 2006.

Basin Environmental Service Technologies, LLC (Basin) prepared this document and has vouched for its accuracy and completeness, and on behalf of Plains All American, I have personally reviewed the document and interviewed Basin personnel in order to verify the accuracy and completeness of the report. It is based upon these inquiries and reviews that Plains All American submits the enclosed Annual Monitoring Report for the above facility.

If you have any questions or require further information, please contact me at (575) 441-1099.

Sincerely,

Camille Bryant  
Remediation Coordinator  
Plains All American

CC: Mike Bratcher, NMOCD, Artesia, NM

Enclosures

# *Basin Environmental Service Technologies, LLC*

3100 Plains Highway  
P. O. Box 301 Lovington, New Mexico 88260  
Office: (575) 396-2378  
Fax: (575) 396-1429

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February 6, 2015

Mr. Jim Griswold  
New Mexico Oil Conservation Division  
Environmental Bureau  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

RE: Plains Marketing, LP  
Ballard Grayburg 5-Inch  
NMOCD Reference #2R-0053  
Unit Letter "M" (SW/SW), Section 10, Township 18 South, Range 29 East  
Eddy County, New Mexico

Dear Mr. Griswold:

Basin Environmental Service Technologies, LLC (Basin Environmental), on behalf of Plains Marketing, LP (Plains), is pleased to submit the attached 2014 Annual Monitoring Report, dated February 2015, for the Ballard Grayburg 5-Inch release site located in Unit Letter "M" (SW/SW) of Section 10, Township 18 South, Range 29 East, in Eddy County, New Mexico. The Annual Monitoring Report summarizes groundwater monitoring and remediation activities performed at the site during the 2014 calendar year.

Based on review of laboratory analytical results from quarterly, semi-annual, and annual groundwater samples collected at the Ballard Grayburg 5-Inch site from 2011 through 2014, Plains and Basin Environmental propose the following activities for the 2015 monitoring period:

- **Cease groundwater monitoring and remediation activities.**
- **Plug and abandon monitor wells MW-2 and MW-3.**

Summaries of laboratory analytical results and justifications for the proposed changes are included in the enclosed 2014 Annual Monitoring Report, along with the 2013 Annual Monitoring Report & Groundwater Request dated March 2014.

Should you have any questions or comments, please do not hesitate to contact me at (575) 396-2378.

Respectfully,

Ben J. Arguijo  
Project Manager  
Basin Environmental Service Technologies, LLC

CC: Mike Bratcher, NMOCD - Artesia District Office

Enclosure (1)

# *Basin Environmental Service Technologies, LLC*

3100 Plains Highway  
P. O. Box 301  
Lovington, New Mexico 88260

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## **2014 ANNUAL MONITORING REPORT**

### **BALLARD GRAYBURG 5-INCH**

**Unit Letter "M" (SW/SW), Section 10, Township 18 South, Range 29 East**

**Latitude 32° 45' 27.1" North, Longitude 104° 04' 12.0" West**

**Eddy County, New Mexico**

**Plains SRS Number: 2004-00192**

**NMOCD Reference Number: 2R-0053**

Prepared For:



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

Prepared By:

Basin Environmental Service Technologies, LLC

P. O. Box 301

Lovington, New Mexico 88260

**February 2015**

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Ben J. Arguijo  
Project Manager

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## 1.0 INTRODUCTION

Basin Environmental Service Technologies, LLC (Basin), 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 groundwater monitoring events conducted during the calendar year of 2014 only.

Groundwater monitoring was conducted on a semi-annual basis to assess the levels and extent of dissolved phase constituents and Phase-Separated Hydrocarbon (PSH). The groundwater monitoring events consisted of measuring static water levels in the monitor wells, checking for the presence of PSH, and purging and sampling of each well exhibiting sufficient recharge.

## 2.0 SITE DESCRIPTION & BACKGROUND INFORMATION

The legal description of the Ballard Grayburg 5-Inch release site is Unit Letter "M" (SW/SW), Section 10, Township 18 South, Range 29 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32° 45' 27.1" North latitude and 104° 04' 12.0" West longitude. A "Site Location Map" is provided as Figure 1.

On September 2, 2004, Allstate Environmental Services (Allstate) responded to a release along Plains' five-inch (5"), steel Ballard Grayburg pipeline. Approximately eighty barrels (80 bbls) of crude oil were released from the pipeline, with no recovery. During initial response activities, a temporary pipeline clamp was installed to mitigate the release. At the request of Plains, Basin performed subsequent remediation activities at the site. The pipeline was de-oiled, cold cut, and capped.

The Ballard Grayburg 5-Inch release site is located in a pipeline right-of-way in a pasture utilized for cattle grazing. The initial surface stain covered an area approximately twenty-two feet (22') in length and twenty-three feet (23') in width. Excavation activities conducted during the initial response and subsequent remediation covered an area measuring approximately two hundred and twenty-five feet (225') in length, sixty feet (60') in width, and ranging in depth from approximately ten feet (10') to approximately twenty feet (20') below ground surface (bgs). Excavated soil was placed adjacent to the excavation on a six-millimeter (6mm), polyethylene liner for future remedial activities.

A *Preliminary Site Investigation Report and Remediation Plan* (Preliminary Work Plan), dated December 14, 2004, was submitted to, and approved by, the NMOCD District II Office (Artesia) and the U.S. Department of the Interior – Bureau of Land Management's (BLM) Carlsbad District Office. The approved plan required the excavation of the impacted area to approximately twelve feet (12') to fifteen feet (15') bgs; the collection of confirmation soil samples; the installation of a forty millimeter (40mm), polyethylene liner; the on-site blending of non-impacted segregated overburden and impacted soil; and backfilling of the excavation with the blended soil.

On March 20, 2006, an electronic revision of the Preliminary Work Plan (Revised Work Plan) was submitted to, and subsequently approved by, a representative of the NMOCD Santa Fe District Office and the BLM. The Revised Work Plan required the excavation of the impacted area to a depth of approximately eighteen feet (18') to twenty feet (20') bgs; the installation of a forty-millimeter (40mm), polyethylene liner on the floor of the excavation; the blending of the non-impacted segregated overburden and impacted soil; and the collection of soil samples at five hundred cubic yard (500 yd<sup>3</sup>) intervals to ensure that total petroleum hydrocarbon (TPH) constituent concentrations were less than one thousand (1,000) mg/kg. The Revised Work Plan also required re-seeding of the site with BLM-approved grass seed upon the completion of remediation activities.

Soil remediation activities were conducted in accordance with the NMOCD-approved Preliminary Work Plan and Revised Work Plan and completed in May 2006. Basin Environmental, on behalf of Plains, prepared and submitted a *Soil Closure Request* to the NMOCD Santa Fe District Office on May 15, 2006.

Based on initial delineation of the release site, two (2) groundwater monitoring wells (MW-2 and MW-3) were installed to evaluate the quality of groundwater, and one (1) recovery well (RW-1) was installed due to the presence of PSH detected in soil samples collected during drilling activities. There was no visible evidence of PSH impact in the soil samples collected during the installation of monitor wells MW-2 and MW-3.

Absorbent medium was placed in recovery well RW-1 to absorb the limited quantities of crude oil atop the groundwater table. The absorbent medium was inspected and replaced on a monthly basis. During excavation of the release site, recovery well RW-1 collapsed. The approved PSIR revision stipulated that installation of an additional recovery well located north-northwest of recovery well RW-1 would be attempted once backfilling of the excavation was completed. In July 2006, an attempt to install the additional recovery well was initiated. However, subsurface limestone caverns were encountered during drilling activities, and the installation of the recovery well was deemed impracticable.

In March 2014, a *2013 Annual Monitoring Report & Groundwater Closure Request* was submitted to the NMOCD Santa Fe District Office, requesting permission to cease groundwater monitoring activities at the site and to plug and abandon the two (2) on-site monitor wells. NMOCD review and approval is pending.

Currently, there are two (2) groundwater monitor wells on-site: MW-2 and MW-3. Monitor well MW-2 is sampled on an annual basis, and monitor well MW-3 is sampled on a semi-annual basis.

### **3.0 FIELD ACTIVITIES**

#### **3.1 Groundwater Remediation Efforts**

On May 15, 2013, an Oxygen Release Compound (ORC®) filter sock was installed in monitor well MW-3 to facilitate enhanced aerobic biodegradation of the dissolved-phase plume.

## 3.2 Groundwater Monitoring

Groundwater monitoring events were conducted on February 17 and November 20, 2014. During these monitoring events, the monitoring wells were gauged and purged of a minimum of three (3) well volumes of water (or until the wells were dry) using disposable, Teflon bailers. Groundwater was allowed to recharge, and samples were obtained using clean, 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 NMOCD-approved disposal facilities near Buckeye and/or Monument, New Mexico.

Locations of the groundwater monitoring wells and the inferred groundwater elevations (calculated from measurements collected during the monitoring events) are depicted in Figures 2A and 2B. Groundwater elevation data is provided in Table 1, "2014 Groundwater Elevation Data". An inferred groundwater gradient map cannot be constructed from the observed groundwater elevation data derived from the two (2) on-site monitor wells. An inferred groundwater gradient map requires a minimum of three (3) monitor wells to calculate an accurate groundwater gradient direction and magnitude. Review of New Mexico Office of the State Engineer (NMOSE) records indicates a general south-to-southwest groundwater gradient in this area of Eddy County, New Mexico. The corrected groundwater elevations ranged from 3,351.43 to 3,353.52 feet above mean sea level, in monitor well MW-3 (February 2014) and monitor well MW-2 (November 2014), respectively.

The groundwater elevation data presented above indicates observed groundwater elevations are approximately forty-one and one-half feet (41.5') more shallow than observed groundwater elevations presented in the 2007 (and prior) *Annual Monitoring Report*. This inconsistency in observed groundwater elevation may be related to the karstic nature of the subsurface beneath the release site, as depicted in the monitor well and recovery well logs previously submitted to the NMOCD.

## 4.0 LABORATORY ANALYTICAL RESULTS

Groundwater samples collected from the monitor wells during the February 2014 and November 2014 monitoring events were delivered to Xenco Laboratories in Odessa, Texas, for determination of benzene, toluene, ethylbenzene, and total xylene (BTEX) constituent concentrations by EPA Method SW846-8021b. A summary of BTEX constituent concentrations is presented in Table 2, "Concentrations of Benzene & BTEX in Groundwater". Laboratory analytical reports are provided as Appendix A. "Groundwater Concentration" maps are provided as Figures 3A and 3B.

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-3

Monitor well MW-3 is sampled on a semi-annual basis. Laboratory analytical results indicated benzene concentrations ranged from 0.0041 mg/L in February 2014 to 0.0058 mg/L in November

2014. Toluene, ethylbenzene, and total xylene concentrations were less than the appropriate laboratory method detection limit (MDL) in both February and November 2014. Benzene, toluene, ethylbenzene, and total xylene concentrations were less than the appropriate NMOCD regulatory standard in both February and November 2014.

### **Monitor well MW-2**

Monitor well MW-2 is sampled on an annual basis. Laboratory analytical results from the sample collected on November 20, 2014, indicated benzene, toluene, ethylbenzene, and total xylene concentrations were both less than the appropriate laboratory method detection limit (MDL) and less than NMOCD regulatory standards.

## **5.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)**

Groundwater samples were submitted to Xenco Laboratories in Odessa, Texas, for analysis of BTEX constituent concentrations in accordance with EPA Method SW846-8021b. All samples were analyzed within seven (7) days of the collection date.

Cleaning and decontamination of the sampling equipment was the responsibility of the environmental technician. Prior to use, and between each sample, the sampling equipment was cleaned with Liqui-Nox® detergent and rinsed with distilled water.

The laboratory was responsible for proper QA/QC procedures after signing the chain-of-custody form(s). These procedures were either transmitted with the laboratory analytical reports or are on file at the laboratory.

## **6.0 SUMMARY**

This report presents the results of groundwater monitoring activities conducted during the 2014 calendar year. Currently, there are two (2) groundwater monitoring wells on-site: MW-2 and MW-3. Monitor well MW-2 is sampled on an annual basis, and monitor well MW-3 is sampled on a quarterly basis.

Review of NMOSE records indicate a general groundwater gradient to the south-southwest.

Groundwater elevation data indicates observed groundwater elevations are approximately forty-one and one-half feet (41.5') more shallow than observed groundwater elevations presented in the 2007 (and prior) *Annual Monitoring Report*. This inconsistency in observed groundwater elevation may be related to the karstic nature of the subsurface beneath the release site, as depicted in the monitor well and recovery well logs previously submitted to the NMOCD.

Laboratory analytical results indicated benzene, toluene, ethylbenzene, and total xylene concentrations were less than NMOCD regulatory standards in all groundwater samples collected from monitor wells MW-2 and MW-3 during the reporting period.

## **7.0 ANTICIPATED ACTIONS**

Based on laboratory analytical results from groundwater samples collected during the 2014 monitoring period (and prior), groundwater monitoring and remediation activities will cease at the Ballard Grayburg 5-Inch release site.

Pending NMOCD approval of the 2013 Annual Monitoring Report & Groundwater Closure Request and this 2014 Annual Monitoring Report, the two (2) on-site monitor wells (MW-2 and MW-3) will be plugged and abandoned pursuant to NMOSE and NMOCD regulatory requirements. A monitor well plugging report will be submitted to the NMOCD Santa Fe District Office within thirty (30) calendar days of completion.

## **8.0 LIMITATIONS**

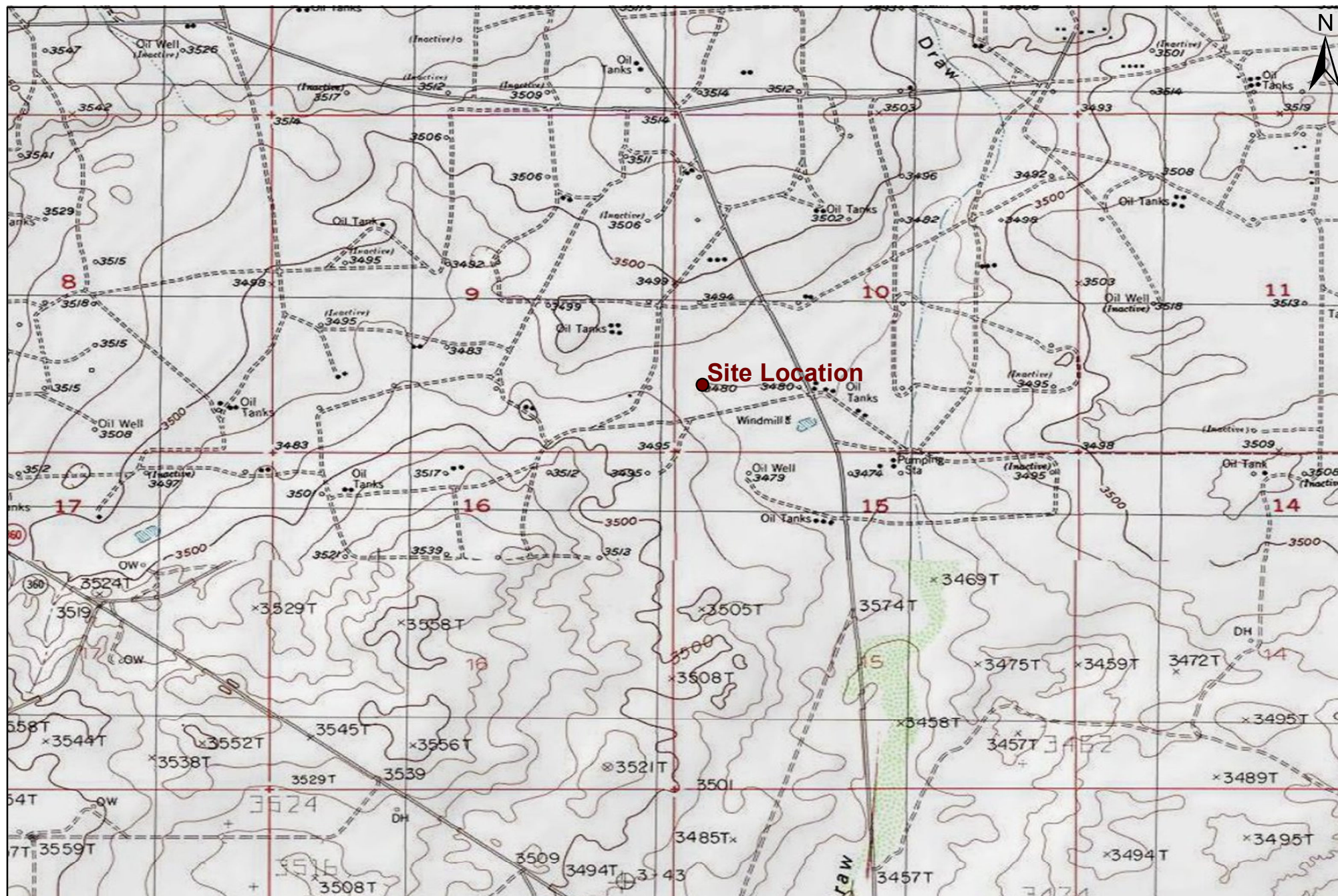
Basin Environmental Service Technologies, LLC, has prepared this *Annual Monitoring Report* to the best of its ability. No other warranty, expressed or implied, is made or intended. Basin has examined and relied upon documents referenced in the report and on oral statements made by certain individuals.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

## **9.0 DISTRIBUTION**

- Copy 1: Jim Griswold  
New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
1220 South St. Francis Drive  
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Denver City, Texas  
cjbryant@paalp.com
- Copy 5: Basin Environmental Service Technologies, LLC  
P. O. Box 301  
Lovington, New Mexico 88260

# Figures



1,000 500 0 1,000 2,000  
 Distance in Feet

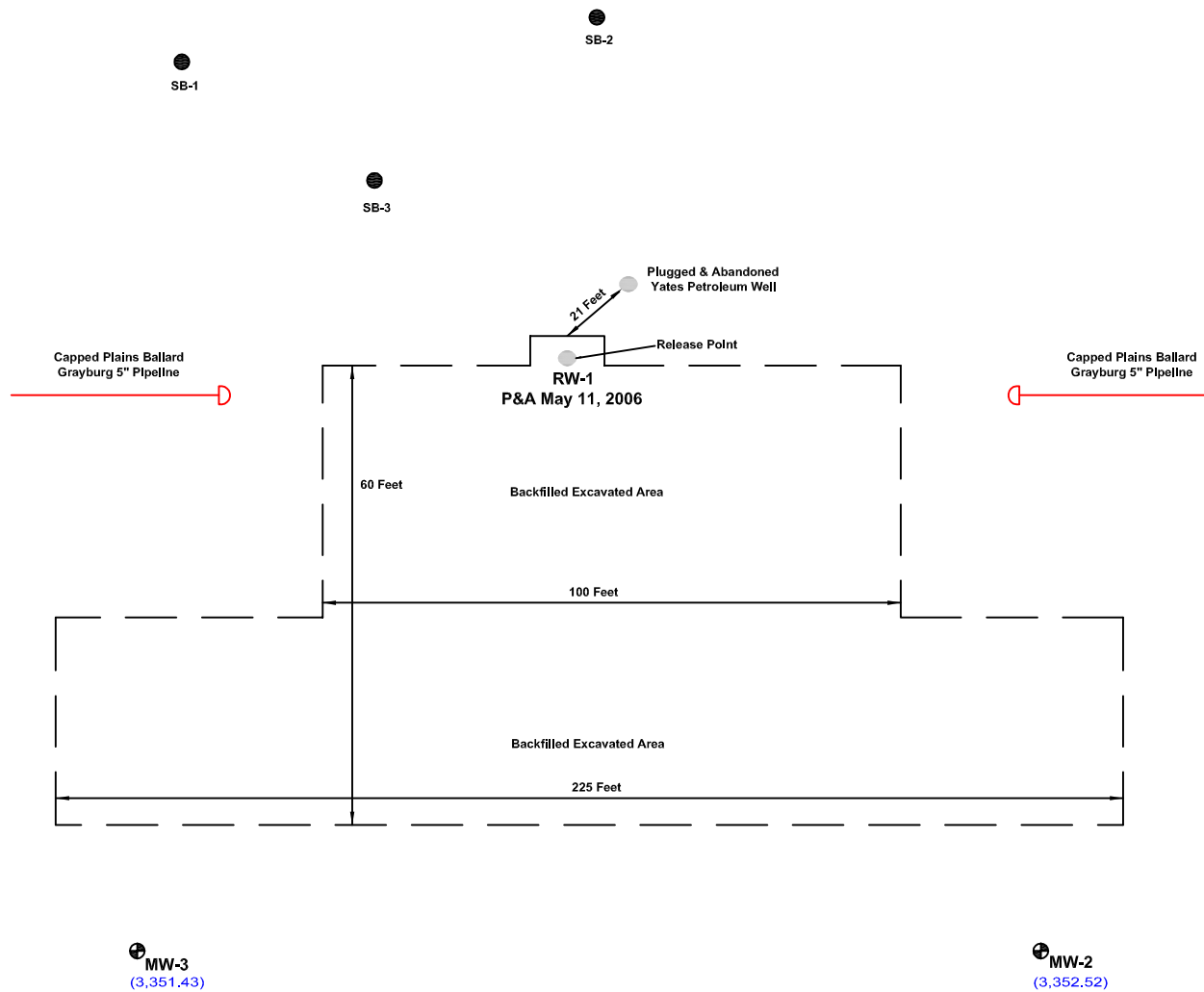
**Figure 1**  
**Site Location Map**  
 Plains Marketing, LP  
 Ballard Grayburg 5-Inch  
 Eddy County, New Mexico  
 Plains SRS #: 2004-00192  
 NMOCD Reference #: 2RP-0053



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

Drawn By: BJA      Checked By: BRB

January 18, 2013      Scale: 1" = 2000'



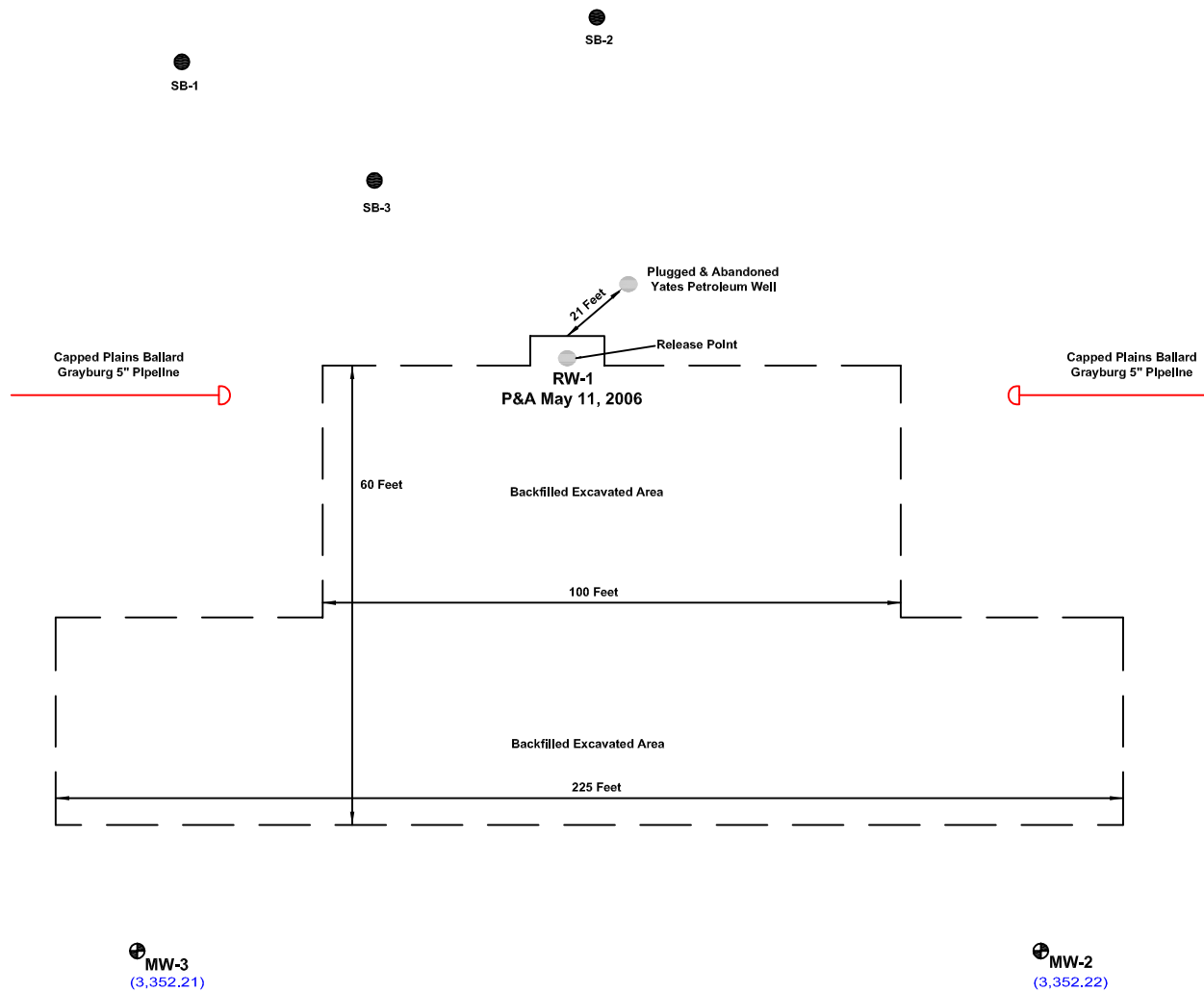
#### LEGEND:

- Monitor Well Location
- Excavation Extents
- Pipeline
- Soil Boring Location
- Plugged & Abandoned Well
- (3,352.21) Groundwater Elevation (feet)

**Figure 2A**  
**Groundwater Elevation - February 2014**  
**Plains Marketing, LP**  
**Ballard Grayburg 5-Inch**  
**Eddy County, New Mexico**  
**Plains SRS #: 2004-00192**  
**NMOCD Reference #: 2RP-0053**

**Basin Environmental Service Technologies**

Scale: Not to Scale	Drawn By: BJA	Checked By: BRB
January 29, 2015	SW1/4 SW1/4 Sec 10 T18S R29E	
		Lat. N32° 45' 27.1" Long. W104° 04' 12.0"



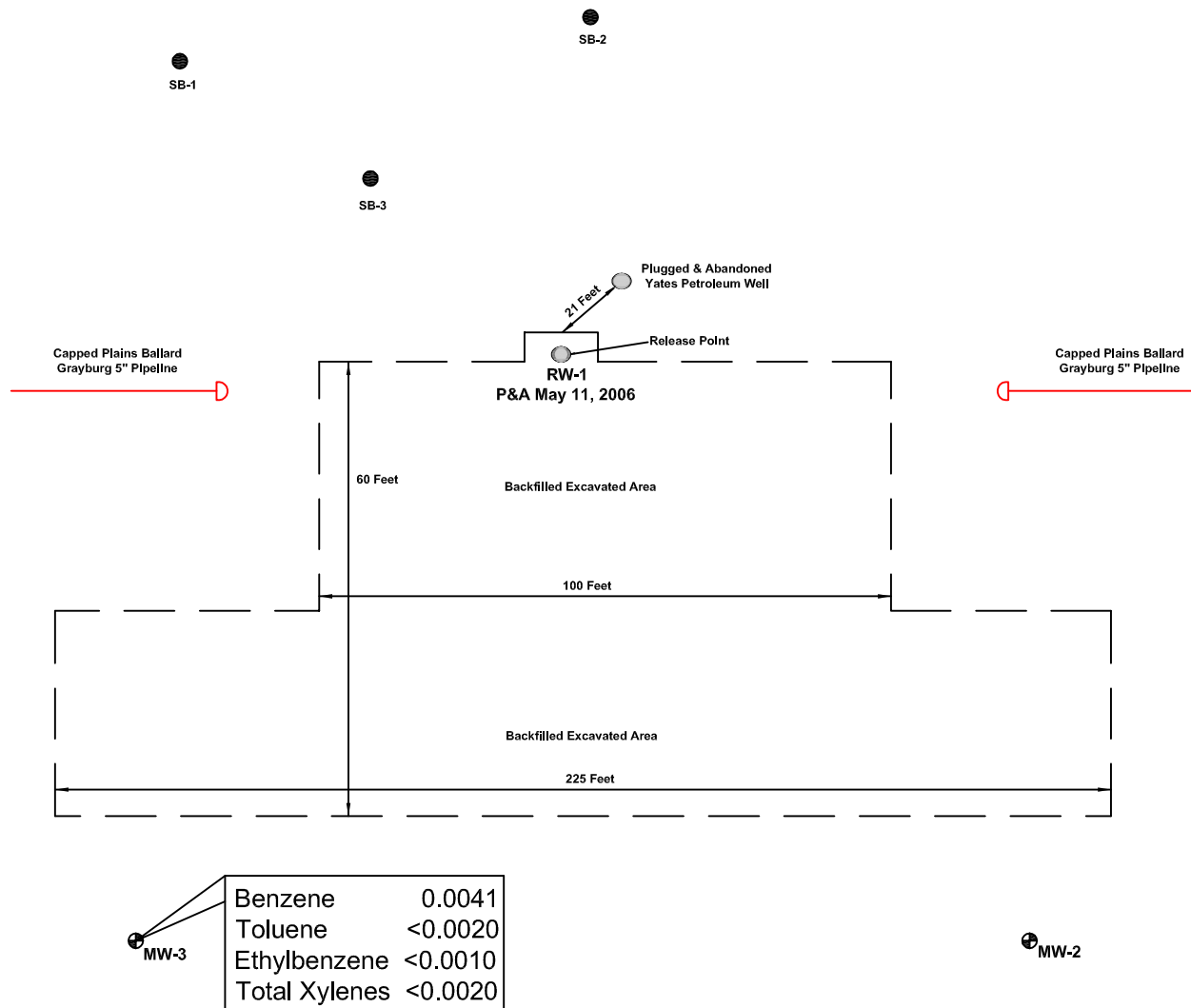
#### LEGEND:

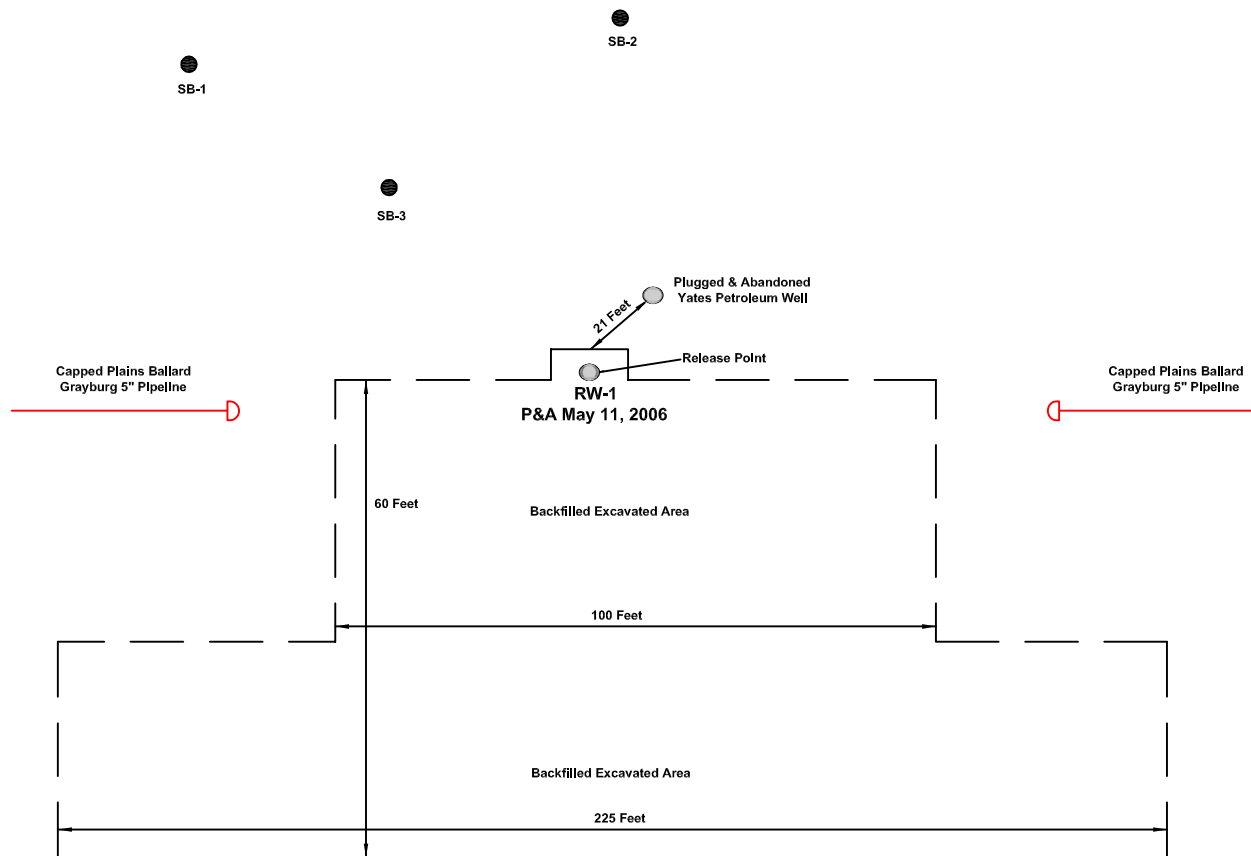
- Monitor Well Location
- Excavation Extents
- Pipeline
- Soil Boring Location
- Plugged & Abandoned Well
- (3,352.21) Groundwater Elevation (feet)

**Figure 2B**  
**Groundwater Elevation - November 2014**  
**Plains Marketing, LP**  
**Ballard Grayburg 5-Inch**  
**Eddy County, New Mexico**  
**Plains SRS #: 2004-00192**  
**NMOCD Reference #: 2RP-0053**

**Basin Environmental Service Technologies**

Scale: Not to Scale	Drawn By: BJA	Checked By: BRB
January 29, 2015	SW1/4 SW1/4 Sec 10 T18S R29E	
		Lat. N32° 45' 27.1" Long. W104° 04' 12.0"





MW-3

Benzene	0.0058
Toluene	<0.0020
Ethylbenzene	<0.0010
Total Xylenes	<0.0020

MW-2

Benzene	<0.0010
Toluene	<0.0020
Ethylbenzene	<0.0010
Total Xylenes	<0.0020

Note: All concentrations in mg/L

LEGEND:

- Monitor Well Location
- - - Excavation Extents
- Pipeline
- Soil Boring Location
- Plugged & Abandoned Well

**Figure 3B**  
**Groundwater Concentration Map - November 2014**  
**Plains Marketing, LP**  
**Ballard Grayburg 5-Inch**  
**Eddy County, New Mexico**  
**Plains SRS #: 2004-00192**  
**NMOCD Reference #: 2RP-0053**

**Basin Environmental Service Technologies**

Scale: Not to Scale	Drawn By: BJA	Checked By: BRB
January 29, 2015	SW1/4 SW1/4 Sec 10 T18S R29E	
	Lat. N32° 45' 27.1" Long. W104° 04' 12.0"	

# Tables

**TABLE 1**  
**2014 GROUNDWATER ELEVATION DATA**

**PLAINS MARKETING, LP**  
**BALLARD GRAYBURG 5-INCH**  
**EDDY COUNTY, NEW MEXICO**  
**PLAINS SRS #: 2004-192**  
**NMOCD REFERENCE #: 2RP-0053**

WELL NUMBER	DATE MEASURED	CASING WELL ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	PSH THICKNESS	CORRECTED GROUNDWATER ELEVATION
MW-2	2/17/2014	3,497.90	-	145.38	-	3,352.52
	11/20/2014	3,497.90	-	145.68	-	3,352.22
MW-3	2/17/2014	3,497.91	-	146.48	-	3,351.43
	11/20/2014	3,497.91	-	145.70	-	3,352.21
NOTE: RW-1 Plugged & Abandoned May 11, 2006						

**TABLE 2  
CONCENTRATIONS OF BENZENE & BTEX IN GROUNDWATER**

**PLAINS MARKETING, L.P.  
BALLARD GRAYBURG 5"  
EDDY COUNTY, NEW MEXICO  
PLAINS SRS #: 2004-00192  
NMOCD REFERENCE #: 2RP-0053**

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021b						
		BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL- BENZENE (mg/L)	M,P- XYLENES (mg/L)	O-XYLENES (mg/L)	TOTAL XYLENE (mg/L)	TOTAL BTEX (mg/L)
MW-2	12/4/2004	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	3/29/2005	0.0060	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0070
	5/26/2005	0.0020	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0030
	8/11/2005	0.0010	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0020
	12/27/2005	0.0080	0.0030	<0.0010	<0.0010	<0.0010	<0.0010	0.0110
	3/30/2006	0.0030	0.0030	<0.0010	<0.0010	<0.0010	<0.0010	0.0060
	6/14/2006	0.0050	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0060
	9/20/2006	0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0030
	12/14/2006	<b>0.0100</b>	0.0020	<0.001	0.0010	<0.001	0.0010	0.0140
	3/19/2007	0.0430	0.0130	<0.001	<0.001	<0.001	<0.0010	0.0560
	6/5/2007	<b>0.0120</b>	0.0010	<0.001	<0.001	<0.001	<0.0010	0.0130
	9/27/2007	0.0030	0.0010	<0.001	<0.002	<0.001	<0.0010	0.0040
	12/4/2007	<b>0.0130</b>	0.0040	<0.001	<0.002	<0.001	<0.0010	0.0170
	3/12/2008	0.0020	0.0030	<0.0010	<0.0020	<0.0010	<0.0020	0.005
	6/14/2008	<b>0.0130</b>	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.013
	9/19/2008	0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.001
	11/21/2008	0.0010	<0.0020	0.0010	0.0023	<0.0010	0.0023	0.0043
	2/17/2009	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	6/16/2009	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	8/25/2009	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	11/5/2009	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	6/1/2010	<b>0.0293</b>	<0.002	0.0053	0.0026	<0.001	0.0026	0.0372
	6/1/2011	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	6/7/2012	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	4/18/2013	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	11/20/2014	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020

**TABLE 2  
CONCENTRATIONS OF BENZENE & BTEX IN GROUNDWATER**

**PLAINS MARKETING, L.P.  
BALLARD GRAYBURG 5"  
EDDY COUNTY, NEW MEXICO  
PLAINS SRS #: 2004-00192  
NMOCD REFERENCE #: 2RP-0053**

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021b						
		BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL- BENZENE (mg/L)	M,P- XYLENES (mg/L)	O-XYLENES (mg/L)	TOTAL XYLENE (mg/L)	TOTAL BTEX (mg/L)
MW-3	12/4/2004	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	3/29/2005	0.0540	0.0040	<0.001	<0.0010	<0.0010	<0.0010	0.0580
	5/26/2005	0.0140	0.0030	<0.001	<0.0010	<0.0010	<0.0010	0.0170
	8/11/2005	0.0020	<0.001	<0.001	<0.0010	<0.0010	<0.0010	0.0020
	12/27/2005	0.0240	0.0020	<0.001	<0.0010	<0.0010	<0.0010	0.0260
	3/30/2006	0.0090	0.0030	<0.001	<0.0010	<0.0010	<0.0010	0.0120
	6/14/2006	0.0050	<0.001	<0.001	<0.0010	<0.0010	<0.0010	0.0050
	9/20/2006	0.0040	<0.001	<0.001	<0.0010	<0.0010	<0.0010	0.0040
	12/14/2006	0.0110	0.0030	<0.001	0.0030	<0.001	0.0030	0.0200
	3/19/2007	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	6/5/2007	0.091	0.031	<0.001	<0.0010	<0.0010	<0.0010	0.1220
	9/27/2007	0.0170	0.0030	<0.001	<0.0020	<0.0010	<0.0020	0.0200
	12/4/2007	0.0130	0.0030	<0.001	<0.0020	<0.0010	<0.0020	0.0160
	3/12/2008	0.0080	0.0020	<0.001	<0.0020	<0.0010	<0.0020	0.0100
	6/14/2008	0.1790	0.0110	<0.001	<0.0020	<0.0010	<0.0020	0.1900
	9/19/2008	0.0090	<0.002	<0.001	<0.0020	<0.0010	<0.0020	0.0090
	11/21/2008	0.0150	0.0021	<0.001	<0.0020	<0.0010	<0.0020	0.0171
	2/17/2009	0.0117	0.0024	<0.0010	<0.0020	<0.0010	<0.0020	0.0024
	6/16/2009	0.0112	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	8/25/2009	0.0141	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	11/5/2009	0.0088	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	3/31/2010	0.0151	0.0023	<0.0010	<0.0020	<0.0010	<0.0020	0.0174
	6/1/2010	0.0198	0.0046	<0.0010	<0.0020	<0.0010	<0.0020	0.0244
	9/3/2010	0.0119	0.0021	<0.0010	<0.0020	<0.0010	<0.0020	0.0140
	11/8/2010	0.0119	0.0023	<0.0010	<0.0020	<0.0010	<0.0020	0.0142
	3/16/2011	0.0341	0.0049	<0.0010	<0.0020	<0.0010	<0.0020	0.0390
	6/1/2011	0.0071	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0071
	9/7/2011	0.0192	0.0029	<0.0010	<0.0020	<0.0010	<0.0020	0.0221

**TABLE 2**  
**CONCENTRATIONS OF BENZENE & BTEX IN GROUNDWATER**

PLAINS MARKETING, L.P.  
 BALLARD GRAYBURG 5"  
 EDDY COUNTY, NEW MEXICO  
 PLAINS SRS #: 2004-00192  
 NMOCD REFERENCE #: 2RP-0053

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021b						
		BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL- BENZENE (mg/L)	M,P- XYLENES (mg/L)	O-XYLENES (mg/L)	TOTAL XYLENE (mg/L)	TOTAL BTEX (mg/L)
MW-3	10/26/2011	0.0032	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0032
	1/18/2012	<b>0.0115</b>	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0115
	6/7/2012	<b>0.0305</b>	0.0037	<0.0010	<0.0020	<0.0010	<0.0020	0.0342
	9/12/2012	0.0059	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0059
	10/30/2012	<b>0.0198</b>	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0198
	2/6/2013	0.0021	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0021
	4/18/2013	<b>0.0181</b>	0.0032	<0.0010	<0.0020	0.0039	0.0039	0.0291
	8/23/2013	0.0018	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0018
	11/15/2013	0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0010
	2/17/2014	0.0041	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0041
	11/20/2014	0.0058	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	0.0058
<b>NMOCD CRITERIA</b>		<b>0.01</b>	<b>0.75</b>	<b>0.75</b>	<b>TOTAL XYLENES 0.62</b>			

# **Appendices**

# **Appendix A**

## **Laboratory Analytical Reports**

# **Analytical Report 479539**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Ben Arguijo**

**Ballard Grayburg 5"**

**SRS#2004-00192**

**24-FEB-14**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)

New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)

Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)



24-FEB-14

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

Reference: XENCO Report No(s): **479539**  
**Ballard Grayburg 5"**  
Project Address: Eddy County, 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) 479539. 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. 479539 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

---

**Kelsey Brooks**

Project Manager

***Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.***

*Certified and approved by numerous States and Agencies.*

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## Sample Cross Reference 479539



### PLAINS ALL AMERICAN EH&S, Midland, TX

Ballard Grayburg 5"

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-3	W	02-17-14 11:00		479539-001



## CASE NARRATIVE



**Client Name:** *PLAINS ALL AMERICAN EH&S*

**Project Name:** *Ballard Grayburg 5"*

Project ID: *SRS#2004-00192*  
Work Order Number(s): *479539*

Report Date: *24-FEB-14*  
Date Received: *02/17/2014*

---

**Sample receipt non conformances and comments:**

---

**Sample receipt non conformances and comments per sample:**

None



## Hits Summary 479539



### PLAINS ALL AMERICAN EH&S, Midland, TX Ballard Grayburg 5"

Sample Id : **MW-3**  
Lab Sample Id : 479539-001

Matrix : Water  
Date Collected : 02.17.14 11.00  
Date Received : 02.17.14 15.20

% Moisture :

Analytical Method : BTEX by EPA 8021  
Seq Number 934647

Prep Method: SW5030B  
Date Prep: 02.22.14 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00407	mg/L	02.23.14 16.08		1
Total BTEX		0.00407	mg/L	02.23.14 16.08		1

# Certificate of Analysis Summary 479539

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:** SRS#2004-00192

**Contact:** Ben Arguijo

**Project Location:** Eddy County, NM

**Project Name:** Ballard Grayburg 5"

**Date Received in Lab:** Mon Feb-17-14 03:20 pm

**Report Date:** 24-FEB-14

**Project Manager:** Kelsey Brooks

<b>Analysis Requested</b>	<b>Lab Id:</b> 479539-001 <b>Field Id:</b> MW-3 <b>Depth:</b> <b>Matrix:</b> WATER <b>Sampled:</b> Feb-17-14 11:00						
<b>BTEX by EPA 8021</b>	<b>Extracted:</b> Feb-22-14 14:00 <b>Analyzed:</b> Feb-23-14 16:08 <b>Units/RL:</b> mg/L RL						
Benzene	0.00407 0.00100						
Toluene	ND 0.00200						
Ethylbenzene	ND 0.00100						
m_p-Xylenes	ND 0.00200						
o-Xylene	ND 0.00100						
Xylenes, Total	ND 0.00100						
Total BTEX	0.00407 0.00100						

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi



Kelsey Brooks  
Project Manager

- 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

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4143 Greenbriar Dr, Stafford, TX 77477  
 9701 Harry Hines Blvd, Dallas, TX 75220  
 5332 Blackberry Drive, San Antonio TX 78238  
 2505 North Falkenburg Rd, Tampa, FL 33619  
 12600 West I-20 East, Odessa, TX 79765  
 6017 Financial Drive, Norcross, GA 30071  
 3725 E. Atlanta Ave, Phoenix, AZ 85040

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



## Form 2 - Surrogate Recoveries

Project Name: Ballard Grayburg 5"

Work Orders : 479539,

Project ID: SRS#2004-00192

Lab Batch #: 934647

Sample: 479539-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/23/14 16:08

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0315	0.0300	105	80-120	
4-Bromofluorobenzene	0.0269	0.0300	90	80-120	

Lab Batch #: 934647

Sample: 651475-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/22/14 15:16

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0298	0.0300	99	80-120	

Lab Batch #: 934647

Sample: 651475-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/22/14 15:32

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0316	0.0300	105	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

Lab Batch #: 934647

Sample: 651475-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/22/14 15:48

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	80-120	
4-Bromofluorobenzene	0.0331	0.0300	110	80-120	

Lab Batch #: 934647

Sample: 479243-001 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/22/14 16:04

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0324	0.0300	108	80-120	
4-Bromofluorobenzene	0.0321	0.0300	107	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: Ballard Grayburg 5"

Work Orders : 479539,

Lab Batch #: 934647

Sample: 479243-001 SD / MSD

Project ID: SRS#2004-00192

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/22/14 16:20

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0325	0.0300	108	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 * A / B$

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



# BS / BSD Recoveries



Project Name: Ballard Grayburg 5"

Work Order #: 479539

Project ID: SRS#2004-00192

Analyst: ARM

Date Prepared: 02/22/2014

Date Analyzed: 02/22/2014

Lab Batch ID: 934647

Sample: 651475-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021	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
Analytes											
Benzene	<0.00100	0.100	0.101	101	0.100	0.107	107	6	70-125	25	
Toluene	<0.00200	0.100	0.102	102	0.100	0.108	108	6	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0989	99	0.100	0.104	104	5	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.194	97	0.200	0.204	102	5	70-131	25	
o-Xylene	<0.00100	0.100	0.102	102	0.100	0.107	107	5	71-133	25	

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

Blank Spike Recovery [D] =  $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] =  $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



# Form 3 - MS / MSD Recoveries



Project Name: Ballard Grayburg 5"

Work Order # : 479539

Project ID: SRS#2004-00192

Lab Batch ID: 934647

QC- Sample ID: 479243-001 S

Batch #: 1 Matrix: Water

Date Analyzed: 02/22/2014

Date Prepared: 02/22/2014

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	<0.00100	0.100	0.106	106	0.100	0.106	106	0	70-125	25	
Toluene	<0.00200	0.100	0.105	105	0.100	0.106	106	1	70-125	25	
Ethylbenzene	<0.00100	0.100	0.101	101	0.100	0.103	103	2	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.198	99	0.200	0.202	101	2	70-131	25	
o-Xylene	<0.00100	0.100	0.104	104	0.100	0.105	105	1	71-133	25	

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

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

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



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 02/17/2014 03:20:00 PM

Work Order #: 479539

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)?	5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	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:

Julian Martinez

Date: 02/18/2014

Checklist reviewed by:

Kelsey Brooks

Date: 02/18/2014

### CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

12600 West I-20 East  
Odessa, Texas 79765

Phone: 432-563-1800  
Fax: 432-563-1713

Project Manager: Ben Arguijo

Company Name Basin Environmental Consulting

Company Address: PO Box 381

City/State/Zip: Lovington, NM 88260

Telephone No: (575) 396-2378

Sampler Signature: Michael Harris

Fax No: (575) 396-1429

e-mail: [pm@basinenv.com](mailto:pm@basinenv.com)

Project Name: **BALLARD GRAYBURG 5"**

Project #: 2004-00192

Project Loc: Eddy County, NM

PO #: ~~PAA-J. Henry~~ PAA-C. Bryant

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Analyze For:

[illegible]
$$4 + 1 = 5^{\circ}\text{C}$$



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 02/17/2014 03:20:00 PM

Work Order #: 479539

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)?	5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	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:

Julian Martinez

Date: 02/18/2014

Checklist reviewed by:

Kelsey Brooks

Date: 02/18/2014

# **Analytical Report 497681**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Ben Arguijo**

**Ballard Grayburg 5"**

**SRS#2004-00192**

**01-DEC-14**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-14-18), Arizona (AZ0765), Florida (E871002), Louisiana (03054)  
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)  
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)



01-DEC-14

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

Reference: XENCO Report No(s): **497681**  
**Ballard Grayburg 5"**  
Project Address: Eddy County, 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) 497681. 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. 497681 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

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*Certified and approved by numerous States and Agencies.*

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## Sample Cross Reference 497681



### PLAINS ALL AMERICAN EH&S, Midland, TX

Ballard Grayburg 5"

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2	W	11-20-14 13:55		497681-001
MW-3	W	11-20-14 15:30		497681-002



## CASE NARRATIVE



**Client Name:** *PLAINS ALL AMERICAN EH&S*

**Project Name:** *Ballard Grayburg 5"*

Project ID: *SRS#2004-00192*  
Work Order Number(s): *497681*

Report Date: *01-DEC-14*  
Date Received: *11/24/2014*

---

**Sample receipt non conformances and comments:**

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**Sample receipt non conformances and comments per sample:**

None



# Certificate of Analysis Summary 497681

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: SRS#2004-00192

Contact: Ben Arguijo

Project Name: Ballard Grayburg 5"

Date Received in Lab: Mon Nov-24-14 10:45 am

Report Date: 01-DEC-14

Project Location: Eddy County, NM

Project Manager: Kelsey Brooks

<b>Analysis Requested</b>	<b>Lab Id:</b>	497681-001	497681-002				
	<b>Field Id:</b>	MW-2	MW-3				
	<b>Depth:</b>						
	<b>Matrix:</b>	WATER	WATER				
	<b>Sampled:</b>	Nov-20-14 13:55	Nov-20-14 15:30				
<b>BTEX by EPA 8021</b>	<b>Extracted:</b>	Nov-24-14 11:00	Nov-24-14 11:00				
	<b>Analyzed:</b>	Nov-24-14 18:46	Nov-24-14 19:02				
	<b>Units/RL:</b>	mg/L RL	mg/L RL				
Benzene		ND 0.00100	0.00576 0.00100				
Toluene		ND 0.00200	ND 0.00200				
Ethylbenzene		ND 0.00100	ND 0.00100				
m_p-Xylenes		ND 0.00200	ND 0.00200				
o-Xylene		ND 0.00100	ND 0.00100				
Xylenes, Total		ND 0.00100	ND 0.00100				
Total BTEX		ND 0.00100	0.00576 0.00100				

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.  
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.  
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.  
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Version: 1.0%

Kelsey Brooks  
Project Manager

- 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      **SQL** Sample 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

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 9701 Harry Hines Blvd, Dallas, TX 75220  
 5332 Blackberry Drive, San Antonio TX 78238  
 2505 North Falkenburg Rd, Tampa, FL 33619  
 12600 West I-20 East, Odessa, TX 79765  
 6017 Financial Drive, Norcross, GA 30071  
 3725 E. Atlanta Ave, Phoenix, AZ 85040

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



# Form 2 - Surrogate Recoveries

Project Name: Ballard Grayburg 5"

Work Orders : 497681,

Lab Batch #: 956072

Sample: 497681-001 / SMP

Project ID: SRS#2004-00192

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/24/14 18:46

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

Lab Batch #: 956072

Sample: 497681-002 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/24/14 19:02

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	80-120	

Lab Batch #: 956072

Sample: 664874-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/24/14 13:53

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	80-120	

Lab Batch #: 956072

Sample: 664874-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/24/14 14:09

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

Lab Batch #: 956072

Sample: 664874-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/24/14 14:25

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0310	0.0300	103	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 * A / B$

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



## Form 2 - Surrogate Recoveries

Project Name: Ballard Grayburg 5"

Work Orders : 497681,

Project ID: SRS#2004-00192

Lab Batch #: 956072

Sample: 497630-001 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/24/14 14:41

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	80-120	
4-Bromofluorobenzene	0.0321	0.0300	107	80-120	

Lab Batch #: 956072

Sample: 497630-001 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/24/14 14:58

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0313	0.0300	104	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 * A / B$

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



# BS / BSD Recoveries



**Project Name: Ballard Grayburg 5"**

**Work Order #:** 497681

**Project ID:** SRS#2004-00192

**Analyst:** ARM

**Date Prepared:** 11/24/2014

**Date Analyzed:** 11/24/2014

**Lab Batch ID:** 956072

**Sample:** 664874-1-BKS

**Batch #:** 1

**Matrix:** Water

**Units:** mg/L

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>BTEX by EPA 8021</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.00100	0.100	0.0882	88	0.100	0.0885	89	0	70-125	25	
Toluene	<0.00200	0.100	0.0949	95	0.100	0.0950	95	0	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0999	100	0.100	0.100	100	0	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.205	103	0.200	0.206	103	0	70-131	25	
o-Xylene	<0.00100	0.100	0.0956	96	0.100	0.0964	96	1	71-133	25	

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

Blank Spike Recovery [D] =  $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] =  $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



# Form 3 - MS / MSD Recoveries



Project Name: Ballard Grayburg 5"

Work Order # : 497681

Project ID: SRS#2004-00192

Lab Batch ID: 956072

QC- Sample ID: 497630-001 S

Batch #: 1 Matrix: Water

Date Analyzed: 11/24/2014

Date Prepared: 11/24/2014

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	<0.00100	0.100	0.0902	90	0.100	0.0866	87	4	70-125	25	
Toluene	<0.00200	0.100	0.0980	98	0.100	0.0931	93	5	70-125	25	
Ethylbenzene	<0.00100	0.100	0.106	106	0.100	0.0992	99	7	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.217	109	0.200	0.204	102	6	70-131	25	
o-Xylene	<0.00100	0.100	0.100	100	0.100	0.0952	95	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.



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 11/24/2014 10:45:00 AM

Work Order #: 497681

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)?	2.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	No
#6 *Custody Seals Signed and dated?	No
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	No
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	Yes
#21 <2 for all samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	Yes
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH?	No

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Kelsey Brooks  
Kelsey Brooks

Date: 11/24/2014

Checklist reviewed by:

Kelsey Brooks  
Kelsey Brooks

Date: 11/24/2014



**Appendix B**

**Release Notification &**

**Corrective Action (Form C-141)**

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

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

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**

x Initial Report ☐ Final Report

Name of Company Plains Marketing, LP	Contact Camille Reynolds	
Address 5805 East Hwy. 80, Midland, TX 79706	Telephone No. 505-441-0965	
Facility Name Ballard Greyburg 5" #2	Facility Type 5" Steel Pipeline	
Surface Owner BLM	Mineral Owner	Lease No.

**LOCATION OF RELEASE**

Unit Letter M	Section 10	Township 18S	Range 29E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
------------------	---------------	-----------------	--------------	---------------	------------------	---------------	----------------	----------------

Latitude 32°45'27.1" Longitude 104°04'12.0"

**NATURE OF RELEASE**

Type of Release Crude Oil	Volume of Release 80 barrels	Volume Recovered 0 barrels
Source of Release 5" Steel Pipeline	Date and Hour of Occurrence 9-2-04 @ 06:00	Date and Hour of Discovery 9-2-04 @ 08:45
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Van Barton	
By Whom? Ken Dutton	Date and Hour 9-2-04 @ 14:32	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\* External corrosion of the 5" steel pipeline. A line clamp was installed to mitigate the release. The line is a 5-inch steel gathering line that produces approximately 95 barrels of crude per day. The pressure on the line varies from 50 to 70 psi and the gravity of the sour crude oil is 39. The sour crude has an H<sub>2</sub>S content of 20 ppm

Describe Area Affected and Cleanup Action Taken.\* The impacted soil was excavated and stockpiled on plastic. Aerial extent of surface impact was 10 x 6 feet, subsequent excavation of impacted soil resulted in an area of approximately 22 x 23 x 13 feet.

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.

**OIL CONSERVATION DIVISION**

Signature: <i>Camille Reynolds</i>	Approved by District Supervisor:	
Printed Name: Camille Reynolds	Approval Date:	Expiration Date:
Title: Remediation Coordinator	Conditions of Approval:	
E-mail Address: cjreynolds@paalp.com	Attached <input type="checkbox"/>	
Date: 9-7-04	Phone: 505-441-0965	

\* Attach Additional Sheets If Necessary