1R - 2637

REPORTS

DATE:

3-26-13

Hansen, Edward J., EMNRD

From: Ben J. Arguijo <bjarguijo@basinenv.com>
Sent: Tuesday, March 26, 2013 7:18 PM
To: Hansen, Edward J., EMNRD
Cc: 'Jeffrey P Dann'; 'Jason Henry'
Subject: Plains' Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site (1R-2637)
Attachments: ChevronGrayburg_SiteLocationMap1.pdf; ChevronGrayburg_SiteLocationMap2.pdf; ChevronGrayburgSec6_GradientMap_03142013.pdf; ChevronGrayburg_ConcentrationMap1Q2013.pdf; ChevronGrayburg_AerialLocationMap.pdf; ChevronGrayburg_Historical Aerials 1957-2012.pdf; ChevronGrayburg_Baseline MW-5 thru MW-7.pdf; ChevronGrayburg_Soil Chemistry Table.pdf; ChevronGrayburg_GW Chemistry Table.pdf; Chevron Grayburg 6-inch Sec. 6 Initial C141.pdf; ChevronGrayburg_NearbyOGWells.pdf

Dear Mr. Hansen,

I am writing in response to the "Ground Water Monitoring Well Location Approval (1R-2637)" and "Extension Request" for Plains' Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site (1R-2637), dated September 27, 2012, and December 10, 2012, respectively.

In partial fulfillment of the "Well Location Approval", three (3) additional monitor wells (MW-5 through MW-7) were installed at the Plains release site from March 4 through March 7, 2013. During advancement of monitor well MW-7, olfactory senses and photo-ionization detector (PID) technology indicated the presence of hydrocarbon contamination beginning at approximately ten feet (10') below ground surface (bgs). Since the location in question is well outside of the flow path of the release and is over hundred feet (100') to the west of the westernmost extent of the excavation, it was determined that a second historical release had been encountered.

Prior to the advancement of proposed monitor well MW-8, on March 8, 2013, a site visit by a Basin Environmental Field Supervisor familiar with the area (but who had not participated in previous remediation activities) revealed that a Chevron tank battery had, at one point, stood adjacent to, and to the southwest of, the release site. Review of historical aerial imagery unavailable at the time of excavation indicates that the tank battery was intact and operational from approximately the mid-1970's to the early 2000's (exact dates unknown). The geographic coordinates of proposed monitor well MW-8 indicated that the well would have been drilled in, or adjacent to, the containment area of the historical battery. Based on this information and consultation between representatives of Plains and Basin Environmental, drilling activities were halted, and MW-8 was not advanced at the site.

Baseline groundwater sampling of monitor well MW-7 near the suspected second source indicates hydrocarbon contamination well above that observed in monitor wells MW-1 through MW-6. The presence of phase-separated hydrocarbons (PSH) was also detected during a follow-up gauging event conducted on March 14, 2013. An oil/water interface probe indicated that the PSH thickness was approximately 0.48 inches.

Given 1.) the inferred groundwater gradient at the site is to the south-southwest, 2.) monitor well MW-7 is cross-gradient and approximately one hundred and thirty feet (130') to the west-southwest of the Plains release point, 3.) the release volume (130 barrels) is not sufficient to account for the levels of contamination or PSH observed in MW-7, 4.) groundwater contamination in the other monitor wells at the site is in the dissolved-phase, and 5.) the presence of the historical tank battery, there is a strong possibility that the groundwater contamination at the site is at least partially attributable to a second source.

Prior to the submission of a Groundwater Remediation Plan, Plains requests additional time to properly delineate the extent of the dissolved-phase plume. To that end, a "Proposed Monitor Well Location Map" depicting the locations of up to four (4) additional monitor wells to delineate the extent of the dissolved-phase plume will be submitted to your office by May 31, 2013. Basin and Plains request that the NMOCD review this information (with attachments) and contact Chevron requesting that they develop a Work Plan to address the delineation of the impacted soil and groundwater and implement product recovery efforts.

For your convenience, the following documentation has been attached to this message:

- Topographic Site Location Map (1":2,000' scale)
- Topographic Site Location Map (1":500' scale, depicting the historical tank battery and the locations of the on-site monitor wells & proposed MW-8)
- Groundwater Gradient Map
- Groundwater Concentration Map
- Aerial Map (1":500' scale, depicting the locations of the on-site monitor wells & proposed MW-8)
- Historical aerial photographs of the area from 1957 – 2012 depicting the historical tank battery
- Laboratory analytical results from the baseline sampling of monitor wells MW-5 through MW-7
- Cumulative groundwater chemistry table (BTEX)
- Cumulative soil chemistry table
- Initial C-141
- List of oil wells (and their associated API #'s) within a 1,000' radius of the Plains release site

If you have any questions, please do not hesitate to contact me by telephone or email.

Respectfully,
Ben J. Arguijo

Ben J. Arguijo
Project Manager
Basin Environmental
3100 Plains Hwy.
P.O. Box 301
Lovington, NM 88260
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bjarguijo@basinenv.com

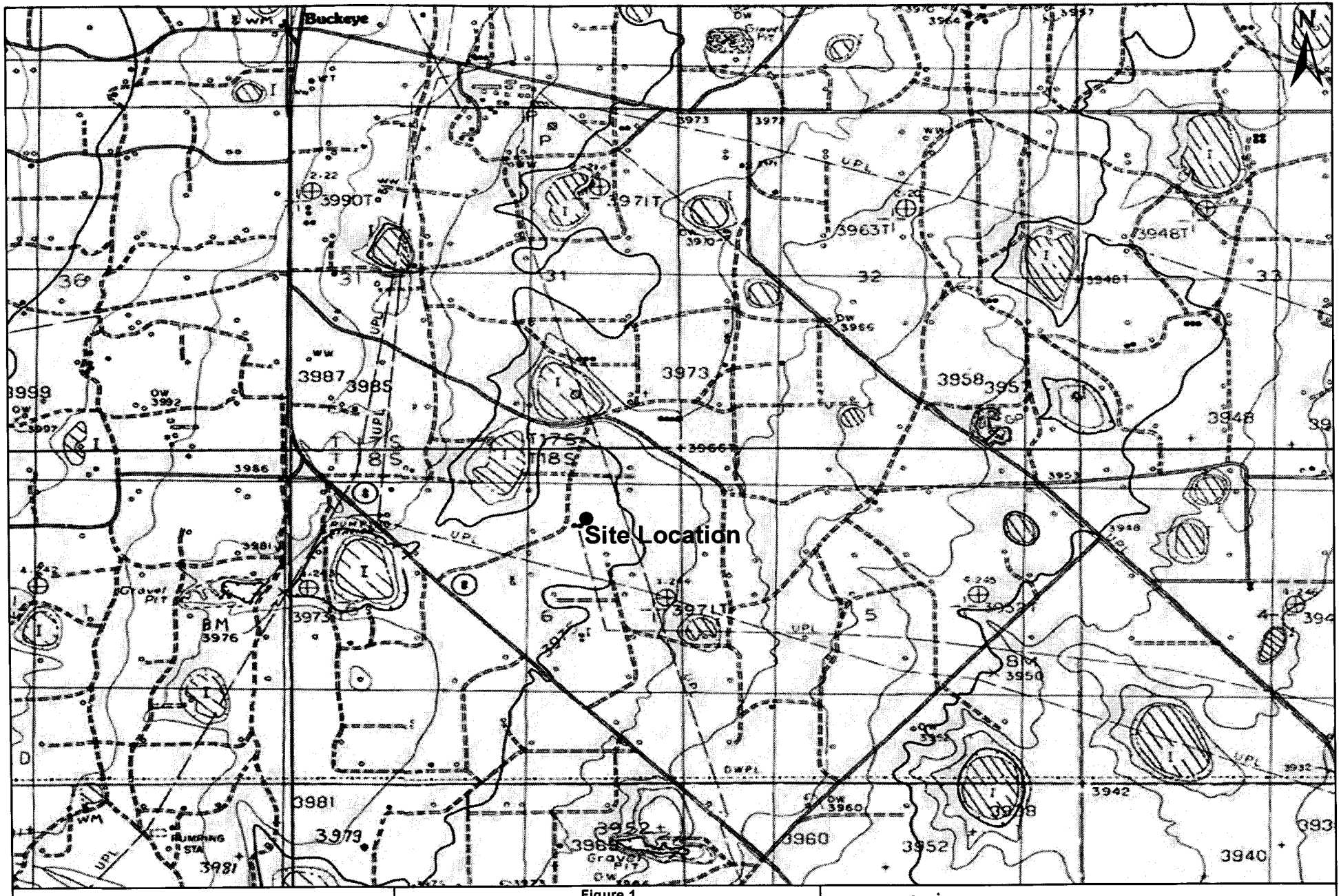


Figure 1
Site Location Map
Plains Pipeline, LP
Chevron Grayburg 6-Inch Sec. 6 (Historical)
Lea County, New Mexico
SRS #: Chevron Grayburg 6-Inch Historical
NMOCD Ref. #: 1RP-2637

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

Drawn By: BJA	Checked By: BRB
August 27, 2012	Scale: 1" = 2000'

250 125 0 250 500

Distance in Feet

Legend:

Monitor Well Proposed Monitor Well

Figure 5
Aerial Map
Plains Pipeline, LP
Chevron Grayburg 6-Inch Sec. 6 (Historical)
Lea County, New Mexico
SRS #: Chevron Grayburg 6-Inch Historical
NMOCD Ref. #: 1RP-2637

Basin Environmental Service Technologies
Effective Solutions

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

Drawn By: BJA	Checked By: BRB
March 25, 2013	Scale: 1" = 500'

250 125 0 250 500

Distance in Feet

Legend:

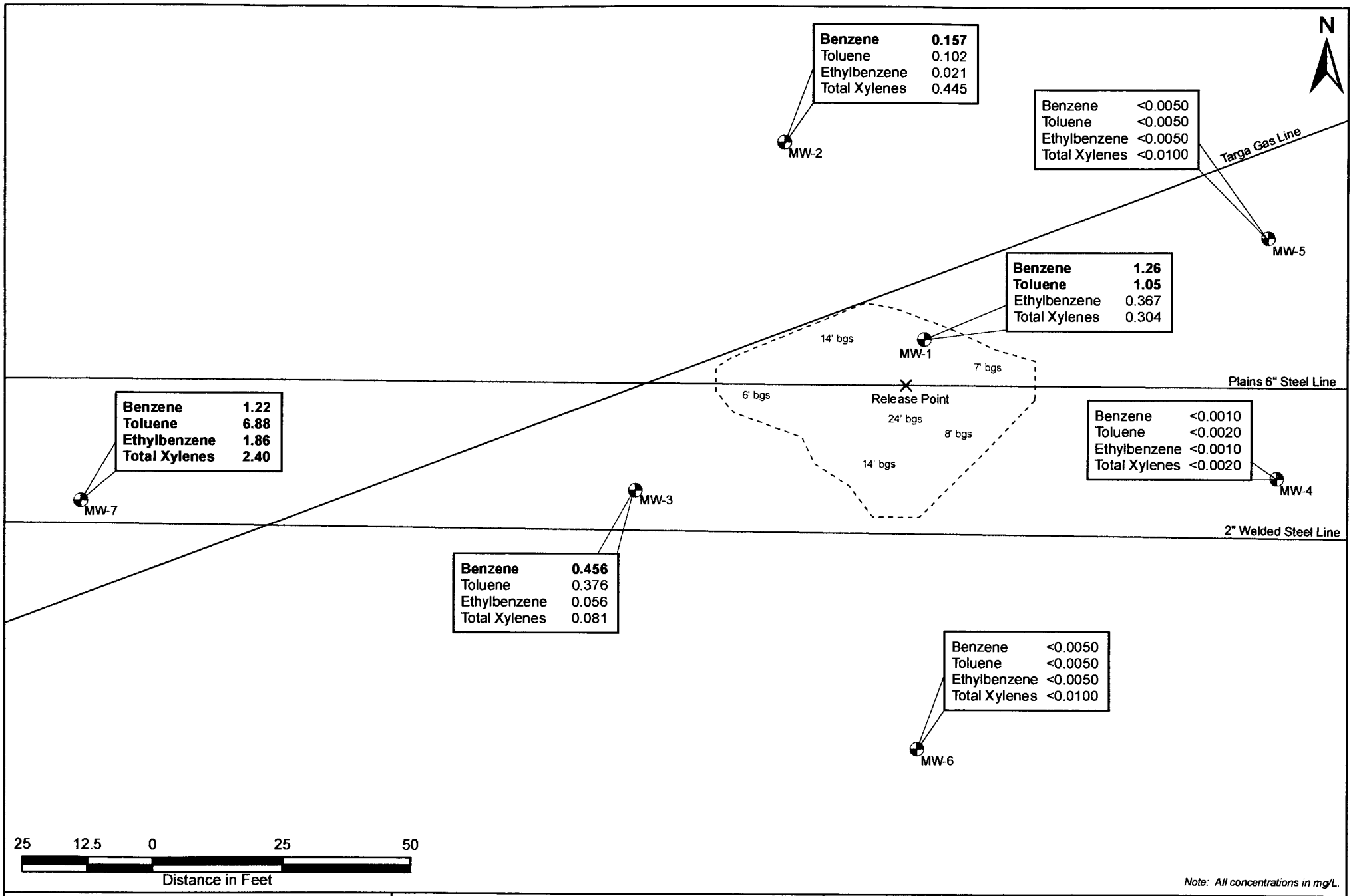
● Monitor Well ● Proposed Monitor Well

Figure 2
Site Location Map
Plains Pipeline, LP
Chevron Grayburg 6-Inch Sec. 6 (Historical)
Lea County, New Mexico
SRS #: Chevron Grayburg 6-Inch Historical
NMOCD Ref. #: 1RP-2637

Basin Environmental Service Technologies
Effective Solutions

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

Drawn By: BJA	Checked By: BRB
March 25, 2013	Scale: 1" = 500'



Legend

- – – – Excavation Extent
- ◔ Monitor Well
- ——— Pipeline

Figure 4
Groundwater Concentration Map (1Q2013)
Plains Pipeline, LP
Chevron Grayburg 6-Inch Sec. 6 (Historical)
Lea County, New Mexico
SRS #: Chevron Grayburg 6-Inch Historical
NMOCD Ref. #: 1RP-2637

Basin Environmental Service Technologies
Effective Solutions

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

Drawn By: BJA	Checked By: BRB
March 18, 2013	Scale: 1" = 25'

TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL

PLAINS PIPELINE, LP
CHEVRON GRAYBURH 6-INCH SEC. 6 (HISTORICAL)
LEA COUNTY, NEW MEXICO
SRS #: CHEVRON GRAYBURG 6-INCH HISTORICAL
NMOCD REFERENCE #: 1RP-2637

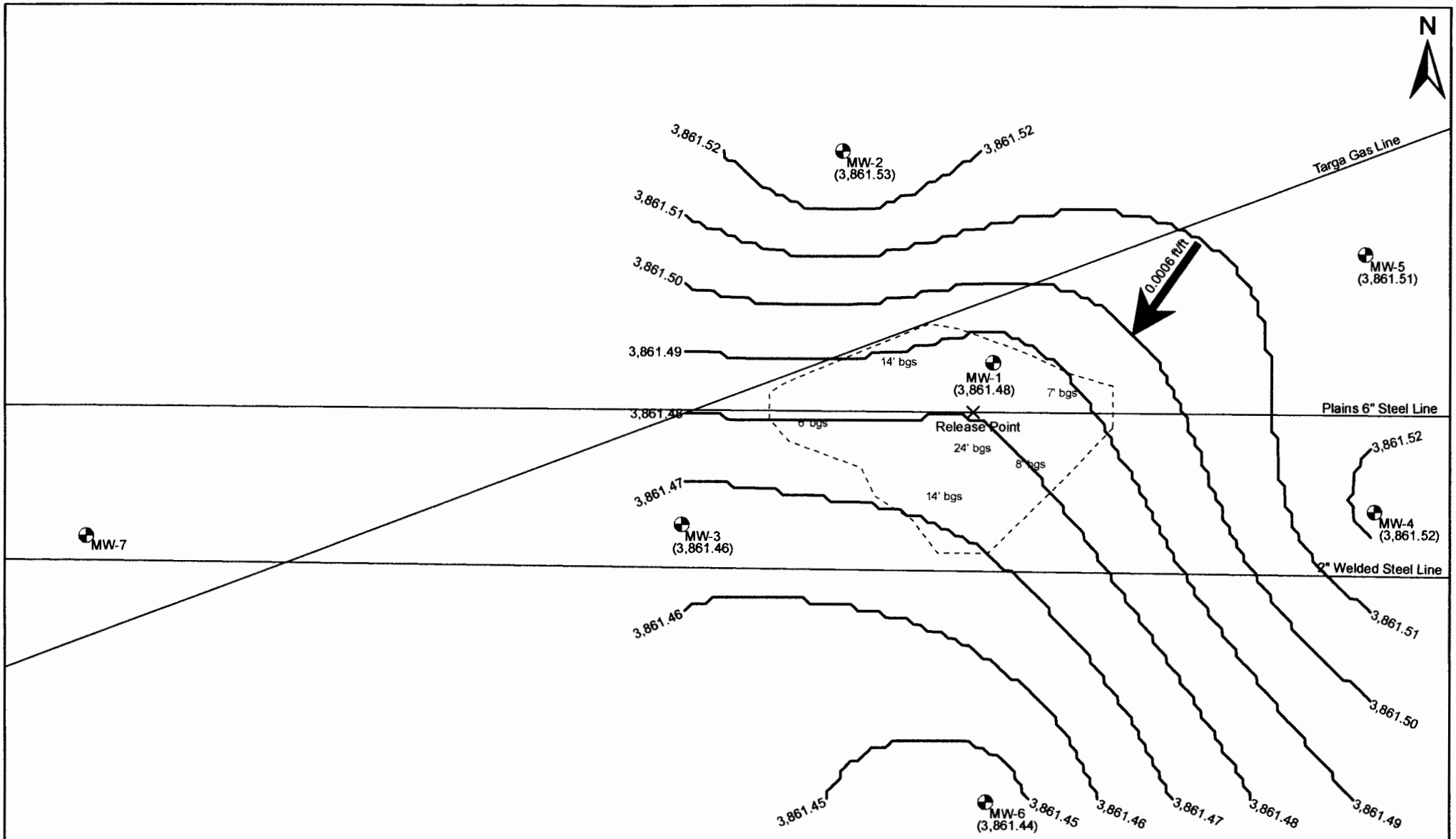
SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030							METHOD: 8015M			TOTAL TPH C_6-C_{35} (mg/Kg)	E 300
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	M.P. - XYLENES (mg/Kg)	O-XYLENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO C_6-C_{12} (mg/Kg)	DRO C_{12}-C_{28} (mg/Kg)	ORO C_{28}-C_{35} (mg/Kg)		CHLORIDE (mg/Kg)
Stockpile	N/A	11/5/2010	Blended	-	-	-	-	-	-	-	2,230	4,210	<156	6,440	-
N-SW	3'	11/12/2010	In-Situ	<0.0010	0.0055	0.0041	0.0053	0.0010	0.0063	0.0159	<15.0	527	28.4	555	34.0
S-SW	5'	11/12/2010	In-Situ	-	-	-	-	-	-	-	21.7	1,740	77.3	1,839	33.8
E-SW	3.5'	11/12/2010	In-Situ	<0.0011	<0.0021	<0.0011	<0.0021	<0.0011	<0.0021	<0.0021	<15.9	26.6	<15.9	26.6	65.1
W-SW	6'	11/12/2010	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<15.6	794	47.8	842	45.0
Floor	7'	11/12/2010	Excavated	-	-	-	-	-	-	-	6,230	15,500	367	22,097	46.3
Release Point @ 24'	24'	4/11/2011	In-Situ	-	-	-	-	-	-	-	625	2,370	17.3	3,010	49.3
South Wall (S-SW)	4'	6/2/2011	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<15.6	<15.6	<15.6	<15.6	-
Stockpile #1	N/A	6/15/2011	Blended	-	-	-	-	-	-	-	207	3,600	<15.3	3,810	84.5
Stockpile #2	N/A	6/15/2011	Blended	-	-	-	-	-	-	-	134	2,380	<15.5	2,510	57.0
Stockpile #1A	N/A	6/28/2011	Blended	-	-	-	-	-	-	-	133	2,570	131	2,830	74.8
Stockpile	N/A	7/19/2011	Blended	-	-	-	-	-	-	-	<79.1	1,350	<79.1	1,350	84.5
Stockpile	N/A	8/4/2011	Blended	<0.0010	<0.0021	0.00135	0.00468	0.00303	0.00771	0.00906	<15.5	329	18.6	348	87.3
SB-1 @32'	32'	8/30/2011	In-Situ	-	-	-	-	-	-	-	489	2,690	46.5	3,230	-
SB-1 @47'	47'	8/30/2011	In-Situ	-	-	-	-	-	-	-	305	2,330	37.7	2,670	-
SB-1 @62'	62'	8/30/2011	In-Situ	-	-	-	-	-	-	-	487	2,350	<79.3	2,840	-
SB-1 @72'	72'	8/30/2011	In-Situ	-	-	-	-	-	-	-	436	3,190	104.0	3,730	-
MW-2 @ 35'	35'	6/14/2012	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<50.8	<50.8	<50.8	<50.8	-
MW-2 @ 55'	55'	6/14/2012	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<51.5	<51.5	<51.5	<51.5	-
MW-2 @ 75'	75'	6/14/2012	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<50.3	<50.3	<50.3	<50.3	-
MW-2 @ 95'	95'	6/14/2012	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<50.2	59.4	<50.2	59.4	-
MW-3 @ 35'	35'	6/14/2012	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<51.4	<51.4	<51.4	<51.4	-
MW-3 @ 50'	50'	6/14/2012	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<51.6	<51.6	<51.6	<51.6	-
MW-3 @ 65'	65'	6/15/2012	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<52.0	229	<52.0	229	-
MW-3 @ 95'	95'	6/15/2012	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<50.6	159	<50.6	159	-
MW-4 @ 35'	35'	6/18/2012	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<51.7	<51.7	<51.7	<51.7	-
MW-4 @ 55'	55'	6/18/2012	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<51.4	<51.4	<51.4	<51.4	-
MW-4 @ 70'	70'	6/18/2012	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<50.7	<50.7	<50.7	<50.7	-
MW-4 @ 95'	95'	6/18/2012	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<50.4	<50.4	<50.4	<50.4	-

TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL

PLAINS PIPELINE, LP
CHEVRON GRAYBURH 6-INCH SEC. 6 (HISTORICAL)
LEA COUNTY, NEW MEXICO
SRS #: CHEVRON GRAYBURG 6-INCH HISTORICAL
NMOCD REFERENCE #: 1RP-2637

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030							METHOD: 8015M			TOTAL TPH C_6-C_{35} (mg/Kg)	E 300
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	M.P. - XYLENES (mg/Kg)	O-XYLENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO C_6-C_{12} (mg/Kg)	DRO C_{12}-C_{28} (mg/Kg)	ORO C_{28}-C_{35} (mg/Kg)		CHLORIDE (mg/Kg)
MW-5 @ 20'	20'	3/4/2013	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<15.4	<15.4	<15.4	<15.4	-
MW-5 @ 40'	40'	3/4/2013	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<15.4	<15.4	<15.4	<15.4	-
MW-5 @ 60'	60'	3/4/2013	In-Situ	<0.0011	<0.0021	<0.0011	<0.0021	<0.0011	<0.0021	<0.0021	<15.9	<15.9	<15.9	<15.9	-
MW-5 @ 80'	80'	3/4/2013	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<15.4	<15.4	<15.4	<15.4	-
MW-6 @ 10'	10'	3/5/2013	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<15.4	34.4	<15.4	34.4	-
MW-6 @ 30'	30'	3/5/2013	In-Situ	<0.0010	<0.0020	<0.0010	0.00220	0.00167	0.00387	0.00387	<17.2	<17.2	<17.2	<17.2	-
MW-6 @ 50'	50'	3/5/2013	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<15.6	<15.6	<15.6	<15.6	-
MW-6 @ 70'	70'	3/5/2013	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<15.6	<15.6	<15.6	<15.6	-
MW-7 @ 5'	5'	3/5/2013	In-Situ	<0.0011	0.00231	0.00760	0.0133	0.00490	0.0182	0.0281	34.7	2,340	170	2,540	-
MW-7 @ 20'	20'	3/5/2013	In-Situ	0.0118	0.0432	0.295	1.54	0.623	2.16	2.51	832	3,930	189	4,950	-
MW-7 @ 35'	35'	3/5/2013	In-Situ	<0.0052	0.0212	0.155	0.811	0.461	1.27	1.45	551	2,780	143	3,470	-
MW-7 @ 50'	50'	3/5/2013	In-Situ	0.0424	0.203	2.30	3.73	2.31	6.04	8.59	920	3,940	224	5,080	-
MW-7 @ 75'	75'	3/5/2013	In-Situ	0.00563	0.0639	0.643	1.02	0.566	1.59	2.30	631	3,900	240	4,770	-
NMOCD Standard				**10**						**50**				**1,000**	



Note: Groundwater gradient magnitude measured between monitor wells MW-5 and MW-6. Due to the presence of PSH, monitor well MW-7 was not used in map construction.

Legend

- Excavation Extent
- Pipeline
- (3,720) Groundwater Elevation (ft)
- 0.001 ft/ft Groundwater Gradient/Magnitude
- Monitor Well

Figure 3
Groundwater Gradient Map (March 2013)
Plains Pipeline, LP
Chevron Grayburg 6-Inch Sec. 6 (Historical)
Lea County, New Mexico
SRS #: Chevron Grayburg 6-Inch Historical
NMOCD Ref. #: 1RP-2637

Basin Environmental Service Technologies
Effective Solutions

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

Drawn By: BJA	Checked By: BRB
March 21, 2013	Scale: 1" = 25'

Date EDR Searched Historical Sources:

Aerial Photography March 18, 2013

Target Property:

Chevron Grayburg Historical II

Lovington, NM 88260

Year	*Scale*	*Details*	*Source*
1957	Aerial Photograph. Scale: 1"=750'	Panel #: 32103-G4, Lovington SW, NM;/Flight Date: March 05, 1957	EDR
1978	Aerial Photograph. Scale: 1"=500'	Panel #: 32103-G4, Lovington SW, NM;/Flight Date: July 02, 1978	EDR
1996	Aerial Photograph. Scale: 1"=500'	Panel #: 32103-G4, Lovington SW, NM;/DOQQ - acquisition dates: September 19, 1996	EDR
2009	Aerial Photograph. Scale: 1"=500'	Panel #: 32103-G4, Lovington SW, NM;/Flight Year: 2009	EDR
2011	Aerial Photograph. Scale: 1"=500'	Panel #: 32103-G4, Lovington SW, NM;/Flight Year: 2011	EDR


INQUIRY #: 3546450.1
YEAR: 1957
= 750'
N


INQUIRY #: 3546450.1
YEAR: 1978
= 500'
N


INQUIRY #: 3546450.1
YEAR: 1996
= 500'
N


INQUIRY #: 3546450.1
YEAR: 2009
= 500'
N


INQUIRY #: 3546450.1
YEAR: 2011
= 500'
N

TABLE 2

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

PLAINS PIPELINE, LP
CHEVRON GRAYBURG 6-INCH SEC. 6 (HISTORICAL)
LEA COUNTY, NEW MEXICO
PLAINS SRS #: SRS CHEVRON GRAYBURG 6-INCH HISTORICAL
NMOCD REFERENCE #: 1R-2637

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021B, 5030						
		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-1	7/3/2012	**0.362**	0.132	<0.0050	0.404	0.465	0.869	1.36
	10/12/2012	**1.64**	0.476	0.274	0.16	0.104	0.264	2.65
	2/1/2013	**1.26**	1.05	0.367	0.189	0.115	0.304	2.98
MW-2	7/3/2012	<0.0050	<0.0050	<0.0050	<0.0100	<0.0100	<0.0100	<0.0100
	10/12/2012	**0.0731**	0.0478	0.0113	0.0141	0.0099	0.024	0.156
	2/1/2013	**0.157**	0.102	0.0211	0.0246	0.0199	0.0445	0.325
MW-3	7/3/2012	**0.667**	0.556	0.140	0.130	0.0672	0.197	1.56
	10/12/2012	**1.40**	0.916	0.129	0.102	0.0698	0.172	2.62
	2/1/2013	**0.456**	0.376	0.056	0.0459	0.0354	0.0813	0.969
MW-4	7/3/2012	<0.0050	<0.0050	<0.0050	<0.0100	<0.0100	<0.0100	<0.0100
	10/12/2012	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
	2/1/2013	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020
MW-5	3/8/2013	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	<0.0100	<0.0100
MW-6	3/8/2013	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	<0.0100	<0.0100
MW-7	3/8/2013	**1.22**	**6.88**	**1.86**	**1.62**	**0.775**	**2.40**	**12.4**
NMOCD CRITERIA		**0.01**	**0.75**	**0.75**	**TOTAL XYLENES 0.62**			

Analytical Report 459011

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

Chevron Grayburg 6-inch Sec. 6(Historical)

15-MAR-13

Collected By: Client

XENCO Laboratories

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)

15-MAR-13

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

Reference: XENCO Report No(s): **459011**
Chevron Grayburg 6-inch Sec. 6(Historical)
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) 459011. 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. 459011 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,

Nicholas Straccione
Project Manager

Sample Cross Reference 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-5	W	03-08-13 12:35		459011-001
MW-6	W	03-08-13 11:20		459011-002
MW-7	W	03-08-13 10:05		459011-003

CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S
Project Name: Chevron Grayburg 6-inch Sec. 6(Historical)

Project ID:
Work Order Number(s): *459011*

Report Date: *15-MAR-13*
Date Received: *03/08/2013*

Sample receipt non conformances and comments:
None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:
Batch: LBA-909085 SVOAs by SW-846 8270C
SW8270C

Batch 909085, 2-Fluorophenol recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis
Samples affected are: 459011-003.

SW8270C

Batch 909085, 2,4-Dinitrophenol, 4-Nitrophenol, Hexachlorocyclopentadiene recovered below QC limits in the laboratory control sample. These compounds passed in the duplicate .
Samples affected are: 459011-003, -001, -002.

SW8270C

Batch 909085, 2-Methylnaphthalene, 2-Nitroaniline, 3,3-Dichlorobenzidine, 3-Nitroaniline, 4,6-Dinitro-2-methyl phenol, 4-Nitroaniline, Aniline (Phenylamine, Aminobenzene), Hexachlorobutadiene, Hexachlorocyclopentadiene, Isophorone recovered below QC limits in the Matrix Spike. Benzoic Acid recovered above QC limits in the Matrix Spike.
Samples affected are: 459011-003, -001, -002.
The Laboratory Control Sample for Benzoic Acid, 2-Nitroaniline, 3-Nitroaniline, Aniline (Phenylamine, Aminobenzene), 4-Nitroaniline, 3,3-Dichlorobenzidine, 4,6-Dinitro-2-methyl phenol, Isophorone, Hexachlorobutadiene, 2-Methylnaphthalene is within laboratory Control Limits

XENCO Laboratories

Analytical Data Package Information Summary. W.O: 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-inch Sec. 6(Historical)

Project Manager: Ben Arguijo

Regulatory-Compliance Program:

Method	Client Sample I	Lab Sample I	Mtx	Prep Batch	Analytical Batch	Received Date	Sampling Date	Prep Date	Analysis Date
E200.7	Hotel/ Kitchen #26 S	458755-001 S	W	634975	908922	03-08-2013	02-25-2013	03-12-2013	03-12-2013
	Hotel/ Kitchen #26 SD	458755-001 SD	W	634975	908922	03-08-2013	02-25-2013	03-12-2013	03-12-2013
	CreekField Well "A" RAW S	458952-001 S	W	634975	908922	03-08-2013	03-08-2013	03-12-2013	03-12-2013
	MW-5	459011-001	W	634975	908922	03-08-2013	03-08-2013	03-12-2013	03-12-2013
	MW-6	459011-002	W	634975	908922	03-08-2013	03-08-2013	03-12-2013	03-12-2013
	MW-7	459011-003	W	634975	908922	03-08-2013	03-08-2013	03-12-2013	03-12-2013
	634975-1-BKS	634975-1-BKS	W	634975	908922	03-08-2013		03-12-2013	03-12-2013
	634975-1-BLK	634975-1-BLK	W	634975	908922	03-08-2013		03-12-2013	03-12-2013
	634975-1-BSD	634975-1-BSD	W	634975	908922	03-08-2013		03-12-2013	03-12-2013
E245.1	MW-5	459011-001	W	635078	908954	03-08-2013	03-08-2013	03-13-2013	03-13-2013
	MW-6	459011-002	W	635078	908954	03-08-2013	03-08-2013	03-13-2013	03-13-2013
	MW-7	459011-003	W	635078	908954	03-08-2013	03-08-2013	03-13-2013	03-13-2013
	MW-7 S	459011-003 S	W	635078	908954	03-08-2013	03-08-2013	03-13-2013	03-13-2013
	MW-7 SD	459011-003 SD	W	635078	908954	03-08-2013	03-08-2013	03-13-2013	03-13-2013
	635078-1-BKS	635078-1-BKS	W	635078	908954	03-08-2013		03-13-2013	03-13-2013
	635078-1-BLK	635078-1-BLK	W	635078	908954	03-08-2013		03-13-2013	03-13-2013
E300	MW-5	459011-001	W	635002	908842	03-08-2013	03-08-2013	03-10-2013	03-10-2013
	MW-5 S	459011-001 S	W	635002	908842	03-08-2013	03-08-2013	03-10-2013	03-10-2013
	MW-6	459011-002	W	635002	908842	03-08-2013	03-08-2013	03-10-2013	03-10-2013
	MW-7	459011-003	W	635002	908842	03-08-2013	03-08-2013	03-10-2013	03-10-2013
	635002-1-BKS	635002-1-BKS	W	635002	908842	03-08-2013		03-10-2013	03-10-2013
	635002-1-BLK	635002-1-BLK	W	635002	908842	03-08-2013		03-10-2013	03-10-2013
	635002-1-BSD	635002-1-BSD	W	635002	908842	03-08-2013		03-10-2013	03-10-2013
SM2320B	Shallow Monitor Well D	458881-001 D	W	908859	908859	03-08-2013	03-07-2013	03-12-2013	03-12-2013
	MW-5	459011-001	W	908859	908859	03-08-2013	03-08-2013	03-12-2013	03-12-2013
	MW-6	459011-002	W	908859	908859	03-08-2013	03-08-2013	03-12-2013	03-12-2013
	MW-7	459011-003	W	908859	908859	03-08-2013	03-08-2013	03-12-2013	03-12-2013
	908859-1-BKS	908859-1-BKS	W	908859	908859	03-08-2013		03-12-2013	03-12-2013

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Analytical Data Package Information Summary. W.O: 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-inch Sec. 6(Historical)

Project Manager: Ben Arguijo

Regulatory-Compliance Program:

Method	Client Sample I	Lab Sample I	Mtx	Prep Batch	Analytical Batch	Received Date	Sampling Date	Prep Date	Analysis Date
SM2320B	908859-1-BLK	908859-1-BLK	W	908859	908859	03-08-2013		03-12-2013	03-12-2013
	908859-1-BSD	908859-1-BSD	W	908859	908859	03-08-2013		03-12-2013	03-12-2013
SW8260B	MW-5	459011-001	W	635141	909037	03-08-2013	03-08-2013	03-13-2013	03-13-2013
	MW-5 S	459011-001 S	W	635141	909037	03-08-2013	03-08-2013	03-13-2013	03-14-2013
	MW-5 SD	459011-001 SD	W	635141	909037	03-08-2013	03-08-2013	03-13-2013	03-14-2013
	MW-6	459011-002	W	635141	909037	03-08-2013	03-08-2013	03-13-2013	03-13-2013
	MW-7	459011-003	W	635141	909037	03-08-2013	03-08-2013	03-13-2013	03-14-2013
	635141-1-BKS	635141-1-BKS	W	635141	909037	03-08-2013		03-13-2013	03-13-2013
	635141-1-BLK	635141-1-BLK	W	635141	909037	03-08-2013		03-13-2013	03-13-2013
	635141-1-BSD	635141-1-BSD	W	635141	909037	03-08-2013		03-13-2013	03-13-2013
SW8270C	Itasca Sludge S	458934-001 S	W	634933	909085	03-08-2013	03-05-2013	03-12-2013	03-14-2013
	MW-5	459011-001	W	634933	909085	03-08-2013	03-08-2013	03-12-2013	03-13-2013
	MW-6	459011-002	W	634933	909085	03-08-2013	03-08-2013	03-12-2013	03-13-2013
	MW-7	459011-003	W	634933	909085	03-08-2013	03-08-2013	03-12-2013	03-14-2013
	634933-1-BKS	634933-1-BKS	W	634933	909085	03-08-2013		03-12-2013	03-13-2013
	634933-1-BLK	634933-1-BLK	W	634933	909085	03-08-2013		03-12-2013	03-13-2013
	634933-1-BSD	634933-1-BSD	W	634933	909085	03-08-2013		03-12-2013	03-13-2013

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Certificate of Analytical Results 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-5 Matrix: Water Date Received: 03.08.13 15.32

Lab Sample Id: **459011-001** Date Collected: 03.08.13 12.35

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

Tech: AMB % Moisture:

Analyst: AMB Date Prep: 03.10.13 06.42

Seq Number: 908842

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**368**	20.0	mg/L	03.10.13 06.42		20
Fluoride	16984-48-8	ND	10.0	mg/L	03.10.13 06.42	U	20
Nitrate as N	14797-55-8	ND	10.0	mg/L	03.10.13 06.42	U	20
Ortho-Phosphate	14265-44-2	ND	10.0	mg/L	03.10.13 06.42	U	20
Sulfate	14808-79-8	**57.7**	20.0	mg/L	03.10.13 06.42		20

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

Tech: MLI % Moisture:

Analyst: MKO Date Prep: 03.12.13 09.40

Seq Number: 908922 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Aluminum	7429-90-5	**56.9**	0.200	mg/L	03.12.13 23.43		1
Arsenic	7440-38-2	**0.0212**	0.0100	mg/L	03.12.13 23.43		1
Barium	7440-39-3	**2.65**	0.0100	mg/L	03.12.13 23.43		1
Boron	7440-42-8	**0.106**	0.0500	mg/L	03.12.13 23.43		1
Cadmium	7440-43-9	ND	0.00500	mg/L	03.12.13 23.43	U	1
Calcium	7440-70-2	**539**	0.200	mg/L	03.12.13 23.43		1
Chromium	7440-47-3	**0.120**	0.0100	mg/L	03.12.13 23.43		1
Cobalt	7440-48-4	**0.0444**	0.0100	mg/L	03.12.13 23.43		1
Copper	7440-50-8	**0.0281**	0.0200	mg/L	03.12.13 23.43		1
Iron	7439-89-6	**49.7**	0.200	mg/L	03.12.13 23.43		1
Lead	7439-92-1	**0.0754**	0.0100	mg/L	03.12.13 23.43		1
Magnesium	7439-95-4	**40.2**	0.200	mg/L	03.12.13 23.43		1
Molybdenum	7439-98-7	**0.0124**	0.0100	mg/L	03.12.13 23.43		1
Nickel	7440-02-0	**0.0488**	0.0100	mg/L	03.12.13 23.43		1
Potassium	7440-09-7	**12.2**	0.500	mg/L	03.12.13 23.43		1
Selenium	7782-49-2	ND	0.0300	mg/L	03.12.13 23.43	U	1
Silver	7440-22-4	ND	0.0200	mg/L	03.12.13 23.43	U	1
Sodium	7440-23-5	**217**	0.500	mg/L	03.12.13 23.43		1
Zinc	7440-66-6	**0.321**	0.0300	mg/L	03.12.13 23.43		1

XENCO Laboratories

Certificate of Analytical Results 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id:	**MW-5**	Matrix: Water	Date Received: 03.08.13 15.32
Lab Sample Id:	**459011-001**	Date Collected: 03.08.13 12.35	

Analytical Method:	**Alkalinity by SM2320B**		
Tech:	DAD		% Moisture:
Analyst:	ALA		
Seq Number:	908859		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	**197**	4.00	mg/L	03.12.13 14.38		1
Alkalinity, Carbonate (as CaCO3)	ALKCARB	ND	4.00	mg/L	03.12.13 14.38	U	1

Analytical Method:	**Mercury, Total by EPA 245.1**		Prep Method: E245.1P	
Tech:	ANS		% Moisture:	
Analyst:	ANS	Date Prep: 03.13.13 11.00		
Seq Number:	908954		SUB: TX104704215	

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Mercury	7439-97-6	ND	0.000200	mg/L	03.13.13 15.53	U	1

XENCO Laboratories

Certificate of Analytical Results 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: **MW-5** Matrix: Water Date Received: 03.08.13 15.32

Lab Sample Id: **459011-001** Date Collected: 03.08.13 12.35

Analytical Method: **SVOAs by EPA 8270C** Prep Method: SW3510C

Tech: LRA % Moisture:

Analyst: WEW Date Prep: 03.12.13 10.18

Seq Number: 909085 SUB: TX104704215

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
2,4,5-Trichlorophenol	95-95-4	ND	0.0103	0.00113	mg/L	03.13.13 20.53	U	2
2,4,6-Trichlorophenol	88-06-2	ND	0.0103	0.000783	mg/L	03.13.13 20.53	U	2
2,4-Dichlorophenol	120-83-2	ND	0.0103	0.000542	mg/L	03.13.13 20.53	U	2
2,4-Dimethylphenol	105-67-9	ND	0.0103	0.00203	mg/L	03.13.13 20.53	U	2
2,4-Dinitrophenol	51-28-5	ND	0.0206	0.00232	mg/L	03.13.13 20.53	U	2
2,4-Dinitrotoluene	121-14-2	ND	0.00515	0.000676	mg/L	03.13.13 20.53	U	2
2,6-Dinitrotoluene	606-20-2	ND	0.0103	0.000709	mg/L	03.13.13 20.53	U	2
2-Chloronaphthalene	91-58-7	ND	0.0103	0.000662	mg/L	03.13.13 20.53	U	2
2-Chlorophenol	95-57-8	ND	0.0103	0.000843	mg/L	03.13.13 20.53	U	2
2-Methylnaphthalene	91-57-6	ND	0.0103	0.00102	mg/L	03.13.13 20.53	U	2
2-Methylphenol	95-48-7	ND	0.0103	0.00149	mg/L	03.13.13 20.53	U	2
2-Nitroaniline	88-74-4	ND	0.0206	0.000911	mg/L	03.13.13 20.53	U	2
2-Nitrophenol	88-75-5	ND	0.0103	0.00100	mg/L	03.13.13 20.53	U	2
3&4-Methylphenol	15831-10-4	ND	0.0103	0.00200	mg/L	03.13.13 20.53	U	2
3,3-Dichlorobenzidine	91-94-1	ND	0.0206	0.00285	mg/L	03.13.13 20.53	U	2
3-Nitroaniline	99-09-2	ND	0.0206	0.000790	mg/L	03.13.13 20.53	U	2
4,6-Dinitro-2-methyl phenol	534-52-1	ND	0.0206	0.00111	mg/L	03.13.13 20.53	U	2
4-Bromophenyl-phenylether	101-55-3	ND	0.0103	0.000616	mg/L	03.13.13 20.53	U	2
4-Chloro-3-methylphenol	59-50-7	ND	0.0103	0.000882	mg/L	03.13.13 20.53	U	2
4-Chloroaniline	106-47-8	ND	0.0206	0.00352	mg/L	03.13.13 20.53	U	2
4-Chlorophenyl-phenyl ether	7005-72-3	ND	0.0103	0.000732	mg/L	03.13.13 20.53	U	2
4-Nitroaniline	100-01-6	ND	0.0206	0.000588	mg/L	03.13.13 20.53	U	2
4-Nitrophenol	100-02-7	ND	0.0206	0.000722	mg/L	03.13.13 20.53	U	2
Acenaphthene	83-32-9	ND	0.0103	0.000759	mg/L	03.13.13 20.53	U	2
Acenaphthylene	208-96-8	ND	0.0103	0.000705	mg/L	03.13.13 20.53	U	2
Aniline (Phenylamine, Aminobenzene)	62-53-3	ND	0.0206	0.00206	mg/L	03.13.13 20.53	U	2
Anthracene	120-12-7	ND	0.0103	0.000338	mg/L	03.13.13 20.53	U	2
Benzo(a)anthracene	56-55-3	ND	0.0103	0.000511	mg/L	03.13.13 20.53	U	2
Benzo(a)pyrene	50-32-8	ND	0.0103	0.000412	mg/L	03.13.13 20.53	U	2
Benzo(b)fluoranthene	205-99-2	ND	0.0103	0.000777	mg/L	03.13.13 20.53	U	2
Benzo(g,h,i)perylene	191-24-2	ND	0.0103	0.000594	mg/L	03.13.13 20.53	U	2
Benzo(k)fluoranthene	207-08-9	ND	0.0103	0.00106	mg/L	03.13.13 20.53	U	2
Benzoic Acid	65-85-0	ND	0.0619	0.00197	mg/L	03.13.13 20.53	U	2
Benzyl Butyl Phthalate	85-68-7	ND	0.0103	0.000573	mg/L	03.13.13 20.53	U	2
bis(2-chloroethoxy) methane	111-91-1	ND	0.0103	0.000907	mg/L	03.13.13 20.53	U	2
bis(2-chloroethyl) ether	111-44-4	ND	0.0103	0.000934	mg/L	03.13.13 20.53	U	2
bis(2-chloroisopropyl) ether	39638-32-9	ND	0.0103	0.000961	mg/L	03.13.13 20.53	U	2
bis(2-ethylhexyl) phthalate	117-81-7	**0.00998**	0.0103	0.000645	mg/L	03.13.13 20.53	J	2
Chrysene	218-01-9	ND	0.0103	0.000476	mg/L	03.13.13 20.53	U	2
Dibenz(a,h)anthracene	53-70-3	ND	0.0103	0.000408	mg/L	03.13.13 20.53	U	2
Dibenzofuran	132-64-9	ND	0.0103	0.000711	mg/L	03.13.13 20.53	U	2

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-5 Matrix: Water Date Received: 03.08.13 15.32

Lab Sample Id: **459011-001** Date Collected: 03.08.13 12.35

Analytical Method: **SVOAs by EPA 8270C** Prep Method: SW3510C

Tech: LRA % Moisture:

Analyst: WEW Date Prep: 03.12.13 10.18

Seq Number: 909085 SUB: TX104704215

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Diethyl Phthalate	84-66-2	ND	0.0103	0.000656	mg/L	03.13.13 20.53	U	2
Dimethyl Phthalate	131-11-3	ND	0.0103	0.000621	mg/L	03.13.13 20.53	U	2
di-n-Butyl Phthalate	84-74-2	ND	0.0103	0.000569	mg/L	03.13.13 20.53	U	2
di-n-Octyl Phthalate	117-84-0	ND	0.0103	0.000753	mg/L	03.13.13 20.53	U	2
Fluoranthene	206-44-0	ND	0.0103	0.000522	mg/L	03.13.13 20.53	U	2
Fluorene	86-73-7	ND	0.0103	0.000635	mg/L	03.13.13 20.53	U	2
Hexachlorobenzene	118-74-1	ND	0.00515	0.000503	mg/L	03.13.13 20.53	U	2
Hexachlorobutadiene	87-68-3	ND	0.0103	0.000911	mg/L	03.13.13 20.53	U	2
Hexachlorocyclopentadiene	77-47-4	ND	0.0103	0.000724	mg/L	03.13.13 20.53	U	2
Hexachloroethane	67-72-1	ND	0.0103	0.00111	mg/L	03.13.13 20.53	U	2
Indeno(1,2,3-c,d)Pyrene	193-39-5	ND	0.0103	0.000695	mg/L	03.13.13 20.53	U	2
Isophorone	78-59-1	ND	0.0103	0.000831	mg/L	03.13.13 20.53	U	2
Naphthalene	91-20-3	ND	0.0103	0.000654	mg/L	03.13.13 20.53	U	2
Nitrobenzene	98-95-3	ND	0.0103	0.00108	mg/L	03.13.13 20.53	U	2
N-Nitrosodi-n-Propylamine	621-64-7	ND	0.0103	0.000206	mg/L	03.13.13 20.53	U	2
N-Nitrosodiphenylamine	86-30-6	ND	0.0103	0.000946	mg/L	03.13.13 20.53	U	2
Pentachlorophenol	87-86-5	ND	0.0206	0.00115	mg/L	03.13.13 20.53	U	2
Phenanthrene	85-01-8	ND	0.0103	0.000571	mg/L	03.13.13 20.53	U	2
Phenol	108-95-2	ND	0.0206	0.00101	mg/L	03.13.13 20.53	U	2
Pyrene	129-00-0	ND	0.0103	0.000579	mg/L	03.13.13 20.53	U	2
Pyridine	110-86-1	ND	0.0206	0.00319	mg/L	03.13.13 20.53	U	2

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
2-Fluorophenol	367-12-4	41	%	30-100	03.13.13 20.53	
Phenol-d6	13127-88-3	26	%	15-94	03.13.13 20.53	
Nitrobenzene-d5	4165-60-0	59	%	46-111	03.13.13 20.53	
2-Fluorobiphenyl	321-60-8	56	%	44-117	03.13.13 20.53	
2,4,6-Tribromophenol	118-79-6	77	%	48-117	03.13.13 20.53	
Terphenyl-D14	1718-51-0	58	%	46-126	03.13.13 20.53	

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Certificate of Analytical Results 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-5 | Matrix: Water | Date Received: 03.08.13 15.32

Lab Sample Id: **459011-001** | Date Collected: 03.08.13 12.35

Analytical Method: **VOAs by SW-846 8260B** | Prep Method: SW5030B

Tech: MCH | % Moisture:

Analyst: MCH | Date Prep: 03.13.13 18.34

Seq Number: 909037 | SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00500	mg/L	03.13.13 22.34	U	1
Bromobenzene	108-86-1	ND	0.00500	mg/L	03.13.13 22.34	U	1
Bromochloromethane	74-97-5	ND	0.00500	mg/L	03.13.13 22.34	U	1
Bromodichloromethane	75-27-4	ND	0.00500	mg/L	03.13.13 22.34	U	1
Bromoform	75-25-2	ND	0.00500	mg/L	03.13.13 22.34	U	1
Methyl bromide	74-83-9	ND	0.00500	mg/L	03.13.13 22.34	U	1
n-Butylbenzene	104-51-8	ND	0.00500	mg/L	03.13.13 22.34	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	mg/L	03.13.13 22.34	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	mg/L	03.13.13 22.34	U	1
Chlorobenzene	108-90-7	ND	0.00500	mg/L	03.13.13 22.34	U	1
Chloroethane	75-00-3	ND	0.0100	mg/L	03.13.13 22.34	U	1
Chloroform	67-66-3	ND	0.00500	mg/L	03.13.13 22.34	U	1
Methyl Chloride	74-87-3	ND	0.0100	mg/L	03.13.13 22.34	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	mg/L	03.13.13 22.34	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	mg/L	03.13.13 22.34	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
Dibromochloromethane	124-48-1	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	mg/L	03.13.13 22.34	U	1
Methylene bromide	74-95-3	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	mg/L	03.13.13 22.34	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,1-Dichloroethene	75-35-4	ND	0.00500	mg/L	03.13.13 22.34	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	mg/L	03.13.13 22.34	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	mg/L	03.13.13 22.34	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	mg/L	03.13.13 22.34	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
Ethylbenzene	100-41-4	ND	0.00500	mg/L	03.13.13 22.34	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	mg/L	03.13.13 22.34	U	1
Isopropylbenzene	98-82-8	ND	0.00500	mg/L	03.13.13 22.34	U	1
Methylene Chloride	75-09-2	ND	0.00500	mg/L	03.13.13 22.34	U	1
MTBE	1634-04-4	ND	0.00500	mg/L	03.13.13 22.34	U	1

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Certificate of Analytical Results 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-5 | Matrix: Water | Date Received: 03.08.13 15.32

Lab Sample Id: **459011-001** | Date Collected: 03.08.13 12.35

Analytical Method: **VOAs by SW-846 8260B** | Prep Method: SW5030B

Tech: MCH | % Moisture:

Analyst: MCH | Date Prep: 03.13.13 18.34

Seq Number: 909037 | SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Naphthalene	91-20-3	ND	0.0100	mg/L	03.13.13 22.34	U	1
n-Propylbenzene	103-65-1	ND	0.00500	mg/L	03.13.13 22.34	U	1
Styrene	100-42-5	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	mg/L	03.13.13 22.34	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	mg/L	03.13.13 22.34	U	1
Toluene	108-88-3	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	mg/L	03.13.13 22.34	U	1
Trichloroethylene	79-01-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	mg/L	03.13.13 22.34	U	1
o-Xylene	95-47-6	ND	0.00500	mg/L	03.13.13 22.34	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	mg/L	03.13.13 22.34	U	1
Vinyl Chloride	75-01-4	ND	0.00200	mg/L	03.13.13 22.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
Dibromofluoromethane	1868-53-7	107	%	75-131	03.13.13 22.34	
1,2-Dichloroethane-D4	17060-07-0	105	%	63-144	03.13.13 22.34	
Toluene-D8	2037-26-5	101	%	80-117	03.13.13 22.34	
4-Bromofluorobenzene	460-00-4	102	%	74-124	03.13.13 22.34	

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PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: **MW-6** Matrix: Water Date Received: 03.08.13 15.32

Lab Sample Id: **459011-002** Date Collected: 03.08.13 11.20

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

Tech: AMB % Moisture:

Analyst: AMB Date Prep: 03.10.13 07.26

Seq Number: 908842

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**331**	20.0	mg/L	03.10.13 07.26		20
Fluoride	16984-48-8	ND	10.0	mg/L	03.10.13 07.26	U	20
Nitrate as N	14797-55-8	ND	10.0	mg/L	03.10.13 07.26	U	20
Ortho-Phosphate	14265-44-2	ND	10.0	mg/L	03.10.13 07.26	U	20
Sulfate	14808-79-8	**53.8**	20.0	mg/L	03.10.13 07.26		20

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

Tech: MLI % Moisture:

Analyst: MKO Date Prep: 03.12.13 09.40

Seq Number: 908922 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Aluminum	7429-90-5	**27.1**	0.200	mg/L	03.12.13 23.49		1
Arsenic	7440-38-2	**0.0223**	0.0100	mg/L	03.12.13 23.49		1
Barium	7440-39-3	**2.81**	0.0100	mg/L	03.12.13 23.49		1
Boron	7440-42-8	**0.0987**	0.0500	mg/L	03.12.13 23.49		1
Cadmium	7440-43-9	ND	0.00500	mg/L	03.12.13 23.49	U	1
Calcium	7440-70-2	**624**	0.200	mg/L	03.12.13 23.49		1
Chromium	7440-47-3	**0.0514**	0.0100	mg/L	03.12.13 23.49		1
Cobalt	7440-48-4	**0.0240**	0.0100	mg/L	03.12.13 23.49		1
Copper	7440-50-8	ND	0.0200	mg/L	03.12.13 23.49	U	1
Iron	7439-89-6	**28.5**	0.200	mg/L	03.12.13 23.49		1
Lead	7439-92-1	**0.0403**	0.0100	mg/L	03.12.13 23.49		1
Magnesium	7439-95-4	**24.2**	0.200	mg/L	03.12.13 23.49		1
Molybdenum	7439-98-7	ND	0.0100	mg/L	03.12.13 23.49	U	1
Nickel	7440-02-0	**0.0306**	0.0100	mg/L	03.12.13 23.49		1
Potassium	7440-09-7	**7.58**	0.500	mg/L	03.12.13 23.49		1
Selenium	7782-49-2	ND	0.0300	mg/L	03.12.13 23.49	U	1
Silver	7440-22-4	ND	0.0200	mg/L	03.12.13 23.49	U	1
Sodium	7440-23-5	**201**	0.500	mg/L	03.12.13 23.49		1
Zinc	7440-66-6	**0.116**	0.0300	mg/L	03.12.13 23.49		1

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PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id:	**MW-6**	Matrix: Water	Date Received: 03.08.13 15.32
Lab Sample Id:	**459011-002**	Date Collected: 03.08.13 11.20	

Analytical Method:	**Alkalinity by SM2320B**		
Tech:	DAD		% Moisture:
Analyst:	ALA		
Seq Number:	908859		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	**180**	4.00	mg/L	03.12.13 14.57		1
Alkalinity, Carbonate (as CaCO3)	ALKCARB	ND	4.00	mg/L	03.12.13 14.57	U	1

Analytical Method:	**Mercury, Total by EPA 245.1**			Prep Method: E245.1P
Tech:	ANS			% Moisture:
Analyst:	ANS	Date Prep:	03.13.13 11.00	
Seq Number:	908954			SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Mercury	7439-97-6	**0.00254**	0.000200	mg/L	03.13.13 15.55		1

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PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-6 | Matrix: Water | Date Received: 03.08.13 15.32

Lab Sample Id: **459011-002** | Date Collected: 03.08.13 11.20

Analytical Method: **SVOAs by EPA 8270C** | Prep Method: SW3510C

Tech: LRA | % Moisture:

Analyst: WEW | Date Prep: 03.12.13 10.21

Seq Number: 909085 | SUB: TX104704215

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
2,4,5-Trichlorophenol	95-95-4	ND	0.0102	0.00112	mg/L	03.13.13 21.16	U	2
2,4,6-Trichlorophenol	88-06-2	ND	0.0102	0.000776	mg/L	03.13.13 21.16	U	2
2,4-Dichlorophenol	120-83-2	ND	0.0102	0.000537	mg/L	03.13.13 21.16	U	2
2,4-Dimethylphenol	105-67-9	ND	0.0102	0.00201	mg/L	03.13.13 21.16	U	2
2,4-Dinitrophenol	51-28-5	ND	0.0204	0.00229	mg/L	03.13.13 21.16	U	2
2,4-Dinitrotoluene	121-14-2	ND	0.00510	0.000669	mg/L	03.13.13 21.16	U	2
2,6-Dinitrotoluene	606-20-2	ND	0.0102	0.000702	mg/L	03.13.13 21.16	U	2
2-Chloronaphthalene	91-58-7	ND	0.0102	0.000655	mg/L	03.13.13 21.16	U	2
2-Chlorophenol	95-57-8	ND	0.0102	0.000835	mg/L	03.13.13 21.16	U	2
2-Methylnaphthalene	91-57-6	ND	0.0102	0.00101	mg/L	03.13.13 21.16	U	2
2-Methylphenol	95-48-7	ND	0.0102	0.00147	mg/L	03.13.13 21.16	U	2
2-Nitroaniline	88-74-4	ND	0.0204	0.000902	mg/L	03.13.13 21.16	U	2
2-Nitrophenol	88-75-5	ND	0.0102	0.000994	mg/L	03.13.13 21.16	U	2
3&4-Methylphenol	15831-10-4	ND	0.0102	0.00198	mg/L	03.13.13 21.16	U	2
3,3-Dichlorobenzidine	91-94-1	ND	0.0204	0.00282	mg/L	03.13.13 21.16	U	2
3-Nitroaniline	99-09-2	ND	0.0204	0.000782	mg/L	03.13.13 21.16	U	2
4,6-Dinitro-2-methyl phenol	534-52-1	ND	0.0204	0.00110	mg/L	03.13.13 21.16	U	2
4-Bromophenyl-phenylether	101-55-3	ND	0.0102	0.000610	mg/L	03.13.13 21.16	U	2
4-Chloro-3-methylphenol	59-50-7	ND	0.0102	0.000873	mg/L	03.13.13 21.16	U	2
4-Chloroaniline	106-47-8	ND	0.0204	0.00348	mg/L	03.13.13 21.16	U	2
4-Chlorophenyl-phenyl ether	7005-72-3	ND	0.0102	0.000724	mg/L	03.13.13 21.16	U	2
4-Nitroaniline	100-01-6	ND	0.0204	0.000582	mg/L	03.13.13 21.16	U	2
4-Nitrophenol	100-02-7	ND	0.0204	0.000714	mg/L	03.13.13 21.16	U	2
Acenaphthene	83-32-9	ND	0.0102	0.000751	mg/L	03.13.13 21.16	U	2
Acenaphthylene	208-96-8	ND	0.0102	0.000698	mg/L	03.13.13 21.16	U	2
Aniline (Phenylamine, Aminobenzene)	62-53-3	ND	0.0204	0.00204	mg/L	03.13.13 21.16	U	2
Anthracene	120-12-7	ND	0.0102	0.000335	mg/L	03.13.13 21.16	U	2
Benzo(a)anthracene	56-55-3	ND	0.0102	0.000506	mg/L	03.13.13 21.16	U	2
Benzo(a)pyrene	50-32-8	ND	0.0102	0.000408	mg/L	03.13.13 21.16	U	2
Benzo(b)fluoranthene	205-99-2	ND	0.0102	0.000769	mg/L	03.13.13 21.16	U	2
Benzo(g,h,i)perylene	191-24-2	ND	0.0102	0.000588	mg/L	03.13.13 21.16	U	2
Benzo(k)fluoranthene	207-08-9	ND	0.0102	0.00105	mg/L	03.13.13 21.16	U	2
Benzoic Acid	65-85-0	ND	0.0612	0.00195	mg/L	03.13.13 21.16	U	2
Benzyl Butyl Phthalate	85-68-7	ND	0.0102	0.000567	mg/L	03.13.13 21.16	U	2
bis(2-chloroethoxy) methane	111-91-1	ND	0.0102	0.000898	mg/L	03.13.13 21.16	U	2
bis(2-chloroethyl) ether	111-44-4	ND	0.0102	0.000924	mg/L	03.13.13 21.16	U	2
bis(2-chloroisopropyl) ether	39638-32-9	ND	0.0102	0.000951	mg/L	03.13.13 21.16	U	2
bis(2-ethylhexyl) phthalate	117-81-7	ND	0.0102	0.000639	mg/L	03.13.13 21.16	U	2
Chrysene	218-01-9	ND	0.0102	0.000471	mg/L	03.13.13 21.16	U	2
Dibenz(a,h)anthracene	53-70-3	ND	0.0102	0.000404	mg/L	03.13.13 21.16	U	2
Dibenzofuran	132-64-9	ND	0.0102	0.000704	mg/L	03.13.13 21.16	U	2

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Certificate of Analytical Results 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-6 | Matrix: Water | Date Received: 03.08.13 15.32

Lab Sample Id: **459011-002** | Date Collected: 03.08.13 11.20

Analytical Method: **SVOAs by EPA 8270C** | Prep Method: SW3510C

Tech: LRA | % Moisture:

Analyst: WEW | Date Prep: 03.12.13 10.21

Seq Number: 909085 | SUB: TX104704215

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Diethyl Phthalate	84-66-2	ND	0.0102	0.000649	mg/L	03.13.13 21.16	U	2
Dimethyl Phthalate	131-11-3	ND	0.0102	0.000614	mg/L	03.13.13 21.16	U	2
di-n-Butyl Phthalate	84-74-2	ND	0.0102	0.000563	mg/L	03.13.13 21.16	U	2
di-n-Octyl Phthalate	117-84-0	ND	0.0102	0.000745	mg/L	03.13.13 21.16	U	2
Fluoranthene	206-44-0	ND	0.0102	0.000516	mg/L	03.13.13 21.16	U	2
Fluorene	86-73-7	ND	0.0102	0.000629	mg/L	03.13.13 21.16	U	2
Hexachlorobenzene	118-74-1	ND	0.00510	0.000498	mg/L	03.13.13 21.16	U	2
Hexachlorobutadiene	87-68-3	ND	0.0102	0.000902	mg/L	03.13.13 21.16	U	2
Hexachlorocyclopentadiene	77-47-4	ND	0.0102	0.000716	mg/L	03.13.13 21.16	U	2
Hexachloroethane	67-72-1	ND	0.0102	0.00110	mg/L	03.13.13 21.16	U	2
Indeno(1,2,3-c,d)Pyrene	193-39-5	ND	0.0102	0.000688	mg/L	03.13.13 21.16	U	2
Isophorone	78-59-1	ND	0.0102	0.000822	mg/L	03.13.13 21.16	U	2
Naphthalene	91-20-3	ND	0.0102	0.000647	mg/L	03.13.13 21.16	U	2
Nitrobenzene	98-95-3	ND	0.0102	0.00107	mg/L	03.13.13 21.16	U	2
N-Nitrosodi-n-Propylamine	621-64-7	ND	0.0102	0.000204	mg/L	03.13.13 21.16	U	2
N-Nitrosodiphenylamine	86-30-6	ND	0.0102	0.000937	mg/L	03.13.13 21.16	U	2
Pentachlorophenol	87-86-5	ND	0.0204	0.00114	mg/L	03.13.13 21.16	U	2
Phenanthrene	85-01-8	ND	0.0102	0.000565	mg/L	03.13.13 21.16	U	2
Phenol	108-95-2	ND	0.0204	0.000996	mg/L	03.13.13 21.16	U	2
Pyrene	129-00-0	ND	0.0102	0.000573	mg/L	03.13.13 21.16	U	2
Pyridine	110-86-1	ND	0.0204	0.00316	mg/L	03.13.13 21.16	U	2

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
2-Fluorophenol	367-12-4	36	%	30-100	03.13.13 21.16	
Phenol-d6	13127-88-3	90	%	15-94	03.13.13 21.16	
Nitrobenzene-d5	4165-60-0	56	%	46-111	03.13.13 21.16	
2-Fluorobiphenyl	321-60-8	54	%	44-117	03.13.13 21.16	
2,4,6-Tribromophenol	118-79-6	76	%	48-117	03.13.13 21.16	
Terphenyl-D14	1718-51-0	61	%	46-126	03.13.13 21.16	

Certificate of Analytical Results 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-6 | Matrix: Water | Date Received: 03.08.13 15.32

Lab Sample Id: **459011-002** | Date Collected: 03.08.13 11.20

Analytical Method: **VOAs by SW-846 8260B** | Prep Method: SW5030B

Tech: MCH | % Moisture:

Analyst: MCH | Date Prep: 03.13.13 18.36

Seq Number: 909037 | SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00500	mg/L	03.13.13 22.59	U	1
Bromobenzene	108-86-1	ND	0.00500	mg/L	03.13.13 22.59	U	1
Bromochloromethane	74-97-5	ND	0.00500	mg/L	03.13.13 22.59	U	1
Bromodichloromethane	75-27-4	ND	0.00500	mg/L	03.13.13 22.59	U	1
Bromoform	75-25-2	ND	0.00500	mg/L	03.13.13 22.59	U	1
Methyl bromide	74-83-9	ND	0.00500	mg/L	03.13.13 22.59	U	1
n-Butylbenzene	104-51-8	ND	0.00500	mg/L	03.13.13 22.59	U	1
Sec-Butylbenzene	135-98-8	ND	0.00500	mg/L	03.13.13 22.59	U	1
tert-Butylbenzene	98-06-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
Carbon Tetrachloride	56-23-5	ND	0.00500	mg/L	03.13.13 22.59	U	1
Chlorobenzene	108-90-7	ND	0.00500	mg/L	03.13.13 22.59	U	1
Chloroethane	75-00-3	ND	0.0100	mg/L	03.13.13 22.59	U	1
Chloroform	67-66-3	ND	0.00500	mg/L	03.13.13 22.59	U	1
Methyl Chloride	74-87-3	ND	0.0100	mg/L	03.13.13 22.59	U	1
2-Chlorotoluene	95-49-8	ND	0.00500	mg/L	03.13.13 22.59	U	1
4-Chlorotoluene	106-43-4	ND	0.00500	mg/L	03.13.13 22.59	U	1
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
Dibromochloromethane	124-48-1	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,2-Dibromoethane	106-93-4	ND	0.00500	mg/L	03.13.13 22.59	U	1
Methylene bromide	74-95-3	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.00500	mg/L	03.13.13 22.59	U	1
Dichlorodifluoromethane	75-71-8	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,1-Dichloroethane	75-34-3	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,2-Dichloroethane	107-06-2	ND	0.00500	mg/L	03.13.13 22.59	U	I
1,1-Dichloroethene	75-35-4	ND	0.00500	mg/L	03.13.13 22.59	U	1
cis-1,2-Dichloroethylene	156-59-2	ND	0.00500	mg/L	03.13.13 22.59	U	1
trans-1,2-dichloroethylene	156-60-5	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,2-Dichloropropane	78-87-5	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,3-Dichloropropane	142-28-9	ND	0.00500	mg/L	03.13.13 22.59	U	1
2,2-Dichloropropane	594-20-7	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,1-Dichloropropene	563-58-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.00500	mg/L	03.13.13 22.59	U	1
trans-1,3-dichloropropene	10061-02-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
Ethylbenzene	100-41-4	ND	0.00500	mg/L	03.13.13 22.59	U	1
Hexachlorobutadiene	87-68-3	ND	0.00500	mg/L	03.13.13 22.59	U	1
Isopropylbenzene	98-82-8	ND	0.00500	mg/L	03.13.13 22.59	U	1
Methylene Chloride	75-09-2	ND	0.00500	mg/L	03.13.13 22.59	U	1
MTBE	1634-04-4	ND	0.00500	mg/L	03.13.13 22.59	U	1

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PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-6 Matrix: Water Date Received: 03.08.13 15.32

Lab Sample Id: **459011-002** Date Collected: 03.08.13 11.20

Analytical Method: **VOAs by SW-846 8260B** Prep Method: SW5030B

Tech: MCH % Moisture:

Analyst: MCH Date Prep: 03.13.13 18.36

Seq Number: 909037 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Naphthalene	91-20-3	ND	0.0100	mg/L	03.13.13 22.59	U	1
n-Propylbenzene	103-65-1	ND	0.00500	mg/L	03.13.13 22.59	U	1
Styrene	100-42-5	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.00500	mg/L	03.13.13 22.59	U	1
Tetrachloroethylene	127-18-4	ND	0.00500	mg/L	03.13.13 22.59	U	1
Toluene	108-88-3	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.00500	mg/L	03.13.13 22.59	U	1
Trichloroethylene	79-01-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
Trichlorofluoromethane	75-69-4	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.00500	mg/L	03.13.13 22.59	U	1
o-Xylene	95-47-6	ND	0.00500	mg/L	03.13.13 22.59	U	1
m,p-Xylenes	179601-23-1	ND	0.0100	mg/L	03.13.13 22.59	U	1
Vinyl Chloride	75-01-4	ND	0.00200	mg/L	03.13.13 22.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
Dibromofluoromethane	1868-53-7	104	%	75-131	03.13.13 22.59	
1,2-Dichloroethane-D4	17060-07-0	103	%	63-144	03.13.13 22.59	
Toluene-D8	2037-26-5	103	%	80-117	03.13.13 22.59	
4-Bromofluorobenzene	460-00-4	101	%	74-124	03.13.13 22.59	

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PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: **MW-7** Matrix: Water Date Received: 03.08.13 15.32

Lab Sample Id: **459011-003** Date Collected: 03.08.13 10.05

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

Tech: AMB % Moisture:

Analyst: AMB Date Prep: 03.10.13 07.48

Seq Number: 908842

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**292**	20.0	mg/L	03.10.13 07.48		20
Fluoride	16984-48-8	ND	10.0	mg/L	03.10.13 07.48	U	20
Nitrate as N	14797-55-8	ND	10.0	mg/L	03.10.13 07.48	U	20
Ortho-Phosphate	14265-44-2	ND	10.0	mg/L	03.10.13 07.48	U	20
Sulfate	14808-79-8	**50.7**	20.0	mg/L	03.10.13 07.48		20

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

Tech: MLI % Moisture:

Analyst: MKO Date Prep: 03.12.13 09.40

Seq Number: 908922 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Aluminum	7429-90-5	**23.9**	0.200	mg/L	03.12.13 23.54		1
Arsenic	7440-38-2	ND	0.0100	mg/L	03.12.13 23.54	U	1
Barium	7440-39-3	**1.77**	0.0100	mg/L	03.12.13 23.54		1
Boron	7440-42-8	**0.0902**	0.0500	mg/L	03.12.13 23.54		1
Cadmium	7440-43-9	ND	0.00500	mg/L	03.12.13 23.54	U	1
Calcium	7440-70-2	**375**	0.200	mg/L	03.12.13 23.54		1
Chromium	7440-47-3	**0.0317**	0.0100	mg/L	03.12.13 23.54		1
Cobalt	7440-48-4	**0.0127**	0.0100	mg/L	03.12.13 23.54		1
Copper	7440-50-8	ND	0.0200	mg/L	03.12.13 23.54	U	1
Iron	7439-89-6	**19.8**	0.200	mg/L	03.12.13 23.54		1
Lead	7439-92-1	**0.0280**	0.0100	mg/L	03.12.13 23.54		1
Magnesium	7439-95-4	**21.0**	0.200	mg/L	03.12.13 23.54		1
Molybdenum	7439-98-7	ND	0.0100	mg/L	03.12.13 23.54	U	1
Nickel	7440-02-0	**0.0197**	0.0100	mg/L	03.12.13 23.54		1
Potassium	7440-09-7	**6.14**	0.500	mg/L	03.12.13 23.54		1
Selenium	7782-49-2	ND	0.0300	mg/L	03.12.13 23.54	U	1
Silver	7440-22-4	ND	0.0200	mg/L	03.12.13 23.54	U	1
Sodium	7440-23-5	**174**	0.500	mg/L	03.12.13 23.54		1
Zinc	7440-66-6	**0.0992**	0.0300	mg/L	03.12.13 23.54		1

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PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-7 Matrix: Water Date Received: 03.08.13 15.32

Lab Sample Id: **459011-003** Date Collected: 03.08.13 10.05

Analytical Method: **Alkalinity by SM2320B**

Tech: DAD % Moisture:

Analyst: ALA

Seq Number: 908859 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	**194**	4.00	mg/L	03.12.13 15.02		1
Alkalinity, Carbonate (as CaCO3)	ALKCARB	ND	4.00	mg/L	03.12.13 15.02	U	1

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

Tech: ANS % Moisture:

Analyst: ANS Date Prep: 03.13.13 11.00

Seq Number: 908954 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Mercury	7439-97-6	ND	0.000200	mg/L	03.13.13 15.45	U	1

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PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-7 | Matrix: Water | Date Received: 03.08.13 15.32

Lab Sample Id: **459011-003** | Date Collected: 03.08.13 10.05

Analytical Method: **SVOAs by EPA 8270C** | Prep Method: SW3510C

Tech: LRA | % Moisture:

Analyst: WEW | Date Prep: 03.12.13 10.24

Seq Number: 909085 | SUB: TX104704215

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
2,4,5-Trichlorophenol	95-95-4	ND	0.0102	0.00112	mg/L	03.14.13 17.48	U	2
2,4,6-Trichlorophenol	88-06-2	ND	0.0102	0.000776	mg/L	03.14.13 17.48	U	2
2,4-Dichlorophenol	120-83-2	ND	0.0102	0.000537	mg/L	03.14.13 17.48	U	2
2,4-Dimethylphenol	105-67-9	ND	0.0102	0.00201	mg/L	03.14.13 17.48	U	2
2,4-Dinitrophenol	51-28-5	ND	0.0204	0.00229	mg/L	03.14.13 17.48	U	2
2,4-Dinitrotoluene	121-14-2	ND	0.00510	0.000669	mg/L	03.14.13 17.48	U	2
2,6-Dinitrotoluene	606-20-2	ND	0.0102	0.000702	mg/L	03.14.13 17.48	U	2
2-Chloronaphthalene	91-58-7	ND	0.0102	0.000655	mg/L	03.14.13 17.48	U	2
2-Chlorophenol	95-57-8	ND	0.0102	0.000835	mg/L	03.14.13 17.48	U	2
2-Methylnaphthalene	91-57-6	**0.0535**	0.0102	0.00101	mg/L	03.14.13 17.48		2
2-Methylphenol	95-48-7	**0.00716**	0.0102	0.00147	mg/L	03.14.13 17.48	J	2
2-Nitroaniline	88-74-4	ND	0.0204	0.000902	mg/L	03.14.13 17.48	U	2
2-Nitrophenol	88-75-5	ND	0.0102	0.000994	mg/L	03.14.13 17.48	U	2
3&4-Methylphenol	15831-10-4	**0.00494**	0.0102	0.00198	mg/L	03.14.13 17.48	J	2
3,3-Dichlorobenzidine	91-94-1	ND	0.0204	0.00282	mg/L	03.14.13 17.48	U	2
3-Nitroaniline	99-09-2	ND	0.0204	0.000782	mg/L	03.14.13 17.48	U	2
4,6-Dinitro-2-methyl phenol	534-52-1	ND	0.0204	0.00110	mg/L	03.14.13 17.48	U	2
4-Bromophenyl-phenylether	101-55-3	ND	0.0102	0.000610	mg/L	03.14.13 17.48	U	2
4-Chloro-3-methylphenol	59-50-7	ND	0.0102	0.000873	mg/L	03.14.13 17.48	U	2
4-Chloroaniline	106-47-8	ND	0.0204	0.00348	mg/L	03.14.13 17.48	U	2
4-Chlorophenyl-phenyl ether	7005-72-3	ND	0.0102	0.000724	mg/L	03.14.13 17.48	U	2
4-Nitroaniline	100-01-6	ND	0.0204	0.000582	mg/L	03.14.13 17.48	U	2
4-Nitrophenol	100-02-7	ND	0.0204	0.000714	mg/L	03.14.13 17.48	U	2
Acenaphthene	83-32-9	ND	0.0102	0.000751	mg/L	03.14.13 17.48	U	2
Acenaphthylene	208-96-8	ND	0.0102	0.000698	mg/L	03.14.13 17.48	U	2
Aniline (Phenylamine, Aminobenzene)	62-53-3	ND	0.0204	0.00204	mg/L	03.14.13 17.48	U	2
Anthracene	120-12-7	ND	0.0102	0.000335	mg/L	03.14.13 17.48	U	2
Benzo(a)anthracene	56-55-3	ND	0.0102	0.000506	mg/L	03.14.13 17.48	U	2
Benzo(a)pyrene	50-32-8	ND	0.0102	0.000408	mg/L	03.14.13 17.48	U	2
Benzo(b)fluoranthene	205-99-2	ND	0.0102	0.000769	mg/L	03.14.13 17.48	U	2
Benzo(g,h,i)perylene	191-24-2	ND	0.0102	0.000588	mg/L	03.14.13 17.48	U	2
Benzo(k)fluoranthene	207-08-9	ND	0.0102	0.00105	mg/L	03.14.13 17.48	U	2
Benzoic Acid	65-85-0	ND	0.0612	0.00195	mg/L	03.14.13 17.48	U	2
Benzyl Butyl Phthalate	85-68-7	ND	0.0102	0.000567	mg/L	03.14.13 17.48	U	2
bis(2-chloroethoxy) methane	111-91-1	ND	0.0102	0.000898	mg/L	03.14.13 17.48	U	2
bis(2-chloroethyl) ether	111-44-4	ND	0.0102	0.000924	mg/L	03.14.13 17.48	U	2
bis(2-chloroisopropyl) ether	39638-32-9	ND	0.0102	0.000951	mg/L	03.14.13 17.48	U	2
bis(2-ethylhexyl) phthalate	117-81-7	**0.00480**	0.0102	0.000639	mg/L	03.14.13 17.48	J	2
Chrysene	218-01-9	ND	0.0102	0.000471	mg/L	03.14.13 17.48	U	2
Dibenz(a,h)anthracene	53-70-3	ND	0.0102	0.000404	mg/L	03.14.13 17.48	U	2
Dibenzofuran	132-64-9	**0.00580**	0.0102	0.000704	mg/L	03.14.13 17.48	J	2

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-7 Matrix: Water Date Received: 03.08.13 15.32
Lab Sample Id: **459011-003** Date Collected: 03.08.13 10.05

Analytical Method: **SVOAs by EPA 8270C** Prep Method: SW3510C
Tech: LRA % Moisture:
Analyst: WEW Date Prep: 03.12.13 10.24
Seq Number: 909085 SUB: TX104704215

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Diethyl Phthalate	84-66-2	ND	0.0102	0.000649	mg/L	03.14.13 17.48	U	2
Dimethyl Phthalate	131-11-3	ND	0.0102	0.000614	mg/L	03.14.13 17.48	U	2
di-n-Butyl Phthalate	84-74-2	ND	0.0102	0.000563	mg/L	03.14.13 17.48	U	2
di-n-Octyl Phthalate	117-84-0	ND	0.0102	0.000745	mg/L	03.14.13 17.48	U	2
Fluoranthene	206-44-0	ND	0.0102	0.000516	mg/L	03.14.13 17.48	U	2
Fluorene	86-73-7	**0.00408**	0.0102	0.000629	mg/L	03.14.13 17.48	J	2
Hexachlorobenzene	118-74-1	ND	0.00510	0.000498	mg/L	03.14.13 17.48	U	2
Hexachlorobutadiene	87-68-3	ND	0.0102	0.000902	mg/L	03.14.13 17.48	U	2
Hexachlorocyclopentadiene	77-47-4	ND	0.0102	0.000716	mg/L	03.14.13 17.48	U	2
Hexachloroethane	67-72-1	ND	0.0102	0.00110	mg/L	03.14.13 17.48	U	2
Indeno(1,2,3-c,d)Pyrene	193-39-5	ND	0.0102	0.000688	mg/L	03.14.13 17.48	U	2
Isophorone	78-59-1	ND	0.0102	0.000822	mg/L	03.14.13 17.48	U	2
Naphthalene	91-20-3	**0.0652**	0.0102	0.000647	mg/L	03.14.13 17.48		2
Nitrobenzene	98-95-3	ND	0.0102	0.00107	mg/L	03.14.13 17.48	U	2
N-Nitrosodi-n-Propylamine	621-64-7	ND	0.0102	0.000204	mg/L	03.14.13 17.48	U	2
N-Nitrosodiphenylamine	86-30-6	ND	0.0102	0.000937	mg/L	03.14.13 17.48	U	2
Pentachlorophenol	87-86-5	ND	0.0204	0.00114	mg/L	03.14.13 17.48	U	2
Phenanthrene	85-01-8	**0.00537**	0.0102	0.000565	mg/L	03.14.13 17.48	J	2
Phenol	108-95-2	**0.00571**	0.0204	0.000996	mg/L	03.14.13 17.48	J	2
Pyrene	129-00-0	ND	0.0102	0.000573	mg/L	03.14.13 17.48	U	2
Pyridine	110-86-1	ND	0.0204	0.00316	mg/L	03.14.13 17.48	U	2

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
2-Fluorophenol	367-12-4	27	%	30-100	03.14.13 17.48	**
Phenol-d6	13127-88-3	19	%	15-94	03.14.13 17.48	
Nitrobenzene-d5	4165-60-0	48	%	46-111	03.14.13 17.48	
2-Fluorobiphenyl	321-60-8	50	%	44-117	03.14.13 17.48	
2,4,6-Tribromophenol	118-79-6	76	%	48-117	03.14.13 17.48	
Terphenyl-D14	1718-51-0	58	%	46-126	03.14.13 17.48	

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PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-7 | Matrix: Water | Date Received: 03.08.13 15.32

Lab Sample Id: **459011-003** | Date Collected: 03.08.13 10.05

Analytical Method: **VOAs by SW-846 8260B** | Prep Method: SW5030B

Tech: MCH | % Moisture:

Analyst: MCH | Date Prep: 03.13.13 18.44

Seq Number: 909037 | SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**1.22**	0.100	mg/L	03.14.13 00.38		20
Bromobenzene	108-86-1	ND	0.100	mg/L	03.14.13 00.38	U	20
Bromochloromethane	74-97-5	ND	0.100	mg/L	03.14.13 00.38	U	20
Bromodichloromethane	75-27-4	ND	0.100	mg/L	03.14.13 00.38	U	20
Bromoform	75-25-2	ND	0.100	mg/L	03.14.13 00.38	U	20
Methyl bromide	74-83-9	ND	0.100	mg/L	03.14.13 00.38	U	20
n-Butylbenzene	104-51-8	ND	0.100	mg/L	03.14.13 00.38	U	20
Sec-Butylbenzene	135-98-8	ND	0.100	mg/L	03.14.13 00.38	U	20
tert-Butylbenzene	98-06-6	ND	0.100	mg/L	03.14.13 00.38	U	20
Carbon Tetrachloride	56-23-5	ND	0.100	mg/L	03.14.13 00.38	U	20
Chlorobenzene	108-90-7	ND	0.100	mg/L	03.14.13 00.38	U	20
Chloroethane	75-00-3	ND	0.200	mg/L	03.14.13 00.38	U	20
Chloroform	67-66-3	ND	0.100	mg/L	03.14.13 00.38	U	20
Methyl Chloride	74-87-3	ND	0.200	mg/L	03.14.13 00.38	U	20
2-Chlorotoluene	95-49-8	ND	0.100	mg/L	03.14.13 00.38	U	20
4-Chlorotoluene	106-43-4	ND	0.100	mg/L	03.14.13 00.38	U	20
p-Cymene (p-Isopropyltoluene)	99-87-6	ND	0.100	mg/L	03.14.13 00.38	U	20
Dibromochloromethane	124-48-1	ND	0.100	mg/L	03.14.13 00.38	U	20
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.100	mg/L	03.14.13 00.38	U	20
1,2-Dibromoethane	106-93-4	ND	0.100	mg/L	03.14.13 00.38	U	20
Methylene bromide	74-95-3	ND	0.100	mg/L	03.14.13 00.38	U	20
1,2-Dichlorobenzene	95-50-1	ND	0.100	mg/L	03.14.13 00.38	U	20
1,3-Dichlorobenzene	541-73-1	ND	0.100	mg/L	03.14.13 00.38	U	20
1,4-Dichlorobenzene	106-46-7	ND	0.100	mg/L	03.14.13 00.38	U	20
Dichlorodifluoromethane	75-71-8	ND	0.100	mg/L	03.14.13 00.38	U	20
1,1-Dichloroethane	75-34-3	ND	0.100	mg/L	03.14.13 00.38	U	20
1,2-Dichloroethane	107-06-2	ND	0.100	mg/L	03.14.13 00.38	U	20
1,1-Dichloroethene	75-35-4	ND	0.100	mg/L	03.14.13 00.38	U	20
cis-1,2-Dichloroethylene	156-59-2	ND	0.100	mg/L	03.14.13 00.38	U	20
trans-1,2-dichloroethylene	156-60-5	ND	0.100	mg/L	03.14.13 00.38	U	20
1,2-Dichloropropane	78-87-5	ND	0.100	mg/L	03.14.13 00.38	U	20
1,3-Dichloropropane	142-28-9	ND	0.100	mg/L	03.14.13 00.38	U	20
2,2-Dichloropropane	594-20-7	ND	0.100	mg/L	03.14.13 00.38	U	20
1,1-Dichloropropene	563-58-6	ND	0.100	mg/L	03.14.13 00.38	U	20
cis-1,3-Dichloropropene	10061-01-5	ND	0.100	mg/L	03.14.13 00.38	U	20
trans-1,3-dichloropropene	10061-02-6	ND	0.100	mg/L	03.14.13 00.38	U	20
Ethylbenzene	100-41-4	**1.86**	0.100	mg/L	03.14.13 00.38		20
Hexachlorobutadiene	87-68-3	ND	0.100	mg/L	03.14.13 00.38	U	20
Isopropylbenzene	98-82-8	**0.104**	0.100	mg/L	03.14.13 00.38		20
Methylene Chloride	75-09-2	**0.112**	0.100	mg/L	03.14.13 00.38		20
MTBE	1634-04-4	ND	0.100	mg/L	03.14.13 00.38	U	20

XENCO Laboratories

Certificate of Analytical Results 459011

PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-inch Sec. 6(Historical)

Sample Id: MW-7 | Matrix: Water | Date Received: 03.08.13 15.32

Lab Sample Id: **459011-003** | Date Collected: 03.08.13 10.05

Analytical Method: **VOAs by SW-846 8260B** | Prep Method: SW5030B

Tech: MCH | % Moisture:

Analyst: MCH | Date Prep: 03.13.13 18.44

Seq Number: 909037 | SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Naphthalene	91-20-3	ND	0.200	mg/L	03.14.13 00.38	U	20
n-Propylbenzene	103-65-1	**0.134**	0.100	mg/L	03.14.13 00.38		20
Styrene	100-42-5	ND	0.100	mg/L	03.14.13 00.38	U	20
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.100	mg/L	03.14.13 00.38	U	20
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.100	mg/L	03.14.13 00.38	U	20
Tetrachloroethylene	127-18-4	ND	0.100	mg/L	03.14.13 00.38	U	20
Toluene	108-88-3	**6.88**	0.500	mg/L	03.14.13 01.03	D	100
1,2,3-Trichlorobenzene	87-61-6	ND	0.100	mg/L	03.14.13 00.38	U	20
1,2,4-Trichlorobenzene	120-82-1	ND	0.100	mg/L	03.14.13 00.38	U	20
1,1,1-Trichloroethane	71-55-6	ND	0.100	mg/L	03.14.13 00.38	U	20
1,1,2-Trichloroethane	79-00-5	ND	0.100	mg/L	03.14.13 00.38	U	20
Trichloroethylene	79-01-6	ND	0.100	mg/L	03.14.13 00.38	U	20
Trichlorofluoromethane	75-69-4	ND	0.100	mg/L	03.14.13 00.38	U	20
1,2,3-Trichloropropane	96-18-4	ND	0.100	mg/L	03.14.13 00.38	U	20
1,2,4-Trimethylbenzene	95-63-6	**0.251**	0.100	mg/L	03.14.13 00.38		20
1,3,5-Trimethylbenzene	108-67-8	ND	0.100	mg/L	03.14.13 00.38	U	20
o-Xylene	95-47-6	**0.775**	0.100	mg/L	03.14.13 00.38		20
m,p-Xylenes	179601-23-1	**1.62**	0.200	mg/L	03.14.13 00.38		20
Vinyl Chloride	75-01-4	ND	0.0400	mg/L	03.14.13 00.38	U	20

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
Dibromofluoromethane	1868-53-7	103	%	75-131	03.14.13 00.38	
1,2-Dichloroethane-D4	17060-07-0	99	%	63-144	03.14.13 00.38	
Toluene-D8	2037-26-5	106	%	80-117	03.14.13 00.38	
4-Bromofluorobenzene	460-00-4	100	%	74-124	03.14.13 00.38	

XENCO Laboratories

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

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Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: Inorganic Anions by EPA 300/300.1 — Prep Method: E300P
Seq Number: 908842 — Matrix: Water — Date Prep: 03/10/2013
MB Sample Id: 635002-1-BLK — LCS Sample Id: 635002-1-BKS — LCSD Sample Id: 635002-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<1.00	25.0	26.1	104	26.3	105	90-110	1	20	mg/L	03/10/13 05:59	
Fluoride	<0.500	5.00	5.44	109	5.50	110	90-110	1	20	mg/L	03/10/13 05:59	
Nitrate as N	<0.500	5.00	4.93	99	5.10	102	90-110	3	20	mg/L	03/10/13 05:59	
Ortho-Phosphate	<0.500	5.00	5.30	106	5.22	104	90-110	2	20	mg/L	03/10/13 05:59	
Sulfate	<1.00	25.0	23.3	93	23.0	92	90-110	1	20	mg/L	03/10/13 05:59	

Analytical Method: Inorganic Anions by EPA 300/300.1 — Prep Method: E300P
Seq Number: 908842 — Matrix: Water — Date Prep: 03/10/2013
Parent Sample Id: 459011-001 — MS Sample Id: 459011-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Chloride	368	500	893	105	80-120	mg/L	03/10/13 07:04	
Fluoride	<10.0	100	112	112	80-120	mg/L	03/10/13 07:04	
Nitrate as N	<10.0	100	105	105	80-120	mg/L	03/10/13 07:04	
Ortho-Phosphate	<10.0	100	120	120	80-120	mg/L	03/10/13 07:04	
Sulfate	57.7	500	544	97	80-120	mg/L	03/10/13 07:04	

Analytical Method: Metals per ICP by EPA 200.7 — Prep Method: E200.7P
Seq Number: 908922 — Matrix: Water — Date Prep: 03/12/2013
MB Sample Id: 634975-1-BLK — LCS Sample Id: 634975-1-BKS — LCSD Sample Id: 634975-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Aluminum	<0.200	5.00	5.02	100	5.11	102	85-115	2	20	mg/L	03/12/13 21:17	
Arsenic	<0.0100	1.00	0.978	98	0.982	98	85-115	0	20	mg/L	03/12/13 21:17	
Barium	<0.0100	1.00	0.975	98	0.991	99	85-115	2	20	mg/L	03/12/13 21:17	
Boron	<0.0500	1.00	1.04	104	1.07	107	85-115	3	20	mg/L	03/12/13 21:17	
Cadmium	<0.00500	1.00	0.971	97	0.992	99	85-115	2	20	mg/L	03/12/13 21:17	
Calcium	<0.200	25.0	24.6	98	24.8	99	85-115	1	20	mg/L	03/12/13 21:17	
Chromium	<0.0100	1.00	0.989	99	1.01	101	85-115	2	20	mg/L	03/12/13 21:17	
Cobalt	<0.0100	1.00	0.984	98	1.01	101	85-115	3	20	mg/L	03/12/13 21:17	
Copper	<0.0200	1.00	0.989	99	1.01	101	85-115	2	20	mg/L	03/12/13 21:17	
Iron	<0.200	5.00	5.10	102	5.14	103	85-115	1	20	mg/L	03/12/13 21:17	
Lead	<0.0100	1.00	1.02	102	1.04	104	85-115	2	20	mg/L	03/12/13 21:17	
Magnesium	<0.200	25.0	25.0	100	25.3	101	85-115	1	20	mg/L	03/12/13 21:17	
Molybdenum	<0.0100	1.00	1.01	101	1.02	102	85-115	1	20	mg/L	03/12/13 21:17	
Nickel	<0.0100	1.00	0.965	97	0.987	99	85-115	2	20	mg/L	03/12/13 21:17	
Potassium	<0.500	10.0	10.1	101	10.2	102	85-115	1	20	mg/L	03/12/13 21:17	
Selenium	<0.0300	1.00	1.01	101	1.03	103	85-115	2	20	mg/L	03/12/13 21:17	
Silver	<0.0200	0.500	0.532	106	0.536	107	85-115	1	20	mg/L	03/12/13 21:17	
Sodium	<0.500	25.0	26.3	105	26.5	106	85-115	1	20	mg/L	03/12/13 21:17	
Zinc	<0.0300	1.00	0.990	99	1.01	101	85-115	2	20	mg/L	03/12/13 21:17	

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Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: Metals per ICP by EPA 200.7 — Prep Method: E200.7P
Seq Number: 908922 — Matrix: Water — Date Prep: 03/12/2013
Parent Sample Id: 458755-001 — MS Sample Id: 458755-001 S — MSD Sample Id: 458755-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Aluminum	<0.200	5.00	5.35	107	5.41	108	70-130	1	20	mg/L	03/12/13 21:33	
Arsenic	<0.0100	1.00	0.978	98	0.980	98	70-130	0	20	mg/L	03/12/13 21:33	
Barium	0.0311	1.00	1.02	99	1.02	99	70-130	0	20	mg/L	03/12/13 21:33	
Boron	0.560	1.00	1.61	105	1.61	105	70-130	0	20	mg/L	03/12/13 21:33	
Cadmium	<0.00500	1.00	0.995	100	0.991	99	70-130	0	20	mg/L	03/12/13 21:33	
Calcium	1.45	25.0	26.1	99	25.6	97	70-130	2	20	mg/L	03/12/13 21:33	
Chromium	<0.0100	1.00	0.988	99	0.991	99	70-130	0	20	mg/L	03/12/13 21:33	
Cobalt	<0.0100	1.00	0.994	99	0.993	99	70-130	0	20	mg/L	03/12/13 21:33	
Copper	0.0784	1.00	1.08	100	1.08	100	70-130	0	20	mg/L	03/12/13 21:33	
Iron	<0.200	5.00	4.75	95	4.69	94	70-130	1	20	mg/L	03/12/13 21:33	
Lead	<0.0100	1.00	1.00	100	0.999	100	70-130	0	20	mg/L	03/12/13 21:33	
Magnesium	0.595	25.0	25.5	100	25.1	98	70-130	2	20	mg/L	03/12/13 21:33	
Molybdenum	<0.0100	1.00	1.01	101	1.01	101	70-130	0	20	mg/L	03/12/13 21:33	
Nickel	<0.0100	1.00	0.969	97	0.966	97	70-130	0	20	mg/L	03/12/13 21:33	
Potassium	2.95	10.0	13.2	103	13.3	104	70-130	1	20	mg/L	03/12/13 21:33	
Selenium	<0.0300	1.00	1.03	103	1.03	103	70-130	0	20	mg/L	03/12/13 21:33	
Silver	<0.0200	0.500	0.537	107	0.540	108	70-130	1	20	mg/L	03/12/13 21:33	
Sodium	252	25.0	278	104	275	92	70-130	1	20	mg/L	03/12/13 21:33	
Zinc	0.0330	1.00	1.05	102	1.05	102	70-130	0	20	mg/L	03/12/13 21:33	

Analytical Method: Metals per ICP by EPA 200.7 — Prep Method: E200.7P
Seq Number: 908922 — Matrix: Water — Date Prep: 03/12/2013
Parent Sample Id: 458952-001 — MS Sample Id: 458952-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Aluminum	<0.200	5.00	5.29	106	70-130	mg/L	03/12/13 22:58	
Arsenic	<0.0100	1.00	0.804	80	70-130	mg/L	03/12/13 22:58	
Barium	0.0128	1.00	0.955	94	70-130	mg/L	03/12/13 22:58	
Boron	0.843	1.00	1.84	100	70-130	mg/L	03/12/13 22:58	
Cadmium	<0.00500	1.00	0.994	99	70-130	mg/L	03/12/13 22:58	
Calcium	204	25.0	222	72	70-130	mg/L	03/12/13 22:58	
Chromium	<0.0100	1.00	0.958	96	70-130	mg/L	03/12/13 22:58	
Cobalt	<0.0100	1.00	0.943	94	70-130	mg/L	03/12/13 22:58	
Copper	<0.0200	1.00	0.977	98	70-130	mg/L	03/12/13 22:58	
Iron	<0.200	5.00	4.68	94	70-130	mg/L	03/12/13 22:58	
Lead	<0.0100	1.00	0.981	98	70-130	mg/L	03/12/13 22:58	
Magnesium	125	25.0	147	88	70-130	mg/L	03/12/13 22:58	
Molybdenum	0.0119	1.00	0.974	96	70-130	mg/L	03/12/13 22:58	
Nickel	<0.0100	1.00	0.906	91	70-130	mg/L	03/12/13 22:58	
Potassium	13.2	10.0	23.2	100	70-130	mg/L	03/12/13 22:58	
Selenium	0.0319	1.00	1.04	101	70-130	mg/L	03/12/13 22:58	
Silver	<0.0200	0.500	0.531	106	70-130	mg/L	03/12/13 22:58	
Sodium	265	25.0	283	72	70-130	mg/L	03/12/13 22:58	
Zinc	0.0727	1.00	1.06	99	70-130	mg/L	03/12/13 22:58	

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Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: **Mercury, Total by EPA 245.1** Prep Method: E245.1P
Seq Number: 908954 Matrix: Water Date Prep: 03/13/2013
MB Sample Id: 635078-1-BLK LCS Sample Id: 635078-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Mercury	<0.000200	0.00200	0.00191	96	85-115	mg/L	03/13/13 15:42	

Analytical Method: **Mercury, Total by EPA 245.1** Prep Method: E245.1P
Seq Number: 908954 Matrix: Water Date Prep: 03/13/2013
Parent Sample Id: 459011-003 MS Sample Id: 459011-003 S MSD Sample Id: 459011-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Mercury	<0.000200	0.00200	0.00182	91	0.00181	91	70-130	1	20	mg/L	03/13/13 15:47	

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Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: SVOAs by EPA 8270C — Prep Method: SW3510C
Seq Number: 909085 — Matrix: Water — Date Prep: 03/12/2013
MB Sample Id: 634933-1-BLK — LCS Sample Id: 634933-1-BKS — LCSD Sample Id: 634933-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
2,4,5-Trichlorophenol	<0.00109	0.0500	0.0411	82	0.0449	90	55-114	9	25	mg/L	03/13/13 20:09	
2,4,6-Trichlorophenol	<0.000760	0.0500	0.0398	80	0.0430	86	57-113	8	25	mg/L	03/13/13 20:09	
2,4-Dichlorophenol	<0.000526	0.0500	0.0379	76	0.0416	83	60-110	9	25	mg/L	03/13/13 20:09	
2,4-Dimethylphenol	<0.00197	0.0500	0.0369	74	0.0392	78	50-108	6	25	mg/L	03/13/13 20:09	
2,4-Dinitrophenol	<0.00225	0.0500	0.0224	45	0.0276	55	52-111	21	25	mg/L	03/13/13 20:09	L
2,4-Dinitrotoluene	<0.000656	0.0500	0.0394	79	0.0428	86	60-116	8	25	mg/L	03/13/13 20:09	
2,6-Dinitrotoluene	<0.000688	0.0500	0.0393	79	0.0424	85	60-115	8	25	mg/L	03/13/13 20:09	
2-Chloronaphthalene	<0.000642	0.0500	0.0368	74	0.0388	78	58-105	5	25	mg/L	03/13/13 20:09	
2-Chlorophenol	<0.000818	0.0500	0.0375	75	0.0401	80	58-106	7	25	mg/L	03/13/13 20:09	
2-Methylnaphthalene	<0.000988	0.0500	0.0470	94	0.0508	102	57-106	8	25	mg/L	03/13/13 20:09	
2-Methylphenol	<0.00144	0.0500	0.0336	67	0.0363	73	52-106	8	25	mg/L	03/13/13 20:09	
2-Nitroaniline	<0.000884	0.0500	0.0401	80	0.0442	88	55-120	10	25	mg/L	03/13/13 20:09	
2-Nitrophenol	<0.000974	0.0500	0.0389	78	0.0426	85	57-105	9	25	mg/L	03/13/13 20:09	
3&4-Methylphenol	<0.00194	0.0500	0.0324	65	0.0350	70	23-140	8	25	mg/L	03/13/13 20:09	
3,3-Dichlorobenzidine	<0.00276	0.0500	0.0357	71	0.0416	83	36-123	15	25	mg/L	03/13/13 20:09	
3-Nitroaniline	<0.000766	0.0500	0.0380	76	0.0445	89	49-120	16	25	mg/L	03/13/13 20:09	
4,6-Dinitro-2-methyl phenol	<0.00107	0.0500	0.0341	68	0.0375	75	57-119	9	25	mg/L	03/13/13 20:09	
4-Bromophenyl-phenylether	<0.000598	0.0500	0.0367	73	0.0390	78	58-112	6	25	mg/L	03/13/13 20:09	
4-Chloro-3-methylphenol	<0.000856	0.0500	0.0372	74	0.0413	83	58-116	10	25	mg/L	03/13/13 20:09	
4-Chloroaniline	<0.00341	0.0500	0.0314	63	0.0374	75	2-123	17	25	mg/L	03/13/13 20:09	
4-Chlorophenyl-phenyl ether	<0.000710	0.0500	0.0375	75	0.0402	80	59-109	7	25	mg/L	03/13/13 20:09	
4-Nitroaniline	<0.000570	0.0500	0.0403	81	0.0458	92	52-118	13	25	mg/L	03/13/13 20:09	
4-Nitrophenol	<0.000700	0.0500	0.00826	17	0.00880	18	18-104	6	25	mg/L	03/13/13 20:09	L
Acenaphthene	<0.000736	0.0500	0.0378	76	0.0402	80	54-114	6	25	mg/L	03/13/13 20:09	
Acenaphthylene	<0.000684	0.0500	0.0376	75	0.0404	81	53-113	7	25	mg/L	03/13/13 20:09	
Aniline (Phenylamine, Aminobenzene)	<0.00200	0.0500	0.0345	69	0.0370	74	35-104	7	25	mg/L	03/13/13 20:09	
Anthracene	<0.000328	0.0500	0.0385	77	0.0407	81	56-116	6	25	mg/L	03/13/13 20:09	
Benzo(a)anthracene	<0.000496	0.0500	0.0407	81	0.0440	88	59-116	8	25	mg/L	03/13/13 20:09	
Benzo(a)pyrene	<0.000400	0.0500	0.0465	93	0.0499	100	58-118	7	25	mg/L	03/13/13 20:09	
Benzo(b)fluoranthene	<0.000754	0.0500	0.0460	92	0.0516	103	54-123	11	25	mg/L	03/13/13 20:09	
Benzo(g,h,i)perylene	<0.000576	0.0500	0.0442	88	0.0473	95	47-129	7	25	mg/L	03/13/13 20:09	
Benzo(k)fluoranthene	<0.00103	0.0500	0.0451	90	0.0472	94	52-122	5	25	mg/L	03/13/13 20:09	
Benzoic Acid	<0.00191	0.150	0.115	77	0.126	84	4-113	9	25	mg/L	03/13/13 20:09	
Benzyl Butyl Phthalate	<0.000556	0.0500	0.0436	87	0.0472	94	57-122	8	25	mg/L	03/13/13 20:09	
bis(2-chloroethoxy) methane	<0.000880	0.0500	0.0373	75	0.0395	79	53-112	6	25	mg/L	03/13/13 20:09	
bis(2-chloroethyl) ether	<0.000906	0.0500	0.0378	76	0.0415	83	57-108	9	25	mg/L	03/13/13 20:09	
bis(2-chloroisopropyl) ether	<0.000932	0.0500	0.0400	80	0.0432	86	54-111	8	25	mg/L	03/13/13 20:09	
bis(2-ethylhexyl) phthalate	<0.000626	0.0500	0.0442	88	0.0484	97	59-119	9	25	mg/L	03/13/13 20:09	
Chrysene	<0.000462	0.0500	0.0394	79	0.0420	84	58-116	6	25	mg/L	03/13/13 20:09	
Dibenz(a,h)anthracene	<0.000396	0.0500	0.0462	92	0.0493	99	46-131	6	25	mg/L	03/13/13 20:09	
Dibenzofuran	<0.000690	0.0500	0.0376	75	0.0401	80	56-111	6	25	mg/L	03/13/13 20:09	
Diethyl Phthalate	<0.000636	0.0500	0.0390	78	0.0425	85	62-114	9	25	mg/L	03/13/13 20:09	
Dimethyl Phthalate	<0.000602	0.0500	0.0385	77	0.0415	83	59-113	8	25	mg/L	03/13/13 20:09	
di-n-Butyl Phthalate	<0.000552	0.0500	0.0408	82	0.0446	89	60-118	9	25	mg/L	03/13/13 20:09	
di-n-Octyl Phthalate	<0.000730	0.0500	0.0536	107	0.0593	119	49-129	10	25	mg/L	03/13/13 20:09	
Fluoranthene	<0.000506	0.0500	0.0383	77	0.0419	84	55-120	9	25	mg/L	03/13/13 20:09	
Fluorene	<0.000616	0.0500	0.0388	78	0.0416	83	56-114	7	25	mg/L	03/13/13 20:09	
Hexachlorobenzene	<0.000488	0.0500	0.0368	74	0.0386	77	60-109	5	25	mg/L	03/13/13 20:09	
Hexachlorobutadiene	<0.000884	0.0500	0.0323	65	0.0341	68	52-107	5	25	mg/L	03/13/13 20:09	

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Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: SVOAs by EPA 8270C — Prep Method: SW3510C
Seq Number: 909085 — Matrix: Water — Date Prep: 03/12/2013
MB Sample Id: 634933-1-BLK — LCS Sample Id: 634933-I-BKS — LCSD Sample Id: 634933-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Hexachlorocyclopentadiene	<0.000702	0.0500	0.0153	31	0.0159	32	32-115	4	25	mg/L	03/13/13 20:09	L
Hexachloroethane	<0.00108	0.0500	0.0369	74	0.0390	78	46-115	6	25	mg/L	03/13/13 20:09	
Indeno(1,2,3-c,d)Pyrene	<0.000674	0.0500	0.0450	90	0.0484	97	44-132	7	25	mg/L	03/13/13 20:09	
Isophorone	<0.000806	0.0500	0.0370	74	0.0395	79	57-107	7	25	mg/L	03/13/13 20:09	
Naphthalene	<0.000634	0.0500	0.0356	71	0.0375	75	53-110	5	25	mg/L	03/13/13 20:09	
Nitrobenzene	<0.00105	0.0500	0.0359	72	0.0380	76	56-107	6	25	mg/L	03/13/13 20:09	
N-Nitrosodi-n-Propylamine	<0.000200	0.0500	0.0393	79	0.0426	85	21-137	8	25	mg/L	03/13/13 20:09	
N-Nitrosodiphenylamine	<0.000918	0.0500	0.0381	76	0.0406	81	50-121	6	25	mg/L	03/13/13 20:09	
Pentachlorophenol	<0.00112	0.0500	0.0211	42	0.0268	54	36-132	24	25	mg/L	03/13/13 20:09	
Phenanthrene	<0.000554	0.0500	0.0381	76	0.0403	81	56-116	6	25	mg/L	03/13/13 20:09	
Phenol	<0.000976	0.0500	0.0148	30	0.0167	33	19-89	12	25	mg/L	03/13/13 20:09	
Pyrene	<0.000562	0.0500	0.0395	79	0.0430	86	57-119	8	25	mg/L	03/13/13 20:09	
Pyridine	<0.00310	0.0500	0.0250	50	0.0229	46	5-94	9	25	mg/L	03/13/13 20:09	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
2-Fluorophenol	51		51		51		30-100	%	03/13/13 20:09
Phenol-d6	33		36		36		15-94	%	03/13/13 20:09
Nitrobenzene-d5	64		63		66		46-111	%	03/13/13 20:09
2-Fluorobiphenyl	62		63		65		44-117	%	03/13/13 20:09
2,4,6-Tribromophenol	91		86		91		48-117	%	03/13/13 20:09
Terphenyl-D14	71		68		74		46-126	%	03/13/13 20:09

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Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: SVOAs by EPA 8270C | Prep Method: SW3510C
Seq Number: 909085 | Matrix: Solid | Date Prep: 03/12/2013
Parent Sample Id: 458934-001 | MS Sample Id: 458934-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
2,4,5-Trichlorophenol	<0.00547	0.250	0.165	66	55-114	mg/L	03/14/13 19:41	
2,4,6-Trichlorophenol	<0.00380	0.250	0.152	61	57-113	mg/L	03/14/13 19:41	
2,4-Dichlorophenol	<0.00263	0.250	0.150	60	60-110	mg/L	03/14/13 19:41	
2,4-Dimethylphenol	<0.00985	0.250	0.140	56	50-108	mg/L	03/14/13 19:41	
2,4-Dinitrophenol	<0.0112	0.250	0.136	54	52-111	mg/L	03/14/13 19:41	
2,4-Dinitrotoluene	<0.00328	0.250	0.157	63	60-116	mg/L	03/14/13 19:41	
2,6-Dinitrotoluene	<0.00344	0.250	0.156	62	60-115	mg/L	03/14/13 19:41	
2-Chloronaphthalene	<0.00321	0.250	0.151	60	58-105	mg/L	03/14/13 19:41	
2-Chlorophenol	<0.00409	0.250	0.153	61	58-106	mg/L	03/14/13 19:41	
2-Methylnaphthalene	<0.00494	0.250	0.139	56	57-106	mg/L	03/14/13 19:41	X
2-Methylphenol	<0.00721	0.250	0.157	63	52-106	mg/L	03/14/13 19:41	
2-Nitroaniline	<0.00442	0.250	0.0963	39	55-120	mg/L	03/14/13 19:41	X
2-Nitrophenol	<0.00487	0.250	0.148	59	57-105	mg/L	03/14/13 19:41	
3&4-Methylphenol	<0.00972	0.250	0.173	69	23-140	mg/L	03/14/13 19:41	
3,3-Dichlorobenzidine	<0.0138	0.250	<0.0138	0	36-123	mg/L	03/14/13 19:41	X
3-Nitroaniline	<0.00383	0.250	0.0962	38	49-120	mg/L	03/14/13 19:41	X
4,6-Dinitro-2-methyl phenol	<0.00537	0.250	0.121	48	57-119	mg/L	03/14/13 19:41	X
4-Bromophenyl-phenylether	<0.00299	0.250	0.152	61	58-112	mg/L	03/14/13 19:41	
4-Chloro-3-methylphenol	<0.00428	0.250	0.166	66	58-116	mg/L	03/14/13 19:41	
4-Chloroaniline	<0.0171	0.250	0.0484	19	2-123	mg/L	03/14/13 19:41	
4-Chlorophenyl-phenyl ether	<0.00355	0.250	0.151	60	59-109	mg/L	03/14/13 19:41	
4-Nitroaniline	<0.00285	0.250	0.0718	29	52-118	mg/L	03/14/13 19:41	X
4-Nitrophenol	<0.00350	0.250	0.137	55	18-104	mg/L	03/14/13 19:41	
Acenaphthene	<0.00368	0.250	0.148	59	54-114	mg/L	03/14/13 19:41	
Acenaphthylene	<0.00342	0.250	0.147	59	53-113	mg/L	03/14/13 19:41	
Aniline (Phenylamine, Aminobenzene)	<0.0100	0.250	0.0575	23	35-104	mg/L	03/14/13 19:41	X
Anthracene	<0.00164	0.250	0.155	62	56-116	mg/L	03/14/13 19:41	
Benzo(a)anthracene	<0.00248	0.250	0.167	67	59-116	mg/L	03/14/13 19:41	
Benzo(a)pyrene	<0.00200	0.250	0.190	76	58-118	mg/L	03/14/13 19:41	
Benzo(b)fluoranthene	<0.00377	0.250	0.197	79	54-123	mg/L	03/14/13 19:41	
Benzo(g,h,i)perylene	<0.00288	0.250	0.173	69	47-129	mg/L	03/14/13 19:41	
Benzo(k)fluoranthene	<0.00514	0.250	0.184	74	52-122	mg/L	03/14/13 19:41	
Benzoic Acid	0.209	0.750	1.37	155	4-113	mg/L	03/14/13 19:41	X
Benzyl Butyl Phthalate	<0.00278	0.250	0.173	69	57-122	mg/L	03/14/13 19:41	
bis(2-chloroethoxy) methane	<0.00440	0.250	0.143	57	53-112	mg/L	03/14/13 19:41	
bis(2-chloroethyl) ether	<0.00453	0.250	0.162	65	57-108	mg/L	03/14/13 19:41	
bis(2-chloroisopropyl) ether	<0.00466	0.250	0.153	61	54-111	mg/L	03/14/13 19:41	
bis(2-ethylhexyl) phthalate	<0.00313	0.250	0.179	72	59-119	mg/L	03/14/13 19:41	
Chrysene	<0.00231	0.250	0.159	64	58-116	mg/L	03/14/13 19:41	
Dibenz(a,h)anthracene	<0.00198	0.250	0.185	74	46-131	mg/L	03/14/13 19:41	
Dibenzofuran	<0.00345	0.250	0.150	60	56-111	mg/L	03/14/13 19:41	
Diethyl Phthalate	<0.00318	0.250	0.159	64	62-114	mg/L	03/14/13 19:41	
Dimethyl Phthalate	<0.00301	0.250	0.156	62	59-113	mg/L	03/14/13 19:41	
di-n-Butyl Phthalate	<0.00276	0.250	0.166	66	60-118	mg/L	03/14/13 19:41	
di-n-Octyl Phthalate	<0.00365	0.250	0.227	91	49-129	mg/L	03/14/13 19:41	
Fluoranthene	<0.00253	0.250	0.159	64	55-120	mg/L	03/14/13 19:41	
Fluorene	<0.00308	0.250	0.157	63	56-114	mg/L	03/14/13 19:41	
Hexachlorobenzene	<0.00244	0.250	0.149	60	60-109	mg/L	03/14/13 19:41	
Hexachlorobutadiene	<0.00442	0.250	0.121	48	52-107	mg/L	03/14/13 19:41	X

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Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: SVOAs by EPA 8270C
Seq Number: 909085
Parent Sample Id: 458934-001

Matrix: Solid
MS Sample Id: 458934-001 S

Prep Method: SW3510C
Date Prep: 03/12/2013

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Hexachlorocyclopentadiene	<0.00351	0.250	0.0254	10	32-115	mg/L	03/14/13 19:41	X
Hexachloroethane	<0.00538	0.250	0.139	56	46-115	mg/L	03/14/13 19:41	
Indeno(1,2,3-c,d)Pyrene	<0.00337	0.250	0.177	71	44-132	mg/L	03/14/13 19:41	
Isophorone	<0.00403	0.250	0.141	56	57-107	mg/L	03/14/13 19:41	X
Naphthalene	<0.00317	0.250	0.194	78	53-110	mg/L	03/14/13 19:41	
Nitrobenzene	<0.00523	0.250	0.202	81	56-107	mg/L	03/14/13 19:41	
N-Nitrosodi-n-Propylamine	<0.00100	0.250	0.152	61	21-137	mg/L	03/14/13 19:41	
N-Nitrosodiphenylamine	<0.00459	0.250	0.156	62	50-121	mg/L	03/14/13 19:41	
Pentachlorophenol	<0.00558	0.250	0.178	71	36-132	mg/L	03/14/13 19:41	
Phenanthrene	<0.00277	0.250	0.156	62	56-116	mg/L	03/14/13 19:41	
Phenol	<0.00488	0.250	0.118	47	19-89	mg/L	03/14/13 19:41	
Pyrene	<0.00281	0.250	0.161	64	57-119	mg/L	03/14/13 19:41	
Pyridine	<0.0155	0.250	0.0987	39	5-94	mg/L	03/14/13 19:41	

Surrogate	MS %Rec	MS Flag	Limits	Units	Analysis Date
2-Fluorophenol	57		30-100	%	03/14/13 19:41
Phenol-d6	54		15-94	%	03/14/13 19:41
Nitrobenzene-d5	49		46-111	%	03/14/13 19:41
2-Fluorobiphenyl	48		44-117	%	03/14/13 19:41
2,4,6-Tribromophenol	71		48-117	%	03/14/13 19:41
Terphenyl-D14	55		46-126	%	03/14/13 19:41

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Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: VOAs by SW-846 8260B — Prep Method: SW5030B
Seq Number: 909037 — Matrix: Water — Date Prep: 03/13/2013
MB Sample Id: 635141-1-BLK — LCS Sample Id: 635141-1-BKS — LCSD Sample Id: 635141-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00500	0.0500	0.0521	104	0.0522	104	68-123	0	25	mg/L	03/13/13 18:50	
Bromobenzene	<0.00500	0.0500	0.0530	106	0.0519	104	83-124	2	25	mg/L	03/13/13 18:50	
Bromochloromethane	<0.00500	0.0500	0.0496	99	0.0500	100	68-119	1	25	mg/L	03/13/13 18:50	
Bromodichloromethane	<0.00500	0.0500	0.0520	104	0.0532	106	72-132	2	25	mg/L	03/13/13 18:50	
Bromoform	<0.00500	0.0500	0.0497	99	0.0502	100	65-136	1	25	mg/L	03/13/13 18:50	
Methyl bromide	<0.00500	0.0500	0.0493	99	0.0485	97	48-120	2	25	mg/L	03/13/13 18:50	
n-Butylbenzene	<0.00500	0.0500	0.0546	109	0.0535	107	82-128	2	25	mg/L	03/13/13 18:50	
Sec-Butylbenzene	<0.00500	0.0500	0.0544	109	0.0531	106	83-130	2	25	mg/L	03/13/13 18:50	
tert-Butylbenzene	<0.00500	0.0500	0.0529	106	0.0519	104	83-131	2	25	mg/L	03/13/13 18:50	
Carbon Tetrachloride	<0.00500	0.0500	0.0492	98	0.0475	95	68-135	4	25	mg/L	03/13/13 18:50	
Chlorobenzene	<0.00500	0.0500	0.0528	106	0.0528	106	78-124	0	25	mg/L	03/13/13 18:50	
Chloroethane	<0.0100	0.0500	0.0530	106	0.0444	89	55-120	18	25	mg/L	03/13/13 18:50	
Chloroform	<0.00500	0.0500	0.0534	107	0.0526	105	71-119	2	25	mg/L	03/13/13 18:50	
Methyl Chloride	<0.0100	0.0500	0.0472	94	0.0468	94	54-114	1	25	mg/L	03/13/13 18:50	
2-Chlorotoluene	<0.00500	0.0500	0.0536	107	0.0532	106	83-128	1	25	mg/L	03/13/13 18:50	
4-Chlorotoluene	<0.00500	0.0500	0.0539	108	0.0527	105	81-125	2	25	mg/L	03/13/13 18:50	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0530	106	0.0526	105	85-129	1	25	mg/L	03/13/13 18:50	
Dibromochloromethane	<0.00500	0.0500	0.0514	103	0.0504	101	74-135	2	25	mg/L	03/13/13 18:50	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0421	84	0.0446	89	62-134	6	25	mg/L	03/13/13 18:50	
1,2-Dibromoethane	<0.00500	0.0500	0.0489	98	0.0512	102	77-129	5	25	mg/L	03/13/13 18:50	
Methylene bromide	<0.00500	0.0500	0.0503	101	0.0509	102	71-124	1	25	mg/L	03/13/13 18:50	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0527	105	0.0522	104	81-123	1	25	mg/L	03/13/13 18:50	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0535	107	0.0532	106	82-126	1	25	mg/L	03/13/13 18:50	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0523	105	0.0519	104	80-119	1	25	mg/L	03/13/13 18:50	
Dichlorodifluoromethane	<0.00500	0.0500	0.0412	82	0.0403	81	59-121	2	25	mg/L	03/13/13 18:50	
1,1-Dichloroethane	<0.00500	0.0500	0.0529	106	0.0518	104	75-125	2	25	mg/L	03/13/13 18:50	
1,2-Dichloroethane	<0.00500	0.0500	0.0488	98	0.0496	99	64-130	2	25	mg/L	03/13/13 18:50	
1,1-Dichloroethene	<0.00500	0.0500	0.0500	100	0.0498	100	68-116	0	25	mg/L	03/13/13 18:50	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0522	104	0.0523	105	74-130	0	25	mg/L	03/13/13 18:50	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0503	101	0.0501	100	64-109	0	25	mg/L	03/13/13 18:50	
1,2-Dichloropropane	<0.00500	0.0500	0.0542	108	0.0542	108	72-127	0	25	mg/L	03/13/13 18:50	
1,3-Dichloropropane	<0.00500	0.0500	0.0514	103	0.0516	103	79-133	0	25	mg/L	03/13/13 18:50	
2,2-Dichloropropane	<0.00500	0.0500	0.0559	112	0.0546	109	71-134	2	25	mg/L	03/13/13 18:50	
1,1-Dichloropropene	<0.00500	0.0500	0.0503	101	0.0500	100	69-124	1	25	mg/L	03/13/13 18:50	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0526	105	0.0535	107	74-138	2	25	mg/L	03/13/13 18:50	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0504	101	0.0509	102	70-132	1	25	mg/L	03/13/13 18:50	
Ethylbenzene	<0.00500	0.0500	0.0533	107	0.0529	106	69-131	1	25	mg/L	03/13/13 18:50	
Hexachlorobutadiene	<0.00500	0.0500	0.0519	104	0.0535	107	74-130	3	25	mg/L	03/13/13 18:50	
Isopropylbenzene	<0.00500	0.0500	0.0540	108	0.0517	103	66-133	4	25	mg/L	03/13/13 18:50	
Methylene Chloride	<0.00500	0.0500	0.0532	106	0.0523	105	60-121	2	25	mg/L	03/13/13 18:50	
MTBE	<0.00500	0.100	0.0983	98	0.0993	99	60-152	1	25	mg/L	03/13/13 18:50	
Naphthalene	<0.0100	0.0500	0.0471	94	0.0509	102	69-140	8	25	mg/L	03/13/13 18:50	
n-Propylbenzene	<0.00500	0.0500	0.0551	110	0.0536	107	86-129	3	25	mg/L	03/13/13 18:50	
Styrene	<0.00500	0.0500	0.0541	108	0.0537	107	79-128	1	25	mg/L	03/13/13 18:50	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0526	105	0.0529	106	78-131	1	25	mg/L	03/13/13 18:50	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0506	101	0.0512	102	80-133	1	25	mg/L	03/13/13 18:50	
Tetrachloroethylene	<0.00500	0.0500	0.0501	100	0.0493	99	79-122	2	25	mg/L	03/13/13 18:50	
Toluene	<0.00500	0.0500	0.0519	104	0.0518	104	62-132	0	25	mg/L	03/13/13 18:50	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0508	102	0.0532	106	76-126	5	25	mg/L	03/13/13 18:50	

PLAINS ALL AMERICAN EH&S

Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: VOAs by SW-846 8260B — Prep Method: SW5030B
Seq Number: 909037 — Matrix: Water — Date Prep: 03/13/2013
MB Sample Id: 635141-1-BLK — LCS Sample Id: 635141-1-BKS — LCSD Sample Id: 635141-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0521	104	0.0538	108	77-127	3	25	mg/L	03/13/13 18:50	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0527	105	0.0519	104	72-124	2	25	mg/L	03/13/13 18:50	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0507	101	0.0507	101	71-135	0	25	mg/L	03/13/13 18:50	
Trichloroethylene	<0.00500	0.0500	0.0519	104	0.0513	103	74-123	1	25	mg/L	03/13/13 18:50	
Trichlorofluoromethane	<0.00500	0.0500	0.0521	104	0.0521	104	70-143	0	25	mg/L	03/13/13 18:50	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0503	101	0.0496	99	75-134	1	25	mg/L	03/13/13 18:50	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0529	106	0.0518	104	79-132	2	25	mg/L	03/13/13 18:50	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0534	107	0.0523	105	72-139	2	25	mg/L	03/13/13 18:50	
o-Xylene	<0.00500	0.0500	0.0529	106	0.0530	106	67-132	0	25	mg/L	03/13/13 18:50	
m,p-Xylenes	<0.0100	0.100	0.106	106	0.106	106	69-132	0	25	mg/L	03/13/13 18:50	
Vinyl Chloride	<0.00200	0.0500	0.0492	98	0.0490	98	59-124	0	25	mg/L	03/13/13 18:50	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	101		99		99		75-131	%	03/13/13 18:50
1,2-Dichloroethane-D4	103		97		99		63-144	%	03/13/13 18:50
Toluene-D8	102		100		100		80-117	%	03/13/13 18:50
4-Bromofluorobenzene	100		99		97		74-124	%	03/13/13 18:50

PLAINS ALL AMERICAN EH&S

Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: VOAs by SW-846 8260B — Prep Method: SW5030B

Seq Number: 909037 — Matrix: Water — Date Prep: 03/13/2013

Parent Sample Id: 459011-001 — MS Sample Id: 459011-001 S — MSD Sample Id: 459011-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00500	0.0500	0.0551	110	0.0543	109	66-142	1	25	mg/L	03/14/13 03:56	
Bromobenzene	<0.00500	0.0500	0.0538	108	0.0564	113	75-125	5	25	mg/L	03/14/13 03:56	
Bromochloromethane	<0.00500	0.0500	0.0566	113	0.0541	108	60-140	5	25	mg/L	03/14/13 03:56	
Bromodichloromethane	<0.00500	0.0500	0.0554	111	0.0560	112	75-125	1	25	mg/L	03/14/13 03:56	
Bromoform	<0.00500	0.0500	0.0555	111	0.0527	105	75-125	5	25	mg/L	03/14/13 03:56	
Methyl bromide	<0.00500	0.0500	0.0553	111	0.0559	112	60-140	1	25	mg/L	03/14/13 03:56	
n-Butylbenzene	<0.00500	0.0500	0.0539	108	0.0524	105	75-125	3	25	mg/L	03/14/13 03:56	
Sec-Butylbenzene	<0.00500	0.0500	0.0547	109	0.0533	107	75-125	3	25	mg/L	03/14/13 03:56	
tert-Butylbenzene	<0.00500	0.0500	0.0536	107	0.0527	105	75-125	2	25	mg/L	03/14/13 03:56	
Carbon Tetrachloride	<0.00500	0.0500	0.0519	104	0.0486	97	62-125	7	25	mg/L	03/14/13 03:56	
Chlorobenzene	<0.00500	0.0500	0.0534	107	0.0522	104	60-133	2	25	mg/L	03/14/13 03:56	
Chloroethane	<0.0100	0.0500	0.0571	114	0.0515	103	60-140	10	25	mg/L	03/14/13 03:56	
Chloroform	<0.00500	0.0500	0.0575	115	0.0579	116	70-130	1	25	mg/L	03/14/13 03:56	
Methyl Chloride	<0.0100	0.0500	0.0453	91	0.0460	92	60-140	2	25	mg/L	03/14/13 03:56	
2-Chlorotoluene	<0.00500	0.0500	0.0549	110	0.0566	113	73-125	3	25	mg/L	03/14/13 03:56	
4-Chlorotoluene	<0.00500	0.0500	0.0541	108	0.0552	110	74-125	2	25	mg/L	03/14/13 03:56	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0523	105	0.0520	104	75-125	1	25	mg/L	03/14/13 03:56	
Dibromochloromethane	<0.00500	0.0500	0.0544	109	0.0526	105	73-125	3	25	mg/L	03/14/13 03:56	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0516	103	0.0496	99	59-125	4	25	mg/L	03/14/13 03:56	
1,2-Dibromoethane	<0.00500	0.0500	0.0524	105	0.0528	106	73-125	1	25	mg/L	03/14/13 03:56	
Methylene bromide	<0.00500	0.0500	0.0548	110	0.0548	110	69-127	0	25	mg/L	03/14/13 03:56	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0555	111	0.0544	109	75-125	2	25	mg/L	03/14/13 03:56	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0544	109	0.0541	108	75-125	1	25	mg/L	03/14/13 03:56	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0531	106	0.0538	108	75-125	1	25	mg/L	03/14/13 03:56	
Dichlorodifluoromethane	<0.00500	0.0500	0.0449	90	0.0434	87	70-130	3	25	mg/L	03/14/13 03:56	
1,1-Dichloroethane	<0.00500	0.0500	0.0577	115	0.0567	113	72-125	2	25	mg/L	03/14/13 03:56	
1,2-Dichloroethane	<0.00500	0.0500	0.0525	105	0.0517	103	68-127	2	25	mg/L	03/14/13 03:56	
1,1-Dichloroethene	<0.00500	0.0500	0.0533	107	0.0521	104	59-172	2	25	mg/L	03/14/13 03:56	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0587	117	0.0574	115	75-125	2	25	mg/L	03/14/13 03:56	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0554	111	0.0548	110	75-125	1	25	mg/L	03/14/13 03:56	
1,2-Dichloropropane	<0.00500	0.0500	0.0554	111	0.0557	111	74-125	1	25	mg/L	03/14/13 03:56	
1,3-Dichloropropane	<0.00500	0.0500	0.0532	106	0.0550	110	75-125	3	25	mg/L	03/14/13 03:56	
2,2-Dichloropropane	<0.00500	0.0500	0.0547	109	0.0513	103	75-125	6	25	mg/L	03/14/13 03:56	
1,1-Dichloropropene	<0.00500	0.0500	0.0534	107	0.0505	101	75-125	6	25	mg/L	03/14/13 03:56	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0502	100	0.0539	108	74-125	7	25	mg/L	03/14/13 03:56	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0479	96	0.0531	106	66-125	10	25	mg/L	03/14/13 03:56	
Ethylbenzene	<0.00500	0.0500	0.0539	108	0.0523	105	75-125	3	25	mg/L	03/14/13 03:56	
Hexachlorobutadiene	<0.00500	0.0500	0.0476	95	0.0428	86	75-125	11	25	mg/L	03/14/13 03:56	
Isopropylbenzene	<0.00500	0.0500	0.0545	109	0.0551	110	75-125	1	25	mg/L	03/14/13 03:56	
Methylene Chloride	<0.00500	0.0500	0.0564	113	0.0566	113	75-125	0	25	mg/L	03/14/13 03:56	
MTBE	<0.00500	0.100	0.116	116	0.114	114	65-135	2	25	mg/L	03/14/13 03:56	
Naphthalene	<0.0100	0.0500	0.0498	100	0.0466	93	70-130	7	25	mg/L	03/14/13 03:56	
n-Propylbenzene	<0.00500	0.0500	0.0548	110	0.0560	112	75-125	2	25	mg/L	03/14/13 03:56	
Styrene	<0.00500	0.0500	0.0530	106	0.0506	101	75-125	5	25	mg/L	03/14/13 03:56	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0570	114	0.0540	108	72-125	5	25	mg/L	03/14/13 03:56	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0594	119	0.0604	121	74-125	2	25	mg/L	03/14/13 03:56	
Tetrachloroethylene	<0.00500	0.0500	0.0512	102	0.0499	100	71-125	3	25	mg/L	03/14/13 03:56	
Toluene	<0.00500	0.0500	0.0511	102	0.0541	108	59-139	6	25	mg/L	03/14/13 03:56	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0461	92	0.0415	83	75-137	11	25	mg/L	03/14/13 03:56	

PLAINS ALL AMERICAN EH&S

Chevron Grayburg 6-inch Sec. 6(Historical)

Analytical Method: VOAs by SW-846 8260B — Prep Method: SW5030B
Seq Number: 909037 — Matrix: Water — Date Prep: 03/13/2013
Parent Sample Id: 459011-001 — MS Sample Id: 459011-001 S — MSD Sample Id: 459011-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0480	96	0.0441	88	75-135	8	25	mg/L	03/14/13 03:56	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0568	114	0.0558	112	75-125	2	25	mg/L	03/14/13 03:56	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0521	104	0.0557	111	75-127	7	25	mg/L	03/14/13 03:56	
Trichloroethylene	<0.00500	0.0500	0.0533	107	0.0526	105	62-137	1	25	mg/L	03/14/13 03:56	
Trichlorofluoromethane	<0.00500	0.0500	0.0542	108	0.0540	108	60-140	0	25	mg/L	03/14/13 03:56	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0553	111	0.0566	113	75-125	2	25	mg/L	03/14/13 03:56	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0534	107	0.0526	105	75-125	2	25	mg/L	03/14/13 03:56	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0544	109	0.0535	107	70-125	2	25	mg/L	03/14/13 03:56	
o-Xylene	<0.00500	0.0500	0.0543	109	0.0514	103	75-125	5	25	mg/L	03/14/13 03:56	
m,p-Xylenes	<0.0100	0.100	0.105	105	0.102	102	75-125	3	25	mg/L	03/14/13 03:56	
Vinyl Chloride	<0.00200	0.0500	0.0514	103	0.0507	101	60-140	1	25	mg/L	03/14/13 03:56	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	106		105		75-131	%	03/14/13 03:56
1,2-Dichloroethane-D4	106		108		63-144	%	03/14/13 03:56
Toluene-D8	98		99		80-117	%	03/14/13 03:56
4-Bromofluorobenzene	96		102		74-124	%	03/14/13 03:56

CHAIN OF CUSTODY RECORD

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

LAB W.O#: 459011

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:	Chevron Grayburg 6-Inch Sec. 6 (Historical) SRS Chevron Grayburg 6-Inch Historical	PO#:	PAA-J. Henry
Invoice To:	Jason Henry Plains All American	Quote #:	
Sampler Signature:		Circle One Event: Daily Weekly Monthly Quarterly Semi-Annual Annual N/A	

TAT Work Days = 7 Need results by:_____ Time:_____

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

	Sample ID	Collection Date	Collection Time	Matrix			# of Containers
1	MW-5	3/8/13	12:35	GW			10
2	MW-6	3/8/13	11:20	GW			10
3	MW-7	3/8/13	10:05	GW			10
4							
5							
6							
7							
8							
9							
10							

	PC	VP	GA,VP	PC					
	I,B	E,I	A,E,I	I					
	Metals (RCRA, WQCC)	VOC's by 8260	SVOC's by 8270	General Chemistry					
Lab Only:									
1	X	X	X	X					
2	X	X	X	X					
3	X	X	X	X					

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

See attached sheet for specific analyses requested

"

"

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

Temp: 1 1 0.3 2 3 5.0

	Relinquished By	Date	Time	Received By	Affiliation	Date	Time
1	Mark Kinney		Basin Env	3.8.13	15:30	Steve Butler		3-8-13	1532
2						Shawne Smith	Xenco	3-11-13	10:07
3									
4									

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 #

 Revision Date: Nov 12, 2009

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

Field Parameters

specific conductance
pH
temperature
depth to water

337000

General Chemistry

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

RCRA Metals

Arsenic
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver

Additional WQCC Metals

Copper
Iron
Manganese
Zinc
Aluminum
Boron
Cobalt
Molybdenum
Nickel

All compounds listed in U.S. EPA SW-846 Methods: 8260 (VOCs) & 8270 (SVOCs)

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 03/08/2013 03:32:00 PM

Work Order #: 459011

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)?	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: Date:

Checklist reviewed by: Date:

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

☒ 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	**Chevron Grayburg 6-inch Sec. 6**	Facility Type	**Pipeline**

Surface Owner **NMSLO**	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	**6**	**18S**	**35E**					**Lea**

Latitude N 32.7810858° Longitude W 103.4924927°

WTR 80'

NATURE OF RELEASE

Type of Release **Crude Oil**	Volume of Release **120 bbls**	Volume Recovered **115 bbls**
Source of Release **6" Steel Pipeline**	Date and Hour of Occurrence **10/08/2010 @ 10:00**	Date and Hour of Discovery **10/08/2010 @ 10:00**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Larry Johnson**	
By Whom? **Jason Henry**	Date and Hour **10/08/2010 @ 11:30**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

RECEIVED
OCT 15
HOBBSOCD

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Excavator struck a tee connected to the Chevron Grayburg 6" pipeline causing a release of crude oil. Throughput for the subject line is 2,000 bbls/day and the operating pressure of the pipeline is 50 psi. 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 36.

Describe Area Affected and Cleanup Action Taken.*

The released crude pooled in the trench next to the pipeline and a vac truck was used to recover the free product. 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	OIL CONSERVATION DIVISION
Printed Name: **Jason Henry**	Approved by District Supervisor: Johnson ENVIRONMENTAL ENGINEER
Title: **Remediation Coordinator**	Approval Date: 10.15.10 Expiration Date: 12.15.10
E-mail Address: **jhenry@paalp.com**	Conditions of Approval: SUBMIT FINAL C-141 w/DOCS BY Attached ☐
Date: 10-15-2010 Phone: **(575) 441-1099**	IRP# 10.10.2637

* Attach Additional Sheets If Necessary

API #	Well Name	Operator	Well Type	Completion Status	Plug Date	PLSS	County	Latitude	Longitude	Landowner
3002503088	Central Vacuum Unit 095	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. A, Sec. 6, 18S, 35E	Lea	32.78241564	-103.490579	NMSLO
3002503089	Central Vacuum Unit 096	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. B, Sec. 6, 18S, 35E	Lea	32.78241849	-103.491625	NMSLO
3002525712	Central Vacuum Unit 101	Chevron USA, Inc.	Injection	Active	N/A	Unit Ltr. G, Sec. 6, 18S, 35E	Lea	32.7803602	-103.492792	NMSLO
3002503090	Central Vacuum Unit 102	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. H, Sec. 6, 18S, 35E	Lea	32.77878748	-103.490585	NMSLO
3002503091	Central Vacuum Unit 103	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. G, Sec. 6, 18S, 35E	Lea	32.77879922	-103.4949	NMSLO
3002526820	Central Vacuum Unit 152	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. M, Sec. 6, 18S, 35E	Lea	32.7815086	-103.490581	NMSLO
3002532802	Central Vacuum Unit 195	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. A, Sec. 6, 18S, 35E	Lea	32.78223179	-103.492714	NMSLO
3002532806	Central Vacuum Unit 201	Chevron USA, Inc.	Injection	Active	N/A	Unit Ltr. G, Sec. 6, 18S, 35E	Lea	32.78050329	-103.494875	NMSLO
3002530023	Central Vacuum Unit 302	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. H, Sec. 6, 18S, 35E	Lea	32.77865583	-103.49271	NMSLO
3002532018	New Mexico R State NCT-1 014	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. B, Sec. 6, 18S, 35E	Lea	32.78187784	-103.494961	NMSLO
3002532019	New Mexico R State NCT-1 015	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. A, Sec. 6, 18S, 35E	Lea	32.78282775	-103.490513	NMSLO
3002531129	Vacuum Glorieta West Unit 118	Chevron USA, Inc.	Oil	Active	N/A	Unit Ltr. B, Sec. 6, 18S, 35E	Lea	32.78242876	-103.495401	NMSLO
3002521108	Vacuum Glorieta West Unit 119	Texaco Exploration/Production, Inc.	Oil	Plugged	8/14/2000	Unit Ltr. A, Sec. 6, 18S, 35E	Lea	32.78332268	-103.490578	NMSLO
3002531879	Vacuum Glorieta West Unit 124	Chevron USA, Inc.	Injection	Active	N/A	Unit Ltr. B, Sec. 6, 18S, 35E	Lea	32.78143378	-103.493389	NMSLO
3002521054	Vacuum Glorieta West Unit 128	Texaco Exploration/Production, Inc.	Oil	Plugged	4/17/2001	Unit Ltr. G, Sec. 6, 18S, 35E	Lea	32.77970626	-103.494899	NMSLO
3002521425	Vacuum Glorieta West Unit 129	Texaco Exploration/Production, Inc.	Oil	Plugged	5/17/2001	Unit Ltr. H, Sec. 6, 18S, 35E	Lea	32.77969745	-103.491662	NMSLO
3002533428	Vacuum Glorieta West Unit 132	Chevron USA, Inc.	Oil	Temporary Abandonment	N/A	Unit Ltr. H, Sec. 6, 18S, 35E	Lea	32.77909187	-103.491336	NMSLO