

1R - 2637

REPORTS

DATE:

12-7-12

Hansen, Edward J., EMNRD

From: Ben J. Arguijo <bjarguijo@basinenv.com>
Sent: Friday, December 07, 2012 4:14 PM
To: Hansen, Edward J., EMNRD
Cc: Leking, Geoffrey R, EMNRD; 'Jeffrey P Dann'; 'Jason Henry'
Subject: RE: Ground Water Monitoring Well Location Approval (1R-2637) - Plains Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site
Attachments: ChevronGrayburg_Baseline.pdf; ChevronGrayburg_4Q2012.pdf

Mr. Hansen,

I am writing to request an extension of the deadline for installation of four (4) "new" groundwater monitoring wells at the Chevron Grayburg 6-Inch Sec. 6 (Historical) release site (NMOCD reference #1RP-2637).

The aforementioned site is located on land owned by the State of New Mexico and administered by the New Mexico State Land Office (NMSLO). While an "Application for Water Easement" was submitted to the NMSLO in October, it has yet to be approved. The New Mexico Office of State Engineer (NMOSE) will not issue a drilling permit without permission from the landowner, which the "Water Easement" represents. The contract well driller, in turn, will not schedule a drilling event without a permit from the NMOSE. Even if the "Water Easement" were to be received in the next few days, given the average turn-around time of the NMOSE permit approval process and the holiday season, I am concerned that it will not be possible to schedule/conduct a drilling event in time to meet the December 26, 2012, deadline for well installation and sample collection (based on the report amendment approval dated September 27, 2012).

That having been said, I hereby request a 90-day extension of the December 26, 2012, deadline to March 26, 2013, in order to allow time to 1.) procure the appropriate permits from both the NMSLO and NMOSE, and 2.) conduct baseline sampling of the new monitor wells.

In partial fulfillment of your request dated September 24, 2012, laboratory analytical results from both the baseline sampling of the four (4) existing monitor wells and the initial quarterly monitoring event (4Q2012) are attached.

Thank you for your time and consideration.

Respectfully,
Ben J. Arguijo

Ben J. Arguijo
Project Manager
Basin Environmental
3100 Plains Hwy.
P.O. Box 301
Lovington, NM 88260
p:(575)396-2378 m:(806)549-9597
f:(575)396-1429
bjarguijo@basinenv.com

From: Hansen, Edward J., EMNRD [mailto:edwardj.hansen@state.nm.us]
Sent: Thursday, September 27, 2012 8:40 AM
To: 'Jason Henry'
Cc: Leking, Geoffrey R, EMNRD; 'Jeffrey P Dann'; bjarguijo@basinenv.com

Subject: RE: Ground Water Monitoring Well Location Approval (1R-2637) - Plains Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site

**RE: Ground Water Gradient Map Report Amendment
for the Plains Marketing, L.P.'s
Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site
Unit Letter B, Section 6, T18S, R35E, NMPM, Lea County, New Mexico
Ground Water Monitoring Well Location Approval (1R-2637)**

Dear Mr. Henry:

The New Mexico Oil Conservation Division (OCD) has received the report amendment for the Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site, dated September 25, 2012 and has conducted a review of the amendment. The OCD hereby approves the location of the proposed four "new" groundwater monitoring wells.

Please be advised that OCD approval of this amendment does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

From: Hansen, Edward J., EMNRD [<mailto:edwardj.hansen@state.nm.us>]

Sent: Monday, September 24, 2012 2:37 PM

To: 'Jason Henry'

Cc: Leking, Geoffrey R, EMNRD; 'Jeffrey P Dann'; bjarguijo@basinenv.com

Subject: Ground Water Monitoring Well Location Approval (1R-2637) - Plains Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site

**RE: Ground Water Gradient Map Report
for the Plains Marketing, L.P.'s
Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site
Unit Letter B, Section 6, T18S, R35E, NMPM, Lea County, New Mexico
Ground Water Monitoring Well Location Approval (1R-2637)**

Dear Mr. Henry:

The New Mexico Oil Conservation Division (OCD) has received the report for the Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site, dated September 21, 2012 and has conducted a review of the report. The OCD hereby conditionally approves the location of the proposed four "new" groundwater monitoring wells:

Please locate PMW-8 approximately 20 feet to the north to northwest of the current proposed location.

Please submit to the OCD an analytical report for the groundwater monitoring wells (including the four “new” groundwater monitoring wells) at the above-referenced site within 90 days. The analytical report must include results for BTEX at each well.

Please be advised that OCD approval of this report does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

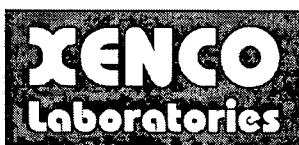
Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

Analytical Report 450841
for
PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo
Chevron Grayburg 6-Inch Sec.6
Chevron Grayburg 6-inch Historical
19-OCT-12

Collected By: Client



12600 West I-20 East Odessa, Texas 79765

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

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

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



19-OCT-12

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

Reference: XENCO Report No: **450841**
Chevron Grayburg 6-Inch Sec.6
Project Address: Lea County, NM

Ben Arguijo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 450841. 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. 450841 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

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Sample Cross Reference 450841



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec.6

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1	W	10-12-12 09:15		450841-001
MW-2	W	10-12-12 09:45		450841-002
MW-3	W	10-12-12 10:05		450841-003
MW-4	W	10-12-12 10:35		450841-004



CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S

Project Name: Chevron Grayburg 6-Inch Sec.6



Project ID: Chevron Grayburg 6-inch
Work Order Number: 450841

Report Date: 19-OCT-12
Date Received: 10/16/2012

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-898995 BTEX by EPA 8021B
SW8021BM

Batch 898995, 4-Bromofluorobenzene recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis
Samples affected are: 450841-001,450841-002.



Certificate of Analysis Summary 450841

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: Chevron Grayburg 6-inch Historical

Project Name: Chevron Grayburg 6-Inch Sec.6

Contact: Ben Arguijo

Date Received in Lab: Tue Oct-16-12 02:50 pm

Project Location: Lea County, NM

Report Date: 19-OCT-12

Project Manager: Nicholas Straccione

Analysis Requested	Lab Id:	450841-001	450841-002	450841-003	450841-004		
	Field Id:	MW-1	MW-2	MW-3	MW-4		
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER		
	Sampled:	Oct-12-12 09:15	Oct-12-12 09:45	Oct-12-12 10:05	Oct-12-12 10:35		
BTEX by EPA 8021B	Extracted:	Oct-17-12 08:40	Oct-17-12 08:40	Oct-17-12 08:40	Oct-17-12 08:40		
	Analyzed:	Oct-17-12 15:02	Oct-17-12 12:48	Oct-17-12 15:17	Oct-17-12 13:48		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Benzene		1.64 0.0100	0.0731 0.00100	1.40 0.0100	ND 0.00100		
Toluene		0.476 0.0200	0.0478 0.00200	0.916 0.0200	ND 0.00200		
Ethylbenzene		0.274 0.0100	0.0113 0.00100	0.129 0.0100	ND 0.00100		
m_p-Xylenes		0.160 0.0200	0.0141 0.00200	0.102 0.0200	ND 0.00200		
o-Xylene		0.104 0.0100	0.00989 0.00100	0.0698 0.0100	ND 0.00100		
Total Xylenes		0.264 0.0100	0.0240 0.00100	0.172 0.0100	ND 0.00100		
Total BTEX		2.65 0.0100	0.156 0.00100	2.62 0.0100	ND 0.00100		

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

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

Nicholas Straccione
Project Manager



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

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2505 North Falkenburg Rd, Tampa, FL 33619
12600 West I-20 East, Odessa, TX 79765
6017 Financial Drive, Norcross, GA 30071
3725 E. Atlanta Ave, Phoenix, AZ 85040

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



Form 2 - Surrogate Recoveries

Project Name: Chevron Grayburg 6-Inch Sec.6

Work Orders : 450841,

Project ID: Chevron Grayburg 6-inch Historical

Lab Batch #: 898995

Sample: 450841-002 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 10/17/12 12:48

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0251	0.0300	84	80-120	
4-Bromofluorobenzene	0.0230	0.0300	77	80-120	**

Lab Batch #: 898995

Sample: 450841-004 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 10/17/12 13:48

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0240	0.0300	80	80-120	
4-Bromofluorobenzene	0.0241	0.0300	80	80-120	

Lab Batch #: 898995

Sample: 450841-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 10/17/12 15:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0251	0.0300	84	80-120	
4-Bromofluorobenzene	0.0212	0.0300	71	80-120	***

Lab Batch #: 898995

Sample: 450841-003 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 10/17/12 15:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 898995

Sample: 628724-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 10/17/12 09:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0287	0.0300	96	80-120	
4-Bromofluorobenzene	0.0252	0.0300	84	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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



Form 2 - Surrogate Recoveries

Project Name: Chevron Grayburg 6-Inch Sec.6

Work Orders : 450841,

Project ID: Chevron Grayburg 6-inch Historical

Lab Batch #: 898995

Sample: 628724-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 10/17/12 09:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0272	0.0300	91	80-120	

Lab Batch #: 898995

Sample: 628724-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 10/17/12 09:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0314	0.0300	105	80-120	
4-Bromofluorobenzene	0.0282	0.0300	94	80-120	

Lab Batch #: 898995

Sample: 450850-003 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 10/17/12 15:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 898995

Sample: 450850-003 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 10/17/12 16:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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



BS / BSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec.6

Work Order #: 450841

Analyst: KEB

Date Prepared: 10/17/2012

Project ID: Chevron Grayburg 6-inch Historical

Date Analyzed: 10/17/2012

Lab Batch ID: 898995

Sample: 628724-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00100	0.100	0.111	111	0.100	0.105	105	6	70-125	25	
Toluene	<0.00200	0.100	0.113	113	0.100	0.107	107	5	70-125	25	
Ethylbenzene	<0.00100	0.100	0.110	110	0.100	0.103	103	7	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.238	119	0.200	0.215	108	10	70-131	25	
o-Xylene	<0.00100	0.100	0.112	112	0.100	0.108	108	4	71-133	25	

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

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

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

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec.6

Work Order #: 450841

Project ID: Chevron Grayburg 6-inch Historical

Lab Batch ID: 898995

QC- Sample ID: 450850-003 S

Batch #: 1 Matrix: Water

Date Analyzed: 10/17/2012

Date Prepared: 10/17/2012

Analyst: KEB

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	0.0123	0.100	0.113	101	0.100	0.106	94	6	70-125	25	
Toluene	<0.00200	0.100	0.106	106	0.100	0.101	101	5	70-125	25	
Ethylbenzene	0.00107	0.100	0.103	102	0.100	0.0966	96	6	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.212	106	0.200	0.200	100	6	70-131	25	
o-Xylene	<0.00100	0.100	0.109	109	0.100	0.102	102	7	71-133	25	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit

Xenco Laboratories

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

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

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

Project Manager: Ben Arguljo

Project Name: Chevron Grayburg 6-Inch Sec. 6

Company Name Basin Environmental Service Technologies, LLC

Project #: Chevron Grayburg 6-Inch Historical

Company Address: P.O. Box 301

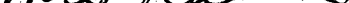
Project Loc: Lea County, NM

City/State/Zip: Lovington, NM 88260

PO #: PAA-J. Henry

Telephone No: (575)396-2378 Fax No: (575) 396-1429

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Sampler Signature:  e-mail: **blarquijio@basinenv.com**

e-mail: bjarquijo@basinenv.com

[illegible]



XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 10/16/2012 02:50:00 PM

Work Order #: 450841

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)?	9.7
#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: 10/16/2012 _____

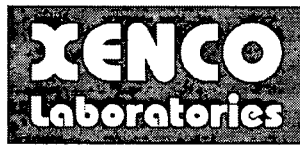
Checklist reviewed by: _____

Date: 10/16/2012 _____

Analytical Report 445210
for
PLAINS ALL AMERICAN EH&S

Project Manager: Jason Henry
Chevron Grayburg 6-Inch Sec. 6
Chevron Grayburg 6-Inch Historical
17-JUL-12

Collected By: Client



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



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)



17-JUL-12

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

Reference: XENCO Report No: **445210**
Chevron Grayburg 6-Inch Sec. 6
Project Address: Lea County, NM

Jason Henry:

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 445210. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 445210 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

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

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Sample Cross Reference 445210



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec. 6

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1	W	07-03-12 14:20		445210-001
MW-2	W	07-03-12 13:30		445210-002
MW-3	W	07-03-12 15:10		445210-003
MW-4	W	07-03-12 12:30		445210-004



CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S

Project Name: Chevron Grayburg 6-Inch Sec. 6



Project ID: Chevron Grayburg 6-Inch
Work Order Number: 445210

Report Date: 17-JUL-12
Date Received: 07/06/2012

Sample receipt non conformances and comments:

Nitrate by E300 and Ortho Phosphate by E365.1 were received outside hold times.

Sample receipt non conformances and comments per sample:

None

Analytical non nonformances and comments:

Batch: LBA-891871 SVOAs by SW-846 8270C
SW8270C

Batch 891871, Hexachlorocyclopentadiene recovered below QC limits in the Blank Spike and Duplicate.

Samples affected are: 445210-002, -003, -004.

SW8270C

Batch 891871, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, Hexachlorocyclopentadiene recovered below QC limits in the Matrix Spike.

Samples affected are: 445210-002, -003, -004.

The Laboratory Control Sample for 1,3-Dichlorobenzene, 1,2-Dichlorobenzene is within laboratory Control Limits

SW8270C

Batch 891871, 2-Fluorophenol recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis

Samples affected are: 445210-002, 445210-003.

Phenol-d6 recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis

Samples affected are: 445210-003.

Terphenyl-D14 recovered above QC limits Data confirmed by re-analysis. Samples affected are: 624243-1-BLK.

Surrogate failures confirmed by re-analysis.

[Compound(s)] reported below QC limits for Blank Spike and Blank spike Duplicate. Batch passes in accordance to Marginal Exceedence (NELAC Quality Systems, Appendix D). Daily CCV and ICV are within QC Limits. Sample data reported are valid.



CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S

Project Name: Chevron Grayburg 6-Inch Sec. 6



Project ID: Chevron Grayburg 6-Inch
Work Order Number: 445210

Report Date: 17-JUL-12
Date Received: 07/06/2012

Batch: LBA-891936 VOAs by SW-846 8260B
SW8260B

Batch 891936, 1,1-Dichloroethene, Methyl Chloride, Trichlorofluoromethane RPD was outside QC limits.
Samples affected are: 445210-001, -002, -003, -004

SW8260B

Batch 891936, MTBE, Naphthalene recovered above QC limits in the laboratory control sample.
Samples affected are: 445210-001, -002, -003, -004.

SW8260B

Batch 891936, 1,2-Dichloroethane, Chloroform, Methylene Chloride, Trichlorofluoromethane recovered above QC limits in the Matrix Spike. 1,1,2,2-Tetrachloroethane recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. 1,2,3-Trichloropropane, Naphthalene recovered above QC limits in the Matrix Spike Duplicate.
Samples affected are: 445210-001, -002, -003, -004.
The Laboratory Control Sample for Methylene Chloride, 1,2-Dichloroethane, 1,2,3-Trichloropropane, Chloroform, Trichlorofluoromethane, 1,1,2,2-Tetrachloroethane is within laboratory Control Limits

Batch: LBA-892068 Inductively Coupled Plasma Atomic Emission Spectroscopy Mass
SW6020 Spectrometry

Batch 892068, Manganese recovered below QC limits in the Matrix Spike.
Samples affected are: 445210-001, -002, -003, -004.
The Laboratory Control Sample for Manganese is within laboratory Control Limits

Batch: LBA-892285 Metals by ICP
SW6010B

Batch 892285, Calcium, Sodium recovered below QC limits in the Matrix Spike.
Samples affected are: 445210-001, -002, -003, -004.
The Laboratory Control Sample for Calcium, Sodium is within laboratory Control Limits



Hits Summary

445210



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec. 6

Sample Id: MW-1	Matrix: Water	% Moisture:
Lab Sample Id: 445210-001	Date Collected: Jul-03-12 14:20	
	Date Received: Jul-06-12 09:35	

Analytical Method: Alkalinity by SM2320B

Seq Number: 891828

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)		239	mg/L	07/09/12 16:15		1
Alkalinity, Bicarbonate (as CaCO ₃)	ALKCACO3	239	mg/L	07/09/12 16:15		1

Analytical Method: Inductively Coupled Plasma Atomic Emission Spectroscopy Ma

Prep Method: SW3010A

Seq Number: 892068

Date Prep: Jul-11-12 11:05

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Arsenic	7440-38-2	0.0232	mg/L	07/12/12 03:05		1
Barium	7440-39-3	2.60	mg/L	07/12/12 03:05		1
Boron	7440-42-8	0.0839	mg/L	07/12/12 03:05		1
Cadmium	7440-43-9	0.00208	mg/L	07/12/12 03:05		1
Chromium	7440-47-3	0.0781	mg/L	07/12/12 03:05		1
Cobalt	7440-48-4	0.0720	mg/L	07/12/12 03:05		1
Copper	7440-50-8	0.0280	mg/L	07/12/12 03:05		1
Lead	7439-92-1	0.165	mg/L	07/12/12 03:05		1
Manganese	7439-96-5	4.78	mg/L	07/12/12 03:05		1
Molybdenum	7439-98-7	0.00249	mg/L	07/12/12 03:05		1
Nickel	7440-02-0	0.0607	mg/L	07/12/12 03:05		1
Selenium	7782-49-2	0.0127	mg/L	07/12/12 03:05		1
Zinc	7440-66-6	0.261	mg/L	07/12/12 03:05		1

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Seq Number: 892048

Date Prep: Jul-11-12 18:29

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	340	mg/L	07/11/12 18:29		1
Fluoride	16984-48-8	0.513	mg/L	07/11/12 18:29		1
Nitrate as N	14797-55-8	0.246	mg/L	07/11/12 18:29	K	1
Sulfate	14808-79-8	80.0	mg/L	07/11/12 18:29		1

Analytical Method: Metals by ICP

Prep Method: SW3010A

Seq Number: 892285

Date Prep: Jul-11-12 11:00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Aluminum	7429-90-5	165	mg/L	07/12/12 01:31		1
Calcium	7440-70-2	1500	mg/L	07/12/12 01:31		1
Iron	7439-89-6	142	mg/L	07/12/12 01:31		1
Magnesium	7439-95-4	109	mg/L	07/12/12 01:31		1
Potassium	7440-09-7	31.4	mg/L	07/12/12 01:31		1
Sodium	7440-23-5	139	mg/L	07/12/12 01:31		1



Hits Summary

445210



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec. 6

Sample Id: MW-1 Lab Sample Id: 445210-001		Matrix: Water Date Collected: Jul-03-12 14:20 Date Received: Jul-06-12 09:35		% Moisture:		
Analytical Method: Ortho-Phosphorus by EPA 365.1 Seq Number: 892086				Prep Method: E365.1_P Date Prep: Jul-11-12 18:55		
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Ortho-Phosphate as P	14265-44-2	0.0202	mg/L	07/11/12 18:59	K	1
Analytical Method: SVOAs by SW-846 8270C Seq Number: 891871				Prep Method: SW3510C Date Prep: Jul-09-12 10:06		
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
2-methylphenol	95-48-7	0.0163	mg/L	07/12/12 16:51		1
3&4-Methylphenol	15831-10-4	0.00982	mg/L	07/12/12 16:51		1
Naphthalene	91-20-3	0.00672	mg/L	07/12/12 16:51		1
Phenol	108-95-2	0.0267	mg/L	07/12/12 16:51		1
Analytical Method: VOAs by SW-846 8260B Seq Number: 891936				Prep Method: SW5030B Date Prep: Jul-10-12 12:14		
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Sec-Butylbenzene	135-98-8	0.0132	mg/L	07/10/12 16:51		1
p-Cymene (p-Isopropyltoluene)	99-87-6	0.0124	mg/L	07/10/12 16:51		1
Isopropylbenzene	98-82-8	0.00678	mg/L	07/10/12 16:51		1
Naphthalene	91-20-3	0.0744	mg/L	07/10/12 16:51		1
1,2,4-Trimethylbenzene	95-63-6	0.0725	mg/L	07/10/12 16:51		1
1,3,5-Trimethylbenzene	108-67-8	0.0650	mg/L	07/10/12 16:51		1
Analytical Method: VOAs by SW-846 8260B Seq Number: 891936				Prep Method: SW5030B Date Prep: Jul-10-12 12:18		
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.362	mg/L	07/10/12 19:02	D	10
Toluene	108-88-3	0.132	mg/L	07/10/12 19:02	D	10
o-Xylene	95-47-6	0.465	mg/L	07/10/12 19:02	D	10
m,p-Xylenes	179601-23-1	0.404	mg/L	07/10/12 19:02	D	10



Hits Summary

445210



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec. 6

Sample Id: MW-2		Matrix: Water		% Moisture:		
Lab Sample Id: 445210-002		Date Collected: Jul-03-12 13:30		Date Received: Jul-06-12 09:35		
Analytical Method: Alkalinity by SM2320B						
Seq Number: 891828						
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO3)		323	mg/L	07/09/12 16:22		1
Alkalinity, Bicarbonate (as CaCO3)	ALKCACO3	323	mg/L	07/09/12 16:22		1
Analytical Method: Inductively Coupled Plasma Atomic Emission Spectroscopy Ma				Prep Method: SW3010A		
Seq Number: 892068				Date Prep: Jul-11-12 11:05		
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Arsenic	7440-38-2	0.00722	mg/L	07/12/12 03:13		1
Barium	7440-39-3	1.82	mg/L	07/12/12 03:13		1
Boron	7440-42-8	0.0980	mg/L	07/12/12 03:13		1
Chromium	7440-47-3	0.0211	mg/L	07/12/12 03:13		1
Cobalt	7440-48-4	0.0168	mg/L	07/12/12 03:13		1
Copper	7440-50-8	0.00811	mg/L	07/12/12 03:13		1
Lead	7439-92-1	0.0250	mg/L	07/12/12 03:13		1
Manganese	7439-96-5	0.440	mg/L	07/12/12 03:13		1
Nickel	7440-02-0	0.0166	mg/L	07/12/12 03:13		1
Selenium	7782-49-2	0.00560	mg/L	07/12/12 03:13		1
Zinc	7440-66-6	0.0358	mg/L	07/12/12 03:13		1
Analytical Method: Inorganic Anions by EPA 300/300.1				Prep Method: E300P		
Seq Number: 892048				Date Prep: Jul-11-12 18:45		
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	63.1	mg/L	07/11/12 18:45		1
Fluoride	16984-48-8	0.436	mg/L	07/11/12 18:45		1
Nitrate as N	14797-55-8	2.21	mg/L	07/11/12 18:45	K	1
Sulfate	14808-79-8	36.3	mg/L	07/11/12 18:45		1
Analytical Method: Metals by ICP				Prep Method: SW3010A		
Seq Number: 892285				Date Prep: Jul-11-12 11:00		
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Aluminum	7429-90-5	24.6	mg/L	07/12/12 01:37		1
Calcium	7440-70-2	253	mg/L	07/12/12 01:37		1
Iron	7439-89-6	21.2	mg/L	07/12/12 01:37		1
Magnesium	7439-95-4	30.4	mg/L	07/12/12 01:37		1
Potassium	7440-09-7	7.52	mg/L	07/12/12 01:37		1
Sodium	7440-23-5	30.1	mg/L	07/12/12 01:37		1



Hits Summary

445210



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec. 6

Sample Id: MW-2		Matrix: Water		% Moisture:		
Lab Sample Id: 445210-002		Date Collected: Jul-03-12 13:30				
		Date Received: Jul-06-12 09:35				
Analytical Method: Ortho-Phosphorus by EPA 365.1				Prep Method: E365.1_P		
Seq Number: 892086				Date Prep: Jul-11-12 18:55		
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Ortho-Phosphate as P	14265-44-2	0.0244	mg/L	07/11/12 19:01	K	I



Hits Summary

445210



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec. 6

Sample Id: MW-3	Matrix: Water	% Moisture:
Lab Sample Id: 445210-003	Date Collected: Jul-03-12 15:10	
	Date Received: Jul-06-12 09:35	

Analytical Method: Alkalinity by SM2320B

Seq Number: 891828

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)		299	mg/L	07/09/12 16:28		1
Alkalinity, Bicarbonate (as CaCO ₃)	ALKCACO3	299	mg/L	07/09/12 16:28		1

Analytical Method: Inductively Coupled Plasma Atomic Emission Spectroscopy Ma

Prep Method: SW3010A

Seq Number: 892068

Date Prep: Jul-11-12 11:05

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Arsenic	7440-38-2	0.0112	mg/L	07/12/12 03:38		1
Barium	7440-39-3	3.88	mg/L	07/12/12 03:38		1
Boron	7440-42-8	0.0778	mg/L	07/12/12 03:38		1
Chromium	7440-47-3	0.0253	mg/L	07/12/12 03:38		1
Cobalt	7440-48-4	0.0246	mg/L	07/12/12 03:38		1
Copper	7440-50-8	0.0106	mg/L	07/12/12 03:38		1
Lead	7439-92-1	0.0550	mg/L	07/12/12 03:38		1
Manganese	7439-96-5	2.37	mg/L	07/12/12 03:38		1
Nickel	7440-02-0	0.0267	mg/L	07/12/12 03:38		1
Selenium	7782-49-2	0.00406	mg/L	07/12/12 03:38		1
Zinc	7440-66-6	0.0752	mg/L	07/12/12 03:38		1

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Seq Number: 892048

Date Prep: Jul-11-12 19:01

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	92.7	mg/L	07/11/12 19:01		1
Fluoride	16984-48-8	0.902	mg/L	07/11/12 19:01		1
Nitrate as N	14797-55-8	1.97	mg/L	07/11/12 19:01	K	1
Sulfate	14808-79-8	37.0	mg/L	07/11/12 19:01		1

Analytical Method: Metals by ICP

Prep Method: SW3010A

Seq Number: 892285

Date Prep: Jul-11-12 11:00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Aluminum	7429-90-5	38.1	mg/L	07/12/12 01:42		1
Calcium	7440-70-2	384	mg/L	07/12/12 01:42		1
Iron	7439-89-6	31.9	mg/L	07/12/12 01:42		1
Magnesium	7439-95-4	27.6	mg/L	07/12/12 01:42		1
Potassium	7440-09-7	9.18	mg/L	07/12/12 01:42		1
Sodium	7440-23-5	110	mg/L	07/12/12 01:42		1



Hits Summary

445210



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec. 6

Sample Id: MW-3	Matrix: Water	% Moisture:
Lab Sample Id: 445210-003	Date Collected: Jul-03-12 15:10	
	Date Received: Jul-06-12 09:35	

Analytical Method: VOAs by SW-846 8260B	Prep Method: SW5030B
Seq Number: 891936	Date Prep: Jul-10-12 12:16

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Isopropylbenzene	98-82-8	0.00805	mg/L	07/10/12 17:34		1
n-Propylbenzene	103-65-1	0.00844	mg/L	07/10/12 17:34		1
1,2,4-Trimethylbenzene	95-63-6	0.00896	mg/L	07/10/12 17:34		1
o-Xylene	95-47-6	0.0672	mg/L	07/10/12 17:34		1
m,p-Xylenes	179601-23-1	0.130	mg/L	07/10/12 17:34		1

Analytical Method: VOAs by SW-846 8260B	Prep Method: SW5030B
Seq Number: 891936	Date Prep: Jul-10-12 12:17

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.667	mg/L	07/10/12 17:57	D	10
Ethylbenzene	100-41-4	0.140	mg/L	07/10/12 17:57	D	10
Toluene	108-88-3	0.556	mg/L	07/10/12 17:57	D	10



Hits Summary

445210



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec. 6

Sample Id: MW-4	Matrix: Water	% Moisture:
Lab Sample Id: 445210-004	Date Collected: Jul-03-12 12:30	
	Date Received: Jul-06-12 09:35	

Analytical Method: Alkalinity by SM2320B

Seq Number: 891828

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)		193	mg/L	07/09/12 16:35		1
Alkalinity, Bicarbonate (as CaCO ₃)	ALKCACO3	193	mg/L	07/09/12 16:35		1

Analytical Method: Inductively Coupled Plasma Atomic Emission Spectroscopy Ma

Prep Method: SW3010A

Seq Number: 892068

Date Prep: Jul-11-12 11:05

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Arsenic	7440-38-2	0.0103	mg/L	07/12/12 03:47		1
Barium	7440-39-3	0.905	mg/L	07/12/12 03:47		1
Boron	7440-42-8	0.0618	mg/L	07/12/12 03:47		1
Chromium	7440-47-3	0.0293	mg/L	07/12/12 03:47		1
Cobalt	7440-48-4	0.0173	mg/L	07/12/12 03:47		1
Copper	7440-50-8	0.00906	mg/L	07/12/12 03:47		1
Lead	7439-92-1	0.0338	mg/L	07/12/12 03:47		1
Manganese	7439-96-5	1.33	mg/L	07/12/12 03:47		1
Molybdenum	7439-98-7	0.00407	mg/L	07/12/12 03:47		1
Nickel	7440-02-0	0.0235	mg/L	07/12/12 03:47		1
Selenium	7782-49-2	0.00396	mg/L	07/12/12 03:47		1
Zinc	7440-66-6	0.0738	mg/L	07/12/12 03:47		1

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Seq Number: 892048

Date Prep: Jul-11-12 19:17

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	188	mg/L	07/11/12 19:17		1
Fluoride	16984-48-8	0.719	mg/L	07/11/12 19:17		1
Nitrate as N	14797-55-8	3.52	mg/L	07/11/12 19:17	K	1
Sulfate	14808-79-8	39.9	mg/L	07/11/12 19:17		1

Analytical Method: Metals by ICP

Prep Method: SW3010A

Seq Number: 892285

Date Prep: Jul-11-12 11:00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Aluminum	7429-90-5	30.4	mg/L	07/12/12 01:59		1
Calcium	7440-70-2	457	mg/L	07/12/12 01:59		1
Iron	7439-89-6	25.0	mg/L	07/12/12 01:59		1
Magnesium	7439-95-4	28.3	mg/L	07/12/12 01:59		1
Potassium	7440-09-7	8.17	mg/L	07/12/12 01:59		1
Sodium	7440-23-5	67.8	mg/L	07/12/12 01:59		1



Hits Summary

445210



PLAINS ALL AMERICAN EH&S, Midland, TX

Chevron Grayburg 6-Inch Sec. 6

Sample Id: MW-4		Matrix: Water		% Moisture:		
Lab Sample Id: 445210-004		Date Collected: Jul-03-12 12:30				
		Date Received: Jul-06-12 09:35				
Analytical Method: Ortho-Phosphorus by EPA 365.1				Prep Method: E365.1_P		
Seq Number: 892086				Date Prep: Jul-11-12 18:55		
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Ortho-Phosphate as P	14265-44-2	0.501	mg/L	07/11/12 19:04	K	1



Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: Chevron Grayburg 6-Inch Historical

Contact: Jason Henry

Project Location: Lea County, NM

Project Name: Chevron Grayburg 6-Inch Sec. 6

Date Received in Lab: Fri Jul-06-12 09:35 am

Report Date: 17-JUL-12

Project Manager: Nicholas Straccione

Analysis Requested	Lab Id:	445210-001	445210-002	445210-003	445210-004		
	Field Id:	MW-1	MW-2	MW-3	MW-4		
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER		
	Sampled:	Jul-03-12 14:20	Jul-03-12 13:30	Jul-03-12 15:10	Jul-03-12 12:30		
Alkalinity by SM2320B SUB: TX104704215	Extracted:	Jul-09-12 16:15	Jul-09-12 16:22	Jul-09-12 16:28	Jul-09-12 16:35		
	Analyzed:						
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Alkalinity, Total (as CaCO3)		239 4.00	323 4.00	299 4.00	193 4.00		
Alkalinity, Bicarbonate (as CaCO3)		239 4.00	323 4.00	299 4.00	193 4.00		
Alkalinity, Carbonate (as CaCO3)		ND 4.00	ND 4.00	ND 4.00	ND 4.00		
Inductively Coupled Plasma Atomic Emission Spectroscopy Mass Spectrometry SUB: TX104704215	Extracted:	Jul-11-12 11:05	Jul-11-12 11:05	Jul-11-12 11:05	Jul-11-12 11:05		
	Analyzed:	Jul-12-12 03:05	Jul-12-12 03:13	Jul-12-12 03:38	Jul-12-12 03:47		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Arsenic		0.0232 0.00400	0.00722 0.00400	0.0112 0.00400	0.0103 0.00400		
Barium		2.60 0.00400	1.82 0.00400	3.88 0.00400	0.905 0.00400		
Boron		0.0839 0.0100	0.0980 0.0100	0.0778 0.0100	0.0618 0.0100		
Cadmium		0.00208 0.00100	ND 0.00100	ND 0.00100	ND 0.00100		
Chromium		0.0781 0.00400	0.0211 0.00400	0.0253 0.00400	0.0293 0.00400		
Cobalt		0.0720 0.00500	0.0168 0.00500	0.0246 0.00500	0.0173 0.00500		
Copper		0.0280 0.00400	0.00811 0.00400	0.0106 0.00400	0.00906 0.00400		
Lead		0.165 0.00200	0.0250 0.00200	0.0550 0.00200	0.0338 0.00200		
Manganese		4.78 0.00200	0.440 0.00200	2.37 0.00200	1.33 0.00200		
Molybdenum		0.00249 0.00200	ND 0.00200	ND 0.00200	0.00407 0.00200		
Nickel		0.0607 0.00200	0.0166 0.00200	0.0267 0.00200	0.0235 0.00200		
Selenium		0.0127 0.00200	0.00560 0.00200	0.00406 0.00200	0.00396 0.00200		
Silver		ND 0.00200	ND 0.00200	ND 0.00200	ND 0.00200		
Zinc		0.261 0.00400	0.0358 0.00400	0.0752 0.00400	0.0738 0.00400		

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Nicholas Straccione
Project Manager



Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: Chevron Grayburg 6-Inch Historical

Contact: Jason Henry

Project Location: Lea County, NM

Project Name: Chevron Grayburg 6-Inch Sec. 6

Date Received in Lab: Fri Jul-06-12 09:35 am

Report Date: 17-JUL-12

Project Manager: Nicholas Straccione

<i>Analysis Requested</i>	<i>Lab Id:</i>	445210-001	445210-002	445210-003	445210-004		
	<i>Field Id:</i>	MW-1	MW-2	MW-3	MW-4		
	<i>Depth:</i>						
	<i>Matrix:</i>	WATER	WATER	WATER	WATER		
	<i>Sampled:</i>	Jul-03-12 14:20	Jul-03-12 13:30	Jul-03-12 15:10	Jul-03-12 12:30		
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	<i>Extracted:</i>	Jul-11-12 18:29	Jul-11-12 18:45	Jul-11-12 19:01	Jul-11-12 19:17		
	<i>Analyzed:</i>	Jul-11-12 18:29	Jul-11-12 18:45	Jul-11-12 19:01	Jul-11-12 19:17		
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Chloride		340 0.500	63.1 0.500	92.7 0.500	188 0.500		
Fluoride		0.513 0.200	0.436 0.200	0.902 0.200	0.719 0.200		
Nitrate as N		0.246 K 0.0500	2.21 K 0.0500	1.97 K 0.0500	3.52 K 0.0500		
Sulfate		80.0 0.500	36.3 0.500	37.0 0.500	39.9 0.500		
Mercury by SW-846 7470A SUB: TX104704215	<i>Extracted:</i>	Jul-09-12 11:00	Jul-09-12 11:00	Jul-09-12 11:00	Jul-09-12 11:00		
	<i>Analyzed:</i>	Jul-09-12 17:35	Jul-09-12 17:39	Jul-09-12 17:42	Jul-09-12 17:46		
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Mercury		ND 0.000200	ND 0.000200	ND 0.000200	ND 0.000200		
Metals by ICP SUB: TX104704215	<i>Extracted:</i>	Jul-11-12 11:00	Jul-11-12 11:00	Jul-11-12 11:00	Jul-11-12 11:00		
	<i>Analyzed:</i>	Jul-12-12 01:31	Jul-12-12 01:37	Jul-12-12 01:42	Jul-12-12 01:59		
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Aluminum		165 0.200	24.6 0.200	38.1 0.200	30.4 0.200		
Calcium		1500 0.200	253 0.200	384 0.200	457 0.200		
Iron		142 0.200	21.2 0.200	31.9 0.200	25.0 0.200		
Magnesium		109 0.200	30.4 0.200	27.6 0.200	28.3 0.200		
Potassium		31.4 0.500	7.52 0.500	9.18 0.500	8.17 0.500		
Sodium		139 0.500	30.1 0.500	110 0.500	67.8 0.500		
Ortho-Phosphorus by EPA 365.1 SUB: TX104704215	<i>Extracted:</i>	Jul-11-12 18:55	Jul-11-12 18:55	Jul-11-12 18:55	Jul-11-12 18:55		
	<i>Analyzed:</i>	Jul-11-12 18:59	Jul-11-12 19:01	Jul-11-12 19:02	Jul-11-12 19:04		
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Ortho-Phosphate as P		0.0202 K 0.0200	0.0244 K 0.0200	ND 0.0200	0.501 K 0.0200		

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Nicholas Straccione
Project Manager



Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: Chevron Grayburg 6-Inch Historical

Contact: Jason Henry

Date Received in Lab: Fri Jul-06-12 09:35 am

Report Date: 17-JUL-12

Project Location: Lea County, NM

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project Manager: Nicholas Straccione

Analysis Requested	Lab Id:	445210-001	445210-002	445210-003	445210-004		
	Field Id:	MW-1	MW-2	MW-3	MW-4		
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER		
	Sampled:	Jul-03-12 14:20	Jul-03-12 13:30	Jul-03-12 15:10	Jul-03-12 12:30		
SVOAs by SW-846 8270C SUB: TX104704215	Extracted:	Jul-09-12 10:06	Jul-09-12 10:09	Jul-09-12 10:12	Jul-09-12 10:15		
	Analyzed:	Jul-12-12 16:51	Jul-10-12 16:56	Jul-10-12 17:20	Jul-10-12 17:43		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
1,2,4-Trichlorobenzene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
1,2-Dichlorobenzene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
1,3-Dichlorobenzene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
1,4-Dichlorobenzene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2,4,5-Trichlorophenol		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2,4,6-Trichlorophenol		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2,4-Dichlorophenol		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2,4-Dimethylphenol		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2,4-Dinitrophenol		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
2,4-Dinitrotoluene		ND 0.00263	ND 0.00263	ND 0.00255	ND 0.00255		
2,6-Dinitrotoluene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2-Chloronaphthalene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2-Chlorophenol		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2-Methylnaphthalene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2-methylphenol		0.0163 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
2-Nitroaniline		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
2-Nitrophenol		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
3&4-Methylphenol		0.00982 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
3,3-Dichlorobenzidine		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
3-Nitroaniline		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
4,6-dinitro-2-methyl phenol		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
4-Bromophenyl-phenylether		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
4-chloro-3-methylphenol		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
4-Chloroaniline		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
4-Chlorophenyl Phenyl Ether		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		

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Nicholas Straccione
Project Manager



Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: Chevron Grayburg 6-Inch Historical

Contact: Jason Henry

Project Location: Lea County, NM

Project Name: Chevron Grayburg 6-Inch Sec. 6

Date Received in Lab: Fri Jul-06-12 09:35 am

Report Date: 17-JUL-12

Project Manager: Nicholas Straccione

Analysis Requested	Lab Id:	445210-001	445210-002	445210-003	445210-004		
	Field Id:	MW-1	MW-2	MW-3	MW-4		
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER		
	Sampled:	Jul-03-12 14:20	Jul-03-12 13:30	Jul-03-12 15:10	Jul-03-12 12:30		
SVOAs by SW-846 8270C SUB: TX104704215	Extracted:	Jul-09-12 10:06	Jul-09-12 10:09	Jul-09-12 10:12	Jul-09-12 10:15		
	Analyzed:	Jul-12-12 16:51	Jul-10-12 16:56	Jul-10-12 17:20	Jul-10-12 17:43		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
4-Nitroaniline		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
4-Nitrophenol		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
Acenaphthene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Acenaphthylene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Aniline (Phenylamine, Aminobenzene)		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
Anthracene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Benzo(a)anthracene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Benzo(a)pyrene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Benzo(b)fluoranthene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Benzo(g,h,i)perylene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Benzo(k)fluoranthene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Benzoic Acid		ND 0.0316	ND 0.0316	ND 0.0306	ND 0.0306		
Benzyl Butyl Phthalate		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
bis(2-chloroethoxy) methane		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
bis(2-chloroethyl) ether		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
bis(2-chloroisopropyl) ether		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
bis(2-ethylhexyl) phthalate		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Chrysene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Dibenz(a,h)anthracene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Dibenzofuran		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Diethylphthalate		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Dimethyl Phthalate		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Di-n-butylphthalate		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
di-n-Octyl Phthalate		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Fluoranthene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		

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Nicholas Straccione
Project Manager



Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: Chevron Grayburg 6-Inch Historical

Contact: Jason Henry

Project Location: Lea County, NM

Project Name: Chevron Grayburg 6-Inch Sec. 6

Date Received in Lab: Fri Jul-06-12 09:35 am

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Project Manager: Nicholas Straccione

Analysis Requested	Lab Id:	445210-001	445210-002	445210-003	445210-004		
	Field Id:	MW-1	MW-2	MW-3	MW-4		
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER		
	Sampled:	Jul-03-12 14:20	Jul-03-12 13:30	Jul-03-12 15:10	Jul-03-12 12:30		
SVOAs by SW-846 8270C SUB: TX104704215	Extracted:	Jul-09-12 10:06	Jul-09-12 10:09	Jul-09-12 10:12	Jul-09-12 10:15		
	Analyzed:	Jul-12-12 16:51	Jul-10-12 16:56	Jul-10-12 17:20	Jul-10-12 17:43		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Fluorene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Hexachlorobenzene		ND 0.00263	ND 0.00263	ND 0.00255	ND 0.00255		
Hexachlorobutadiene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Hexachlorocyclopentadiene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Hexachloroethane		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Indeno(1,2,3-c,d)Pyrene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Isophorone		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Naphthalene		0.00672 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Nitrobenzene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
N-Nitrosodi-n-Propylamine		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
N-Nitrosodiphenylamine		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Pentachlorophenol		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
Phenanthrene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Phenol		0.0267 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		
Pyrene		ND 0.00526	ND 0.00526	ND 0.00510	ND 0.00510		
Pyridine		ND 0.0105	ND 0.0105	ND 0.0102	ND 0.0102		

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Nicholas Straccione
Project Manager



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PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: Chevron Grayburg 6-Inch Historical

Project Name: Chevron Grayburg 6-Inch Sec. 6

Contact: Jason Henry

Date Received in Lab: Fri Jul-06-12 09:35 am

Project Location: Lea County, NM

Report Date: 17-JUL-12

Project Manager: Nicholas Straccione

Analysis Requested	Lab Id:	445210-001	445210-002	445210-003	445210-004		
	Field Id:	MW-1	MW-2	MW-3	MW-4		
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER		
	Sampled:	Jul-03-12 14:20	Jul-03-12 13:30	Jul-03-12 15:10	Jul-03-12 12:30		
VOAs by SW-846 8260B SUB: TX104704215	Extracted:	Jul-10-12 12:14	Jul-10-12 17:40	Jul-10-12 12:16	Jul-10-12 12:17		
	Analyzed:	Jul-10-12 16:51	Jul-10-12 20:28	Jul-10-12 17:34	Jul-10-12 18:19		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Benzene		0.362 D 0.0500	ND 0.00500	0.667 D 0.0500	ND 0.00500		
Bromobenzene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Bromochloromethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Bromodichloromethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Bromoform		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Methyl bromide		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
MTBE		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
n-Butylbenzene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Sec-Butylbenzene		0.0132 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
tert-Butylbenzene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Carbon Tetrachloride		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Chlorobenzene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Chloroethane		ND 0.0100	ND 0.0100	ND 0.0100	ND 0.0100		
Chloroform		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Methyl Chloride		ND 0.0100	ND 0.0100	ND 0.0100	ND 0.0100		
2-Chlorotoluene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
4-Chlorotoluene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
p-Cymene (p-Isopropyltoluene)		0.0124 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Dibromochloromethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,2-Dibromo-3-Chloropropane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,2-Dibromoethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Methylene bromide		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,2-Dichlorobenzene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,3-Dichlorobenzene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,4-Dichlorobenzene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		

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Nicholas Straccione
Project Manager



Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: Chevron Grayburg 6-Inch Historical

Project Name: Chevron Grayburg 6-Inch Sec. 6

Date Received in Lab: Fri Jul-06-12 09:35 am

Contact: Jason Henry

Report Date: 17-JUL-12

Project Location: Lea County, NM

Project Manager: Nicholas Straccione

Analysis Requested	Lab Id:	445210-001	445210-002	445210-003	445210-004		
	Field Id:	MW-1	MW-2	MW-3	MW-4		
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER		
	Sampled:	Jul-03-12 14:20	Jul-03-12 13:30	Jul-03-12 15:10	Jul-03-12 12:30		
VOAs by SW-846 8260B SUB: TX104704215	Extracted:	Jul-10-12 12:14	Jul-10-12 17:40	Jul-10-12 12:16	Jul-10-12 12:17		
	Analyzed:	Jul-10-12 16:51	Jul-10-12 20:28	Jul-10-12 17:34	Jul-10-12 18:19		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Dichlorodifluoromethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,1-Dichloroethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,2-Dichloroethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,1-Dichloroethene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
cis-1,2-Dichloroethylene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
trans-1,2-dichloroethylene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,2-Dichloropropane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,3-Dichloropropane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
2,2-Dichloropropane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,1-Dichloropropene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
cis-1,3-Dichloropropene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
trans-1,3-dichloropropene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Ethylbenzene		ND 0.00500	ND 0.00500	0.140 D 0.0500	ND 0.00500		
Hexachlorobutadiene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Isopropylbenzene		0.00678 0.00500	ND 0.00500	0.00805 0.00500	ND 0.00500		
Methylene Chloride		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Naphthalene		0.0744 0.0100	ND 0.0100	ND 0.0100	ND 0.0100		
n-Propylbenzene		ND 0.00500	ND 0.00500	0.00844 0.00500	ND 0.00500		
Styrene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,1,1,2-Tetrachloroethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,1,2,2-Tetrachloroethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Tetrachloroethylene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Toluene		0.132 D 0.0500	ND 0.00500	0.556 D 0.0500	ND 0.00500		
1,2,3-Trichlorobenzene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,2,4-Trichlorobenzene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		

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Nicholas Straccione
Project Manager



Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: Chevron Grayburg 6-Inch Historical

Project Name: Chevron Grayburg 6-Inch Sec. 6

Contact: Jason Henry

Date Received in Lab: Fri Jul-06-12 09:35 am

Project Location: Lea County, NM

Report Date: 17-JUL-12

Project Manager: Nicholas Straccione

<i>Analysis Requested</i>	<i>Lab Id:</i>	445210-001	445210-002	445210-003	445210-004		
	<i>Field Id:</i>	MW-1	MW-2	MW-3	MW-4		
	<i>Depth:</i>						
	<i>Matrix:</i>	WATER	WATER	WATER	WATER		
	<i>Sampled:</i>	Jul-03-12 14:20	Jul-03-12 13:30	Jul-03-12 15:10	Jul-03-12 12:30		
VOAs by SW-846 8260B SUB: TX104704215	<i>Extracted:</i>	Jul-10-12 12:14	Jul-10-12 17:40	Jul-10-12 12:16	Jul-10-12 12:17		
	<i>Analyzed:</i>	Jul-10-12 16:51	Jul-10-12 20:28	Jul-10-12 17:34	Jul-10-12 18:19		
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
1,1,1-Trichloroethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,1,2-Trichloroethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Trichloroethylene		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
Trichlorofluoromethane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,2,3-Trichloropropane		ND 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
1,2,4-Trimethylbenzene		0.0725 0.00500	ND 0.00500	0.00896 0.00500	ND 0.00500		
1,3,5-Trimethylbenzene		0.0650 0.00500	ND 0.00500	ND 0.00500	ND 0.00500		
o-Xylene		0.465 D 0.0500	ND 0.00500	0.0672 0.00500	ND 0.00500		
m,p-Xylenes		0.404 D 0.100	ND 0.0100	0.130 0.0100	ND 0.0100		
Vinyl Chloride		ND 0.00200	ND 0.00200	ND 0.00200	ND 0.00200		

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Nicholas Straccione
Project Manager



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

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(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



Form 2 - Surrogate Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Orders : 445210,

Lab Batch #: 891936

Sample: 445210-001 / SMP

Project ID: Chevron Grayburg 6-Inch Historical

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 16:51

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	0.0502	0.0500	100	74-124	
Dibromofluoromethane	0.0544	0.0500	109	75-131	
1,2-Dichloroethane-D4	0.0586	0.0500	117	63-144	
Toluene-D8	0.0506	0.0500	101	80-117	

Lab Batch #: 891871

Sample: 445210-002 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 16:56

SURROGATE RECOVERY STUDY

SVOAs by SW-846 8270C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorophenol	13.9	50.0	28	30-100	**
Phenol-d6	8.31	50.0	17	15-94	
Nitrobenzene-d5	31.2	50.0	62	46-111	
2-Fluorobiphenyl	32.4	50.0	65	44-117	
2,4,6-Tribromophenol	33.2	50.0	66	48-117	
Terphenyl-D14	54.7	50.0	109	46-126	

Lab Batch #: 891871

Sample: 445210-003 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 17:20

SURROGATE RECOVERY STUDY

SVOAs by SW-846 8270C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorophenol	10.8	50.0	22	30-100	**
Phenol-d6	6.79	50.0	14	15-94	**
Nitrobenzene-d5	28.6	50.0	57	46-111	
2-Fluorobiphenyl	30.0	50.0	60	44-117	
2,4,6-Tribromophenol	31.4	50.0	63	48-117	
Terphenyl-D14	52.1	50.0	104	46-126	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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



Form 2 - Surrogate Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Orders : 445210,

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch #: 891936

Sample: 445210-003 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 17:34

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	0.0506	0.0500	101	74-124	
Dibromofluoromethane	0.0529	0.0500	106	75-131	
1,2-Dichloroethane-D4	0.0717	0.0500	143	63-144	
Toluene-D8	0.0495	0.0500	99	80-117	

Lab Batch #: 891871

Sample: 445210-004 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 17:43

SURROGATE RECOVERY STUDY

SVOAs by SW-846 8270C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorophenol	16.5	50.0	33	30-100	
Phenol-d6	9.77	50.0	20	15-94	
Nitrobenzene-d5	39.9	50.0	80	46-111	
2-Fluorobiphenyl	42.5	50.0	85	44-117	
2,4,6-Tribromophenol	33.4	50.0	67	48-117	
Terphenyl-D14	58.0	50.0	116	46-126	

Lab Batch #: 891936

Sample: 445210-003 / DL

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 17:57

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	0.0504	0.0500	101	74-124	
Dibromofluoromethane	0.0483	0.0500	97	75-131	
1,2-Dichloroethane-D4	0.0510	0.0500	102	63-144	
Toluene-D8	0.0486	0.0500	97	80-117	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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



Form 2 - Surrogate Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Orders : 445210,

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch #: 891936

Sample: 445210-004 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 18:19

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0501	0.0500	100	74-124	
Dibromofluoromethane	0.0538	0.0500	108	75-131	
1,2-Dichloroethane-D4	0.0551	0.0500	110	63-144	
Toluene-D8	0.0487	0.0500	97	80-117	

Lab Batch #: 891936

Sample: 445210-001 / DL

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 19:02

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0510	0.0500	102	74-124	
Dibromofluoromethane	0.0483	0.0500	97	75-131	
1,2-Dichloroethane-D4	0.0471	0.0500	94	63-144	
Toluene-D8	0.0481	0.0500	96	80-117	

Lab Batch #: 891936

Sample: 445210-002 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 20:28

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0515	0.0500	103	74-124	
Dibromofluoromethane	0.0503	0.0500	101	75-131	
1,2-Dichloroethane-D4	0.0511	0.0500	102	63-144	
Toluene-D8	0.0481	0.0500	96	80-117	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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



Form 2 - Surrogate Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Orders : 445210,

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch #: 891871

Sample: 445210-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/12/12 16:51

SURROGATE RECOVERY STUDY

SVOAs by SW-846 8270C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorophenol	11.3	50.0	23	30-100	**
Phenol-d6	7.74	50.0	15	15-94	
Nitrobenzene-d5	19.3	50.0	39	46-111	**
2-Fluorobiphenyl	19.6	50.0	39	44-117	**
2,4,6-Tribromophenol	44.2	50.0	88	48-117	
Terphenyl-D14	39.4	50.0	79	46-126	

Lab Batch #: 891936

Sample: 624392-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 12:26

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	0.0496	0.0500	99	74-124	
Dibromofluoromethane	0.0490	0.0500	98	75-131	
1,2-Dichloroethane-D4	0.0499	0.0500	100	63-144	
Toluene-D8	0.0486	0.0500	97	80-117	

Lab Batch #: 891871

Sample: 624243-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 14:14

SURROGATE RECOVERY STUDY

SVOAs by SW-846 8270C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorophenol	23.4	50.0	47	30-100	
Phenol-d6	11.5	50.0	23	15-94	
Nitrobenzene-d5	48.4	50.0	97	46-111	
2-Fluorobiphenyl	50.5	50.0	101	44-117	
2,4,6-Tribromophenol	40.8	50.0	82	48-117	
Terphenyl-D14	64.7	50.0	129	46-126	**

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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



Form 2 - Surrogate Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Orders : 445210,

Lab Batch #: 891936

Sample: 624392-1-BKS / BKS

Project ID: Chevron Grayburg 6-Inch Historical

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 11:12

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	0.0522	0.0500	104	74-124	
Dibromofluoromethane	0.0489	0.0500	98	75-131	
1,2-Dichloroethane-D4	0.0488	0.0500	98	63-144	
Toluene-D8	0.0487	0.0500	97	80-117	

Lab Batch #: 891871

Sample: 624243-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 14:37

SURROGATE RECOVERY STUDY

SVOAs by SW-846 8270C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorophenol	21.9	50.0	44	30-100	
Phenol-d6	14.2	50.0	28	15-94	
Nitrobenzene-d5	45.9	50.0	92	46-111	
2-Fluorobiphenyl	49.1	50.0	98	44-117	
2,4,6-Tribromophenol	40.3	50.0	81	48-117	
Terphenyl-D14	57.6	50.0	115	46-126	

Lab Batch #: 891871

Sample: 624243-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 15:00

SURROGATE RECOVERY STUDY

SVOAs by SW-846 8270C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorophenol	20.7	50.0	41	30-100	
Phenol-d6	13.5	50.0	27	15-94	
Nitrobenzene-d5	44.1	50.0	88	46-111	
2-Fluorobiphenyl	48.6	50.0	97	44-117	
2,4,6-Tribromophenol	39.9	50.0	80	48-117	
Terphenyl-D14	56.2	50.0	112	46-126	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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



Form 2 - Surrogate Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Orders : 445210,

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch #: 891936

Sample: 445232-001 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 13:58

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	0.0509	0.0500	102	74-124	
Dibromofluoromethane	0.0533	0.0500	107	75-131	
1,2-Dichloroethane-D4	0.0547	0.0500	109	63-144	
Toluene-D8	0.0495	0.0500	99	80-117	

Lab Batch #: 891871

Sample: 445104-005 S / MS

Batch: 1 Matrix: Soil

Units: mg/L

Date Analyzed: 07/11/12 12:49

SURROGATE RECOVERY STUDY

SVOAs by SW-846 8270C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorophenol	27.4	50.0	55	30-100	
Phenol-d6	26.9	50.0	54	15-94	
Nitrobenzene-d5	36.4	50.0	73	46-111	
2-Fluorobiphenyl	37.5	50.0	75	44-117	
2,4,6-Tribromophenol	44.5	50.0	89	48-117	
Terphenyl-D14	51.1	50.0	102	46-126	

Lab Batch #: 891936

Sample: 445232-001 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/10/12 14:20

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	0.0520	0.0500	104	74-124	
Dibromofluoromethane	0.0524	0.0500	105	75-131	
1,2-Dichloroethane-D4	0.0524	0.0500	105	63-144	
Toluene-D8	0.0497	0.0500	99	80-117	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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



Blank Spike Recovery



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch #: 891936

Sample: 624392-1-BKS

Matrix: Water

Date Analyzed: 07/10/2012

Date Prepared: 07/10/2012

Analyst: BEC

Reporting Units: mg/L

Batch #: 1

BLANK / BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.00500	0.0500	0.0504	101	66-142	
Bromobenzene	<0.00500	0.0500	0.0499	100	75-125	
Bromochloromethane	<0.00500	0.0500	0.0477	95	73-125	
Bromodichloromethane	<0.00500	0.0500	0.0460	92	75-125	
Bromoform	<0.00500	0.0500	0.0463	93	75-125	
Methyl bromide	<0.00500	0.0500	0.0420	84	70-130	
MTBE	<0.00500	0.100	0.142	142	65-135	H
n-Butylbenzene	<0.00500	0.0500	0.0524	105	75-125	
Sec-Butylbenzene	<0.00500	0.0500	0.0518	104	75-125	
tert-Butylbenzene	<0.00500	0.0500	0.0527	105	75-125	
Carbon Tetrachloride	<0.00500	0.0500	0.0417	83	62-125	
Chlorobenzene	<0.00500	0.0500	0.0469	94	60-133	
Chloroethane	<0.0100	0.0500	0.0462	92	70-130	
Chloroform	<0.00500	0.0500	0.0447	89	74-125	
Methyl Chloride	<0.0100	0.0500	0.0374	75	70-130	
2-Chlorotoluene	<0.00500	0.0500	0.0525	105	73-125	
4-Chlorotoluene	<0.00500	0.0500	0.0511	102	74-125	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0519	104	75-125	
Dibromochloromethane	<0.00500	0.0500	0.0475	95	73-125	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0482	96	59-125	
1,2-Dibromoethane	<0.00500	0.0500	0.0504	101	73-125	
Methylene bromide	<0.00500	0.0500	0.0477	95	69-127	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0489	98	75-125	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0485	97	75-125	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0469	94	75-125	
Dichlorodifluoromethane	<0.00500	0.0500	0.0405	81	70-130	
1,1-Dichloroethane	<0.00500	0.0500	0.0506	101	72-125	
1,2-Dichloroethane	<0.00500	0.0500	0.0461	92	68-127	
1,1-Dichloroethene	<0.00500	0.0500	0.0448	90	59-172	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0522	104	75-125	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0451	90	75-125	
1,2-Dichloropropane	<0.00500	0.0500	0.0491	98	74-125	
1,3-Dichloropropane	<0.00500	0.0500	0.0509	102	75-125	

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

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

BRL - Below Reporting Limit



Blank Spike Recovery



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch #: 891936

Sample: 624392-1-BKS

Matrix: Water

Date Analyzed: 07/10/2012

Date Prepared: 07/10/2012

Analyst: BEC

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
2,2-Dichloropropane	<0.00500	0.0500	0.0480	96	75-125	
1,1-Dichloropropane	<0.00500	0.0500	0.0432	86	75-125	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0525	105	74-125	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0472	94	66-125	
Ethylbenzene	<0.00500	0.0500	0.0538	108	75-125	
Hexachlorobutadiene	<0.00500	0.0500	0.0479	96	75-125	
Isopropylbenzene	<0.00500	0.0500	0.0542	108	75-125	
Methylene Chloride	<0.00500	0.0500	0.0454	91	75-125	
Naphthalene	<0.0100	0.0500	0.0647	129	75-125	H
n-Propylbenzene	<0.00500	0.0500	0.0519	104	75-125	
Styrene	<0.00500	0.0500	0.0510	102	75-125	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0482	96	72-125	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0591	118	74-125	
Tetrachloroethylene	<0.00500	0.0500	0.0460	92	71-125	
Toluene	<0.00500	0.0500	0.0498	100	59-139	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0488	98	75-137	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0504	101	75-135	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0448	90	75-125	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0481	96	75-127	
Trichloroethylene	<0.00500	0.0500	0.0453	91	62-137	
Trichlorofluoromethane	<0.00500	0.0500	0.0504	101	67-125	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0553	111	75-125	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0570	114	75-125	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0587	117	70-125	
o-Xylene	<0.00500	0.0500	0.0549	110	75-125	
m,p-Xylenes	<0.0100	0.100	0.105	105	75-125	
Vinyl Chloride	<0.00200	0.0500	0.0493	99	75-125	

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

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

BRL - Below Reporting Limit



BS / BSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Analyst: ALA

Date Prepared: 07/09/2012

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/09/2012

Lab Batch ID: 891828

Sample: 891828-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Alkalinity by SM2320B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Alkalinity, Total (as CaCO ₃)	<4.00	250	256	102	250	257	103	0	89-106	20	

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

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

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

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Analyst: MKO

Date Prepared: 07/11/2012

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/12/2012

Lab Batch ID: 892068

Sample: 624424-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inductively Coupled Plasma Atomic Emission Spectroscopy Mass Spectrometry Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Arsenic	<0.00400	0.200	0.181	91	0.200	0.184	92	2	80-120	25	
Barium	<0.00400	0.200	0.190	95	0.200	0.194	97	2	80-120	25	
Boron	<0.0100	0.200	0.204	102	0.200	0.205	103	0	80-120	25	
Cadmium	<0.00100	0.200	0.183	92	0.200	0.188	94	3	80-120	25	
Chromium	<0.00400	0.200	0.182	91	0.200	0.186	93	2	80-120	25	
Cobalt	<0.00500	0.200	0.171	86	0.200	0.174	87	2	80-120	25	
Copper	<0.00400	0.200	0.180	90	0.200	0.183	92	2	80-120	25	
Lead	<0.00200	0.200	0.178	89	0.200	0.182	91	2	80-120	25	
Manganese	<0.00200	0.200	0.162	81	0.200	0.164	82	1	80-120	25	
Molybdenum	<0.00200	0.200	0.180	90	0.200	0.185	93	3	80-120	25	
Nickel	<0.00200	0.200	0.180	90	0.200	0.185	93	3	80-120	25	
Selenium	<0.00200	0.200	0.172	86	0.200	0.175	88	2	80-120	25	
Silver	<0.00200	0.100	0.0823	82	0.100	0.0843	84	2	80-120	25	
Zinc	<0.00400	0.200	0.187	94	0.200	0.180	90	4	80-120	25	

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

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

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

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Analyst: TTE

Date Prepared: 07/11/2012

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/11/2012

Lab Batch ID: 892048

Sample: 624454-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.500	50.0	52.0	104	50.0	51.4	103	1	90-110	20	
Fluoride	<0.200	2.00	2.01	101	2.00	1.99	100	1	90-110	20	
Nitrate as N	<0.0500	2.26	2.32	103	2.26	2.30	102	1	90-110	20	
Sulfate	<0.500	50.0	52.7	105	50.0	52.1	104	1	90-110	20	

Analyst: RKO

Date Prepared: 07/09/2012

Date Analyzed: 07/09/2012

Lab Batch ID: 891799

Sample: 624289-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Mercury by SW-846 7470A	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Mercury	<0.000200	0.00400	0.00386	97	0.00400	0.00389	97	1	80-120	20	

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

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

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

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Analyst: AMB

Date Prepared: 07/11/2012

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/11/2012

Lab Batch ID: 892086

Sample: 624476-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Ortho-Phosphorus by EPA 365.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Ortho-Phosphate as P	<0.0200	0.500	0.497	99	0.500	0.497	99	0	90-110	20	

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

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

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

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Analyst: MCH

Date Prepared: 07/09/2012

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/10/2012

Lab Batch ID: 891871

Sample: 624243-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOAs by SW-846 8270C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0389	78	0.0500	0.0377	75	3	20-124	30	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0367	73	0.0500	0.0362	72	1	65-135	30	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0369	74	0.0500	0.0359	72	3	65-135	30	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0366	73	0.0500	0.0359	72	2	19-121	30	
2,4,5-Trichlorophenol	<0.00500	0.0500	0.0358	72	0.0500	0.0343	69	4	35-111	30	
2,4,6-Trichlorophenol	<0.00500	0.0500	0.0398	80	0.0500	0.0400	80	1	37-144	30	
2,4-Dichlorophenol	<0.00500	0.0500	0.0397	79	0.0500	0.0389	78	2	39-135	30	
2,4-Dimethylphenol	<0.00500	0.0500	0.0394	79	0.0500	0.0386	77	2	32-119	30	
2,4-Dinitrophenol	<0.0100	0.0500	0.0290	58	0.0500	0.0301	60	4	12-191	40	
2,4-Dinitrotoluene	<0.00250	0.0500	0.0405	81	0.0500	0.0405	81	0	22-135	30	
2,6-Dinitrotoluene	<0.00500	0.0500	0.0398	80	0.0500	0.0401	80	1	49-122	30	
2-Chloronaphthalene	<0.00500	0.0500	0.0483	97	0.0500	0.0472	94	2	60-118	30	
2-Chlorophenol	<0.00500	0.0500	0.0354	71	0.0500	0.0347	69	2	16-116	30	
2-Methylnaphthalene	<0.00500	0.0500	0.0303	61	0.0500	0.0296	59	2	25-175	30	
2-methylphenol	<0.00500	0.0500	0.0365	73	0.0500	0.0359	72	2	14-176	30	
2-Nitroaniline	<0.0100	0.0500	0.0403	81	0.0500	0.0399	80	1	65-135	40	
2-Nitrophenol	<0.00500	0.0500	0.0418	84	0.0500	0.0407	81	3	29-182	30	
3&4-Methylphenol	<0.00500	0.0500	0.0282	56	0.0500	0.0282	56	0	14-176	30	
3,3-Dichlorobenzidine	<0.0100	0.0500	0.0454	91	0.0500	0.0460	92	1	12-147	40	
3-Nitroaniline	<0.0100	0.0500	0.0378	76	0.0500	0.0380	76	1	65-135	40	

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

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

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

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Analyst: MCH

Date Prepared: 07/09/2012

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/10/2012

Lab Batch ID: 891871

Sample: 624243-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

SVOAs by SW-846 8270C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
4,6-dinitro-2-methyl phenol	<0.0100	0.0500	0.0313	63	0.0500	0.0323	65	3	6-181	40	
4-Bromophenyl-phenylether	<0.00500	0.0500	0.0474	95	0.0500	0.0480	96	1	53-127	30	
4-chloro-3-methylphenol	<0.00500	0.0500	0.0361	72	0.0500	0.0353	71	2	16-129	30	
4-Chloroaniline	<0.0100	0.0500	0.0368	74	0.0500	0.0358	72	3	9-128	40	
4-Chlorophenyl Phenyl Ether	<0.00500	0.0500	0.0417	83	0.0500	0.0418	84	0	25-158	30	
4-Nitroaniline	<0.0100	0.0500	0.0363	73	0.0500	0.0373	75	3	65-135	40	
4-Nitrophenol	<0.0100	0.0500	0.0140	28	0.0500	0.0144	29	3	6-132	40	
Acenaphthene	<0.00500	0.0500	0.0408	82	0.0500	0.0405	81	1	27-132	30	
Acenaphthylene	<0.00500	0.0500	0.0411	82	0.0500	0.0406	81	1	33-145	30	
Aniline (Phenylamine, Aminobenzene)	<0.0100	0.0500	0.0327	65	0.0500	0.0324	65	1	5-115	40	
Anthracene	<0.00500	0.0500	0.0466	93	0.0500	0.0475	95	2	27-133	30	
Benzo(a)anthracene	<0.00500	0.0500	0.0463	93	0.0500	0.0467	93	1	33-143	30	
Benzo(a)pyrene	<0.00500	0.0500	0.0501	100	0.0500	0.0510	102	2	17-163	30	
Benzo(b)fluoranthene	<0.00500	0.0500	0.0418	84	0.0500	0.0438	88	5	24-159	30	
Benzo(g,h,i)perylene	<0.00500	0.0500	0.0471	94	0.0500	0.0474	95	1	17-219	30	
Benzo(k)fluoranthene	<0.00500	0.0500	0.0520	104	0.0500	0.0494	99	5	11-162	30	
Benzoic Acid	<0.0300	0.150	0.0586	39	0.150	0.0450	30	26	30-115	50	
Benzyl Butyl Phthalate	<0.00500	0.0500	0.0517	103	0.0500	0.0518	104	0	12-152	30	
bis(2-chloroethoxy) methane	<0.00500	0.0500	0.0437	87	0.0500	0.0425	85	3	33-184	30	
bis(2-chloroethyl) ether	<0.00500	0.0500	0.0382	76	0.0500	0.0383	77	0	12-158	30	

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

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

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

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Analyst: MCH

Date Prepared: 07/09/2012

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/10/2012

Lab Batch ID: 891871

Sample: 624243-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

SVOAs by SW-846 8270C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
bis(2-chloroisopropyl) ether	<0.00500	0.0500	0.0388	78	0.0500	0.0380	76	2	36-166	30	
bis(2-ethylhexyl) phthalate	<0.00500	0.0500	0.0577	115	0.0500	0.0574	115	1	8-158	30	
Chrysene	<0.00500	0.0500	0.0471	94	0.0500	0.0474	95	1	58-116	30	
Dibenz(a,h)anthracene	<0.00500	0.0500	0.0472	94	0.0500	0.0485	97	3	46-131	30	
Dibenzofuran	<0.00500	0.0500	0.0407	81	0.0500	0.0408	82	0	52-125	30	
Diethylphthalate	<0.00500	0.0500	0.0423	85	0.0500	0.0424	85	0	37-125	30	
Dimethyl Phthalate	<0.00500	0.0500	0.0421	84	0.0500	0.0425	85	1	25-175	30	
Di-n-butylphthalate	<0.00500	0.0500	0.0498	100	0.0500	0.0495	99	1	49-135	30	
di-n-Octyl Phthalate	<0.00500	0.0500	0.0563	113	0.0500	0.0564	113	0	43-134	30	
Fluoranthene	<0.00500	0.0500	0.0429	86	0.0500	0.0437	87	2	47-125	30	
Fluorene	<0.00500	0.0500	0.0404	81	0.0500	0.0405	81	0	48-139	30	
Hexachlorobenzene	<0.00250	0.0500	0.0463	93	0.0500	0.0463	93	0	46-133	30	
Hexachlorobutadiene	<0.00500	0.0500	0.0413	83	0.0500	0.0407	81	1	44-125	30	
Hexachlorocyclopentadiene	<0.00500	0.0500	0.0165	33	0.0500	0.0176	35	6	41-125	30	L
Hexachloroethane	<0.00500	0.0500	0.0373	75	0.0500	0.0364	73	2	25-153	30	
Indeno(1,2,3-c,d)Pyrene	<0.00500	0.0500	0.0483	97	0.0500	0.0485	97	0	27-160	30	
Isophorone	<0.00500	0.0500	0.0410	82	0.0500	0.0397	79	3	26-175	30	
Naphthalene	<0.00500	0.0500	0.0400	80	0.0500	0.0395	79	1	26-175	30	
Nitrobenzene	<0.00500	0.0500	0.0305	61	0.0500	0.0299	60	2	56-135	30	
N-Nitrosodi-n-Propylamine	<0.00500	0.0500	0.0370	74	0.0500	0.0363	73	2	21-137	30	

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

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

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

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Analyst: MCH

Date Prepared: 07/09/2012

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/10/2012

Lab Batch ID: 891871

Sample: 624243-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

SVOAs by SW-846 8270C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
N-Nitrosodiphenylamine	<0.00500	0.0500	0.0450	90	0.0500	0.0456	91	1	2-196	30	
Pentachlorophenol	<0.0100	0.0500	0.0362	72	0.0500	0.0356	71	2	17-117	40	
Phenanthrene	<0.00500	0.0500	0.0449	90	0.0500	0.0449	90	0	65-135	30	
Phenol	<0.0100	0.0500	0.0146	29	0.0500	0.0140	28	4	12-110	40	
Pyrene	<0.00500	0.0500	0.0507	101	0.0500	0.0500	100	1	23-152	30	
Pyridine	<0.0100	0.0500	0.0390	78	0.0500	0.0389	78	0	16-86	40	

Analyst: MKO

Date Prepared: 07/11/2012

Date Analyzed: 07/12/2012

Lab Batch ID: 892285

Sample: 624423-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Metals by ICP	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Aluminum	<0.200	5.00	4.84	97	5.00	4.84	97	0	80-120	20	
Calcium	<0.200	25.0	24.5	98	25.0	24.4	98	0	80-120	20	
Iron	<0.200	5.00	4.72	94	5.00	4.70	94	0	80-120	20	
Magnesium	<0.200	25.0	24.0	96	25.0	23.9	96	0	80-120	20	
Potassium	<0.500	10.0	9.67	97	10.0	9.80	98	1	80-120	20	
Sodium	<0.500	25.0	24.3	97	25.0	24.3	97	0	80-120	20	

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

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

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

All results are based on MDL and Validated for QC Purposes



Form 3 - MS Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Lab Batch #: 892068

Date Analyzed: 07/12/2012

Date Prepared: 07/11/2012

Project ID: Chevron Grayburg 6-Inch Historical

Analyst: MKO

QC- Sample ID: 445230-001 S

Batch #: 1

Matrix: Solid

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

ICP-MS Metals by SW 6020A	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Arsenic	<0.0200	1.00	0.913	91	75-125	
Barium	2.24	1.00	3.13	89	75-125	
Boron	<0.0500	1.00	<0.0500	0	75-125	X
Cadmium	<0.00500	1.00	0.882	88	75-125	
Chromium	<0.0200	1.00	0.920	92	75-125	
Cobalt	<0.0250	1.00	0.869	87	75-125	
Copper	<0.0200	1.00	0.879	88	75-125	
Lead	<0.0100	1.00	0.942	94	75-125	
Manganese	1.18	1.00	1.90	72	75-125	X
Molybdenum	<0.0100	1.00	0.951	95	75-125	
Nickel	0.0203	1.00	0.908	89	75-125	
Selenium	<0.0100	1.00	0.840	84	75-125	
Silver	<0.0100	0.500	0.400	80	75-125	
Zinc	0.175	1.00	0.960	79	75-125	

Lab Batch #: 892048

Date Analyzed: 07/11/2012

Date Prepared: 07/11/2012

Analyst: TTE

QC- Sample ID: 445225-001 S

Batch #: 1

Matrix: Water

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Chloride	205	500	724	104	80-120	
Fluoride	<2.00	20.0	21.8	109	80-120	
Nitrate as N	3.95	22.6	26.8	101	80-120	
Sulfate	63.1	500	599	107	80-120	

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

BRL - Below Reporting Limit



Form 3 - MS Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Lab Batch #: 891799

Date Analyzed: 07/09/2012

Date Prepared: 07/09/2012

Project ID: Chevron Grayburg 6-Inch Historical

Analyst: KO

QC- Sample ID: 445001-001 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY						
Mercury by SW-846 7470A	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Mercury	<0.00100	0.00500	0.00459	92	75-125	

Lab Batch #: 892086

Date Analyzed: 07/11/2012

Date Prepared: 07/11/2012

Analyst: AMB

QC- Sample ID: 445210-001 S

Batch #: 1

Matrix: Water

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY						
Ortho-Phosphorus by EPA 365.1	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Ortho-Phosphate as P	0.0202	0.500	0.531	102	90-110	

Matrix Spike Percent Recovery $\frac{C-A}{B} \times 100$
Relative Percent Difference $\frac{C-A}{C+B} \times 100$
All results are based on MQL and validated for QC purposes

BQL - Below Reporting Limit



Form 3 - MS Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Lab Batch #: 891871

Date Analyzed: 07/11/2012

Date Prepared: 07/09/2012

Project ID: Chevron Grayburg 6-Inch Historical

Analyst: MC

QC- Sample ID: 445104-005 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

SVOAs by SW-846 8270C	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
1,2,4-Trichlorobenzene	<0.0250	0.250	0.143	57	20-124	
1,2-Dichlorobenzene	<0.0250	0.250	0.140	56	65-135	X
1,3-Dichlorobenzene	<0.0250	0.250	0.137	55	65-135	X
1,4-Dichlorobenzene	<0.0250	0.250	0.137	55	19-121	
2,4,5-Trichlorophenol	<0.0250	0.250	0.192	77	35-111	
2,4,6-Trichlorophenol	<0.0250	0.250	0.184	74	37-144	
2,4-Dichlorophenol	<0.0250	0.250	0.177	71	39-135	
2,4-Dimethylphenol	<0.0250	0.250	0.178	71	32-119	
2,4-Dinitrophenol	<0.0500	0.250	0.246	98	12-191	
2,4-Dinitrotoluene	<0.0125	0.250	0.205	82	22-135	
2,6-Dinitrotoluene	<0.0250	0.250	0.220	88	49-122	
2-Chloronaphthalene	<0.0250	0.250	0.212	85	60-118	
2-Chlorophenol	<0.0250	0.250	0.152	61	16-116	
2-Methylnaphthalene	<0.0250	0.250	0.127	51	25-175	
2-methylphenol	<0.0250	0.250	0.196	78	14-176	
2-Nitroaniline	<0.0500	0.250	0.201	80	65-135	
2-Nitrophenol	<0.0250	0.250	0.168	67	29-182	
3,4-Methylphenol	<0.0250	0.250	0.176	70	14-176	
3,3-Dichlorobenzidine	<0.0500	0.250	0.171	68	12-147	
3-Nitroaniline	<0.0500	0.250	0.197	79	65-135	
4,6-dinitro-2-methyl phenol	<0.0500	0.250	0.214	86	6-181	
4-Bromophenyl-phenylether	<0.0250	0.250	0.218	87	53-127	
4-chloro-3-methylphenol	<0.0250	0.250	0.206	82	16-129	
4-Chloroaniline	<0.0500	0.250	0.158	63	9-128	
4-Chlorophenyl Phenyl Ether	<0.0250	0.250	0.198	79	25-158	
4-Nitroaniline	<0.0500	0.250	0.165	66	65-135	
4-Nitrophenol	<0.0500	0.250	0.268	107	6-132	
Acenaphthene	<0.0250	0.250	0.181	72	27-132	
Acenaphthylene	<0.0250	0.250	0.188	75	33-145	
Aniline Phenylamine/Aminobenzene	<0.0500	0.250	0.144	58	5-115	
Anthracene	<0.0250	0.250	0.237	95	27-133	
Benzo[a]anthracene	<0.0250	0.250	0.240	96	33-143	
Benzo[a]pyrene	<0.0250	0.250	0.261	104	17-163	
Benzo[b]fluoranthene	<0.0250	0.250	0.227	91	24-159	

Matrix Spike Percent Recovery 100% C-A/B

Relative Percent Difference 100% C-A/C-B

All results are based on MQL and validated for QC purposes

BOL - Below Reporting Limit



Form 3 - MS Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Lab Batch #: 891871

Date Analyzed: 07/11/2012

Date Prepared: 07/09/2012

Project ID: Chevron Grayburg 6-Inch Historical

Analyst: MC

QC- Sample ID: 445104-005 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

SVOAs by SW-846 8270C		Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Ben[z o]ghi[l h]perylene	<0.0250	0.250	0.266	106	17-219	
Ben[z o]k[l u]oranthene	<0.0250	0.250	0.252	101	11-162	
Ben[z o]ic Acid	<0.150	0.750	0.444	59	30-115	
Ben[z yl] Butyl [h thalate	<0.0250	0.250	0.231	92	12-152	
bis[2-chloroetho[l]y]methane	<0.0250	0.250	0.176	70	33-184	
bis[2-chloroethyl]ether	<0.0250	0.250	0.152	61	12-158	
bis[2-chloroisopropyl]ether	<0.0250	0.250	0.148	59	36-166	
bis[2-ethylhe[l]yl]phthalate	<0.0250	0.250	0.220	88	8-158	
Chrysene	<0.0250	0.250	0.246	98	58-116	
[l iben[z a]h]anthracene	<0.0250	0.250	0.266	106	46-131	
[l iben[z o]furan	<0.0250	0.250	0.190	76	52-125	
[l iethyl]phthalate	<0.0250	0.250	0.228	91	37-125	
[l imethyl] [h thalate	<0.0250	0.250	0.222	89	25-175	
[l i-n-butyl]phthalate	<0.0250	0.250	0.236	94	49-135	
di-n-Octyl [h thalate	<0.0250	0.250	0.211	84	43-134	
Fluoranthene	<0.0250	0.250	0.257	103	47-125	
Fluorene	<0.0250	0.250	0.206	82	48-139	
[l e[l achloroben[z ene	<0.0125	0.250	0.225	90	46-133	
[l e[l achlorobutadiene	<0.0250	0.250	0.138	55	44-125	
[l e[l achlorocyclopentadiene	<0.0250	0.250	0.0834	33	41-125	X
[l e[l achloroethane	<0.0250	0.250	0.137	55	25-153	
[l inden[o] [2,3-c[l]d[l]yrene	<0.0250	0.250	0.274	110	27-160	
[l ophorone	<0.0250	0.250	0.176	70	26-175	
Naphthalene	<0.0250	0.250	0.172	69	26-175	
Nitroben[z ene	<0.0250	0.250	0.152	61	56-135	
N-Nitrosodi-n-[l opylamine	<0.0250	0.250	0.168	67	21-137	
N-Nitrosodiphenylamine	<0.0250	0.250	0.228	91	2-196	
[l entachlorophenol	<0.0500	0.250	0.190	76	17-117	
[l henanthrene	<0.0250	0.250	0.244	98	65-135	
[l henol	<0.0500	0.250	0.141	56	12-110	
[l yrene	<0.0250	0.250	0.242	97	23-152	
[l yridine	<0.0500	0.250	0.127	51	16-86	

Matrix Spike Percent Recovery 100% C-A/B

Relative Percent Difference (E) 200% C-A/C-B

All results are based on MQL and validated for QC purposes

BQL - Below Reporting Limit



Form 3 - MS Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Lab Batch #: 892285

Date Analyzed: 07/12/2012

Date Prepared: 07/11/2012

Project ID: Chevron Grayburg 6-Inch Historical

Analyst: MKO

QC- Sample ID: 445154-001 S

Batch #: 1

Matrix: Water

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

Total Metals by EPA 6010B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Aluminum	<0.200	5.00	5.29	106	75-125	
Calcium	423	25.0	438	60	75-125	X
Iron	<0.200	5.00	4.77	95	75-125	
Magnesium	218	25.0	239	84	75-125	
Potassium	17.7	10.0	27.9	102	75-125	
Sodium	822	25.0	816	0	75-125	X

Matrix Spike Percent Recovery $\frac{C-A}{B} \times 100$
Relative Percent Difference $\frac{E-A}{C} \times 100$
All results are based on MDL and validated for QC purposes

BOL - Below Reporting Limit



Form 3 - MS / MSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch ID: 891936

QC- Sample ID: 445232-001 S

Batch #: 1 Matrix: Water

Date Analyzed: 07/10/2012

Date Prepared: 07/10/2012

Analyst: BEC

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00500	0.0500	0.0534	107	0.0500	0.0569	114	6	66-142	25	
Bromobenzene	<0.00500	0.0500	0.0522	104	0.0500	0.0550	110	5	75-125	25	
Bromochloromethane	<0.00500	0.0500	0.0580	116	0.0500	0.0607	121	5	73-125	25	
Bromodichloromethane	<0.00500	0.0500	0.0547	109	0.0500	0.0537	107	2	75-125	25	
Bromoform	<0.00500	0.0500	0.0562	112	0.0500	0.0567	113	1	75-125	25	
Methyl bromide	<0.00500	0.0500	0.0617	123	0.0500	0.0522	104	17	70-130	25	
MTBE	<0.00500	0.100	0.123	123	0.100	0.111	111	10	65-135	25	
n-Butylbenzene	<0.00500	0.0500	0.0535	107	0.0500	0.0580	116	8	75-125	25	
Sec-Butylbenzene	<0.00500	0.0500	0.0532	106	0.0500	0.0566	113	6	75-125	25	
tert-Butylbenzene	<0.00500	0.0500	0.0525	105	0.0500	0.0568	114	8	75-125	25	
Carbon Tetrachloride	0.00855	0.0500	0.0612	105	0.0500	0.0593	102	3	62-125	25	
Chlorobenzene	<0.00500	0.0500	0.0504	101	0.0500	0.0533	107	6	60-133	25	
Chloroethane	<0.0100	0.0500	0.0652	130	0.0500	0.0529	106	21	70-130	25	
Chloroform	0.171	0.0500	0.235	128	0.0500	0.230	118	2	74-125	25	X
Methyl Chloride	<0.0100	0.0500	0.0584	117	0.0500	0.0397	79	38	70-130	25	F
2-Chlorotoluene	<0.00500	0.0500	0.0525	105	0.0500	0.0572	114	9	73-125	25	
4-Chlorotoluene	<0.00500	0.0500	0.0523	105	0.0500	0.0557	111	6	74-125	25	
p-Cymene [p-Isopropyltoluene]	<0.00500	0.0500	0.0530	106	0.0500	0.0567	113	7	75-125	25	
Dibromochloromethane	<0.00500	0.0500	0.0564	113	0.0500	0.0576	115	2	73-125	25	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0613	123	0.0500	0.0618	124	1	59-125	25	
1,2-Dibromoethane	<0.00500	0.0500	0.0564	113	0.0500	0.0582	116	3	73-125	25	
Methylene bromide	<0.00500	0.0500	0.0580	116	0.0500	0.0580	116	0	69-127	25	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0524	105	0.0500	0.0550	110	5	75-125	25	

Matrix Spike Percent Recovery ☐ 100 ☐ A/B
Relative Percent Difference ☐ 200 ☐ C-F/A/B

Matrix Spike Duplicate Percent Recovery ☐ 100 ☐ F-A/E

N ☐ Not Detected ☐ Present Below Reporting Limit ☐ Present in Blank ☐ Not Requested ☐ Interference ☐ NA ☐ Not Applicable
N ☐ See Narrative ☐ Estimated Quantitation Limit



Form 3 - MS / MSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch ID: 891936

QC- Sample ID: 445232-001 S

Batch #: 1 Matrix: Water

Date Analyzed: 07/10/2012

Date Prepared: 07/10/2012

Analyst: BEC

Reporting Units: mg/L

VOAs by SW-846 8260B	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
1,3-Dichlorobenzene	<0.00500	0.0500	0.0507	101	0.0500	0.0527	105	4	75-125	25	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0511	102	0.0500	0.0537	107	5	75-125	25	
1,1-Dichlorodifluoromethane	<0.00500	0.0500	0.0543	109	0.0500	0.0447	89	19	70-130	25	
1,1-Dichloroethane	<0.00500	0.0500	0.0585	117	0.0500	0.0550	110	6	72-125	25	
1,2-Dichloroethane	0.239	0.0500	0.308	138	0.0500	0.287	96	7	68-127	25	X
1,1-Dichloroethene	<0.00500	0.0500	0.0673	135	0.0500	0.0503	101	29	59-172	25	F
cis-1,2-Dichloroethylene	0.0221	0.0500	0.0781	112	0.0500	0.0842	124	8	75-125	25	
trans-1,2-Dichloroethylene	<0.00500	0.0500	0.0566	113	0.0500	0.0517	103	9	75-125	25	
1,2-Dichloropropane	<0.00500	0.0500	0.0534	107	0.0500	0.0578	116	8	74-125	25	
1,3-Dichloropropane	<0.00500	0.0500	0.0543	109	0.0500	0.0572	114	5	75-125	25	
2,2-Dichloropropane	<0.00500	0.0500	0.0559	112	0.0500	0.0567	113	1	75-125	25	
1,1-Dichloropropene	<0.00500	0.0500	0.0498	100	0.0500	0.0518	104	4	75-125	25	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0557	111	0.0500	0.0586	117	5	74-125	25	
trans-1,3-Dichloropropene	<0.00500	0.0500	0.0566	113	0.0500	0.0566	113	0	66-125	25	
Ethylbenzene	<0.00500	0.0500	0.0516	103	0.0500	0.0550	110	6	75-125	25	
1,2,3,4-Tetrachlorobutadiene	<0.00500	0.0500	0.0512	102	0.0500	0.0516	103	1	75-125	25	
Isopropylbenzene	<0.00500	0.0500	0.0527	105	0.0500	0.0568	114	7	75-125	25	
Methylene Chloride	0.00611	0.0500	0.0714	131	0.0500	0.0601	108	17	75-125	25	X
Naphthalene	<0.0100	0.0500	0.0608	122	0.0500	0.0652	130	7	75-125	25	X
n-Propylbenzene	<0.00500	0.0500	0.0505	101	0.0500	0.0546	109	8	75-125	25	
Styrene	<0.00500	0.0500	0.0543	109	0.0500	0.0568	114	5	75-125	25	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0549	110	0.0500	0.0567	113	3	72-125	25	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0672	134	0.0500	0.0767	153	13	74-125	25	X

Matrix Spike Percent Recovery: 100% (C-A)/B
Relative Percent Difference: 200% (C-F)/C

Matrix Spike Duplicate Percent Recovery: 100% (F-A)/E

ND = Not Detected; B = Present Below Reporting Limit; BL = Present in Blank; N = Not Tested; I = Interference; NA = Not Applicable; N = See Narrative; E = Estimated Quantitation Limit



Form 3 - MS / MSD Recoveries



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch ID: 891936

QC- Sample ID: 445232-001 S

Batch #: 1 Matrix: Water

Date Analyzed: 07/10/2012

Date Prepared: 07/10/2012

Analyst: BEC

Reporting Units: mg/L

VOAs by SW-846 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Tetrachloroethylene	<0.00500	0.0500	0.0478	96	0.0500	0.0507	101	6	71-125	25	
Toluene	<0.00500	0.0500	0.0522	104	0.0500	0.0545	109	4	59-139	25	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0536	107	0.0500	0.0561	112	5	75-137	25	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0537	107	0.0500	0.0562	112	5	75-135	25	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0552	110	0.0500	0.0538	108	3	75-125	25	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0536	107	0.0500	0.0565	113	5	75-127	25	
Trichloroethylene	<0.00500	0.0500	0.0479	96	0.0500	0.0506	101	5	62-137	25	
Trichlorofluoromethane	<0.00500	0.0500	0.0652	130	0.0500	0.0494	99	28	67-125	25	XF
1,2,3-Trichloropropane	<0.00500	0.0500	0.0581	116	0.0500	0.0640	128	10	75-125	25	X
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0534	107	0.0500	0.0570	114	7	75-125	25	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0544	109	0.0500	0.0572	114	5	70-125	25	
o-Xylene	<0.00500	0.0500	0.0546	109	0.0500	0.0561	112	3	75-125	25	
m,p-Xylenes	<0.0100	0.100	0.102	102	0.100	0.108	108	6	75-125	25	
Vinyl Chloride	<0.00200	0.0500	0.0615	123	0.0500	0.0524	105	16	75-125	25	

Matrix Spike Percent Recovery: 100% (A/B)
Relative Percent Difference: 200% (C-F) (C/F)

Matrix Spike Duplicate Percent Recovery: 100% (F-A) (F/E)

ND: Not Detected; Present Below Reporting Limit; Present in Blank; Not Requested; Interference; NA: Not Applicable; See Narrative; EL: Estimated Quantitation Limit



Sample Duplicate Recovery



Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Lab Batch #: 891828

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/09/2012 13:58

Date Prepared: 07/09/2012

Analyst: ALA

QC- Sample ID: 445011-001

Batch #: 1

Matrix: Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

Alkalinity by SM2320B	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Alkalinity Total as CaCO ₃	267	268	0	20	
Alkalinity Bicarbonate as CaCO ₃	<4.00	<4.00	0	20	
Alkalinity Carbonate as CaCO ₃	<4.00	<4.00	0	20	

Lab Batch #: 891828

Date Analyzed: 07/09/2012 15:43

Date Prepared: 07/09/2012

Analyst: ALA

QC- Sample ID: 445148-001

Batch #: 1

Matrix: Ground Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

Alkalinity by SM2320B	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Alkalinity Total as CaCO ₃	139	139	0	20	
Alkalinity Bicarbonate as CaCO ₃	139	139	0	20	
Alkalinity Carbonate as CaCO ₃	<4.00	<4.00	0	20	

Spike Relative Difference ≤ 200 $\frac{B-A}{(B+A)/2}$

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

MDL - Below Reporting Limit



XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 07/06/2012 09:35:00 AM

Work Order #: 445210

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles/ container?	N/A
#6 *Custody Seals Signed and dated for Containers/coolers	N/A
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	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#:
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Checklist completed by: _____

Date: 07/06/2012 _____

Checklist reviewed by: _____

Date: 07/06/2012 _____

Xenco Laboratories

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

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

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

Project Manager: Ben Arguijo

Project Name: Chevron Grayburg 6-Inch Sec. 6

Company Name Basin Environmental Service Technologies, LLC

Project #: Chevron Grayburg 6-Inch Historical

Company Address: P.O. Box 301

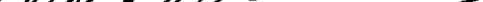
Project Loc: Lea County, NM

City/State/Zip: Lovington, NM 88260

PO #: PAA-J. Henry

Telephone No: (575)396-2378 Fax No: (575) 396-1429

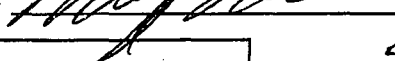
Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Sampler Signature:  e-mail: **bjarguijo@basinenv.com**

e-mail: bjarguijo@basinenv.com

(lab use only)

ORDER #: 445210

Sampler Signature: 										Analyze For:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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Special Instructions:

****See attached sheet for detailed list of analyses required.****

Relinquished by: 	Date 7-6-72	Time 09:35	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: ELDT	Date	Time

Laboratory Comments:

Sample Containers Intact?

VOCs Free of Headspace?

Labels on container(s)

Custody seals on container(s)

Custody seals on cooler(s)

Sample Hand Delivered

by Sampler/Client Rep. ?

by Courier?

Temperature Upon Receipt: 25 °C

2 amber liters / 1X500 mL / 2x250 / 5 vials for each sample

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

Field Parameters

specific conductance
pH
temperature
depth to water

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 WOCC Metals

Copper
Iron
Manganese
Zinc
Aluminum
Boron
Cobalt
Molybdenum
Nickel

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

337000