1R - 2637

REPORTS

DATE:

7-23-12

Hansen, Edward J., EMNRD

From: Hansen, Edward J., EMNRD
Sent: Thursday, August 23, 2012 1:11 PM
To: 'Jason Henry'
Cc: Leking, Geoffrey R, EMNRD; 'bjarguijo@basinenv.com'
Subject: Soil Closure Report Submittal Extension Approval: 1RP-2637 - Plains' Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site

RE: Soil Closure Report Submittal Extension Approval
for the Plains Marketing, L.P.'s
Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site (1R-2637)
Unit Letter B, Section 6, T18S, R35E, NMPM, Lea County, New Mexico

Dear Mr. Henry:

The New Mexico Oil Conservation Division (OCD) has reviewed your request for extension of the submittal of the plugging report for the above-referenced site (1R-2637). The OCD hereby approves the request for extension of the submittal until Monday, August 27, 2012.

Also, please be advised that OCD approval of this extension 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.

If you have questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

From: Ben J. Arguijo [mailto:bjarguijo@basinenv.com]
Sent: Thursday, August 23, 2012 12:16 PM
To: Hansen, Edward J., EMNRD
Cc: 'Jason Henry'
Subject: RE: 1RP-2637 - Plains' Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site - GW impacted notification

Mr. Hansen,

I am writing to request an extension of the deadline for submittal of the soil closure report for the Chevron Grayburg 6-Inch Sec. 6 release site (NMOCD reference #1RP-2637). I somehow miscalculated the due date for the report and mistakenly believed it to be due on August 27th. Lost/missing field notes also resulted in a delay of report completion. As such, my client has not had sufficient time to review the report draft, and, consequently, I may not be able to submit it to Mr. Leking by close of business today (i.e., 30 days from the date of the email below).

I hereby request an extension to Monday, August 27, 2012. However, every effort will be made to submit the report by close of business today, if at all possible.

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: Tuesday, July 24, 2012 4:42 PM
To: Jason Henry
Cc: Jeffrey P Dann; 'bjarguijo@basinenv.com'; Leking, Geoffrey R, EMNRD; VonGonten, Glenn, EMNRD
Subject: RE: 1RP-2637 - Plains' Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site - GW impacted notification

RE: Initial Ground Water 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 Case Transfer (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 July 23, 2012 and has conducted a review of the report. Since the report indicates that ground water has been impacted by this release, please address all further correspondence regarding ground water at this site to the Environmental Bureau of the OCD Santa Fe Office (c/o Edward J. Hansen) using the OCD case # **1R-2637**. Please submit a ground water gradient map to OCD within 60 days.

Please submit a soil closure report for this site to the OCD District I Office (c/o Geoff Leking) within 30 days.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

From: Jason Henry [mailto:JHenry@paalp.com]
Sent: Monday, July 23, 2012 3:56 PM
To: Hansen, Edward J., EMNRD
Cc: Jeffrey P Dann; 'bjarguijo@basinenv.com'; Leking, Geoffrey R, EMNRD
Subject: 1RP-2637 - Plains' Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site - GW impacted notification

Ed,

Please accept this email as notification of impacted groundwater as the result of a crude oil release at the following Plains Pipeline site:

Chevron Grayburg 6-inch Sec. 6 site (Historical), 1RP-2637 (copy of Initial C-141 attached)

The groundwater impact was confirmed upon receipt of the analytical data for groundwater samples collected from monitor wells MW-1 and MW-3 that were installed during site investigation activities. I've attached an Analytical Report that provides a summary of the results for the groundwater samples collected from monitor wells MW-1, MW-2, MW-3, and MW-4.

During 2010 and 2011, Plains has conducted the following site activities:

- excavation of impacted soil,
- soil remediation activities,
- placed a synthetic liner in the excavation,
- backfilled the excavated area with remediated soil
- advanced a soil boring in the vicinity of the suspected release location

During 2012, Plains has conducted the following site activities:

- installed four (4) monitor wells (MW-1 – MW-4) at the site
- performed initial groundwater sampling event

The earlier site activities listed above were approved by Mr. Larry Johnson. Upon Mr. Johnson's retirement from the NMOCD, Mr. Geoff Leking took over the regulatory oversight duties for the subject site.

During the remainder of 2012, it is anticipated that the following tasks will be completed:

- surveying of the monitor wells (MW-1 – MW-4)
- submission of a soil closure request report to document the soil remediation activities that were performed at the site

In addition to the laboratory report and the copy of the Initial C141, I've also attached a draft version of a site map which depicts the approximate location of monitor wells MW-1 – MW-4.

Please let me know if you have any questions or need additional information.

Thank you,

Jason Henry
Plains Pipeline, L.P.
575-441-1099

Hansen, Edward J., EMNRD

From: Hansen, Edward J., EMNRD
Sent: Tuesday, July 24, 2012 4:43 PM
To: 'Jason Henry'
Cc: Jeffrey P Dann; 'bjarguijo@basinenv.com'; Leking, Geoffrey R, EMNRD; VonGonten, Glenn, EMNRD
Subject: RE: 1RP-2637 - Plains' Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site - GW impacted notification

RE: Initial Ground Water 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 Case Transfer (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 July 23, 2012 and has conducted a review of the report. Since the report indicates that ground water has been impacted by this release, please address all further correspondence regarding ground water at this site to the Environmental Bureau of the OCD Santa Fe Office (c/o Edward J. Hansen) using the OCD case # **1R-2637**. Please submit a ground water gradient map to OCD within 60 days.

Please submit a soil closure report for this site to the OCD District I Office (c/o Geoff Leking) within 30 days.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

From: Jason Henry [mailto:JHenry@paalp.com]
Sent: Monday, July 23, 2012 3:56 PM
To: Hansen, Edward J., EMNRD
Cc: Jeffrey P Dann; 'bjarguijo@basinenv.com'; Leking, Geoffrey R, EMNRD
Subject: 1RP-2637 - Plains' Chevron Grayburg 6-inch Sec. 6 (Historical) Release Site - GW impacted notification

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During the remainder of 2012, it is anticipated that the following tasks will be completed:

- surveying of the monitor wells (MW-1 – MW-4)
- submission of a soil closure request report to document the soil remediation activities that were performed at the site

In addition to the laboratory report and the copy of the Initial C141, I've also attached a draft version of a site map which depicts the approximate location of monitor wells MW-1 – MW-4.

Please let me know if you have any questions or need additional information.

Thank you,

Jason Henry
Plains Pipeline, L.P.
575-441-1099

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	**Plains Pipeline, LP**	Contact	**Jason Henry**
Address	**2530 Hwy 214 – Denver City, TX 79323**	Telephone No.	**(575) 441-1099**
Facility Name	**Chevron Grayburg 6-inch Sec. 6**	Facility Type	**Pipeline**

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

LOCATION OF RELEASE

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

Latitude N 32.7810858° Longitude W 103.4924927°

WTR 80'

NATURE OF RELEASE

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

RECEIVED
OCT 15
HOBBSOCD

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Excavator struck a tee connected to the Chevron Grayburg 6" pipeline causing a release of crude oil. Throughput for the subject line is 2,000 bbls/day and the operating pressure of the pipeline is 50 psi. The depth of the pipeline at the release point is approximately 2' bgs. The H2S concentration in the crude is less than 10 ppm and the gravity of the crude is 36.

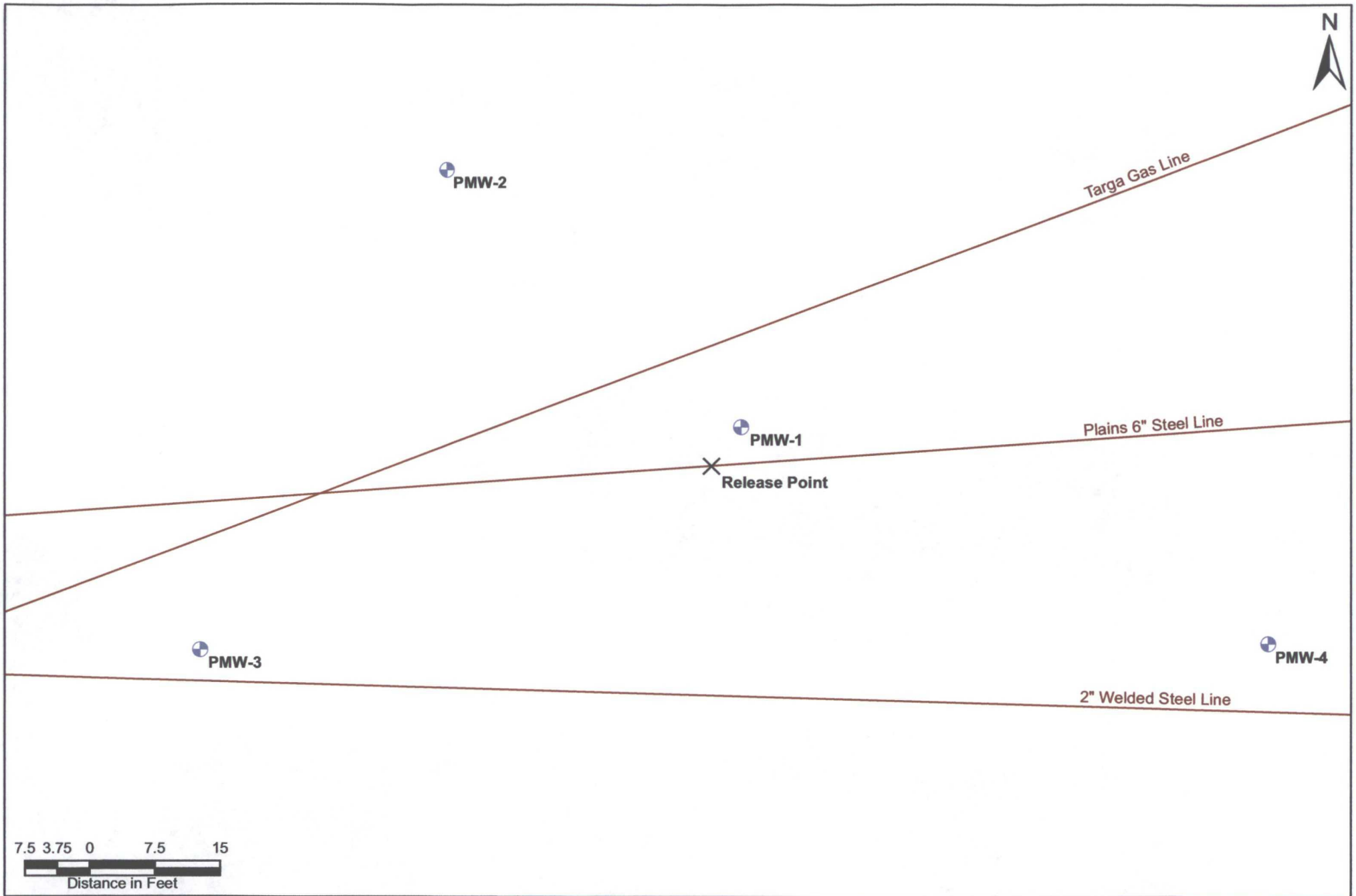
Describe Area Affected and Cleanup Action Taken.*

The released crude pooled in the trench next to the pipeline and a vac truck was used to recover the free product. The impacted area will be remediated per applicable guidelines.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Jason Henry	OIL CONSERVATION DIVISION	
Printed Name: **Jason Henry**	Approved by District Supervisor: ENVIRONMENTAL ENGINEER	
Title: **Remediation Coordinator**	Approval Date: 10.15.10	Expiration Date: 12.15.10
E-mail Address: **jhenry@paalp.com**	Conditions of Approval: SUBMIT FINAL C-141 w/DOCS B4	Attached ☐ IRP# 10.10.2637
Date: 10-15-2010 Phone: **(575) 441-1099**		

* Attach Additional Sheets If Necessary



Legend

- Proposed Monitor Well Location
- Pipeline

Figure 3
Proposed Monitor Well Locations
Plains Pipeline, LP
Chevron Grayburg 6-Inch Sec. 6
Lea County, New Mexico
SRS #: Chevron Grayburg 6-Inch Historical
NMOCD Ref. #: 1RP-10-10-2637

Basin Environmental Service Technologies
Effective Solutions

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

Drawn By: BJA	Checked By: BRB
January 25, 2012	Scale: 1" = 15'

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

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*	*Report Date:*	*17-JUL-12*
Work Order Number:	*445210*	*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.

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

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 CaCO3)		239	mg/L	07/09/12 16:15		1
Alkalinity, Bicarbonate (as CaCO3)	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

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: 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	0.0202	mg/L	07/11/12 18:59	K	1

Analytical Method: SVOAs by SW-846 8270C Prep Method: SW3510C
Seq Number: 891871 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 Prep Method: SW5030B
Seq Number: 891936 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 Prep Method: SW5030B
Seq Number: 891936 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

Project: Plains Pricing

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

Project: Plains Pricing

XENCO Laboratories

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	1

Project: Plains Pricing

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 CaCO3)		299	mg/L	07/09/12 16:28		1
Alkalinity, Bicarbonate (as CaCO3)	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

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

Project: Plains Pricing

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 CaCO3)		193	mg/L	07/09/12 16:35		1
Alkalinity, Bicarbonate (as CaCO3)	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

XENCO Laboratories

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

Project: Plains Pricing

Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project Id: Chevron Grayburg 6-Inch Historical
Contact: Jason Henry
Project Location: Lea County, NM

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:*										
	Analyzed:	Jul-09-12 16:15		Jul-09-12 16:22		Jul-09-12 16:28		Jul-09-12 16:35			
	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		

Nicholas Straccione
Project Manager

Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project Id: Chevron Grayburg 6-Inch Historical
Contact: Jason Henry
Project Location: Lea County, NM

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					
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	*Extracted:*	Jul-11-12 18:29		Jul-11-12 18:45		Jul-11-12 19:01		Jul-11-12 19:17					
	Analyzed:	Jul-11-12 18:29		Jul-11-12 18:45		Jul-11-12 19:01		Jul-11-12 19:17					
	Units/RL:	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	*Extracted:*	Jul-09-12 11:00		Jul-09-12 11:00		Jul-09-12 11:00		Jul-09-12 11:00					
	Analyzed:	Jul-09-12 17:35		Jul-09-12 17:39		Jul-09-12 17:42		Jul-09-12 17:46					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL				
Mercury		ND	0.000200	ND	0.000200	ND	0.000200	ND	0.000200				
Metals by ICP SUB: TX104704215	*Extracted:*	Jul-11-12 11:00		Jul-11-12 11:00		Jul-11-12 11:00		Jul-11-12 11:00					
	Analyzed:	Jul-12-12 01:31		Jul-12-12 01:37		Jul-12-12 01:42		Jul-12-12 01:59					
	Units/RL:	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	*Extracted:*	Jul-11-12 18:55		Jul-11-12 18:55		Jul-11-12 18:55		Jul-11-12 18:55					
	Analyzed:	Jul-11-12 18:59		Jul-11-12 19:01		Jul-11-12 19:02		Jul-11-12 19:04					
	Units/RL:	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				

Nicholas Straccione
Project Manager

Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project Id: Chevron Grayburg 6-Inch Historical
Contact: Jason Henry
Project Location: Lea County, NM

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	*Extracted:*	Jul-09-12 10:06		Jul-09-12 10:09		Jul-09-12 10:12		Jul-09-12 10:15					
SUB: TX104704215	*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				

Nicholas Straccione
Project Manager

Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project Id: Chevron Grayburg 6-Inch Historical
Contact: Jason Henry
Project Location: Lea County, NM

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		

Nicholas Straccione
Project Manager

Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project Id: Chevron Grayburg 6-Inch Historical
Contact: Jason Henry
Project Location: Lea County, NM

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	*Extracted:*	Jul-09-12 10:06		Jul-09-12 10:09		Jul-09-12 10:12		Jul-09-12 10:15			
SUB: TX104704215	*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		

Nicholas Straccione
Project Manager

Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project Id: Chevron Grayburg 6-Inch Historical
Contact: Jason Henry
Project Location: Lea County, NM

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					
VOAs by SW-846 8260B	*Extracted:*	Jul-10-12 12:14		Jul-10-12 17:40		Jul-10-12 12:16		Jul-10-12 12:17					
SUB: TX104704215	*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				

Nicholas Straccione
Project Manager

Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project Id: Chevron Grayburg 6-Inch Historical
Contact: Jason Henry
Project Location: Lea County, NM

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			
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		

Nicholas Straccione
Project Manager

Certificate of Analysis Summary 445210

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project Id: Chevron Grayburg 6-Inch Historical
Contact: Jason Henry
Project Location: Lea County, NM

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			
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		
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		

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 quantiation limit and above the detection limit.

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

\+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Orders : 445210,

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch #: 891936 **Sample:** 445210-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/10/12 16:51

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

SVOAs by SW-846 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

SVOAs by SW-846 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

SVOAs by SW-846 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	16.5	50.0	33	30-100	
Phenol-d6	9.77	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

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY 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

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY 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

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY 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

SVOAs by SW-846 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

SVOAs by SW-846 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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,

Project ID: Chevron Grayburg 6-Inch Historical

Lab Batch #: 891936 **Sample:** 624392-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 07/10/12 11:12

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

SVOAs by SW-846 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

SVOAs by SW-846 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

SVOAs by SW-846 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
		BLANK /BLANK SPIKE RECOVERY STUDY				
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-Dichloropropene	<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 **Project ID:** Chevron Grayburg 6-Inch Historical

Analyst: ALA **Date Prepared:** 07/09/2012 **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 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
Alkalinity, Total (as CaCO3)	<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 **Project ID:** Chevron Grayburg 6-Inch Historical

Analyst: TTE **Date Prepared:** 07/11/2012 **Date Analyzed:** 07/11/2012

Lab Batch ID: 892048 **Sample:** 624454-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

Inorganic Anions by EPA 300/300.1	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<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

Mercury by SW-846 7470A	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Mercury	<0.000200	0.00400	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
Project ID: Chevron Grayburg 6-Inch Historical
Analyst: AMB
Date Prepared: 07/11/2012
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 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
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
Lab Batch ID: 891871
Sample: 624243-1-BKS
Units: mg/L

Date Prepared: 07/09/2012
Batch #: 1

Project ID: Chevron Grayburg 6-Inch Historical
Date Analyzed: 07/10/2012
Matrix: Water

SVOAs by SW-846 8270C Analytes	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
	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
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 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
4,6-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

Final 1.000

BS / BSD Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210
Analyst: MCH
Lab Batch ID: 891871
Sample: 624243-1-BKS
Date Prepared: 07/09/2012
Batch #: 1
Project ID: Chevron Grayburg 6-Inch Historical
Date Analyzed: 07/10/2012
Matrix: Water
Units: mg/L

SVOAs by SW-846 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
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

Final 1.000

BS / BSD Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210
Project ID: Chevron Grayburg 6-Inch Historical

Analyst: MCH
Date Prepared: 07/09/2012
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 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
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 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Aluminum	<0.200	5.00	4.84	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*|(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

Final 1.000

Form 3 - MS Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210
Lab Batch #: 892068
Project ID: Chevron Grayburg 6-Inch Historical
Date Analyzed: 07/12/2012
Date Prepared: 07/11/2012
Analyst: MKO
QC- Sample ID: 445230-001 S
Batch #: 1
Matrix: Solid
Reporting Units: mg/L

ICP-MS Metals by SW 6020A Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
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

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	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*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210

Lab Batch #: 891799

Project ID: Chevron Grayburg 6-Inch Historical

Date Analyzed: 07/09/2012 **Date Prepared:** 07/09/2012 **Analyst:** RKO

QC- Sample ID: 445001-001 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/L

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

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

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

BRL - Below Reporting Limit

Form 3 - MS Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210
Lab Batch #: 891871
Project ID: Chevron Grayburg 6-Inch Historical
Date Analyzed: 07/11/2012
Date Prepared: 07/09/2012
Analyst: MCH
QC- Sample ID: 445104-005 S
Batch #: 1
Matrix: Soil
Reporting Units: mg/L

SVOAs by SW-846 8270C	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
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 [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210
Lab Batch #: 891871
Project ID: Chevron Grayburg 6-Inch Historical
Date Analyzed: 07/11/2012
Date Prepared: 07/09/2012
Analyst: MCH
QC- Sample ID: 445104-005 S
Batch #: 1
Matrix: Soil
Reporting Units: mg/L

SVOAs by SW-846 8270C Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
		Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Benzo(g,h,i)perylene	<0.0250	0.250	0.266	106	17-219	
Benzo(k)fluoranthene	<0.0250	0.250	0.252	101	11-162	
Benzoic Acid	<0.150	0.750	0.444	59	30-115	
Benzyl Butyl Phthalate	<0.0250	0.250	0.231	92	12-152	
bis(2-chloroethoxy) 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-ethylhexyl) phthalate	<0.0250	0.250	0.220	88	8-158	
Chrysene	<0.0250	0.250	0.246	98	58-116	
Dibenz(a,h)anthracene	<0.0250	0.250	0.266	106	46-131	
Dibenzofuran	<0.0250	0.250	0.190	76	52-125	
Diethylphthalate	<0.0250	0.250	0.228	91	37-125	
Dimethyl Phthalate	<0.0250	0.250	0.222	89	25-175	
Di-n-butylphthalate	<0.0250	0.250	0.236	94	49-135	
di-n-Octyl Phthalate	<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	
Hexachlorobenzene	<0.0125	0.250	0.225	90	46-133	
Hexachlorobutadiene	<0.0250	0.250	0.138	55	44-125	
Hexachlorocyclopentadiene	<0.0250	0.250	0.0834	33	41-125	X
Hexachloroethane	<0.0250	0.250	0.137	55	25-153	
Indeno(1,2,3-c,d)Pyrene	<0.0250	0.250	0.274	110	27-160	
Isophorone	<0.0250	0.250	0.176	70	26-175	
Naphthalene	<0.0250	0.250	0.172	69	26-175	
Nitrobenzene	<0.0250	0.250	0.152	61	56-135	
N-Nitrosodi-n-Propylamine	<0.0250	0.250	0.168	67	21-137	
N-Nitrosodiphenylamine	<0.0250	0.250	0.228	91	2-196	
Pentachlorophenol	<0.0500	0.250	0.190	76	17-117	
Phenanthrene	<0.0250	0.250	0.244	98	65-135	
Phenol	<0.0500	0.250	0.141	56	12-110	
Pyrene	<0.0250	0.250	0.242	97	23-152	
Pyridine	<0.0500	0.250	0.127	51	16-86	

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

BRL - Below Reporting Limit

Form 3 - MS Recoveries

Project Name: Chevron Grayburg 6-Inch Sec. 6

Work Order #: 445210
Lab Batch #: 892285
Project ID: Chevron Grayburg 6-Inch Historical
Date Analyzed: 07/12/2012
Date Prepared: 07/11/2012
Analyst: MKO
QC- Sample ID: 445154-001 S
Batch #: 1
Matrix: Water
Reporting Units: mg/L

Total Metals by EPA 6010B	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Aluminum	<0.200	5.00	5.29	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 [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Project Name: 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	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	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 [D] = 100*(C-A)/B

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = 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
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	
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	
Hexachlorobutadiene	<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	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0672	134	0.0500	0.0767	153	13	74-125	25	X

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = 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 [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 ApplicableN = See Narrative, EQL = 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 D **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Alkalinity by SM2320B Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Alkalinity, Total (as CaCO3)	267	268	0	20	
Alkalinity, Bicarbonate (as CaCO3)	<4.00	<4.00	0	20	U
Alkalinity, Carbonate (as CaCO3)	<4.00	<4.00	0	20	U

Lab Batch #: 891828

Date Analyzed: 07/09/2012 15:43 **Date Prepared:** 07/09/2012 **Analyst:** ALA

QC- Sample ID: 445148-001 D **Batch #:** 1 **Matrix:** Ground Water

Reporting Units: mg/L

Alkalinity by SM2320B Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Alkalinity, Total (as CaCO3)	139	139	0	20	
Alkalinity, Bicarbonate (as CaCO3)	139	139	0	20	
Alkalinity, Carbonate (as CaCO3)	<4.00	<4.00	0	20	U

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

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#:

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

Company Name: Basin Environmental Service Technologies, LLC

Company Address: P.O. Box 301

City/State/Zip: Lovington, NM 88260

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

Sampler Signature:

e-mail: bjarguijo@basinenv.com

Project Name: Chevron Grayburg 6-Inch Sec. 6

Project #: Chevron Grayburg 6-Inch Historical

Project Loc: Lea County, NM

PO #: PAA-J. Henry

Report Format: [X] Standard [ ] TRRP [ ] NPDES

Final 1.000

(lab use only)
ORDER #: 445210

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	TOTAL: BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT 4 DAY
001	MW-1			7/3/2012	1420		10	X	X	X						GW			X	X		X	X	X						X
002	MW-2			7/3/2012	1330		10	X	X	X						GW			X	X		X	X	X						X
003	MW-3			7/3/2012	1510		10	X	X	X						GW			X	X		X	X	X						X
004	MW-4			7/3/2012	1230		10	X	X	X						GW			X	X		X	X	X						X

Special Instructions:
****See attached sheet for detailed list of analyses required.****

Relinquished by:	Date	Time	Received by:	Date	Time
	7.6.12	09:35			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			A. Hernandez	7/6/12	9:35

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt: 2.5 °C

2 amber liters / 1x500mL / 2x250 / 5 voa's for each sample

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

Field Parameters

specific conductance
pH
temperature
depth to water

337000

General Chemistry

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

RCRA Metals

Arsenic
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver

Additional WQCC Metals

Copper
Iron
Manganese
Zinc
Aluminum
Boron
Cobalt
Molybdenum
Nickel

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