

30-025-02424

LEGACY FRAC POND

Analytical Report 423540

for
Legacy Reserves

HOBBS OCD

AUG 03 2011

Project Manager: Pat Darden

RECEIVED

Lea Unit # 4 H

03-AUG-11

Collected By: Client



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



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

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

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

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03-AUG-11

Project Manager: **Pat Darden**
Legacy Reserves
P.O. Box 10848
Midland, TX 79702

Reference: XENCO Report No: **423540**
Lea Unit # 4 H
Project Address:

Pat Darden:

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 423540. 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. 423540 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,

Brent Barron II

Odessa Laboratory Manager

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Sample Cross Reference 423540



Legacy Reserves, Midland, TX

Lea Unit # 4 H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Marthon Water Station	W	07-19-11 08:00		423540-001



CASE NARRATIVE

Client Name: Legacy Reserves

Project Name: Lea Unit # 4 H



Project ID:

Work Order Number: 423540

Report Date: 03-AUG-11

Date Received: 07/19/2011

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non nonformances and comments:

Batch: LBA-864506 Anions by E300
E300MI

Batch 864506, Fluoride, Nitrate as N, Sulfate recovered below QC limits in the Matrix Spike.
Samples affected are: 423540-001.

The Laboratory Control Sample for Nitrate as N, Fluoride, Sulfate is within laboratory Control Limits

The RPD between the Sample and Sample Duplicate was outside of the control limits for Nitrate.
Samples affected are: 423530-001.

Batch: LBA-865730 Select Metals by SW-846 6010C
SW6010C

Batch 865730, Uranium recovered below QC limits in the Matrix Spike.
Samples affected are: 423540-001.

The Laboratory Control Sample for Uranium is within laboratory Control Limits

SW6010C

Batch 865730, Uranium RPD was outside QC limits.
Samples affected are: 423540-001

Batch: LBA-865812 PAHs by GCMS SIM
SIM

Batch 865812, Naphthalene RPD was outside laboratory control limits.
Samples affected are: 423540-001



CASE NARRATIVE

Client Name: Legacy Reserves

Project Name: Lea Unit # 4 H



Project ID:

Work Order Number: 423540

Report Date: 03-AUG-11

Date Received: 07/19/2011

*Batch: LBA-865874 VOAs by SW-846 8260B
SW8260B*

Batch 865874, Bromodichloromethane recovered above QC limits in the Matrix Spike. Carbon Tetrachloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Bromoform recovered above QC limits in the Matrix Spike Duplicate.

Samples affected are: 423540-001.

The Laboratory Control Sample for Bromodichloromethane, Carbon Tetrachloride, Bromoform is within laboratory Control Limits



Certificate of Analysis Summary 423540

Legacy Reserves, Midland, TX
Project Name: Lea Unit # 4 H



Project Id:
Contact: Pat Darden
Project Location:

Date Received in Lab: Tue Jul-19-11 10:15 am
Report Date: 03-AUG-11
Project Manager: Brent Barron II

Analysis Requested		Lab Id:	423540-001		
	Field Id:		Marathon Water Station		
	Depth:				
	Matrix:		WATER		
	Sampled:		Jul-19-11 08:00		
Anions by E300	Extracted:				
	Analyzed:		Jul-19-11 16:24		
	Units/RL:		mg/L RL		
			1.17 1.00		
Fluoride			23.5 2.50		
Chloride			40.6 2.50		
Sulfate			2.57 0.250		
Nitrate as N					
BTEx by EPA 8021B		Extracted:	Jul-21-11 15:00		
	Analyzed:		Jul-22-11 02:49		
	Units/RL:		mg/L RL		
Benzene			ND 0.00100		
Toluene			ND 0.00200		
Ethylbenzene			ND 0.00100		
m_p-Xylenes			ND 0.00200		
o-Xylene			ND 0.00100		
Total Xylenes			ND 0.00100		
Total BTEx			ND 0.00100		
Mercury by EPA 7470A		Extracted:	Jul-28-11 11:06		
	Analyzed:		Jul-28-11 21:26		
	Units/RL:		mg/L RL		
Mercury			ND 0.00200		

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Brent Barron II
Odessa Laboratory Manager



Certificate of Analysis Summary 423540

Legacy Reserves, Midland, TX
Project Name: Lea Unit # 4 H



Project Id:
Contact: Pat Darden
Project Location:

Date Received in Lab: Tue Jul-19-11 10:15 am
Report Date: 03-AUG-11
Project Manager: Brent Barron II

Analysis Requested		Lab Id:	423540-001			
		Field Id:	Marathon Water Station			
		Depth:				
		Matrix:	WATER			
		Sampled:	Jul-19-11 08:00			
Metals, Total by SW846 6010C SUB: E87429		Extracted:	Jul-27-11 09:38			
		Analyzed:	Jul-28-11 16:04			
		Units/RL:	mg/L RL			
Arsenic			ND 0.0100			
Barium			0.0786 0.0500			
Cadmium			ND 0.00500			
Chromium			ND 0.0500			
Lead			ND 0.0100			
Selenium			ND 0.0100			
Silver			ND 0.0500			
Uranium			ND 0.100			

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Analysis Requested		Lab Id:	423540-001		
		Field Id:	Marathon Water Station		
		Depth:			
		Matrix:	WATER		
		Sampled:	Jul-19-11 08:00		
PAHs by GCMS SIM SUB: T104704215-TX		Extracted:	Jul-26-11 19:30		
		Analyzed:	Jul-28-11 18:21		
		Units/RL:	ug/L RL		
	Acenaphthene		ND 0.0472		
	Acenaphthylene		ND 0.0472		
	Anthracene		ND 0.0472		
	Benzo(a)anthracene		ND 0.0472		
	Benzo(a)pyrene		ND 0.0472		
	Benzo(g,h,i)perylene		ND 0.0472		
	Benzo(k)fluoranthene		ND 0.0472		
TDS by SM2540C	Benzo(b)fluoranthene		ND 0.0472		
	Chrysene		ND 0.0472		
	Dibenz(a,h)anthracene		ND 0.0472		
	Fluoranthene		ND 0.0472		
	Fluorene		ND 0.0472		
	Indeno(1,2,3-c,d)Pyrene		ND 0.0472		
	Naphthalene		ND 0.472		
	Phenanthrene		ND 0.0472		
	Pyrene		0.0588 0.0472		
		Extracted:			
Total dissolved solids		Analyzed:	Jul-20-11 09:30		
		Units/RL:	mg/L RL		
			294 100		
Total Cyanide by EPA 335.4 SUB: T104704215-TX		Extracted:			
		Analyzed:	Jul-29-11 19:16		
		Units/RL:	mg/L RL		
Cyanide, Total			ND 0.0100		

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Certificate of Analysis Summary 423540

Legacy Reserves, Midland, TX
Project Name: Lea Unit # 4 H



Project Id:
Contact: Pat Darden
Project Location:

Date Received in Lab: Tue Jul-19-11 10:15 am
Report Date: 03-AUG-11
Project Manager: Brent Barron II

Analysis Requested	Lab Id: 423540-001		Field Id: Depth: Matrix: Sampled: Extracted: Analyzed: Units/RL:	Marathon Water Station WATER Jul-19-11 08:00 Jul-28-11 15:01 Jul-28-11 18:09 mg/L RL					
VOAs by SW-846 8260B SUB: T104704215-TX									
1,1,1,2-Tetrachloroethane				ND 0.00500					
1,1,1-Trichloroethane				ND 0.00500					
1,1,2,2-Tetrachloroethane				ND 0.00500					
1,1,2-Trichloroethane				ND 0.00500					
1,1-Dichloroethane				ND 0.00500					
1,1-Dichloroethene				ND 0.00500					
1,1-Dichloropropene				ND 0.00500					
1,2,3-Trichlorobenzene				ND 0.00500					
1,2,3-Trichloropropane				ND 0.00500					
1,2,4-Trichlorobenzene				ND 0.00500					
1,2,4-Trimethylbenzene				ND 0.00500					
1,2-Dibromo-3-Chloropropane				ND 0.00500					
1,2-Dibromoethane				ND 0.00500					
1,2-Dichlorobenzene				ND 0.00500					
1,2-Dichloroethane				ND 0.00500					
1,2-Dichloropropane				ND 0.00500					
1,3,5-Trimethylbenzene				ND 0.00500					
1,3-Dichlorobenzene				ND 0.00500					
1,3-Dichloropropane				ND 0.00500					
1,4-Dichlorobenzene				ND 0.00500					
2,2-Dichloropropane				ND 0.00500					
2-Chlorotoluene				ND 0.00500					
4-Chlorotoluene				ND 0.00500					
Benzene				ND 0.00500					
Bromobenzene				ND 0.00500					

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Project Name: Lea Unit # 4 H



Project Id:
Contact: Pat Darden
Project Location:

Date Received in Lab: Tue Jul-19-11 10:15 am
Report Date: 03-AUG-11
Project Manager: Brent Barron II

Analysis Requested	Lab Id:	423540-001			
	Field Id: Depth: Matrix: Sampled:	Marathon Water Station WATER Jul-19-11 08:00			
VOAs by SW-846 8260B SUB: T104704215-TX	Extracted:	Jul-28-11 15:01			
	Analyzed:	Jul-28-11 18:09			
	Units/RL:	mg/L RL			
	Bromochloromethane	ND 0.00500			
	Bromodichloromethane	ND 0.00500			
	Bromoform	ND 0.00500			
	Bromomethane	ND 0.00500			
	Carbon Tetrachloride	ND 0.00500			
	Chlorobenzene	ND 0.00500			
	Chloroethane	ND 0.0100			
	Chloroform	ND 0.00500			
	Chloromethane	ND 0.0100			
	cis-1,2-Dichloroethene	ND 0.00500			
	cis-1,3-Dichloropropene	ND 0.00500			
	Dibromochloromethane	ND 0.00500			
	Dibromomethane	ND 0.00500			
	Dichlorodifluoromethane	ND 0.00500			
	Ethylbenzene	ND 0.00500			
	Hexachlorobutadiene	ND 0.00500			
	isopropylbenzene	ND 0.00500			
	m,p-Xylenes	ND 0.0100			
	Methylene Chloride	ND 0.00500			
	MTBE	ND 0.00500			
	Naphthalene	ND 0.0100			
	n-Butylbenzene	ND 0.00500			
	n-Propylbenzene	ND 0.00500			
	o-Xylene	ND 0.00500			
	p-Cymene (p-Isopropyltoluene)	ND 0.00500			

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Odessa Laboratory Manager



Certificate of Analysis Summary 423540

Legacy Reserves, Midland, TX
Project Name: Lea Unit # 4 H



Project Id:
Contact: Pat Darden
Project Location:

Date Received in Lab: Tue Jul-19-11 10:15 am
Report Date: 03-AUG-11
Project Manager: Brent Barron II

Analysis Requested	Lab Id:	423540-001			
	Field Id: Depth: Matrix: Sampled: Extracted: Analyzed: Units/RL:	Marthon Water Station WATER Jul-19-11 08:00 Jul-28-11 15:01 Jul-28-11 18:09 mg/L RL ND 0.00500 ND 0.00500 ND 0.00500 ND 0.00500 ND 0.00500 ND 0.00500 ND 0.00500 ND 0.00500 ND 0.00200			
VOAs by SW-846 8260B SUB: T104704215-TX					
Sec-Butylbenzene					
Styrene					
tert-Butylbenzene					
Tetrachloroethylene					
Toluene					
trans-1,2-dichloroethene					
trans-1,3-dichloropropene					
Trichloroethene					
Trichlorofluoromethane					
Vinyl Chloride					
pH, Electrometric by EPA 150.2					
	Extracted: Analyzed: Units/RL:	Jul-19-11 13:00 SU RL 7.48 2.00			
pH					

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Odessa Laboratory Manager

Flagging Criteria

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

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Form 2 - Surrogate Recoveries

Project Name: Lea Unit # 4 H

Work Orders : 423540,

Project ID:

Lab Batch #: 864919

Sample: 423540-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/22/11 02:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0283	0.0300	94	80-120	
4-Bromofluorobenzene		0.0296	0.0300	99	80-120	

Lab Batch #: 865874

Sample: 423540-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/28/11 18:09

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
4-Bromofluorobenzene		0.0522	0.0500	104	74-124	
Dibromofluoromethane		0.0507	0.0500	101	75-131	
1,2-Dichloroethane-D4		0.0492	0.0500	98	63-144	
Toluene-D8		0.0484	0.0500	97	80-117	

Lab Batch #: 865812

Sample: 423540-001 / SMP

Batch: 1 Matrix: Water

Units: ug/L

Date Analyzed: 07/28/11 18:21

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
Terphenyl-D14		1.32	0.943	140	33-141	
2-Fluorobiphenyl		1.03	0.943	109	43-116	
Nitrobenzene-d5		0.981	0.943	104	35-114	
2,4,6-Tribromophenol		0.369	0.943	39	10-123	

Lab Batch #: 864919

Sample: 608522-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/22/11 00:56

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0277	0.0300	92	80-120	
4-Bromofluorobenzene		0.0286	0.0300	95	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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

Form 2 - Surrogate Recoveries

Project Name: Lea Unit # 4 H

Work Orders : 423540,

Project ID:

Lab Batch #: 865874

Sample: 609051-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/28/11 13:13

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0500	0.0500	100	74-124	
Dibromofluoromethane	0.0498	0.0500	100	75-131	
1,2-Dichloroethane-D4	0.0455	0.0500	91	63-144	
Toluene-D8	0.0526	0.0500	105	80-117	

Lab Batch #: 865812

Sample: 608796-1-BLK / BLK

Batch: 1 Matrix: Water

Units: ug/L

Date Analyzed: 07/28/11 17:12

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.750	1.00	75	33-141	
2-Fluorobiphenyl	0.596	1.00	60	43-116	
Nitrobenzene-d5	0.627	1.00	63	35-114	
2,4,6-Tribromophenol	0.204	1.00	20	10-123	

Lab Batch #: 864919

Sample: 608522-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/21/11 23:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 865874

Sample: 609051-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/28/11 12:04

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0522	0.0500	104	74-124	
Dibromofluoromethane	0.0522	0.0500	104	75-131	
1,2-Dichloroethane-D4	0.0456	0.0500	91	63-144	
Toluene-D8	0.0525	0.0500	105	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: Lea Unit # 4 H

Work Orders : 423540,

Project ID:

Lab Batch #: 865812

Sample: 608796-1-BKS / BKS

Batch: 1 Matrix: Water

Units: ug/L

Date Analyzed: 07/28/11 17:35

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	1.01	1.00	101	33-141	
2-Fluorobiphenyl	0.825	1.00	83	43-116	
Nitrobenzene-d5	0.882	1.00	88	35-114	
2,4,6-Tribromophenol	0.400	1.00	40	10-123	

Lab Batch #: 864919

Sample: 608522-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/21/11 23:48

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	80-120	
4-Bromofluorobenzene	0.0299	0.0300	100	80-120	

Lab Batch #: 865812

Sample: 608796-1-BSD / BSD

Batch: 1 Matrix: Water

Units: ug/L

Date Analyzed: 07/28/11 17:58

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.957	1.00	96	33-141	
2-Fluorobiphenyl	0.551	1.00	55	43-116	
Nitrobenzene-d5	0.437	1.00	44	35-114	
2,4,6-Tribromophenol	0.332	1.00	33	10-123	

Lab Batch #: 864919

Sample: 423423-018 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/22/11 05:05

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0327	0.0300	109	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Lea Unit # 4 H

Work Orders : 423540,

Project ID:

Lab Batch #: 865874

Sample: 423540-001 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/28/11 18:32

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0479	0.0500	96	74-124	
Dibromofluoromethane	0.0511	0.0500	102	75-131	
1,2-Dichloroethane-D4	0.0456	0.0500	91	63-144	
Toluene-D8	0.0508	0.0500	102	80-117	

Lab Batch #: 864919

Sample: 423423-018 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/22/11 05:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0317	0.0300	106	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

Lab Batch #: 865874

Sample: 423540-001 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 07/28/11 18:55

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0489	0.0500	98	74-124	
Dibromofluoromethane	0.0550	0.0500	110	75-131	
1,2-Dichloroethane-D4	0.0463	0.0500	93	63-144	
Toluene-D8	0.0548	0.0500	110	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: Lea Unit # 4 H

Work Order #: 423540

Project ID:

Lab Batch #: 865929

Sample: 865929-1-BKS

Matrix: Water

Date Analyzed: 07/29/2011

Date Prepared: 07/29/2011

Analyst: MAB

Reporting Units: mg/L

Batch #: 1

BLANK/BLANK SPIKE RECOVERY STUDY

Total Cyanide by EPA 335.4		Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Analytes							
Cyanide, Total		<0.0100	0.200	0.221	111	80-120	

Blank Spike Recovery [D] = $100 \times [C] / [B]$

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

BRL - Below Reporting Limit



Project Name: Lea Unit # 4 H

Work Order #: 423540

Project ID:

Lab Batch #: 865874

Sample: 609051-1-BKS

Matrix: Water

Date Analyzed: 07/28/2011

Date Prepared: 07/28/2011

Analyst: CYE

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0437	87	75-125	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0599	120	75-125	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0514	103	50-130	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0518	104	75-127	
1,1-Dichloroethane	<0.00500	0.0500	0.0592	118	60-130	
1,1-Dichloroethene	<0.00500	0.0500	0.0582	116	59-172	
1,1-Dichloropropene	<0.00500	0.0500	0.0566	113	75-125	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0509	102	75-137	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0525	105	75-125	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0501	100	75-135	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0536	107	75-125	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0445	89	59-125	
1,2-Dibromoethane	<0.00500	0.0500	0.0500	100	73-125	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0498	100	75-125	
1,2-Dichloroethane	<0.00500	0.0500	0.0547	109	68-127	
1,2-Dichloropropane	<0.00500	0.0500	0.0543	109	74-125	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0547	109	70-125	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0503	101	75-125	
1,3-Dichloropropane	<0.00500	0.0500	0.0500	100	75-125	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0499	100	75-125	
2,2-Dichloropropane	<0.00500	0.0500	0.0687	137	60-140	
2-Chlorotoluene	<0.00500	0.0500	0.0527	105	73-125	
4-Chlorotoluene	<0.00500	0.0500	0.0511	102	74-125	
Benzene	<0.00500	0.0500	0.0533	107	66-142	
Bromobenzene	<0.00500	0.0500	0.0516	103	60-130	
Bromochloromethane	<0.00500	0.0500	0.0546	109	73-125	
Bromodichloromethane	<0.00500	0.0500	0.0568	114	75-125	
Bromoform	<0.00500	0.0500	0.0424	85	75-125	
Bromomethane	<0.00500	0.0500	0.0437	87	70-130	
Carbon Tetrachloride	<0.00500	0.0500	0.0615	123	62-125	
Chlorobenzene	<0.00500	0.0500	0.0516	103	60-133	
Chloroethane	<0.0100	0.0500	0.0462	92	70-130	
Chloroform	<0.00500	0.0500	0.0560	112	74-125	

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: Lea Unit # 4 H

Work Order #: 423540

Project ID:

Lab Batch #: 865874

Sample: 609051-1-BKS

Matrix: Water

Date Analyzed: 07/28/2011

Date Prepared: 07/28/2011

Analyst: CYE

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
Chloromethane	<0.0100	0.0500	0.0448	90	70-130	
cis-1,2-Dichloroethene	<0.00500	0.0500	0.0550	110	60-130	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0553	111	60-140	
Dibromochloromethane	<0.00500	0.0500	0.0394	79	60-130	
Dibromomethane	<0.00500	0.0500	0.0528	106	69-127	
Dichlorodifluoromethane	<0.00500	0.0500	0.0509	102	70-130	
Ethylbenzene	<0.00500	0.0500	0.0507	101	75-125	
Hexachlorobutadiene	<0.00500	0.0500	0.0466	93	75-125	
isopropylbenzene	<0.00500	0.0500	0.0535	107	75-125	
m,p-Xylenes	<0.0100	0.100	0.0974	97	75-125	
Methylene Chloride	<0.00500	0.0500	0.0511	102	75-125	
MTBE	<0.00500	0.0500	0.0562	112	75-125	
Naphthalene	<0.0100	0.0500	0.0474	95	65-135	
n-Butylbenzene	<0.00500	0.0500	0.0519	104	75-125	
n-Propylbenzene	<0.00500	0.0500	0.0511	102	75-125	
o-Xylene	<0.00500	0.0500	0.0533	107	75-125	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0534	107	75-125	
Sec-Butylbenzene	<0.00500	0.0500	0.0543	109	75-125	
Styrene	<0.00500	0.0500	0.0517	103	60-130	
tert-Butylbenzene	<0.00500	0.0500	0.0574	115	75-125	
Tetrachloroethylene	<0.00500	0.0500	0.0528	106	60-130	
Toluene	<0.00500	0.0500	0.0525	105	59-139	
trans-1,2-dichloroethene	<0.00500	0.0500	0.0527	105	60-130	
trans-1,3-dichloropropene	<0.00500	0.0500	0.0518	104	66-125	
Trichloroethene	<0.00500	0.0500	0.0541	108	62-137	
Trichlorofluoromethane	<0.00500	0.0500	0.0557	111	67-125	
Vinyl Chloride	<0.00200	0.0500	0.0477	95	75-125	

Blank Spike Recovery [D] = $100 \times [C] / [B]$

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

BRL - Below Reporting Limit

Project Name: Lea Unit # 4 H

Work Order #: 423540

Analyst: ASA

Lab Batch ID: 864919

Sample: 608522-1-BKS

Batch #: 1

Units: mg/L

Project ID:

Date Analyzed: 07/21/2011

Matrix: Water

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
Units: mg/L												
BTEX by EPA 8021B		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		<0.00100	0.100	0.102	102	0.100	0.101	101	1	70-125	25	
Toluene		<0.00200	0.100	0.0947	95	0.100	0.0928	93	2	70-125	25	
Ethylbenzene		<0.00100	0.100	0.105	105	0.100	0.101	101	4	71-129	25	
m_p-Xylenes		<0.00200	0.200	0.203	102	0.200	0.194	97	5	70-131	25	
o-Xylene		<0.00100	0.100	0.103	103	0.100	0.0964	96	7	71-133	25	

Analyst: BRB

Date Prepared: 07/19/2011

Date Analyzed: 07/19/2011

Lab Batch ID: 864506

Sample: 864506-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY													
Units: mg/L													
Analytes	Anions by E300		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
	Fluoride		<0.200	2.00	2.08	104	2.00	2.19	110	5	80-120	20	
	Chloride		<0.500	10.0	10.3	103	10.0	10.5	105	2	80-120	20	
	Sulfate		<0.500	12.3	11.7	95	12.3	11.9	97	2	80-120	20	
	Nitrate as N		<0.0500	2.00	2.00	100	2.00	2.02	101	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

Project Name: Lea Unit # 4 H
Work Order #: 423540
Analyst: 4150
Lab Batch ID: 865764
Sample: 608964-1-BKS
Units: mg/L
Date Prepared: 07/28/2011
Batch #: 1
Project ID:
Date Analyzed: 07/28/2011
Matrix: Water

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
Mercury by EPA 7470A		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Mercury		<0.00200	0.00300	0.00324	108	0.00300	0.00326	109	1	75-125	20	

Analyst: 4150
Lab Batch ID: 865730
Sample: 608817-1-BKS
Units: mg/L
Date Prepared: 07/27/2011
Batch #: 1
Date Analyzed: 07/28/2011
Matrix: Water

BLANK/BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
Units: mg/L												
Metals, Total by SW846 6010C 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	<0.0100	1.00	1.02	102	1.00	1.01	101	1	80-120	20	
	Barium	<0.0500	1.00	0.984	98	1.00	0.976	98	1	80-120	20	
	Cadmium	<0.00500	1.00	0.977	98	1.00	0.972	97	1	80-120	20	
	Chromium	<0.0500	1.00	0.966	97	1.00	0.964	96	0	80-120	20	
	Lead	<0.0100	1.00	0.967	97	1.00	0.957	96	1	80-120	20	
	Selenium	<0.0100	1.00	1.01	101	1.00	1.01	101	0	80-120	20	
	Silver	<0.0500	1.00	0.940	94	1.00	0.934	93	1	80-120	20	
	Uranium	<0.100	1.00	0.986	99	1.00	1.01	101	2	85-120	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

Project Name: Lea Unit # 4 H

Work Order #: 423540

Analyst: WEW

Lab Batch ID: 865812

Sample: 608796-1-BKS

Date Prepared: 07/26/2011

Batch #: 1

Project ID:

Date Analyzed: 07/28/2011

Matrix: Water

Units: ug/L

BLANK / BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

PAHs by GC/MS SIM	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acenaphthene	<0.0500	1.00	0.779	78	1.00	0.638	64	20	27-132	25	
Acenaphthylene	<0.0500	1.00	0.769	77	1.00	0.651	65	17	46-108	25	
Anthracene	<0.0500	1.00	0.757	76	1.00	0.739	74	2	47-145	25	
Benzo(a)anthracene	<0.0500	1.00	0.705	71	1.00	0.636	64	10	33-143	25	
Benzo(a)pyrene	<0.0500	1.00	0.755	76	1.00	0.762	76	1	65-135	25	
Benzo(g,h,i)perylene	<0.0500	1.00	0.844	84	1.00	0.801	80	5	65-135	25	
Benzo(k)fluoranthene	<0.0500	1.00	0.954	95	1.00	0.925	93	3	25-125	25	
Benzo(b)fluoranthene	<0.0500	1.00	0.587	59	1.00	0.564	56	4	24-159	25	
Chrysene	<0.0500	1.00	0.930	93	1.00	0.967	97	4	65-135	25	
Dibenz(a,h)anthracene	<0.0500	1.00	0.781	78	1.00	0.732	73	6	50-125	25	
Fluoranthene	<0.0500	1.00	0.736	74	1.00	0.702	70	5	47-125	25	
Fluorene	<0.0500	1.00	0.788	79	1.00	0.701	70	12	48-139	25	
Indeno(1,2,3-c,d)Pyrene	<0.0500	1.00	0.814	81	1.00	0.759	76	7	27-160	25	
Naphthalene	<0.500	1.00	0.866	87	1.00	0.422	42	69	26-175	25	F
Phenanthrene	<0.0500	1.00	0.721	72	1.00	0.692	69	4	65-135	25	
Pyrene	<0.0500	1.00	0.914	91	1.00	0.884	88	3	23-152	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

Project Name: Lea Unit # 4 H

Work Order #: 423540

Analyst: WRU

Lab Batch ID: 864762

Sample: 864762-1-BKS

Units: mg/L

Date Prepared: 07/20/2011

Batch #: 1

Project ID:

Date Analyzed: 07/20/2011

Matrix: Water

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
Units: mg/L												
Analytes	TDS by SM2540C											
	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Total dissolved solids	<5.00	1000	924	92	1000	950	95	3	80-120	30	

Relative Percent Difference $RPD = 200 * [(C-F) / (C+F)]$
Blank Spike Recovery $[D] = 100 * (C) / [B]$
Blank Spike Duplicate Recovery $[G] = 100 * (F) / [E]$
All results are based on MDL and Validated for QC Purposes



Form 3 - MS Recoveries



Project Name: Lea Unit # 4 H

Work Order #: 423540

Lab Batch #: 864506

Date Analyzed: 07/19/2011

Date Prepared: 07/19/2011

Project ID:

Analyst: BRB

QC- Sample ID: 423530-001 S

Batch #: 1

Matrix: Water

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Fluoride	<10.0	100	60.7	61	80-120	X
Chloride	626	500	1140	103	80-120	
Sulfate	1080	500	1330	50	80-120	X
Nitrate as N	6.70	100	53.1	46	80-120	X

Lab Batch #: 865929

Date Analyzed: 07/29/2011

Date Prepared: 07/29/2011

Analyst: MAB

QC- Sample ID: 423540-001 S

Batch #: 1

Matrix: Water

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

Total Cyanide by EPA 335.4	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Cyanide, Total	<0.0100	0.200	0.216	108	80-120	

Lab Batch #: 865929

Date Analyzed: 07/29/2011

Date Prepared: 07/29/2011

Analyst: MAB

QC- Sample ID: 424561-001 S

Batch #: 1

Matrix: Ground Water

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

Total Cyanide by EPA 335.4	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Cyanide, Total	<0.0100	0.200	0.218	109	80-120	

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

BRL - Below Reporting Limit



Project Name: Lea Unit # 4 H

Work Order #: 423540

Lab Batch ID: 864919

Date Analyzed: 07/22/2011

Reporting Units: mg/L

Project ID:

QC- Sample ID: 423423-018 S Batch #: 1 Matrix: Water

Date Prepared: 07/21/2011 Analyst: ASA

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Benzene	<0.00100	0.100	0.0992	99	0.100	0.107	107	8	70-125	25
	Toluene	<0.00200	0.100	0.0914	91	0.100	0.0987	99	8	70-125	25
	Ethylbenzene	<0.00100	0.100	0.0994	99	0.100	0.107	107	7	71-129	25
	m_p-Xylenes	<0.00200	0.200	0.189	95	0.200	0.203	102	7	70-131	25
	o-Xylene	<0.00100	0.100	0.0984	98	0.100	0.104	104	6	71-133	25

QC- Sample ID: 424182-001 S Batch #: 1 Matrix: Water

Date Prepared: 07/28/2011 Analyst: 4150

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY												
Reporting Units: mg/L	Mercury by EPA 7470A Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Mercury		<0.00200	0.00300	0.00320	107	0.00300	0.00320	107	0	75-125	20	

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

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

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



Project Name: Lea Unit # 4 H

Work Order #: 423540

Lab Batch ID: 865730

Date Analyzed: 07/28/2011

Reporting Units: mg/L

Project ID:

QC- Sample ID: 424182-001 S Batch #: 1 Matrix: Water

Date Prepared: 07/27/2011 Analyst: 4150

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY												
Metals, Total by SW846 6010C Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Arsenic	<0.0100	1.00	1.01	101	1.00	1.01	101	0	80-120	20	
	Barium	<0.0500	1.00	0.967	97	1.00	0.967	97	0	80-120	20	
	Cadmium	<0.00500	1.00	0.954	95	1.00	0.950	95	0	80-120	20	
	Chromium	<0.0500	1.00	0.954	95	1.00	0.954	95	0	80-120	20	
	Lead	<0.0100	1.00	0.944	94	1.00	0.940	94	0	80-120	20	
	Selenium	<0.0100	1.00	1.01	101	1.00	0.990	99	2	80-120	20	
	Silver	<0.0500	1.00	0.929	93	1.00	0.927	93	0	80-120	20	
	Uranium	<0.100	500	1.37	0	1.00	1.07	107	25	85-120	20	XF

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

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

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

Work Order #: 423540

Lab Batch ID: 865874

Date Analyzed: 07/28/2011

Reporting Units: mg/L

Project ID:

QC- Sample ID: 423540-001 S Batch #: 1 Matrix: Water

Date Prepared: 07/28/2011 Analyst: CYE

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
VOAs by SW-846 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0517	103	0.0500	0.0485	97	6	75-125	20	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0611	122	0.0500	0.0612	122	0	75-125	20	
1,1,2,2-Tetrachloroethane	<0.00500	0.0500	0.0506	101	0.0500	0.0519	104	3	50-130	31	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0530	106	0.0500	0.0524	105	1	75-127	20	
1,1-Dichloroethane	<0.00500	0.0500	0.0524	105	0.0500	0.0530	106	1	60-130	20	
1,1-Dichloroethene	<0.00500	0.0500	0.0470	94	0.0500	0.0491	98	4	59-172	22	
1,1-Dichloropropene	<0.00500	0.0500	0.0521	104	0.0500	0.0515	103	1	75-125	20	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0481	96	0.0500	0.0509	102	6	75-137	20	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0522	104	0.0500	0.0532	106	2	75-125	20	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0486	97	0.0500	0.0497	99	2	75-135	20	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0453	91	0.0500	0.0445	89	2	75-125	20	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0557	111	0.0500	0.0590	118	6	59-125	28	
1,2-Dibromoethane	<0.00500	0.0500	0.0488	98	0.0500	0.0520	104	6	73-125	20	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0486	97	0.0500	0.0493	99	1	75-125	20	
1,2-Dichloroethane	<0.00500	0.0500	0.0597	119	0.0500	0.0575	115	4	68-127	20	
1,2-Dichloropropane	<0.00500	0.0500	0.0535	107	0.0500	0.0495	99	8	74-125	20	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0469	94	0.0500	0.0480	96	2	70-125	20	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0482	96	0.0500	0.0484	97	0	75-125	20	
1,3-Dichloropropane	<0.00500	0.0500	0.0501	100	0.0500	0.0488	98	3	75-125	20	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0477	95	0.0500	0.0477	95	0	75-125	20	
2,2-Dichloropropane	<0.00500	0.0500	0.0676	135	0.0500	0.0668	134	1	60-140	20	
2-Chlorotoluene	<0.00500	0.0500	0.0483	97	0.0500	0.0485	97	0	73-125	20	
4-Chlorotoluene	<0.00500	0.0500	0.0455	91	0.0500	0.0470	94	3	74-125	20	

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

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

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


Project Name: Lea Unit # 4 H
Work Order # : 423540
Lab Batch ID: 865874
Date Analyzed: 07/28/2011
Reporting Units: mg/L
Project ID:
QC- Sample ID: 423540-001 S
Batch #: 1 Matrix: Water
Date Prepared: 07/28/2011
Analyst: CYE

VOAs by SW-846 8260B		Analytes										Control Limits %RPD	Control Limits %R	RPD %	Spiked Dup. %R [G]	Duplicate Spiked Sample Result [F]	Spiked Sample %R [D]	Spike Added [B]	Spiked Sample Result [C]	Parent Sample Result [A]	Flag
Benzene																					
Bromobenzene																					
Bromochloromethane																					
Bromodichloromethane																					
Bromoform																					X
Bromomethane																					X
Carbon Tetrachloride																					
Chlorobenzene																					X
Chloroethane																					
Chloroform																					
Chloromethane																					
cis-1,2-Dichloroethene																					
cis-1,3-Dichloropropene																					
Dibromochloromethane																					
Dibromomethane																					
Dichlorodifluoromethane																					
Ethylbenzene																					
Hexachlorobutadiene																					
isopropylbenzene																					
m,p-Xylenes																					
Methylene Chloride																					
MTBE																					
Naphthalene																					

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

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

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



Project Name: Lea Unit # 4 H

Work Order #: 423540

Lab Batch ID: 865874

Date Analyzed: 07/28/2011

Reporting Units: mg/L

Project ID:

QC- Sample ID: 423540-001 S

Date Prepared: 07/28/2011

Batch #: 1 Matrix: Water

Analyst: CYE

VOAs by SW-846 8260B		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
n-Butylbenzene		<0.00500	0.0500	0.0455	91	0.0500	0.0461	92	1	75-125	20	
n-Propylbenzene		<0.00500	0.0500	0.0431	86	0.0500	0.0459	92	6	75-125	20	
o-Xylene		<0.00500	0.0500	0.0473	95	0.0500	0.0497	99	5	75-125	20	
p-Cymene (p-Isopropyltoluene)		<0.00500	0.0500	0.0498	100	0.0500	0.0494	99	1	75-125	20	
Sec-Butylbenzene		<0.00500	0.0500	0.0509	102	0.0500	0.0492	98	3	75-125	20	
Styrene		<0.00500	0.0500	0.0369	74	0.0500	0.0370	74	0	60-130	51	
tert-Butylbenzene		<0.00500	0.0500	0.0553	111	0.0500	0.0536	107	3	75-125	20	
Tetrachloroethylene		<0.00500	0.0500	0.0496	99	0.0500	0.0503	101	1	60-130	20	
Toluene		<0.00500	0.0500	0.0493	99	0.0500	0.0521	104	6	59-139	21	
trans-1,2-dichloroethene		<0.00500	0.0500	0.0465	93	0.0500	0.0469	94	1	60-130	20	
trans-1,3-dichloropropene		<0.00500	0.0500	0.0576	115	0.0500	0.0596	119	3	66-125	20	
Trichloroethene		<0.00500	0.0500	0.0505	101	0.0500	0.0498	100	1	62-137	24	
Trichlorofluoromethane		<0.00500	0.0500	0.0588	118	0.0500	0.0582	116	1	67-125	20	
Vinyl Chloride		<0.00200	0.0500	0.0559	112	0.0500	0.0509	102	9	75-125	20	

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

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

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

Project Name: Lea Unit # 4 H
Work Order #: 423540
Lab Batch #: 864506
Date Analyzed: 07/19/2011 16:24
Date Prepared: 07/19/2011
Project ID:
Analyst: BRB
QC- Sample ID: 423530-001 D
Batch #: 1
Matrix: Water
Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Fluoride	<10.0	<10.0	0	20	
Chloride	626	632	1	20	
Sulfate	1080	1060	2	20	
Nitrate as N	6.70	10.7	46	20	F

Lab Batch #: 865764
Date Analyzed: 07/28/2011 20:33
Date Prepared: 07/28/2011
Analyst: 4150
QC- Sample ID: 424182-001 D
Batch #: 1
Matrix: Water
Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Mercury by EPA 7470A	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Mercury	<0.00200	<0.00200	0	20	

Lab Batch #: 865730
Date Analyzed: 07/28/2011 15:41
Date Prepared: 07/27/2011
Analyst: 4150
QC- Sample ID: 424182-001 D
Batch #: 1
Matrix: Water
Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Metals, Total by SW846 6010C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Arsenic	<0.0100	7.30	NC	20	
Barium	<0.0500	<0.0500	0	20	
Cadmium	<0.00500	0.300	NC	20	
Chromium	<0.0500	12.2	NC	20	
Lead	<0.0100	<0.0100	0	20	
Selenium	<0.0100	<0.0100	0	20	
Silver	<0.0500	<0.0500	0	20	
Uranium	<0.100	<0.100	0	20	

 Spike Relative Difference $RPD = 200 * |(B-A)/(B+A)|$

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

BRL - Below Reporting Limit

Project Name: Lea Unit # 4 H

Work Order #: 423540

Lab Batch #: 864762

Date Analyzed: 07/20/2011 09:30

QC- Sample ID: 423530-001 D

Reporting Units: mg/L

Date Prepared: 07/20/2011

Batch #: 1

Project ID:

Analyst: WRU

Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY					
TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total dissolved solids	2910	2930	1	30	

Lab Batch #: 865929

Date Analyzed: 07/29/2011 19:17

QC- Sample ID: 423540-001 D

Reporting Units: mg/L

Date Prepared: 07/29/2011

Batch #: 1

Analyst: MAB

Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Total Cyanide by EPA 335.4	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Cyanide, Total	<0.0100	<0.0100	0	20	

Lab Batch #: 865929

Date Analyzed: 07/29/2011 19:53

QC- Sample ID: 424561-001 D

Reporting Units: mg/L

Date Prepared: 07/29/2011

Batch #: 1

Analyst: MAB

Matrix: Ground Water

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Total Cyanide by EPA 335.4	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Cyanide, Total	<0.0100	<0.0100	0	20	

Lab Batch #: 864460

Date Analyzed: 07/19/2011 13:00

QC- Sample ID: 423530-001 D

Reporting Units: SU

Date Prepared: 07/19/2011

Batch #: 1

Analyst: BEV

Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY					
pH, Electrometric by EPA 150.2	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
pH	6.93	6.95	0	20	

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

Attachment I

New Mexico Water Quality Control Commission Ground Water Standards

A. Human Health Standards - Ground water shall meet the standards of Section A and B unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria of WQCC Section 1-101.UU. for the combination of contaminants, or the Human Health Standard of WQCC Section 3-103.A. for each contaminant shall apply, whichever is more stringent.

Arsenic (As) 0.1 mg/l
Barium (Ba) 1.0 mg/l
Cadmium (Cd) 0.01 mg/l
Chromium (Cr) 0.05 mg/l
Cyanide (CN) 0.2 mg/l
Fluoride (F) 1.6 mg/l
Lead (Pb) 0.05 mg/l
Total Mercury (Hg) 0.002 mg/l
Nitrate (NO₃ as N) 10.0 mg/l
Selenium (Se) 0.05 mg/l
Silver (Ag) 0.05 mg/l
Uranium (U) 5.0 mg/l
Radioactivity: Combined
Radium-226 & Radium-228 30.0 pCi/l
Benzene 0.01 mg/l
Polychlorinated biphenyls (PCB's) 0.001 mg/l
Toluene 0.75 mg/l
Carbon Tetrachloride 0.01 mg/l
1,2-Dichloroethane (EDC) 0.01 mg/l
1,1-Dichloroethylene (1, 1-DCE) 0.005 mg/l
1, 1,2,2-tetrachloroethylene (PCE) 0.02 mg/l
1, 1,2-trichloroethylene (TCE) 0.1 mg/l
ethylbenzene 0.75 mg/l
total xylenes 0.62 mg/l
methylene chloride 0.1 mg/l
chloroform 0.1 mg/l
1, 1 -dichloroethane 0.025 mg/l
ethylene dibromide (EDB) 0.0001 mg/l
1, 1, 1 -trichloroethane 0.06 mg/l
1, 1,2-trichloroethane 0.01 mg/l
1, 1,2,2-tetrachloroethane 0.01 mg/l
vinyl chloride 0.001 mg/l
PAH'S: total naphthalene plus
monomethylnaphthalenes 0.03 mg/l
benzo-a-pyrene 0.0007 mg/l

B. Other Standards for Domestic Water Supply

Chloride (Cl) 250. mg/l
Copper (Cu) 1.0 mg/l
Iron (Fe) 1.0 mg/l
Manganese (Mn) 0.2 mg/l
Phenols 0.005 mg/l
Sulfate (SO₄) 600. mg/l
Total Dissolved Solids (TDS) 1000. mg/l
Zinc (Zn) 10. mg/l
pH between 6 and 9

C. Standards for Irrigation Use

Ground water shall meet the standards of subsections A, B, and C unless otherwise provided.

Aluminum (Al) 5.0 mg/l
Boron (B) 0.75 mg/l
Cobalt (Co) 0.05 mg/l
Molybdenum (Mo) 1.0 mg/l
Nickel (Ni) 0.2 mg/l

**XENCO Laboratories**

Atlanta, Boca Raton, Corpus Christi, Dallas
Houston, Miami, Odessa, Philadelphia
Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Client: Legacy Reserves
Date/Time: 7-19-11 10:15
Lab ID #: 423540
Initials: AE

Sample Receipt Checklist

1. Samples on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	<u>N/A</u>	
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample label(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	<u>Yes</u>	No	<u>N/A</u>	
17. VOC sample have zero head space?	<u>Yes</u>	No	N/A	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs <u>5.1</u> °C	lbs °C	lbs °C	lbs °C	lbs °C

Nonconformance Documentation

Contact: _____ Contacted by: _____ Date/Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that apply: ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.
☐ Initial and Backup Temperature confirm out of temperature conditions
☐ Client understands and would like to proceed with analysis