

# **Analytical Report 573842**

**for**  
**SKG Engineering**

**Project Manager: Stephanie Cheatham**

**City of Big Lake**

**31-JAN-18**

Collected By: Client



**4147 Greenbriar Dr.**  
**Stafford, TX 77477**

Xenco-Houston (EPA Lab code: TX00122):  
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)  
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):  
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)  
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)  
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)  
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)  
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)  
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)



31-JAN-18

Project Manager: **Stephanie Cheatheam**  
**SKG Engineering**  
706 South Abe Street  
San Angelo, TX 76903

Reference: XENCO Report No(s): **573842**  
**City of Big Lake**  
Project Address:

**Stephanie Cheatheam:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 573842. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 573842 will be filed for 45 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,

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**Kalei Stout**  
Project Manager

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## CASE NARRATIVE

*Client Name: SKG Engineering*

*Project Name: City of Big Lake*

Project ID:

Work Order Number(s): 573842

Report Date: 31-JAN-18

Date Received: 01/18/2018

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### **Sample receipt non conformances and comments:**

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

None

#### **Analytical non conformances and comments:**

Batch: LBA-3039141 Hardness, Total by EPA 130.1

Lab Sample ID 573842-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Hardness, Total (CaCO<sub>3</sub>) recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 573842-001, -002, -003.

The Laboratory Control Sample for Hardness, Total (CaCO<sub>3</sub>) is within laboratory Control Limits, therefore the data was accepted.



# Certificate of Analysis Summary 573842

SKG Engineering, San Angelo, TX

Project Name: City of Big Lake



Project Id:

Contact: Stephanie Cheatham

Project Location:

Date Received in Lab: Thu Jan-18-18 10:30 am

Report Date: 31-JAN-18

Project Manager: Kalei Stout

<b>Analysis Requested</b>	<b>Lab Id:</b>	573842-001	573842-002	573842-003			
	<b>Field Id:</b>	18-0092 LCR 021	18-0093 EWQP	18-0094 DST CRRT			
	<b>Depth:</b>						
	<b>Matrix:</b>	LIQUID	LIQUID	LIQUID			
	<b>Sampled:</b>	Jan-17-18 08:23	Jan-17-18 08:40	Jan-17-18 09:00			
<b>Alkalinity by SM2320B SUB: TX104704215-17-23</b>	<b>Extracted:</b>	Jan-19-18 14:00	Jan-19-18 14:00	Jan-19-18 14:00			
	<b>Analyzed:</b>	Jan-19-18 20:21	Jan-19-18 20:33	Jan-19-18 20:39			
	<b>Units/RL:</b>	mg/L RL	mg/L RL	mg/L RL			
Alkalinity, Total (CaCO <sub>3</sub> )		192 4.00	191 4.00	191 4.00			
<b>Hardness, Total by EPA 130.1 SUB: TX104704215-17-23</b>	<b>Extracted:</b>	Jan-24-18 11:00	Jan-24-18 11:00	Jan-24-18 11:00			
	<b>Analyzed:</b>	Jan-24-18 13:39	Jan-24-18 13:46	Jan-24-18 13:46			
	<b>Units/RL:</b>	mg/L RL	mg/L RL	mg/L RL			
Hardness, Total (CaCO <sub>3</sub> ) *		292 27.0	322 27.0	284 27.0			
<b>Inorganic Anions by EPA 300 SUB: TX104704215-17-23</b>	<b>Extracted:</b>	Jan-19-18 12:29	Jan-19-18 12:29	Jan-19-18 12:29			
	<b>Analyzed:</b>	Jan-20-18 08:10	Jan-20-18 08:24	Jan-20-18 08:37			
	<b>Units/RL:</b>	mg/L RL	mg/L RL	mg/L RL			
Chloride		55.2 10.0	54.0 10.0	58.2 10.0			
Sulfate		151 10.0	146 10.0	151 10.0			
<b>Metals by EPA 200.8 SUB: TX104704215-17-23</b>	<b>Extracted:</b>	Jan-20-18 10:30	Jan-20-18 10:30	Jan-20-18 10:30			
	<b>Analyzed:</b>	Jan-20-18 16:23	Jan-20-18 16:26	Jan-20-18 16:37			
	<b>Units/RL:</b>	mg/L RL	mg/L RL	mg/L RL			
Iron		<0.0200 0.0200	<0.0200 0.0200	<0.0200 0.0200			
Manganese		0.00458 0.00200	<0.00200 0.00200	<0.00200 0.00200			
<b>Metals per ICP by EPA 200.7 SUB: TX104704215-17-23</b>	<b>Extracted:</b>	Jan-20-18 11:00	Jan-20-18 11:00	Jan-20-18 11:00			
	<b>Analyzed:</b>	Jan-22-18 16:42	Jan-22-18 20:45	Jan-22-18 20:49			
	<b>Units/RL:</b>	mg/L RL	mg/L RL	mg/L RL			
Calcium		65.0 0.200	67.0 0.200	66.3 0.200			
Sodium		73.0 0.500	72.8 2.50	73.5 2.50			

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

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Kalei Stout  
Project Manager



# Certificate of Analysis Summary 573842

SKG Engineering, San Angelo, TX

Project Name: City of Big Lake



Project Id:

Contact: Stephanie Cheatham

Project Location:

Date Received in Lab: Thu Jan-18-18 10:30 am

Report Date: 31-JAN-18

Project Manager: Kalei Stout

<b>Analysis Requested</b>	<b>Lab Id:</b>	573842-001	573842-002	573842-003			
	<b>Field Id:</b>	18-0092 LCR 021	18-0093 EWQP	18-0094 DST CRRT			
	<b>Depth:</b>						
	<b>Matrix:</b>	LIQUID	LIQUID	LIQUID			
	<b>Sampled:</b>	Jan-17-18 08:23	Jan-17-18 08:40	Jan-17-18 09:00			
<b>Specific Conductance by SM2510B SUB: TX104704215-17-23</b>	<b>Extracted:</b>						
	<b>Analyzed:</b>	Jan-22-18 08:30	Jan-22-18 08:30	Jan-22-18 08:30			
	<b>Units/RL:</b>	uS/cm RL	uS/cm RL	uS/cm RL			
Conductivity		914	913	914			
<b>TDS by SM2540C SUB: TX104704215-17-23</b>	<b>Extracted:</b>						
	<b>Analyzed:</b>	Jan-24-18 12:00	Jan-24-18 12:00	Jan-24-18 12:00			
	<b>Units/RL:</b>	mg/L RL	mg/L RL	mg/L RL			
Total Dissolved Solids		502 5.00	591 5.00	613 5.00			

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Version: 1.9%

Kalei Stout  
Project Manager

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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

+ NELAC certification not offered for this compound.

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

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(602) 437-0330	



# BS / BSD Recoveries



Project Name: City of Big Lake

Work Order #: 573842

Project ID:

Analyst: DHE

Date Prepared: 01/19/2018

Date Analyzed: 01/19/2018

Lab Batch ID: 3038819

Sample: 7637828-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

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

Alkalinity by SM2320B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Alkalinity, Total (CaCO <sub>3</sub> )	<4.00	500	481	96	500	486	97	1	80-120	20	

Analyst: KCS

Date Prepared: 01/24/2018

Date Analyzed: 01/24/2018

Lab Batch ID: 3039141

Sample: 7637993-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

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

Hardness, Total by EPA 130.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Hardness, Total (CaCO <sub>3</sub> )	<27.0	100	102	102	100	101	101	1	80-120	25	

Analyst: MAB

Date Prepared: 01/19/2018

Date Analyzed: 01/19/2018

Lab Batch ID: 3038776

Sample: 7637775-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

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

Inorganic Anions by EPA 300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.500	10.0	9.36	94	10.0	9.35	94	0	90-110	20	
Sulfate	<0.500	10.0	9.36	94	10.0	9.34	93	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: City of Big Lake

Work Order #: 573842

Project ID:

Analyst: DEP

Date Prepared: 01/20/2018

Date Analyzed: 01/20/2018

Lab Batch ID: 3038743

Sample: 7637778-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

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

Metals by EPA 200.8	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											
Iron	<0.0200	0.500	0.481	96	0.500	0.483	97	0	85-115	20	
Manganese	<0.00200	0.100	0.0986	99	0.100	0.0973	97	1	85-115	20	

Analyst: DEP

Date Prepared: 01/20/2018

Date Analyzed: 01/22/2018

Lab Batch ID: 3038998

Sample: 7637779-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

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

Metals per ICP by EPA 200.7	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											
Calcium	<0.200	25.0	25.7	103	25.0	25.9	104	1	85-115	20	
Sodium	<0.500	25.0	26.7	107	25.0	26.8	107	0	85-115	20	

Analyst: MJP

Date Prepared: 01/22/2018

Date Analyzed: 01/22/2018

Lab Batch ID: 3038834

Sample: 3038834-1-BKS

Batch #: 1

Matrix: Water

Units: uS/cm

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

Specific Conductance by SM2510B	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											
Conductivity	0.230	1410	1420	101	1410	1420	101	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





# BS / BSD Recoveries



Project Name: City of Big Lake

Work Order #: 573842

Project ID:

Analyst: YAV

Date Prepared: 01/24/2018

Date Analyzed: 01/24/2018

Lab Batch ID: 3039150

Sample: 3039150-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

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

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
Analytes											
Total Dissolved Solids	<5.00	1000	984	98	1000	994	99	1	80-120	10	

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: City of Big Lake



Work Order #: 573842

Lab Batch #: 3038743

Date Analyzed: 01/20/2018

QC- Sample ID: 573842-002 S

Reporting Units: mg/L

Date Prepared: 01/20/2018

Batch #: 1

Project ID:

Analyst: DEP

Matrix: Liquid

MATRIX / MATRIX SPIKE RECOVERY STUDY						
Metals by EPA 200.8  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Iron	<0.0200	0.500	0.495	99	70-130	
Manganese	<0.00200	0.100	0.0974	97	70-130	

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

BRL - Below Reporting Limit



# Form 3 - MS / MSD Recoveries



Project Name: City of Big Lake

Work Order # : 573842

Project ID:

Lab Batch ID: 3039141

QC- Sample ID: 573842-001 S

Batch #: 1 Matrix: Liquid

Date Analyzed: 01/24/2018

Date Prepared: 01/24/2018

Analyst: KCS

Reporting Units: mg/L

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Hardness, Total by EPA 130.1 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
Hardness, Total (CaCO <sub>3</sub> )	292	100	348	56	100	341	49	2	80-120	25	X

Lab Batch ID: 3038776

QC- Sample ID: 573820-001 S

Batch #: 1 Matrix: Liquid

Date Analyzed: 01/20/2018

Date Prepared: 01/19/2018

Analyst: MAB

Reporting Units: mg/L

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 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
Chloride	102	200	314	106	200	311	105	1	90-110	20	
Sulfate	155	200	366	106	200	365	105	0	90-110	20	

Lab Batch ID: 3038776

QC- Sample ID: 574040-001 S

Batch #: 1 Matrix: Ground Water

Date Analyzed: 01/19/2018

Date Prepared: 01/19/2018

Analyst: MAB

Reporting Units: mg/L

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 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
Chloride	209	10.0	216	70	10.0	216	70	0	90-110	20	X
Sulfate	160	10.0	168	80	10.0	167	70	1	90-110	20	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 Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



# Form 3 - MS / MSD Recoveries



Project Name: City of Big Lake

Work Order #: 573842

Project ID:

Lab Batch ID: 3038743

QC- Sample ID: 573770-001 S

Batch #: 1 Matrix: Drinking Water

Date Analyzed: 01/20/2018

Date Prepared: 01/20/2018

Analyst: DEP

Reporting Units: mg/L

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Metals by EPA 200.8 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
Iron	<0.0200	0.500	0.504	101	0.500	0.483	97	4	70-130	20	
Manganese	<0.00200	0.100	0.0967	97	0.100	0.0987	99	2	70-130	20	

Lab Batch ID: 3038998

QC- Sample ID: 573842-001 S

Batch #: 1 Matrix: Liquid

Date Analyzed: 01/22/2018

Date Prepared: 01/20/2018

Analyst: DEP

Reporting Units: mg/L

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Metals per ICP by EPA 200.7 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
Calcium	65.0	25.0	90.0	100	25.0	89.5	98	1	70-130	20	
Sodium	73.0	25.0	99.2	105	25.0	99.1	104	0	70-130	20	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

**Project Name: City of Big Lake**

**Work Order #: 573842**

**Lab Batch #: 3038819**

**Project ID:**

**Date Analyzed: 01/19/2018 19:20**

**Date Prepared: 01/19/2018**

**Analyst: DHE**

**QC- Sample ID: 573763-006 D**

**Batch #: 1**

**Matrix: Water**

**Reporting Units: mg/L**

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

Alkalinity by SM2320B	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Alkalinity, Total (CaCO <sub>3</sub> )	187	185	1	20	

**Lab Batch #: 3038819**

**Date Analyzed: 01/19/2018 20:27**

**Date Prepared: 01/19/2018**

**Analyst: DHE**

**QC- Sample ID: 573842-001 D**

**Batch #: 1**

**Matrix: Liquid**

**Reporting Units: mg/L**

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

Alkalinity by SM2320B	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Alkalinity, Total (CaCO <sub>3</sub> )	192	192	0	20	

**Lab Batch #: 3038834**

**Date Analyzed: 01/22/2018 08:30**

**Date Prepared: 01/22/2018**

**Analyst: MJP**

**QC- Sample ID: 573974-001 D**

**Batch #: 1**

**Matrix: Ground Water**

**Reporting Units: uS/cm**

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

Specific Conductance by SM2510B	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Conductivity	1580	1580	0	20	

**Lab Batch #: 3038834**

**Date Analyzed: 01/22/2018 08:30**

**Date Prepared: 01/22/2018**

**Analyst: MJP**

**QC- Sample ID: 573758-010 D**

**Batch #: 11**

**Matrix: Water**

**Reporting Units: uS/cm**

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

Specific Conductance by SM2510B	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Conductivity	114000	114000	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: City of Big Lake**

**Work Order #: 573842**

**Lab Batch #: 3039150**

**Project ID:**

**Date Analyzed: 01/24/2018 12:00**

**Date Prepared: 01/24/2018**

**Analyst: YAV**

**QC- Sample ID: 573795-001 D**

**Batch #: 1**

**Matrix: Water**

**Reporting Units: mg/L**

## SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total Dissolved Solids	1600	1560	3	10	

**Lab Batch #: 3039150**

**Date Analyzed: 01/24/2018 12:00**

**Date Prepared: 01/24/2018**

**Analyst: YAV**

**QC- Sample ID: 574167-003 D**

**Batch #: 1**

**Matrix: Water**

**Reporting Units: mg/L**

## SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total Dissolved Solids	72300	71300	1	10	

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

Final 1.000

573842





TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
WATER QUALITY PARAMETER MONITORING FORM 20679

Completed by PWS (or Agent)

Completed by Laboratory

PWS Name:		City of Big Lake				Laboratory Name:																																																					
PWS ID#:		TX 1920001				TCEQ Lab ID #:																																																					
PWS Address:		203 North Plaza				Laboratory Address:																																																					
PWS Contact:		Edward Marquez				Laboratory Contact:																																																					
PWS Contact Phone #:		325-884-2511				Laboratory Contact Phone #:																																																					
Inhibitor or Stabilizer Used (Y/N):		Phosphate	Silica	Calcium carbonate	Laboratory Contact Phone #:																																																						
TREATMENT		Alkalinity Dose Rate:	Inhibitor Dose Rate:	Laboratory Contact Phone #:																																																							
Sample Information																																																											
Sample Type (Y/N):	Compliance	Non-compliance	3rd Party Contractor --> LAB ID	AL																																																							
Sample Collector (Y/N):	Public Water System	Accredited Lab	Water temperature and pH measured in the field within 15 minutes of sample collection?	Use.																																																							
Temperature and pH (Y or N):	Y	Are temperature and pH included on the sampling entity's Laboratory Approval Form on file at the TCEQ?	Y	Parameters Requested: Analyses are required for the parameters checked. * If inhibitors containing phosphate or silica are used, then these parameters should also be analyzed depending on which is in use.																																																							
Facility ID (e.g., DS01, PBCU001)	Sample Point ID (e.g., DSTWOP, EWOP)	Sample Location	Date (MMDDYY)	Time - 24 hr (HHMM)	pH	Temp (°C)	Replacement?	Original Sample ID #	Original Sample Date (MMDDYY)	Lab Sample ID	Alkalinity (1927)	Calcium (1919)	Chloride (1017)	Conductivity (1064)	Hardness (1915)	Iron (1028)	Manganese (1032)	Sodium (1052)	Sulfate (1055)	TDS (1930)	O-Phosphate (1044) *	Silica (1049) *																																					
DS01	LCR02A-	909 4th St.	1-17-18	8:23am	7.41	14.3°C				573842-01	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																																				
DS01	DS-A	12th & Hwy 137	1-17-18	8:40am	7.53	14.7				573842-02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																																				
DS01	DS-A	12th & Hwy 137	1-17-18	8:40am	7.53	14.7				573842-03	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																																				
DS01	DS-A	12th & Hwy 137	1-17-18	9:00am	7.29	14.4					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																																				
DS01	DS-A	12th & Hwy 137	1-17-18	9:00am	7.29	14.4					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																																				
Acknowledgment: I acknowledge that information on this form is true and correct and sites selected for sampling follow the instructions in the TCEQ Monitoring and Sample Collection Guidance for Water Quality Parameters. This includes, but not limited to the measurement of pH and temperature immediately upon collection. Falsification of this form or tampering with water samples is a crime punishable under state and/or federal law. (Texas Penal Code, Title 8, Chapter 37.10)												Sample Conditions Upon Receipt (Y)																																															
Name of Authorized PWS Representative (Print)												Signature		Organization		Date		Rejection Code (if applicable):												Actual/Corrected sample temperature:		Thermometer ID #:																											
Edward Marquez												Edward Marquez		City of Big Lake		1-17-18		11/18/18 12:05																																									
Chain of Custody												Relinquished By Counter (Signature)												Relinquished By Counter (Signature)												Relinquished By Counter (Signature)																							
Edward Marquez												Edward Marquez												Edward Marquez												Edward Marquez																							
Received By Counter (Signature)												Date/Time: 1-17-18 9:17												Received By Lab (Signature)												Date/Time: 1-17-18 11:25am																							
TCEQ 20679 (Rev. 12/2017)												IR ID: HOU-068												C/F: 0.4												Temp: 1.8												Corrected: 2.1											





Airbill No. ZW480783

Lone Star Overnight  
1-800-800-8984  
www.lso.com

**SHIP TO:**  
**XENCO LABORATORIES**  
**XENCO LABORATORIES**  
**4147 GREENBRIAR DR**  
**STAFFORD, TX 77477**  
**2812404200**

From:  
TESS HEIDELBERG-GARZA  
SKG ENGINEERING, LLC  
706 SOUTH ABE  
WATER/WASTEWATER LAB  
SAN ANGELO, TX 76903  
3256551288

CUSTODY SEAL

DATE 1.17.18

SIGNATURE

**W SHB**

**LSO GROUND**  
END OF BUSINESS DAY DELIVERY

PRINT DATE: 1/17/2018  
QUICKCODE: XENCO STAFFORD  
REF 1: 1D00V.0000

WEIGHT: 65.00LBS

1.8

Fold on above line and place shipping label in pouch on package. Please be sure the barcodes and addresses can be read and scanned. Shipping Instructions

1. Fold this page along the horizontal line above.
2. Place this Airbill in the shipping label pouch on the package you are shipping. Please be sure the barcodes and addresses can be read and scanned.
3. To locate a drop box near you, click on **Find A Drop Box** from the home page main menu.
4. To schedule a pickup, click on **Request Pickup**.

**WARNING:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your Lone Star Overnight account number.

This label is valid for use for 3 months from the date printed. Use of expired labels may result in delayed billing and / or additional research charges. **LIMIT**

**OF LIABILITY:** We are not responsible for claims in excess of \$100 for any reason unless you: 1) declare a greater value (not to exceed \$25,000); 2) pay an additional fee; 3) and document your actual loss in a timely manner. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages. Additional limitations of liability are contained in our current Service Guide. If you ask us to deliver a package without obtaining a delivery signature, you release us of all liability for claims resulting from such service. **NO DELIVERY SIGNATURE WILL BE OBTAINED FOR 8:30 AM DELIVERIES OR RESIDENTIAL DELIVERIES.**



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: SKG Engineering

Date/ Time Received: 01/18/2018 10:30:00 AM

Work Order #: 573842

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-068

### Sample Receipt Checklist

### Comments

#1 *Temperature of cooler(s)?	2.1	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	Yes	
#5 Custody Seals intact on sample bottles?	Yes	
#6 *Custody Seals Signed and dated?	Yes	
#7 *Chain of Custody present?	Yes	
#8 Any missing/extra samples?	No	
#9 Chain of Custody signed when relinquished/ received?	Yes	
#10 Chain of Custody agrees with sample labels/matrix?	Yes	
#11 Container label(s) legible and intact?	Yes	
#12 Samples in proper container/ bottle?	Yes	
#13 Samples properly preserved?	Yes	preserved one bottle on 1/18/18 @ 12:05 with hno3 lot# 5152210-2
#14 Sample container(s) intact?	Yes	
#15 Sufficient sample amount for indicated test(s)?	Yes	
#16 All samples received within hold time?	Yes	
#17 Subcontract of sample(s)?	No	
#18 Water VOC samples have zero headspace?	N/A	

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

Analyst: heg

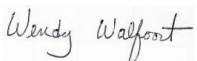
PH Device/Lot#: 10bdh2271

Checklist completed by:

  
Heidi Goertz

Date: 01/18/2018

Checklist reviewed by:

  
Wendy Walfoort

Date: 01/22/2018