

# Analytical Report 562480

for  
**ESE Partners**

**Project Manager: Bryan Gay**

**Tex Tin Superfund Site**

**15-0342**

**13-SEP-17**

Collected By: Client



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

Xenco-Houston (EPA Lab code: TX00122):  
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)  
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)  
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)  
Xenco-San Antonio: Texas (T104704534)  
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)  
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

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13-SEP-17

Project Manager: **Bryan Gay**

**ESE Partners**

19416 Park Row, Suite 120

Houston, TX 77084

Reference: XENCO Report No(s): **562480**

**Tex Tin Superfund Site**

Project Address: Texas City, Galveston County, Texas

**Bryan Gay:**

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) 562480. 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. 562480 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,

**Debbie Simmons**

Project Manager

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# Sample Cross Reference 562480



## ESE Partners, Houston, TX

Tex Tin Superfund Site

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
HH-S1	S	09-11-17 10:45	0 - 1	562480-001
HH-S2	S	09-11-17 11:00	0 - 1	562480-002
HH-S3	S	09-11-17 11:30	0 - 1	562480-003
HH-S4	S	09-11-17 11:45	0 - 1	562480-004
MW-24S_Stable	W	09-11-17 12:40		562480-005
Trip Blank	W	09-11-17 00:00		Not Analyzed



*Client Name: ESE Partners*

*Project Name: Tex Tin Superfund Site*

*Project ID: 15-0342*

*Work Order Number: 562480*

*Report Date: 13-SEP-17*

*Date Received: 11-SEP-17*

---

per Aaron Munsart, the VOC reporting list needed is:

Benzene  
Bromodichloromethane  
Bromoform  
Chlorodibromomethane  
Chloroform  
1,2-Dichloroethane



*Debbie Simmons*  
Project Manager



# Certificate of Analytical Results

## 562480



### ESE Partners, Houston, TX

#### Tex Tin Superfund Site

Sample Id: **HH-S1**

Matrix: Soil

Sample Depth: 0 - 1

Lab Sample Id: 562480-001

Date Collected: 09.11.17 10.45

Date Received: 09.11.17 14.35

Analytical Method: Total RCRA Metals by SW6020A

Prep Method: 3050B

Analyst: DEP

% Moist: 22.72

Tech: DEP

Seq Number: 3027386

Date Prep: 09.12.17 10.50

Prep seq: 730761

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	<b>6.37</b>	2.44	0.753	mg/kg	09.12.17 16:42		9
Lead	7439-92-1	<b>14.0</b>	2.44	0.236	mg/kg	09.12.17 16:42		9

Sample Id: **HH-S2**

Matrix: Soil

Sample Depth: 0 - 1

Lab Sample Id: 562480-002

Date Collected: 09.11.17 11.00

Date Received: 09.11.17 14.35

Analytical Method: Total RCRA Metals by SW6020A

Prep Method: 3050B

Analyst: DEP

% Moist: 16.98

Tech: DEP

Seq Number: 3027386

Date Prep: 09.12.17 10.50

Prep seq: 730761

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	<b>14.8</b>	2.04	0.630	mg/kg	09.12.17 16:46		8
Lead	7439-92-1	<b>46.7</b>	2.04	0.198	mg/kg	09.12.17 16:46		8

Sample Id: **HH-S3**

Matrix: Soil

Sample Depth: 0 - 1

Lab Sample Id: 562480-003

Date Collected: 09.11.17 11.30

Date Received: 09.11.17 14.35

Analytical Method: Total RCRA Metals by SW6020A

Prep Method: 3050B

Analyst: DEP

% Moist: 14.94

Tech: DEP

Seq Number: 3027386

Date Prep: 09.12.17 10.50

Prep seq: 730761

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	<b>5.64</b>	2.06	0.636	mg/kg	09.12.17 16:49		9
Lead	7439-92-1	<b>16.3</b>	2.06	0.200	mg/kg	09.12.17 16:49		9



**Certificate of Analytical Results**  
**562480**



**ESE Partners, Houston, TX**  
Tex Tin Superfund Site

Sample Id: **HH-S4**

Matrix: Soil

Sample Depth: 0 - 1

Lab Sample Id: 562480-004

Date Collected: 09.11.17 11.45

Date Received: 09.11.17 14.35

Analytical Method: Total RCRA Metals by SW6020A

Prep Method: 3050B

Analyst: DEP

% Moist: 28.39

Tech: DEP

Seq Number: 3027386

Date Prep: 09.12.17 10.50

Prep seq: 730761

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	<b>39.5</b>	2.74	0.845	mg/kg	09.12.17 16:53		10
Lead	7439-92-1	<b>99.6</b>	2.74	0.265	mg/kg	09.12.17 16:53		10



# Certificate of Analytical Results

## 562480



### ESE Partners, Houston, TX

#### Tex Tin Superfund Site

Sample Id: **MW-24S\_Stable**

Matrix: Ground Water

Sample Depth:

Lab Sample Id: 562480-005

Date Collected: 09.11.17 12.40

Date Received: 09.11.17 14.35

Analytical Method: Total RCRA Metals by SW6020A

Prep Method: 3010A

Analyst: DEP

% Moist:

Tech: DEP

Seq Number: 3027417

Date Prep: 09.12.17 09.30

Prep seq: 730756

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
<b>Antimony</b>	7440-36-0	<b>0.00191</b>	0.00200	0.000240	mg/L	09.12.17 17:17	J	1
<b>Arsenic</b>	7440-38-2	<b>0.00213</b>	0.00200	0.000246	mg/L	09.12.17 17:17		1
<b>Barium</b>	7440-39-3	<b>0.240</b>	0.00400	0.000484	mg/L	09.12.17 17:17		1
Beryllium	7440-41-7	<0.000131	0.00200	0.000131	mg/L	09.12.17 17:17	U	1
<b>Cadmium</b>	7440-43-9	<b>0.0684</b>	0.00200	0.000147	mg/L	09.12.17 17:17		1
<b>Chromium</b>	7440-47-3	<b>0.000676</b>	0.00400	0.000525	mg/L	09.12.17 17:17	J	1
<b>Copper</b>	7440-50-8	<b>1.71</b>	0.00400	0.000747	mg/L	09.12.17 17:17		1
<b>Nickel</b>	7440-02-0	<b>0.0170</b>	0.00200	0.000292	mg/L	09.12.17 17:17		1
Selenium	7782-49-2	<0.000454	0.00200	0.000454	mg/L	09.12.17 17:17	U	1

Analytical Method: Mercury by SW-846 7470A

Prep Method: SW7470P

Analyst: DHE

% Moist:

Tech: DHE

Seq Number: 3027353

Date Prep: 09.12.17 10.35

Prep seq: 730767

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
<b>Mercury</b>	7439-97-6	<b>0.000289</b>	0.000200	0.0000263	mg/L	09.12.17 14:39	X	1



# Certificate of Analytical Results

## 562480



### ESE Partners, Houston, TX

#### Tex Tin Superfund Site

Sample Id: **MW-24S\_Stable**

Matrix: Ground Water

Sample Depth:

Lab Sample Id: 562480-005

Date Collected: 09.11.17 12.40

Date Received: 09.11.17 14.35

Analytical Method: VOCs by SW-846 8260B

Prep Method: 5030B

Analyst: SAD

% Moist:

Tech: SAD

Seq Number: 3027336

Date Prep: 09.11.17 16.30

Prep seq: 730771

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
<b>Benzene</b>	71-43-2	<b>0.0929</b>	0.00500	0.000185	mg/L	09.11.17 17:15		1
Bromodichloromethane	75-27-4	<0.000164	0.00500	0.000164	mg/L	09.11.17 17:15	U	1
Bromoform	75-25-2	<0.000348	0.00500	0.000348	mg/L	09.11.17 17:15	U	1
Chloroform	67-66-3	<0.000107	0.00500	0.000107	mg/L	09.11.17 17:15	U	1
Dibromochloromethane	124-48-1	<0.000212	0.00500	0.000212	mg/L	09.11.17 17:15	U	1
<b>1,2-Dichloroethane</b>	107-06-2	<b>0.000570</b>	0.00500	0.000283	mg/L	09.11.17 17:15	J	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	109	75 - 131	%		
1,2-Dichloroethane-D4	107	63 - 144	%		
Toluene-D8	103	80 - 117	%		
4-Bromofluorobenzene	97	74 - 124	%		



**Certificate of Analytical Results**  
**562480**



**ESE Partners, Houston, TX**  
**Tex Tin Superfund Site**

Sample Id: **730756-1-BLK**

Matrix: Water

Sample Depth:

Lab Sample Id: 730756-1-BLK

Date Collected:

Date Received:

Analytical Method: Total RCRA Metals by SW6020A

Prep Method: 3010A

Analyst: DEP

% Moist:

Tech: DEP

Seq Number: 3027417

Date Prep: 09.12.17 09.30

Prep seq: 730756

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Antimony	7440-36-0	<0.000240	0.00200	0.000240	mg/L	09.12.17 17:07	U	1
Arsenic	7440-38-2	<0.000246	0.00200	0.000246	mg/L	09.12.17 17:07	U	1
Barium	7440-39-3	<0.000484	0.00400	0.000484	mg/L	09.12.17 17:07	U	1
Beryllium	7440-41-7	<0.000131	0.00200	0.000131	mg/L	09.12.17 17:07	U	1
Cadmium	7440-43-9	<0.000147	0.00200	0.000147	mg/L	09.12.17 17:07	U	1
Chromium	7440-47-3	<0.000525	0.00400	0.000525	mg/L	09.12.17 17:07	U	1
Copper	7440-50-8	<0.000747	0.00400	0.000747	mg/L	09.12.17 17:07	U	1
Nickel	7440-02-0	<0.000292	0.00200	0.000292	mg/L	09.12.17 17:07	U	1
Selenium	7782-49-2	<0.000454	0.00200	0.000454	mg/L	09.12.17 17:07	U	1

Sample Id: **730761-1-BLK**

Matrix: Solid

Sample Depth:

Lab Sample Id: 730761-1-BLK

Date Collected:

Date Received:

Analytical Method: Total RCRA Metals by SW6020A

Prep Method: 3050B

Analyst: DEP

% Moist:

Tech: DEP

Seq Number: 3027386

Date Prep: 09.12.17 10.50

Prep seq: 730761

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	<0.0617	0.200	0.0617	mg/kg	09.12.17 15:57	U	1
Lead	7439-92-1	<0.0194	0.200	0.0194	mg/kg	09.12.17 15:57	U	1

Sample Id: **730767-1-BLK**

Matrix: Water

Sample Depth:

Lab Sample Id: 730767-1-BLK

Date Collected:

Date Received:

Analytical Method: Mercury by SW-846 7470A

Prep Method: SW7470P

Analyst: DHE

% Moist:

Tech: DHE

Seq Number: 3027353

Date Prep: 09.12.17 10.35

Prep seq: 730767

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	<0.0000263	0.000200	0.0000263	mg/L	09.12.17 14:34	U	1



# Certificate of Analytical Results

## 562480



### ESE Partners, Houston, TX Tex Tin Superfund Site

Sample Id: **730771-1-BLK**

Matrix: Water

Sample Depth:

Lab Sample Id: 730771-1-BLK

Date Collected:

Date Received:

Analytical Method: VOCs by SW-846 8260B

Prep Method: 5030C

Analyst: SAD

% Moist:

Tech: SAD

Seq Number: 3027336

Date Prep: 09.11.17 11.50

Prep seq: 730771

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000185	0.00500	0.000185	mg/L	09.11.17 14:04		1
Bromodichloromethane	75-27-4	<0.000164	0.00500	0.000164	mg/L	09.11.17 14:04		1
Bromoform	75-25-2	<0.000348	0.00500	0.000348	mg/L	09.11.17 14:04		1
Chloroform	67-66-3	<0.000107	0.00500	0.000107	mg/L	09.11.17 14:04		1
Dibromochloromethane	124-48-1	<0.000212	0.00500	0.000212	mg/L	09.11.17 14:04		1
1,2-Dichloroethane	107-06-2	<0.000283	0.00500	0.000283	mg/L	09.11.17 14:04		1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	108	75 - 131	%		
1,2-Dichloroethane-D4	107	63 - 144	%		
Toluene-D8	102	80 - 117	%		
4-Bromofluorobenzene	97	74 - 124	%		

Analytical Method : Percent Moisture by SM2540G

Client : ESE Partners

Work Order #: **562480**

Project ID: 15-0342

Date Received: 09/11/17

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
HH-S1	562480-001	09/11/17				09/12/17	180	1	P
HH-S2	562480-002	09/11/17				09/12/17	180	1	P
HH-S3	562480-003	09/11/17				09/12/17	180	1	P
HH-S4	562480-004	09/11/17				09/12/17	180	1	P



CHRONOLOGY OF HOLDING TIMES



Analytical Method : Total RCRA Metals by SW6020A

Client : ESE Partners

Work Order #: 562480

Project ID: 15-0342

Date Received: 09/11/17

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
HH-S1	562480-001	09/11/17	09/12/17	180	1	09/12/17	180	0	P
HH-S2	562480-002	09/11/17	09/12/17	180	1	09/12/17	180	0	P
HH-S3	562480-003	09/11/17	09/12/17	180	1	09/12/17	180	0	P
HH-S4	562480-004	09/11/17	09/12/17	180	1	09/12/17	180	0	P
MW-24S_Stable	562480-005	09/11/17	09/12/17	180	1	09/12/17	180	0	P

Analytical Method : Mercury by SW-846 7470A

Client : ESE Partners

Work Order #: **562480**

Project ID: 15-0342

Date Received: 09/11/17

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-24S_Stable	562480-005	09/11/17				09/12/17	28	1	P

Analytical Method : VOCs by SW-846 8260B

Client : ESE Partners

Work Order #: **562480**

Project ID: 15-0342

Date Received: 09/11/17

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-24S_Stable	562480-005	09/11/17				09/11/17	14	0	P

F = These samples were analyzed outside the recommended holding time.

P = Samples analyzed within the recommended holding time.

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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

+ NELAC certification not offered for this compound.

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

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 1211 W Florida Ave, Midland, TX 79701  
 2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(432) 563-1800	(432) 563-1713
(602) 437-0330	





Analytical Log

Analytical Method: VOCs by SW-846 8260B  
Project Name: Tex Tin Superfund Site  
Client Name: ESE Partners

Batch #: 3027336  
Project ID: 15-0342  
WO Number: 562480

<b>Client Sample Id</b>	<b>Lab Sample Id</b>	<b>QC Types</b>
<u>MW-24S_Stable</u>	<u>562480-005</u>	<u>SMP</u>
<u></u>	<u>562318-001 S</u>	<u>MS</u>
<u></u>	<u>730771-1-BKS</u>	<u>BKS</u>
<u></u>	<u>730771-1-BLK</u>	<u>BLK</u>
<u></u>	<u>730771-1-BSD</u>	<u>BSD</u>



Analytical Log

Analytical Method: Mercury by SW-846 7470A  
Project Name: Tex Tin Superfund Site  
Client Name: ESE Partners

Batch #: 3027353  
Project ID: 15-0342  
WO Number: 562480

<b>Client Sample Id</b>	<b>Lab Sample Id</b>	<b>QC Types</b>
<u>MW-24S_Stable</u>	<u>562480-005</u>	<u>SMP</u>
<u></u>	<u>562476-001 S</u>	<u>MS</u>
<u></u>	<u>562476-001 SD</u>	<u>MSD</u>
<u></u>	<u>562480-005 S</u>	<u>MS</u>
<u></u>	<u>562480-005 SD</u>	<u>MSD</u>
<u></u>	<u>730767-1-BKS</u>	<u>BKS</u>
<u></u>	<u>730767-1-BLK</u>	<u>BLK</u>
<u></u>	<u>730767-1-BSD</u>	<u>BSD</u>





Analytical Log

Analytical Method: Total RCRA Metals by SW6020A Batch #: 3027417  
Project Name: Tex Tin Superfund Site Project ID: 15-0342  
Client Name: ESE Partners WO Number: 562480

<b>Client Sample Id</b>	<b>Lab Sample Id</b>	<b>QC Types</b>
<u>MW-24S_Stable</u>	<u>562480-005</u>	<u>SMP</u>
<u></u>	<u>562480-005 S</u>	<u>MS</u>
<u></u>	<u>562480-005 SD</u>	<u>MSD</u>
<u></u>	<u>730756-1-BKS</u>	<u>BKS</u>
<u></u>	<u>730756-1-BLK</u>	<u>BLK</u>
<u></u>	<u>730756-1-BSD</u>	<u>BSD</u>

# Form 2 - Surrogate Recoveries

**Project Name: Tex Tin Superfund Site**

**Work Orders :** 562480,

**Project ID:** 15-0342

**Lab Batch #:** 3027336

**Sample:** 730771-1-BKS / BKS

**Batch:** 1 **Matrix:** Water

Units: mg/L	Date Analyzed: 09/11/17 11:42	SURROGATE RECOVERY STUDY			
VOCs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0524	0.0500	105	75-131	
1,2-Dichloroethane-D4	0.0508	0.0500	102	63-144	
Toluene-D8	0.0496	0.0500	99	80-117	
4-Bromofluorobenzene	0.0488	0.0500	98	74-124	

**Lab Batch #:** 3027336

**Sample:** 730771-1-BSD / BSD

**Batch:** 1 **Matrix:** Water

Units: mg/L	Date Analyzed: 09/11/17 12:27	SURROGATE RECOVERY STUDY			
VOCs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0523	0.0500	105	75-131	
1,2-Dichloroethane-D4	0.0524	0.0500	105	63-144	
Toluene-D8	0.0504	0.0500	101	80-117	
4-Bromofluorobenzene	0.0500	0.0500	100	74-124	

**Lab Batch #:** 3027336

**Sample:** 562318-001 S / MS

**Batch:** 1 **Matrix:** Water

Units: mg/L	Date Analyzed: 09/11/17 12:56	SURROGATE RECOVERY STUDY			
VOCs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0532	0.0500	106	75-131	
1,2-Dichloroethane-D4	0.0513	0.0500	103	63-144	
Toluene-D8	0.0505	0.0500	101	80-117	
4-Bromofluorobenzene	0.0501	0.0500	100	74-124	

**Lab Batch #:** 3027336

**Sample:** 730771-1-BLK / BLK

**Batch:** 1 **Matrix:** Water

Units: mg/L	Date Analyzed: 09/11/17 14:04	SURROGATE RECOVERY STUDY			
VOCs by SW-846 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0539	0.0500	108	75-131	
1,2-Dichloroethane-D4	0.0534	0.0500	107	63-144	
Toluene-D8	0.0508	0.0500	102	80-117	
4-Bromofluorobenzene	0.0485	0.0500	97	74-124	

\* Surrogate outside of Laboratory QC limits  
 \*\* Surrogates outside limits; data and surrogates confirmed by reanalysis  
 \*\*\* Poor recoveries due to dilution  
 Surrogate Recovery [D] = 100 \* A / B  
 All results are based on MDL and validated for QC purposes.



# BS / BSD Recoveries



**Project Name: Tex Tin Superfund Site**

**Work Order #: 562480**

**Project ID: 15-0342**

**Analyst: DHE**

**Date Prepared: 09/12/2017**

**Date Analyzed: 09/12/2017**

**Lab Batch ID: 3027353**

**Sample: 730767-1-BKS**

**Batch #: 1**

**Matrix: Water**

**Units: mg/L**

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

<b>Mercury by SW-846 7470A</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Mercury	<0.0000263	0.00200	0.00180	90	0.00200	0.00185	93	3	80-120	20	

**Analyst: DEP**

**Date Prepared: 09/12/2017**

**Date Analyzed: 09/12/2017**

**Lab Batch ID: 3027417**

**Sample: 730756-1-BKS**

**Batch #: 1**

**Matrix: Water**

**Units: mg/L**

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

<b>Total RCRA Metals by SW6020A</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Antimony	<0.000240	0.100	0.0981	98	0.100	0.0972	97	1	80-120	20	
Arsenic	<0.000246	0.100	0.106	106	0.100	0.106	106	0	80-120	20	
Barium	<0.000484	0.100	0.0960	96	0.100	0.0964	96	0	80-120	20	
Beryllium	<0.000131	0.100	0.108	108	0.100	0.107	107	1	80-120	20	
Cadmium	<0.000147	0.100	0.104	104	0.100	0.103	103	1	80-120	20	
Chromium	<0.000525	0.100	0.105	105	0.100	0.103	103	2	80-120	20	
Copper	<0.000747	0.100	0.103	103	0.100	0.101	101	2	80-120	20	
Nickel	<0.000292	0.100	0.105	105	0.100	0.103	103	2	80-120	20	
Selenium	<0.000454	0.100	0.106	106	0.100	0.106	106	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: Tex Tin Superfund Site**

**Work Order #: 562480**

**Project ID: 15-0342**

**Analyst: DEP**

**Date Prepared: 09/12/2017**

**Date Analyzed: 09/12/2017**

**Lab Batch ID: 3027386**

**Sample: 730761-1-BKS**

**Batch #: 1**

**Matrix: Solid**

**Units: mg/kg**

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

<b>Total RCRA Metals by SW6020A</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Arsenic	<0.0617	10.0	10.4	104	10.0	10.4	104	0	80-120	20	
Lead	<0.0194	10.0	10.2	102	10.0	10.2	102	0	80-120	20	

**Analyst: SAD**

**Date Prepared: 09/11/2017**

**Date Analyzed: 09/11/2017**

**Lab Batch ID: 3027336**

**Sample: 730771-1-BKS**

**Batch #: 1**

**Matrix: Water**

**Units: mg/L**

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

<b>VOCs by SW-846 8260B</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.000185	0.0500	0.0479	96	0.0500	0.0479	96	0	68-123	25	
Bromodichloromethane	<0.000164	0.0500	0.0552	110	0.0500	0.0543	109	2	72-132	25	
Bromoform	<0.000348	0.0500	0.0496	99	0.0500	0.0468	94	6	65-136	25	
Chloroform	<0.000107	0.0500	0.0503	101	0.0500	0.0499	100	1	71-119	25	
Dibromochloromethane	<0.000212	0.0500	0.0558	112	0.0500	0.0542	108	3	74-135	25	
1,2-Dichloroethane	<0.000283	0.0500	0.0515	103	0.0500	0.0507	101	2	64-130	25	

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

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

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

All results are based on MDL and Validated for QC Purposes



**Form 3 - MS Recoveries**  
**Project Name: Tex Tin Superfund Site**



**Work Order #:** 562480

**Lab Batch #:** 3027336

**Date Analyzed:** 09/11/2017

**QC- Sample ID:** 562318-001 S

**Reporting Units:** mg/L

**Date Prepared:** 09/11/2017

**Batch #:** 1

**Project ID:** 15-0342

**Analyst:** SAD

**Matrix:** Water

<b>MATRIX / MATRIX SPIKE RECOVERY STUDY</b>						
<b>VOCs by SW-846 8260B</b>	<b>Parent Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Spiked Sample Result [C]</b>	<b>%R [D]</b>	<b>Control Limits %R</b>	<b>Flag</b>
<b>Analytes</b>						
Benzene	<0.000185	0.0500	0.0475	95	66-142	
Bromodichloromethane	0.000650	0.0500	0.0545	108	75-125	
Bromoform	0.0115	0.0500	0.0567	90	75-125	
Chloroform	<0.000107	0.0500	0.0497	99	70-130	
Dibromochloromethane	0.00334	0.0500	0.0577	109	73-125	
1,2-Dichloroethane	0.000830	0.0500	0.0495	97	68-127	

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: Tex Tin Superfund Site**

**Work Order # :** 562480

**Project ID:** 15-0342

**Lab Batch ID:** 3027353

**QC- Sample ID:** 562476-001 S

**Batch #:** 1 **Matrix:** Ground Water

**Date Analyzed:** 09/12/2017

**Date Prepared:** 09/12/2017

**Analyst:** DHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

Mercury by SW-846 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	<0.0000263	0.00200	0.000944	47	0.00200	0.000918	46	3	75-125	20	X

**Lab Batch ID:** 3027353

**QC- Sample ID:** 562480-005 S

**Batch #:** 1 **Matrix:** Ground Water

**Date Analyzed:** 09/12/2017

**Date Prepared:** 09/12/2017

**Analyst:** DHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

Mercury by SW-846 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	0.000289	0.00200	0.00123	47	0.00200	0.00127	49	3	75-125	20	X

**Lab Batch ID:** 3027386

**QC- Sample ID:** 562509-001 S

**Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 09/12/2017

**Date Prepared:** 09/12/2017

**Analyst:** DEP

**Reporting Units:** mg/kg

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

Total RCRA Metals by SW6020A 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	6.60	109	119	103	109	115	99	3	75-125	30	
Lead	43.4	109	153	101	109	150	98	2	75-125	30	

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: Tex Tin Superfund Site**

**Work Order # :** 562480

**Project ID:** 15-0342

**Lab Batch ID:** 3027417

**QC- Sample ID:** 562480-005 S

**Batch #:** 1 **Matrix:** Ground Water

**Date Analyzed:** 09/12/2017

**Date Prepared:** 09/12/2017

**Analyst:** DEP

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

<b>Total RCRA Metals by SW6020A</b>	<b>Parent Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Spiked Sample Result [C]</b>	<b>Spiked Sample %R [D]</b>	<b>Spike Added [E]</b>	<b>Duplicate Spiked Sample Result [F]</b>	<b>Spiked Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Antimony	0.00191	0.100	0.0957	94	0.100	0.0987	97	3	75-125	20	
Arsenic	0.00213	0.100	0.101	99	0.100	0.101	99	0	75-125	20	
Barium	0.240	0.100	0.340	100	0.100	0.338	98	1	75-125	20	
Beryllium	<0.000131	0.100	0.101	101	0.100	0.101	101	0	75-125	20	
Cadmium	0.0684	0.100	0.161	93	0.100	0.166	98	3	75-125	20	
Chromium	0.000676	0.100	0.100	99	0.100	0.103	102	3	75-125	20	
Copper	1.71	0.100	1.81	100	0.100	1.83	120	1	75-125	20	
Nickel	0.0170	0.100	0.113	96	0.100	0.116	99	3	75-125	20	
Selenium	<0.000454	0.100	0.0984	98	0.100	0.0999	100	2	75-125	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.



# Sample Duplicate Recovery



## Project Name: Tex Tin Superfund Site

Work Order #: 562480

Lab Batch #: 3027255

Project ID: 15-0342

Date Analyzed: 09/12/2017 06:57

Date Prepared: 09/12/2017

Analyst: MJP

QC- Sample ID: 562198-015 D

Batch #: 1

Matrix: Soil

Reporting Units: %

### SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture by SM2540G	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	15.6	15.5	1	20	

Lab Batch #: 3027255

Date Analyzed: 09/12/2017 06:57

Date Prepared: 09/12/2017

Analyst: MJP

QC- Sample ID: 562480-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

### SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture by SM2540G	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	22.7	22.6	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 A Laboratory Data Package Cover Page

Project Name:

Tex Tin Superfund Site

Laboratory Number: 562480

This Data package consists of :

Laboratory Batch No(s) 730771, 730761, 3027255, 730756, 730767

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate Recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs) and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.
- Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Release Statement:** I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies, observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

**Check, if applicable:** [ ] This laboratory meets an exception under 30 TAC 25.6 and was last inspection by [ ] TCEQ or [ ] \_\_\_\_\_ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Debbie Simmons

Name (Printed)



Signature

Project Manager

Official Title (printed)

13-SEP-17

Date

<b>Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data</b>						
Laboratory Name: XENCO LABORATORIES		LRC Date : 13-SEP-17				
Project Name: Tex Tin Superfund Site		Laboratory Job Number : 562480				
Reviewer Name: DES		Batch Number(s) : 730771, 730761, 3027255, 730756, 730767				
#1	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup> ER# <sup>5</sup>
R1	OI	<b>Chain-of-Custody (COC)</b>				
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X			
		Were all departures from standard conditions described in an exception report?			X	
R2	OI	<b>Sample and Quality Control (QC) Identification</b>				
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X			
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X			
R3	OI	<b>Test Reports</b>				
		Were all samples prepared and analyzed within holding times?	X			
		Other than those results <MQL, were all other raw values bracketed by calibration standards?	X			
		Were calculations checked by a peer or supervisor?	X			
		Were all analyte identifications checked by a peer or supervisor?	X			
		Were sample detection limits reported for all analytes not detected?	X			
		Were all results for soil and sediment samples reported on a dry weight basis?	X			
		Were % moisture (or solids) reported for all soil and sediment samples?	X			
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X	
		If required for the project, were TICs reported?			X	
R4	O	<b>Surrogate Recovery Data</b>				
		Were surrogates added prior to extraction?	X			
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X			
R5	OI	<b>Test Reports/Summary Forms for Blank Samples</b>				
		Were appropriate type(s) of blanks analyzed?	X			
		Were blanks analyzed at the appropriate frequency ?	X			
		Were method blanks taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures ?	X			
		Were Blank Concentrations <MQL?	X			
R6	OI	<b>Laboratory Control Samples (LCS):</b>				
		Were all COCs included in the LCS?	X			
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X			
		Were LCSs analyzed at the required frequency?	X			
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X			
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X			
		Was the LCSD RPD within the QC limits?	X			
R7	OI	<b>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data</b>				
		Were the project/method specified analytes included in the MS and MSD?	X			
		Were MS/MSD analyzed at the appropriate frequency?	X			
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X		1
		Were MS/MSD RPDs within the laboratory QC limits?	X			
R8	OI	<b>Analytical Duplicate Data</b>				
		Were appropriate analytical duplicates analyzed for each matrix?	X			
		Were analytical duplicates analyzed at the appropriate frequency?	X			
		Were RPDs or relative standard deviations within the laboratory QC limits?	X			
R9	OI	<b>Method Quantitation Limits (MQLs)</b>				
		Are the MQLs for each method analyte included in the laboratory data package?	X			
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X			
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X			
R10	OI	<b>Other Problems/Anomalies</b>				
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X			
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X			
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X			

<b>Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data</b>							
Laboratory Name: XENCO LABORATORIES		LRC Date : 13-SEP-17					
Project Name: Tex Tin Superfund Site		Laboratory Job Number : 562480					
Reviewer Name: DES		Batch Number(s) : 730771, 730761, 3027255, 730756, 730767					
#1	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial Calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and the highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and Continuing Calibration Verification (ICCV and CCV) and continuing calibration blank</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	X				
S3	O	<b>Mass Spectral Tuning</b>					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	<b>Internal Standard (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	<b>Raw Data (NELAC 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual Column Confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively Identified Compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) Results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial Dilutions, Post Digestions Spikes, and Method of Standard Additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	<b>Method Detection Limit (MDL) Studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	<b>Proficiency Test Reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards Documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/Analyte Identification Procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of Analyst Competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/Validation Documentation for Methods (NELAC Chapter 5)</b>					
		Are all methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory Standard Operating Procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				

- Items identified by the letter "R" must be included in the laboratory data package submitted to the TCEQ-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report Identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

**Attachment A (cont'd): Laboratory Review Checklist: Exception Reports**

Laboratory Name: XENCO LABORATORIES		LRC Date: 13-SEP-17	
Project Name: Tex Tin Superfund Site		Laboratory Job Number: 562480	
Reviewer Name: DES		Batch Number(s) : 730771, 730761, 3027255, 730756, 730767	
ER# 1	DESCRIPTION		
1	<p>SW7470A                      Batch 3027353,                      Lab Sample ID 562480-005 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).                      Mercury 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: 562480-005.                      The Laboratory Control Sample for Mercury is within laboratory Control Limits, therefore the data was accepted.</p>		

1 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No is checked on the LRC).

**ESE Partners, Houston, TX**  
 Tex Tin Superfund Site

**Analytical Method: Mercury by SW-846 7470A**

Matrix: Water

Parameter	Spike Amount	Actual Amount	Units
Mercury	0.000100	0.000110	mg/L

**Analytical Method: Total RCRA Metals by SW6020A**

Matrix: Soil

Parameter	Spike Amount	Actual Amount	Units
Arsenic	0.400	0.284	mg/kg
Lead	0.200	0.180	mg/kg

**Analytical Method: Total RCRA Metals by SW6020A**

Matrix: Water

Parameter	Spike Amount	Actual Amount	Units
Antimony	0.00200	0.00197	mg/L
Arsenic	0.00200	0.00294	mg/L
Barium	0.00400	0.00401	mg/L
Beryllium	0.00100	0.00191	mg/L
Cadmium	0.00100	0.00163	mg/L
Chromium	0.00200	0.00400	mg/L
Copper	0.00200	0.00242	mg/L
Nickel	0.00100	0.00168	mg/L
Selenium	0.00100	0.00237	mg/L

**Analytical Method: VOCs by SW-846 8260B**

Matrix: Water

Parameter	Spike Amount	Actual Amount	Units
Benzene	0.000250	0.000370	mg/L
Bromodichloromethane	0.000250	0.000460	mg/L
Bromoform	0.00100	0.00124	mg/L
Chloroform	0.000250	0.000600	mg/L
Dibromochloromethane	0.000250	0.000440	mg/L
1,2-Dichloroethane	0.000250	0.000260	mg/L



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# CHAIN OF CUSTODY

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Revision 2016.1

Client / Reporting Information		Project Information		Analytical Information		Matrix Codes							
Company Name / Branch:	ESE Partners	Project Name/Number:	Tex Tin Superfund Site / 150342	Xenoco Quote #		Xenoco Job #	562480						
Company Address:	19416 Park Row, Suite 120	Project Location:	Texas City, Galveston County, Texas										
Email:		Invoice To:											
Project Contact:	Bryan Cox Aaron Mowatt	Phone No:	281-501-6100										
Sampler's Name:	Aaron Mowatt	PO Number:											
No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	Matrix	# of bottles	HCl	Number of preserved bottles	VOCs by 8260B	Metals by 6010, 6020, 7470 (Sb, As, Ba, Be, Cd, Cr, Cu, Ni, Se, Hg)	Metals by 6020 (As, Pb)	Field Comments	
1	LH-S2	0-1	9/11	1045	SO	1		1	X				
2	LH-S2	0-1		1100	SO	1		1	X				
3	LH-S3	0-1		1130	SO	1		1	X				
4	LH-S4	0-1		1145	SO	1		1	X				
5	MU-24S-Suble	N/A		1240	Gas	4	3	1	X	X			
6													
7													
8													
9													
10													
Turnaround Time (Business days)		Data Deliverable Information		Notes:									
<input type="checkbox"/> Same Day TAT		<input type="checkbox"/> 5 Day TAT		<input type="checkbox"/> Level II Std QC		<input type="checkbox"/> Level IV (Full Data Pkg / raw data)							
<input checked="" type="checkbox"/> Next Day EMERGENCY		<input type="checkbox"/> 7 Day TAT		<input type="checkbox"/> Level III Std QC+ Forms		<input checked="" type="checkbox"/> TRRP Level IV							
<input type="checkbox"/> 2 Day EMERGENCY		<input type="checkbox"/> Contract TAT		<input type="checkbox"/> Level 3 (CLP Forms)		<input type="checkbox"/> UST / RG 411							
<input type="checkbox"/> 3 Day EMERGENCY				<input type="checkbox"/> Level II Report with TRRP checklist									
TAT Starts Day received by Lab, if received by 5:00 pm		FED-EX / UPS: Tracking #											
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION/INCLUDING COURIER DELIVERY													
Relinquished by Sampler:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:
1	2:35pm	9/11/2017	1	1	2	2	2	2	2	2	2	2	2
3			3	3	4	4	4	4	4	4	4	4	4
5			5	5	5	5	5	5	5	5	5	5	5
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:	
3				4				5				5	
On Ice		Cooler Temp.		Thermo. Corr. Factor									
100°													

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco. Its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

Client: ESE Partners

Date/ Time Received: 09/11/2017 02:35:00 PM

Work Order #: 562480

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)?	1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	Yes (1) trip blank extra
#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
#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?	Yes

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

Analyst: heg

PH Device/Lot#: 10bdh5261

Checklist completed by:  Date: 09/11/2017  
 Heidi Goertz

Checklist reviewed by:  Date: 09/11/2017  
 Debbie Simmons