GCAL
ANALYTICAL LABORATORIES, LLC

LELAP CERTIFICATE NUMBER: 01955
DOD-ELAP ACCREDITATION NUMBER: 74960

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC
7979 Innovation Park Dr.
Baton Rouge, LA 70820

Report Date 11/08/2018

GCAL Report 218102444

Project XTO Energy

Deliver To	***Additional Recipients***
Brian Strasert GSI Environmental 2211 Norfolk Street Suite 1000 Houston, TX 77098 (713) 522-6300	James Kearley, GSI Environmental Whitney Godwin, GSI Environmental

PJLA Testing DoD ELAP

ISO 17025

NELAP ACCREDITED TNI LABORATORY

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

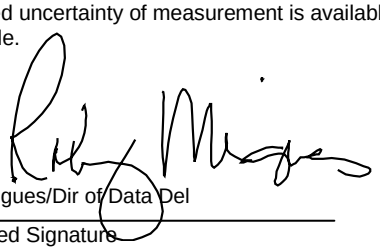
J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*****	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics **-** The result is estimated because it exceeded the instrument calibration range
E	Metals - % diference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Robyn Migues/Dir of Data Del

Authorized Signature
GCAL Report 218102444

Certifications

Certification	Certification Number
DOD ELAP	L16-398-R5
Alabama	01955
Arkansas	18-062-0
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

Case Narrative

Client: GSI Environmental **Report:** 218102444

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

VOLATILES MASS SPECTROMETRY

In the EPA 8260B analysis for analytical batch 647153, the LCS and/or LCSD recoveries exhibted sporadic recovery failures.

METALS

In the EPA 6020B Dissolved analysis for prep batch 646536, Barium was detected in the method blank. The concentration is < 10% the concentration in the associated sample(s).

Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21810244401	EVANS RSW-SPLIT	Water	10/19/2018 11:10	10/24/2018 09:35
21810244402	DUP-101918	Water	10/19/2018 00:01	10/24/2018 09:35

Summary of Compounds Detected

EVANS RSW-SPLIT	**Collect Date**	10/19/2018 11:10	**GCAL ID**	21810244401
	Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 8260B

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
79-00-5	1,1,2-Trichloroethane	0.000665J	0.000200	0.00500	0.0050	mg/L
120-82-1	1,2,4-Trichlorobenzene	0.00620	0.000200	0.00500	0.07	mg/L
95-50-1	1,2-Dichlorobenzene	0.00113J	0.000200	0.00500	0.60	mg/L
541-73-1	1,3-Dichlorobenzene	0.000965J	0.000200	0.00500	0.01	mg/L
106-46-7	1,4-Dichlorobenzene	0.00141J	0.000200	0.00500	0.0750	mg/L
87-68-3	Hexachlorobutadiene	0.00121J	0.000500	0.00500	0.000730	mg/L
91-20-3	Naphthalene	0.00809	0.000200	0.00500	0.01	mg/L
104-51-8	n-Butylbenzene	0.00149J	0.000200	0.00500		mg/L

Library Search VOCs

CAS#	Parameter	Result	Retention	Units
	No TICS detected	ND		mg/L

EPA 6020B

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-70-2	Calcium	55.5	0.13	0.50		mg/L
7439-95-4	Magnesium	15.9	0.025	0.10		mg/L
7440-09-7	Potassium	2.95	0.025	0.10		mg/L
7440-23-5	Sodium	49.8	0.025	0.10		mg/L

EPA 6020B Dissolved

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-39-3	Barium	0.46	0.00025	0.0010	2	mg/L
7439-89-6	Iron	3.68	0.025	0.10		mg/L
7439-96-5	Manganese	0.20	0.0013	0.0050		mg/L
7440-24-6	Strontium	1.94	0.0013	0.0050		mg/L

EPA 300.0, Rev 2.1

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
16887-00-6	Chloride	103	2.50	10.0		mg/L

Summary of Compounds Detected

EVANS RSW-SPLIT

Collect Date 10/19/2018 11:10 **GCAL ID** 21810244401
Receive Date 10/24/2018 09:35 **Matrix** Water

EPA 300.0, Rev 2.1 (Continued)

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
14808-79-8	Sulfate	30.8	5.00	10.0		mg/L

SM 2320 B-2011

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
T-005-B	Bicarbonate Alkalinity	118	0.26	1.0		mg/L CaCO3
000000-00-5	Total Alkalinity	118	0.26	1.0		mg/L CaCO3

SM 2540 C-2011

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
WET-035	Total Dissolved Solids(TDS)	358	10.0	10.0		mg/L

DUP-101918

Collect Date 10/19/2018 00:01 **GCAL ID** 21810244402
Receive Date 10/24/2018 09:35 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
79-00-5	1,1,2-Trichloroethane	0.000695J	0.000200	0.00500	0.0050	mg/L
95-50-1	1,2-Dichlorobenzene	0.000225J	0.000200	0.00500	0.60	mg/L
541-73-1	1,3-Dichlorobenzene	0.000230J	0.000200	0.00500	0.01	mg/L
104-51-8	n-Butylbenzene	0.000422J	0.000200	0.00500		mg/L

Library Search VOCs

CAS#	Parameter	Result	Retention	Units
	No TICS detected	ND		mg/L

EPA 6020B

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-70-2	Calcium	56.9	0.13	0.50		mg/L
7439-95-4	Magnesium	16.5	0.025	0.10		mg/L

Summary of Compounds Detected

DUP-101918	**Collect Date**	10/19/2018 00:01	**GCAL ID**	21810244402
	Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 6020B (Continued)

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-09-7	Potassium	3.06	0.025	0.10		mg/L
7440-23-5	Sodium	51.3	0.025	0.10		mg/L

EPA 6020B Dissolved

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-39-3	Barium	0.46	0.00025	0.0010	2	mg/L
7439-89-6	Iron	3.68	0.025	0.10		mg/L
7439-96-5	Manganese	0.20	0.0013	0.0050		mg/L
7440-24-6	Strontium	1.94	0.0013	0.0050		mg/L

EPA 300.0, Rev 2.1

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
16887-00-6	Chloride	105	2.50	10.0		mg/L
14808-79-8	Sulfate	29.8	5.00	10.0		mg/L

SM 2320 B-2011

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
T-005-B	Bicarbonate Alkalinity	121	0.26	1.0		mg/L CaCO3
000000-00-5	Total Alkalinity	121	0.26	1.0		mg/L CaCO3

SM 2540 C-2011

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
WET-035	Total Dissolved Solids(TDS)	323	10.0	10.0		mg/L

Sample Results

EVANS RSW-SPLIT	**Collect Date**	10/19/2018 11:10	**GCAL ID**	21810244401
	Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/02/2018 02:57	JRB	647153

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
630-20-6	1,1,1,2-Tetrachloroethane	0.000200U	0.000200	0.00500	0.0050	mg/L
71-55-6	1,1,1-Trichloroethane	0.000200U	0.000200	0.00500	0.20	mg/L
79-34-5	1,1,2,2-Tetrachloroethane	0.000200U	0.000200	0.00500	0.0005	mg/L
79-00-5	**1,1,2-Trichloroethane**	**0.000665J**	**0.000200**	**0.00500**	**0.0050**	**mg/L**
75-34-3	1,1-Dichloroethane	0.000200U	0.000200	0.00500	0.0810	mg/L
75-35-4	1,1-Dichloroethene	0.000200U	0.000200	0.00500	0.0070	mg/L
563-58-6	1,1-Dichloropropene	0.000200U	0.000200	0.00500		mg/L
96-18-4	1,2,3-Trichloropropane	0.000200U	0.000200	0.00500		mg/L
120-82-1	**1,2,4-Trichlorobenzene**	**0.00620**	**0.000200**	**0.00500**	**0.07**	**mg/L**
95-63-6	1,2,4-Trimethylbenzene	0.000200U	0.000200	0.00500		mg/L
96-12-8	1,2-Dibromo-3-chloropropane	0.000200U	0.000200	0.00500	0.0002	mg/L
106-93-4	1,2-Dibromoethane	0.000200U	0.000200	0.00500		mg/L
95-50-1	**1,2-Dichlorobenzene**	**0.00113J**	**0.000200**	**0.00500**	**0.60**	**mg/L**
107-06-2	1,2-Dichloroethane	0.000200U	0.000200	0.00500	0.0050	mg/L
540-59-0	1,2-Dichloroethene(Total)	0.000400U	0.000400	0.010		mg/L
78-87-5	1,2-Dichloropropane	0.000200U	0.000200	0.00500	0.0050	mg/L
108-67-8	1,3,5-Trimethylbenzene	0.000200U	0.000200	0.00500		mg/L
541-73-1	**1,3-Dichlorobenzene**	**0.000965J**	**0.000200**	**0.00500**	**0.01**	**mg/L**
142-28-9	1,3-Dichloropropane	0.000200U	0.000200	0.00500		mg/L
106-46-7	**1,4-Dichlorobenzene**	**0.00141J**	**0.000200**	**0.00500**	**0.0750**	**mg/L**
594-20-7	2,2-Dichloropropane	0.000200U	0.000200	0.00500		mg/L
78-93-3	2-Butanone	0.000200U	0.000200	0.00500	0.19	mg/L
95-49-8	2-Chlorotoluene	0.000200U	0.000200	0.00500		mg/L
591-78-6	2-Hexanone	0.000500U	0.000500	0.00500		mg/L
106-43-4	4-Chlorotoluene	0.000200U	0.000200	0.00500		mg/L
99-87-6	4-Isopropyltoluene	0.000200U	0.000200	0.00500		mg/L
108-10-1	4-Methyl-2-pentanone	0.000200U	0.000200	0.00500	0.20	mg/L
67-64-1	Acetone	0.000500U	0.000500	0.00500	0.10	mg/L
71-43-2	Benzene	0.000200U	0.000200	0.00500	0.0050	mg/L
108-86-1	Bromobenzene	0.000200U	0.000200	0.00500		mg/L
74-97-5	Bromochloromethane	0.000200U	0.000200	0.00500		mg/L
75-27-4	Bromodichloromethane	0.000200U	0.000200	0.00500	0.10	mg/L
75-25-2	Bromoform	0.000250U	0.000250	0.00500	0.10	mg/L
74-83-9	Bromomethane	0.000500U	0.000500	0.00500	0.01	mg/L
75-15-0	Carbon disulfide	0.000200U	0.000200	0.00500	0.10	mg/L
56-23-5	Carbon tetrachloride	0.000250U	0.000250	0.00500	0.0050	mg/L
108-90-7	Chlorobenzene	0.000200U	0.000200	0.00500	0.10	mg/L
75-00-3	Chloroethane	0.000250U	0.000250	0.00500	0.01	mg/L
67-66-3	Chloroform	0.000200U	0.000200	0.00500	0.10	mg/L
74-87-3	Chloromethane	0.000200U	0.000200	0.00500	0.01	mg/L
156-59-2	cis-1,2-Dichloroethene	0.000200U	0.000200	0.00500	0.07	mg/L
10061-01-5	cis-1,3-Dichloropropene	0.000200U	0.000200	0.00500		mg/L
124-48-1	Dibromochloromethane	0.000200U	0.000200	0.00500	0.10	mg/L
74-95-3	Dibromomethane	0.000250U	0.000250	0.00500		mg/L
75-71-8	Dichlorodifluoromethane	0.000200U	0.000200	0.00500		mg/L
100-41-4	Ethylbenzene	0.000200U	0.000200	0.00500	0.70	mg/L
87-68-3	**Hexachlorobutadiene**	**0.00121J**	**0.000500**	**0.00500**	**0.000730**	**mg/L**

Sample Results

EVANS RSW-SPLIT

Collect Date	10/19/2018 11:10	**GCAL ID**	21810244401
Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/02/2018 02:57	JRB	647153

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
98-82-8	Isopropylbenzene (Cumene)	0.000200U	0.000200	0.00500		mg/L
136777-61-2	m,p-Xylene	0.000200U	0.000200	0.010		mg/L
75-09-2	Methylene chloride	0.000200U	0.000200	0.00500	0.0050	mg/L
91-20-3	**Naphthalene**	**0.00809**	**0.000200**	**0.00500**	**0.01**	**mg/L**
104-51-8	**n-Butylbenzene**	**0.00149J**	**0.000200**	**0.00500**		**mg/L**
103-65-1	n-Propylbenzene	0.00100U	0.00100	0.00500		mg/L
95-47-6	o-Xylene	0.000200U	0.000200	0.00500		mg/L
135-98-8	sec-Butylbenzene	0.000200U	0.000200	0.00500		mg/L
100-42-5	Styrene	0.000200U	0.000200	0.00500	0.10	mg/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.000200U	0.000200	0.00500	0.02	mg/L
98-06-6	tert-Butylbenzene	0.000200U	0.000200	0.00500		mg/L
127-18-4	Tetrachloroethene	0.000200U	0.000200	0.00500	0.0050	mg/L
108-88-3	Toluene	0.000200U	0.000200	0.00500	1	mg/L
156-60-5	trans-1,2-Dichloroethene	0.000200U	0.000200	0.00500	0.10	mg/L
10061-02-6	trans-1,3-Dichloropropene	0.000200U	0.000200	0.00500		mg/L
110-57-6	trans-1,4-Dichloro-2-butene	0.000500U	0.000500	0.00500		mg/L
79-01-6	Trichloroethene	0.000200U	0.000200	0.00500	0.0050	mg/L
75-69-4	Trichlorofluoromethane	0.000200U	0.000200	0.00500	0.13	mg/L
76-13-1	Trichlorotrifluoroethane	0.000200U	0.000200	0.00500		mg/L
75-01-4	Vinyl chloride	0.000200U	0.000200	0.00200	0.0020	mg/L
1330-20-7	Xylene (total)	0.000400U	0.000400	0.015	10	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	0.05	.0412	mg/L	82	78 - 130
1868-53-7	Dibromofluoromethane	0.05	.0527	mg/L	105	77 - 127
2037-26-5	Toluene d8	0.05	.0528	mg/L	106	76 - 134
17060-07-0	1,2-Dichloroethane-d4	0.05	.0537	mg/L	107	71 - 127

Sample Results

EVANS RSW-SPLIT	**Collect Date**	10/19/2018 11:10	**GCAL ID**	21810244401
	Receive Date	10/24/2018 09:35	**Matrix**	Water

Library Search VOCs

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/01/2018 22:09	JRB	647469

CAS#	Parameter	Result	Retention	Units
	No TICS detected	**ND**		**mg/L**

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/30/2018 15:20	646922	Texas 1006	1	10/31/2018 13:32	MFS	647206

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	0.113U	0.113	0.150	0.15	mg/L
GCSV-02-12	Aliphatic >C12-C16	0.131U	0.131	0.150	0.15	mg/L
GCSV-02-31	Aliphatic >C16-C35	0.131U	0.131	0.300	7.30	mg/L
GCSV-02-10	Aliphatic >C8-C10	0.113U	0.113	0.300	0.15	mg/L
GCSV-02-30	Aliphatic C6-C8	0.113U	0.113	0.300	3.20	mg/L

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/30/2018 15:20	646922	Texas 1006	1	10/31/2018 13:32	MFS	647207

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
GCSV-02-63	Aromatic >C10-C12	0.113U	0.113	0.300		mg/L
GCSV-02-64	Aromatic >C12-C16	0.131U	0.131	0.300		mg/L
GCSV-02-65	Aromatic >C16-C21	0.131U	0.131	0.300		mg/L
GCSV-05-18	Aromatic >C21-C35	0.131U	0.131	0.150	0.15	mg/L
GCSV-02-14	Aromatic >C8-C10	0.113U	0.113	0.300	0.15	mg/L
GCSV-05-04	Total TPH (C6-C35)	0.113U	0.113	0.300		mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	15	19.4	mg/L	129	60 - 140

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/24/2018 16:45	646540	EPA 3010A	1	10/30/2018 21:41	LWZ	646834

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-70-2	**Calcium**	**55.5**	**0.13**	**0.50**		**mg/L**

Sample Results

EVANS RSW-SPLIT	**Collect Date**	10/19/2018 11:10	**GCAL ID**	21810244401
	Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 6020B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/24/2018 16:45	646540	EPA 3010A	1	10/30/2018 21:41	LWZ	646834

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7439-95-4	**Magnesium**	**15.9**	**0.025**	**0.10**		**mg/L**
7440-09-7	**Potassium**	**2.95**	**0.025**	**0.10**		**mg/L**
7440-23-5	**Sodium**	**49.8**	**0.025**	**0.10**		**mg/L**

EPA 6020B Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/25/2018 08:10	646536	EPA 3005A Dissolved	1	10/30/2018 22:02	LWZ	646834

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-38-2	Arsenic	0.00025U	0.00025	0.0010	0.01	mg/L
7440-39-3	**Barium**	**0.46**	**0.00025**	**0.0010**	**2**	**mg/L**
7440-43-9	Cadmium	0.00025U	0.00025	0.0010	0.0050	mg/L
7440-47-3	Chromium	0.00025U	0.00025	0.0010		mg/L
7439-89-6	**Iron**	**3.68**	**0.025**	**0.10**		**mg/L**
7439-92-1	Lead	0.00025U	0.00025	0.0010	0.0150	mg/L
7439-96-5	**Manganese**	**0.20**	**0.0013**	**0.0050**		**mg/L**
7440-66-6	Zinc	0.0050U	0.0050	0.020	1.10	mg/L

EPA 6020B Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/25/2018 08:10	646536	EPA 3005A Dissolved	5	10/31/2018 15:01	LWZ	647013

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-24-6	**Strontium**	**1.94**	**0.0013**	**0.0050**		**mg/L**

EPA 7470A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/25/2018 12:45	646502	EPA 7470A	1	10/26/2018 11:55	LWZ	646681

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7439-97-6	Mercury	0.00010U	0.00010	0.00020	0.0020	mg/L

Sample Results

EVANS RSW-SPLIT	**Collect Date**	10/19/2018 11:10	**GCAL ID**	21810244401
	Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 300.0, Rev 2.1

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	10/26/2018 16:50	AJE	646702

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
16887-00-6	Chloride	103	2.50	10.0		mg/L
14808-79-8	Sulfate	30.8	5.00	10.0		mg/L

SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	10/25/2018 15:02	RYC	646649

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
T-005-B	Bicarbonate Alkalinity	118	0.26	1.0		mg/L CaCO3

SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	10/25/2018 15:02	RYC	646649

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
000000-00-5	Total Alkalinity	118	0.26	1.0		mg/L CaCO3

SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	10/25/2018 15:02	RYC	646649

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
T-005-C	Carbonate Alkalinity	0.26U	0.26	1.0		mg/L CaCO3

Sample Results

EVANS RSW-SPLIT

Collect Date	10/19/2018 11:10	**GCAL ID**	21810244401
Receive Date	10/24/2018 09:35	**Matrix**	Water

SM 2540 C-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	10/25/2018 14:48	CJS	646606

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
WET-035	**Total Dissolved Solids(TDS)**	**358**	**10.0**	**10.0**		**mg/L**

DUP-101918

Collect Date	10/19/2018 00:01	**GCAL ID**	21810244402
Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/02/2018 03:20	JRB	647153

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
630-20-6	1,1,1,2-Tetrachloroethane	0.000200U	0.000200	0.00500	0.0050	mg/L
71-55-6	1,1,1-Trichloroethane	0.000200U	0.000200	0.00500	0.20	mg/L
79-34-5	1,1,2,2-Tetrachloroethane	0.000200U	0.000200	0.00500	0.0005	mg/L
79-00-5	**1,1,2-Trichloroethane**	**0.000695J**	**0.000200**	**0.00500**	**0.0050**	**mg/L**
75-34-3	1,1-Dichloroethane	0.000200U	0.000200	0.00500	0.0810	mg/L
75-35-4	1,1-Dichloroethene	0.000200U	0.000200	0.00500	0.0070	mg/L
563-58-6	1,1-Dichloropropene	0.000200U	0.000200	0.00500		mg/L
96-18-4	1,2,3-Trichloropropane	0.000200U	0.000200	0.00500		mg/L
120-82-1	1,2,4-Trichlorobenzene	0.000200U	0.000200	0.00500	0.07	mg/L
95-63-6	1,2,4-Trimethylbenzene	0.000200U	0.000200	0.00500		mg/L
96-12-8	1,2-Dibromo-3-chloropropane	0.000200U	0.000200	0.00500	0.0002	mg/L
106-93-4	1,2-Dibromoethane	0.000200U	0.000200	0.00500		mg/L
95-50-1	**1,2-Dichlorobenzene**	**0.000225J**	**0.000200**	**0.00500**	**0.60**	**mg/L**
107-06-2	1,2-Dichloroethane	0.000200U	0.000200	0.00500	0.0050	mg/L
540-59-0	1,2-Dichloroethene(Total)	0.000400U	0.000400	0.010		mg/L
78-87-5	1,2-Dichloropropane	0.000200U	0.000200	0.00500	0.0050	mg/L
108-67-8	1,3,5-Trimethylbenzene	0.000200U	0.000200	0.00500		mg/L
541-73-1	**1,3-Dichlorobenzene**	**0.000230J**	**0.000200**	**0.00500**	**0.01**	**mg/L**
142-28-9	1,3-Dichloropropane	0.000200U	0.000200	0.00500		mg/L
106-46-7	1,4-Dichlorobenzene	0.000200U	0.000200	0.00500	0.0750	mg/L
594-20-7	2,2-Dichloropropane	0.000200U	0.000200	0.00500		mg/L
78-93-3	2-Butanone	0.000200U	0.000200	0.00500	0.19	mg/L
95-49-8	2-Chlorotoluene	0.000200U	0.000200	0.00500		mg/L
591-78-6	2-Hexanone	0.000500U	0.000500	0.00500		mg/L
106-43-4	4-Chlorotoluene	0.000200U	0.000200	0.00500		mg/L
99-87-6	4-Isopropyltoluene	0.000200U	0.000200	0.00500		mg/L
108-10-1	4-Methyl-2-pentanone	0.000200U	0.000200	0.00500	0.20	mg/L
67-64-1	Acetone	0.000500U	0.000500	0.00500	0.10	mg/L
71-43-2	Benzene	0.000200U	0.000200	0.00500	0.0050	mg/L
108-86-1	Bromobenzene	0.000200U	0.000200	0.00500		mg/L
74-97-5	Bromochloromethane	0.000200U	0.000200	0.00500		mg/L
75-27-4	Bromodichloromethane	0.000200U	0.000200	0.00500	0.10	mg/L

Sample Results

DUP-101918	**Collect Date**	10/19/2018 00:01	**GCAL ID**	21810244402
	Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/02/2018 03:20	JRB	647153

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
75-25-2	Bromoform	0.000250U	0.000250	0.00500	0.10	mg/L
74-83-9	Bromomethane	0.000500U	0.000500	0.00500	0.01	mg/L
75-15-0	Carbon disulfide	0.000200U	0.000200	0.00500	0.10	mg/L
56-23-5	Carbon tetrachloride	0.000250U	0.000250	0.00500	0.0050	mg/L
108-90-7	Chlorobenzene	0.000200U	0.000200	0.00500	0.10	mg/L
75-00-3	Chloroethane	0.000250U	0.000250	0.00500	0.01	mg/L
67-66-3	Chloroform	0.000200U	0.000200	0.00500	0.10	mg/L
74-87-3	Chloromethane	0.000200U	0.000200	0.00500	0.01	mg/L
156-59-2	cis-1,2-Dichloroethene	0.000200U	0.000200	0.00500	0.07	mg/L
10061-01-5	cis-1,3-Dichloropropene	0.000200U	0.000200	0.00500		mg/L
124-48-1	Dibromochloromethane	0.000200U	0.000200	0.00500	0.10	mg/L
74-95-3	Dibromomethane	0.000250U	0.000250	0.00500		mg/L
75-71-8	Dichlorodifluoromethane	0.000200U	0.000200	0.00500		mg/L
100-41-4	Ethylbenzene	0.000200U	0.000200	0.00500	0.70	mg/L
87-68-3	Hexachlorobutadiene	0.000500U	0.000500	0.00500	0.000730	mg/L
98-82-8	Isopropylbenzene (Cumene)	0.000200U	0.000200	0.00500		mg/L
136777-61-2	m,p-Xylene	0.000200U	0.000200	0.010		mg/L
75-09-2	Methylene chloride	0.000200U	0.000200	0.00500	0.0050	mg/L
91-20-3	Naphthalene	0.000200U	0.000200	0.00500	0.01	mg/L
104-51-8	**n-Butylbenzene**	**0.000422J**	**0.000200**	**0.00500**		**mg/L**
103-65-1	n-Propylbenzene	0.00100U	0.00100	0.00500		mg/L
95-47-6	o-Xylene	0.000200U	0.000200	0.00500		mg/L
135-98-8	sec-Butylbenzene	0.000200U	0.000200	0.00500		mg/L
100-42-5	Styrene	0.000200U	0.000200	0.00500	0.10	mg/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.000200U	0.000200	0.00500	0.02	mg/L
98-06-6	tert-Butylbenzene	0.000200U	0.000200	0.00500		mg/L
127-18-4	Tetrachloroethene	0.000200U	0.000200	0.00500	0.0050	mg/L
108-88-3	Toluene	0.000200U	0.000200	0.00500	1	mg/L
156-60-5	trans-1,2-Dichloroethene	0.000200U	0.000200	0.00500	0.10	mg/L
10061-02-6	trans-1,3-Dichloropropene	0.000200U	0.000200	0.00500		mg/L
110-57-6	trans-1,4-Dichloro-2-butene	0.000500U	0.000500	0.00500		mg/L
79-01-6	Trichloroethene	0.000200U	0.000200	0.00500	0.0050	mg/L
75-69-4	Trichlorofluoromethane	0.000200U	0.000200	0.00500	0.13	mg/L
76-13-1	Trichlorotrifluoroethane	0.000200U	0.000200	0.00500		mg/L
75-01-4	Vinyl chloride	0.000200U	0.000200	0.00200	0.0020	mg/L
1330-20-7	Xylene (total)	0.000400U	0.000400	0.015	10	mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	0.05	.041	mg/L	82	78 - 130
1868-53-7	Dibromofluoromethane	0.05	.051	mg/L	102	77 - 127
2037-26-5	Toluene d8	0.05	.0528	mg/L	106	76 - 134
17060-07-0	1,2-Dichloroethane-d4	0.05	.0531	mg/L	106	71 - 127

Sample Results

DUP-101918	**Collect Date**	10/19/2018 00:01	**GCAL ID**	21810244402
	Receive Date	10/24/2018 09:35	**Matrix**	Water

Library Search VOCs

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/01/2018 03:20	JRB	647469

CAS#	Parameter	Result	Retention	Units
	No TICS detected	ND		mg/L

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/30/2018 15:20	646922	Texas 1006	1	10/31/2018 14:05	MFS	647206

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
GCSV-02-11	Aliphatic >C10-C12	0.113U	0.113	0.150	0.15	mg/L
GCSV-02-12	Aliphatic >C12-C16	0.131U	0.131	0.150	0.15	mg/L
GCSV-02-31	Aliphatic >C16-C35	0.131U	0.131	0.300	7.30	mg/L
GCSV-02-10	Aliphatic >C8-C10	0.113U	0.113	0.300	0.15	mg/L
GCSV-02-30	Aliphatic C6-C8	0.113U	0.113	0.300	3.20	mg/L

Texas 1006

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/30/2018 15:20	646922	Texas 1006	1	10/31/2018 14:05	MFS	647207

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
GCSV-02-63	Aromatic >C10-C12	0.113U	0.113	0.300		mg/L
GCSV-02-64	Aromatic >C12-C16	0.131U	0.131	0.300		mg/L
GCSV-02-65	Aromatic >C16-C21	0.131U	0.131	0.300		mg/L
GCSV-05-18	Aromatic >C21-C35	0.131U	0.131	0.150	0.15	mg/L
GCSV-02-14	Aromatic >C8-C10	0.113U	0.113	0.300	0.15	mg/L
GCSV-05-04	Total TPH (C6-C35)	0.113U	0.113	0.300		mg/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	12.30	11.5	mg/L	93	60 - 140

EPA 6020B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/24/2018 16:45	646540	EPA 3010A	1	10/30/2018 21:45	LWZ	646834

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-70-2	Calcium	56.9	0.13	0.50		mg/L

Sample Results

DUP-101918	**Collect Date**	10/19/2018 00:01	**GCAL ID**	21810244402
	Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 6020B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/24/2018 16:45	646540	EPA 3010A	1	10/30/2018 21:45	LWZ	646834

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7439-95-4	**Magnesium**	**16.5**	**0.025**	**0.10**		**mg/L**
7440-09-7	**Potassium**	**3.06**	**0.025**	**0.10**		**mg/L**
7440-23-5	**Sodium**	**51.3**	**0.025**	**0.10**		**mg/L**

EPA 6020B Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/25/2018 08:10	646536	EPA 3005A Dissolved	1	10/30/2018 22:06	LWZ	646834

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-38-2	Arsenic	0.00025U	0.00025	0.0010	0.01	mg/L
7440-39-3	**Barium**	**0.46**	**0.00025**	**0.0010**	**2**	**mg/L**
7440-43-9	Cadmium	0.00025U	0.00025	0.0010	0.0050	mg/L
7440-47-3	Chromium	0.00025U	0.00025	0.0010		mg/L
7439-89-6	**Iron**	**3.68**	**0.025**	**0.10**		**mg/L**
7439-92-1	Lead	0.00025U	0.00025	0.0010	0.0150	mg/L
7439-96-5	**Manganese**	**0.20**	**0.0013**	**0.0050**		**mg/L**
7440-66-6	Zinc	0.0050U	0.0050	0.020	1.10	mg/L

EPA 6020B Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/25/2018 08:10	646536	EPA 3005A Dissolved	5	10/31/2018 15:04	LWZ	647013

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7440-24-6	**Strontium**	**1.94**	**0.0013**	**0.0050**		**mg/L**

EPA 7470A

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
10/25/2018 12:45	646502	EPA 7470A	1	10/26/2018 11:57	LWZ	646681

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
7439-97-6	Mercury	0.00010U	0.00010	0.00020	0.0020	mg/L

Sample Results

DUP-101918	**Collect Date**	10/19/2018 00:01	**GCAL ID**	21810244402
	Receive Date	10/24/2018 09:35	**Matrix**	Water

EPA 300.0, Rev 2.1

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	10/26/2018 18:29	AJE	646702

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
16887-00-6	Chloride	105	2.50	10.0		mg/L
14808-79-8	Sulfate	29.8	5.00	10.0		mg/L

SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	10/25/2018 15:02	RYC	646649

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
T-005-B	Bicarbonate Alkalinity	121	0.26	1.0		mg/L CaCO3

SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	10/25/2018 15:02	RYC	646649

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
000000-00-5	Total Alkalinity	121	0.26	1.0		mg/L CaCO3

SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	10/25/2018 15:02	RYC	646649

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
T-005-C	Carbonate Alkalinity	0.26U	0.26	1.0		mg/L CaCO3

Sample Results

DUP-101918	**Collect Date**	10/19/2018 00:01	**GCAL ID**	21810244402
	Receive Date	10/24/2018 09:35	**Matrix**	Water

SM 2540 C-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	10/25/2018 14:48	CJS	646606

CAS#	Parameter	Result	DL	LOQ	Reg Limit	Units
WET-035	Total Dissolved Solids(TDS)	323	10.0	10.0		mg/L

GC/MS Volatiles QC Summary

Analytical Batch 647153	Client ID	MB647153		LCS647153				LCSD647153				
	GCAL ID	1864472		1864473				1864474				
	Sample Type	MB		LCS				LCSD				
	Prep Date	NA		NA				NA				
	Analysis Date	11/01/2018 22:15		11/01/2018 21:53				11/02/2018 02:22				
	Matrix	Water		Water				Water				
EPA 8260B		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	630-20-6	0.000200U	0.000200	0.050	0.048	96	75 - 124	0.050	0.053	107	10	30
1,1,1-Trichloroethane	71-55-6	0.000200U	0.000200	0.050	0.051	102	76 - 126	0.050	0.051	102	0	30
1,1,2,2-Tetrachloroethane	79-34-5	0.000200U	0.000200	0.050	0.062	**124***	70 - 122	0.050	0.066	**132***	6	30
1,1,2-Trichloroethane	79-00-5	0.000200U	0.000200	0.050	0.051	101	72 - 121	0.050	0.053	106	4	30
1,1-Dichloroethane	75-34-3	0.000200U	0.000200	0.050	0.052	105	74 - 127	0.050	0.054	108	3	30
1,1-Dichloroethene	75-35-4	0.000200U	0.000200	0.050	0.053	106	69 - 129	0.050	0.057	113	6	20
1,1-Dichloropropene	563-58-6	0.000200U	0.000200	0.050	0.054	107	72 - 131	0.050	0.055	110	2	30
1,2,3-Trichloropropane	96-18-4	0.000200U	0.000200	0.050	0.051	101	70 - 120	0.050	0.053	107	5	30
1,2,4-Trichlorobenzene	120-82-1	0.000200U	0.000200	0.050	0.038	76	61 - 135	0.050	0.045	91	18	30
1,2,4-Trimethylbenzene	95-63-6	0.000200U	0.000200	0.050	0.051	101	74 - 125	0.050	0.051	101	0	30
1,2-Dibromo-3-chloropropane	96-12-8	0.000200U	0.000200	0.050	0.040	81	57 - 121	0.050	0.045	90	11	30
1,2-Dibromoethane	106-93-4	0.000200U	0.000200	0.050	0.048	95	70 - 124	0.050	0.050	101	5	30
1,2-Dichlorobenzene	95-50-1	0.000200U	0.000200	0.050	0.051	101	71 - 126	0.050	0.054	107	6	30
1,2-Dichloroethane	107-06-2	0.000200U	0.000200	0.050	0.054	107	71 - 129	0.050	0.052	104	3	30
1,2-Dichloroethene(Total)	540-59-0	0.000400U	0.000400	0.100	0.110	110	74 - 128	0.100	0.110	110	0	30
1,2-Dichloropropane	78-87-5	0.000200U	0.000200	0.050	0.056	112	72 - 128	0.050	0.056	111	1	30
1,3,5-Trimethylbenzene	108-67-8	0.000200U	0.000200	0.050	0.052	104	71 - 132	0.050	0.052	105	1	30
1,3-Dichlorobenzene	541-73-1	0.000200U	0.000200	0.050	0.053	107	74 - 126	0.050	0.055	110	3	30
1,3-Dichloropropane	142-28-9	0.000200U	0.000200	0.050	0.047	94	74 - 122	0.050	0.051	101	7	30
1,4-Dichlorobenzene	106-46-7	0.000200U	0.000200	0.050	0.051	103	72 - 122	0.050	0.054	108	5	30
2,2-Dichloropropane	594-20-7	0.000200U	0.000200	0.050	0.044	88	77 - 124	0.050	0.046	91	4	30
2-Butanone	78-93-3	0.000200U	0.000200	0.050	0.043	86	58 - 137	0.050	0.045	90	4	30
2-Chlorotoluene	95-49-8	0.000200U	0.000200	0.050	0.059	117	72 - 127	0.050	0.060	120	2	30
2-Hexanone	591-78-6	0.000500U	0.000500	0.050	0.031	62	50 - 135	0.050	0.036	72	15	30
4-Chlorotoluene	106-43-4	0.000200U	0.000200	0.050	0.052	105	75 - 126	0.050	0.053	107	2	30
4-Isopropyltoluene	99-87-6	0.000200U	0.000200	0.050	0.052	104	71 - 129	0.050	0.054	107	3	30
4-Methyl-2-pentanone	108-10-1	0.000200U	0.000200	0.050	0.035	71	57 - 132	0.050	0.040	80	13	30
Acetone	67-64-1	0.000500U	0.000500	0.050	0.040	81	44 - 156	0.050	0.040	80	1	30
Benzene	71-43-2	0.000200U	0.000200	0.050	0.056	113	70 - 129	0.050	0.057	114	2	20
Bromobenzene	108-86-1	0.000200U	0.000200	0.050	0.058	115	71 - 120	0.050	0.058	115	0	30
Bromochloromethane	74-97-5	0.000200U	0.000200	0.050	0.056	113	76 - 130	0.050	0.055	110	2	30
Bromodichloromethane	75-27-4	0.000200U	0.000200	0.050	0.055	109	74 - 125	0.050	0.055	111	1	30
Bromoform	75-25-2	0.000250U	0.000250	0.050	0.044	88	64 - 122	0.050	0.049	99	11	30
Bromomethane	74-83-9	0.000500U	0.000500	0.050	0.059	117	47 - 138	0.050	0.061	122	4	30
Carbon disulfide	75-15-0	0.000200U	0.000200	0.050	0.058	116	69 - 136	0.050	0.063	126	8	30
Carbon tetrachloride	56-23-5	0.000250U	0.000250	0.050	0.050	100	76 - 128	0.050	0.049	98	1	30
Chlorobenzene	108-90-7	0.000200U	0.000200	0.050	0.050	100	74 - 123	0.050	0.055	110	9	20
Chloroethane	75-00-3	0.000250U	0.000250	0.050	0.064	129	62 - 141	0.050	0.068	135	5	30
Chloroform	67-66-3	0.000200U	0.000200	0.050	0.054	108	75 - 122	0.050	0.054	108	1	30
Chloromethane	74-87-3	0.000200U	0.000200	0.050	0.063	126	59 - 132	0.050	0.067	**133***	5	30
cis-1,2-Dichloroethene	156-59-2	0.000200U	0.000200	0.050	0.054	107	73 - 130	0.050	0.054	107	0	30
cis-1,3-Dichloropropene	10061-01-5	0.000200U	0.000200	0.050	0.051	101	71 - 132	0.050	0.050	100	1	30
Dibromochloromethane	124-48-1	0.000200U	0.000200	0.050	0.048	97	71 - 123	0.050	0.051	102	5	30
Dibromomethane	74-95-3	0.000250U	0.000250	0.050	0.053	106	72 - 129	0.050	0.052	105	2	30
Ethylbenzene	100-41-4	0.000200U	0.000200	0.050	0.050	99	74 - 126	0.050	0.055	111	11	30
Hexachlorobutadiene	87-68-3	0.000500U	0.000500	0.050	0.055	110	61 - 144	0.050	0.064	127	15	30
Isopropylbenzene (Cumene)	98-82-8	0.000200U	0.000200	0.050	0.050	100	71 - 125	0.050	0.056	112	12	30
m,p-Xylene	136777-61-2	0.000200U	0.000200	0.100	0.101	101	74 - 126	0.100	0.112	112	10	30
Methylene chloride	75-09-2	0.000200U	0.000200	0.050	0.058	116	68 - 132	0.050	0.059	117	1	30
Naphthalene	91-20-3	0.000200U	0.000200	0.050	0.028	**56***	57 - 138	0.050	0.035	70	22	35
n-Butylbenzene	104-51-8	0.000200U	0.000200	0.050	0.052	104	69 - 134	0.050	0.056	112	8	30
n-Propylbenzene	103-65-1	0.00100U	0.00100	0.050	0.061	122	75 - 129	0.050	0.062	125	3	30
o-Xylene	95-47-6	0.000200U	0.000200	0.050	0.048	97	73 - 130	0.050	0.053	106	9	30
sec-Butylbenzene	135-98-8	0.000200U	0.000200	0.050	0.061	121	70 - 136	0.050	0.063	125	3	30
Styrene	100-42-5	0.000200U	0.000200	0.050	0.047	94	71 - 127	0.050	0.052	104	10	30
tert-Butyl methyl ether (MTBE)	1634-04-4	0.000200U	0.000200	0.050	0.041	82	71 - 125	0.050	0.039	78	6	30
tert-Butylbenzene	98-06-6	0.000200U	0.000200	0.050	0.060	119	72 - 126	0.050	0.060	121	1	30
Tetrachloroethene	127-18-4	0.000200U	0.000200	0.050	0.048	96	68 - 128	0.050	0.053	105	9	30

GC/MS Volatiles QC Summary

Analytical Batch 647153	Client ID	MB647153		LCS647153				LCSD647153				
	GCAL ID	1864472		1864473				1864474				
	Sample Type	MB		LCS				LCSD				
	Prep Date	NA		NA				NA				
	Analysis Date	11/01/2018 22:15		11/01/2018 21:53				11/02/2018 02:22				
	Matrix	Water		Water				Water				
EPA 8260B		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Toluene	108-88-3	0.000200U	0.000200	0.050	0.050	100	72 - 120	0.050	0.054	108	8	20
trans-1,2-Dichloroethene	156-60-5	0.000200U	0.000200	0.050	0.057	113	69 - 132	0.050	0.057	113	0	30
trans-1,3-Dichloropropene	10061-02-6	0.000200U	0.000200	0.050	0.048	95	71 - 131	0.050	0.049	97	2	30
trans-1,4-Dichloro-2-butene	110-57-6	0.000500U	0.000500	0.050	0.038	77	56 - 132	0.050	0.044	88	14	30
Trichloroethene	79-01-6	0.000200U	0.000200	0.050	0.047	95	76 - 129	0.050	0.049	98	4	20
Trichlorofluoromethane	75-69-4	0.000200U	0.000200	0.050	0.052	105	72 - 136	0.050	0.053	105	1	30
Trichlorotrifluoroethane	76-13-1	0.000200U	0.000200	0.050	0.047	94	72 - 136	0.050	0.062	123	27	30
Vinyl chloride	75-01-4	0.000200U	0.000200	0.050	0.055	110	68 - 132	0.050	0.056	113	2	30
Xylene (total)	1330-20-7	0.000400U	0.000400	0.150	0.150	100	74 - 127	0.150	0.165	110	10	30
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	.0498	100	.05	.0506	101	71 - 127	.05	.0532	106	NA	NA
4-Bromofluorobenzene	460-00-4	.0425	85	.05	.0455	91	78 - 130	.05	.0475	95	NA	NA
Dibromofluoromethane	1868-53-7	.0517	103	.05	.051	102	77 - 127	.05	.0511	102	NA	NA
Toluene d8	2037-26-5	.0538	108	.05	.0465	93	76 - 134	.05	.0496	99	NA	NA

GC Semi-Volatiles QC Summary

Analytical Batch	Client ID	MB646922	
647206	GCAL ID	1863255	
Prep Batch	Sample Type	MB	
646922	Prep Date	10/30/2018 15:20	
Prep Method	Analysis Date	10/31/2018 11:52	
Texas 1006	Matrix	Water	
Texas 1006		Units Result	mg/L DL
Aliphatic >C10-C12	GCSV-02-11	0.113U	0.113
Aliphatic >C12-C16	GCSV-02-12	0.131U	0.131
Aliphatic >C16-C35	GCSV-02-31	0.131U	0.131
Aliphatic >C8-C10	GCSV-02-10	0.113U	0.113
Aliphatic C6-C8	GCSV-02-30	0.113U	0.113

Analytical Batch	Client ID	MB646922		LCS646922				LCSD646922				
647207	GCAL ID	1863255		1863256				1863257				
Prep Batch	Sample Type	MB		LCS				LCSD				
646922	Prep Date	10/30/2018 15:20		10/30/2018 15:20				10/30/2018 15:20				
Prep Method	Analysis Date	10/31/2018 11:52		10/31/2018 12:27				10/31/2018 12:55				
Texas 1006	Matrix	Water		Water				Water				
Texas 1006		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Aromatic >C10-C12	GCSV-02-63	0.113U	0.113									
Aromatic >C12-C16	GCSV-02-64	0.131U	0.131									
Aromatic >C16-C21	GCSV-02-65	0.131U	0.131									
Aromatic >C21-C35	GCSV-05-18	0.131U	0.131									
Aromatic >C8-C10	GCSV-02-14	0.113U	0.113									
Total TPH (C6-C35)	GCSV-05-04	0.113U	0.113	64.7	65.3	101	60 - 140	65.6	69.0	105	6	20
Surrogate												
o-Terphenyl	84-15-1	17.6	105	16.2	16.1	99	60 - 140	16.4	14.6	89	NA	NA

Inorganics QC Summary

Analytical Batch	Client ID	MB646502	LCS646502
646681	GCAL ID	1861199	1861200
Prep Batch	Sample Type	MB	LCS
646502	Prep Date	10/25/2018 12:45	10/25/2018 12:45
Prep Method	Analysis Date	10/26/2018 11:39	10/26/2018 11:41
EPA 7470A	Matrix	Water	Water

EPA 7470A		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R
Mercury	7439-97-6	ND	0.00010	0.0050	0.0045	89	80 - 120

Analytical Batch	Client ID	MB646540	LCS646540	LCSD646540
646834	GCAL ID	1861378	1861380	1861379
Prep Batch	Sample Type	MB	LCS	LCSD
646540	Prep Date	10/24/2018 16:45	10/24/2018 16:45	10/24/2018 16:45
Prep Method	Analysis Date	10/30/2018 21:30	10/30/2018 21:37	10/30/2018 21:34
EPA 3010A	Matrix	Water	Water	Water

EPA 6020B		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Calcium	7440-70-2	0.13U	0.13	25.0	23.1	93	80 - 120	25.0	23.7	95	2	20
Magnesium	7439-95-4	0.025U	0.025	5.00	4.96	99	80 - 120	5.00	5.08	102	2	20
Potassium	7440-09-7	ND	0.025	5.00	4.64	93	80 - 120	5.00	4.70	94	1	20
Sodium	7440-23-5	0.025J	0.025	5.00	5.08	102	80 - 120	5.00	5.15	103	2	20

Analytical Batch	Client ID	MB646536	LCS646536
646834	GCAL ID	1861365	1861366
Prep Batch	Sample Type	MB	LCS
646536	Prep Date	10/25/2018 08:10	10/25/2018 08:10
Prep Method	Analysis Date	10/30/2018 21:55	10/30/2018 21:59
EPA 3005A Dissolved	Matrix	Water	Water

EPA 6020B Dissolved		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R
Arsenic	7440-38-2	ND	0.00025	0.050	0.051	101	80 - 120
Cadmium	7440-43-9	ND	0.00025	0.050	0.049	97	80 - 120
Chromium	7440-47-3	ND	0.00025	0.050	0.050	101	80 - 120
Iron	7439-89-6	ND	0.025	5.00	4.98	100	80 - 120
Lead	7439-92-1	ND	0.00025	0.050	0.049	97	80 - 120
Manganese	7439-96-5	0.0013U	0.0013	0.050	0.048	97	80 - 120
Strontium	7440-24-6	0.00025U	0.00025	0.050	0.050	100	80 - 120
Zinc	7440-66-6	0.0050U	0.0050	1.00	1.00	100	80 - 120

Analytical Batch	Client ID	MB646536
647203	GCAL ID	1861365
Prep Batch	Sample Type	MB
646536	Prep Date	10/25/2018 08:10
Prep Method	Analysis Date	11/02/2018 12:15
EPA 3005A Dissolved	Matrix	Water

EPA 6020B Dissolved		Units Result	mg/L DL
Barium	7440-39-3	0.00025U	0.00025

Analytical Batch	Client ID	LCS646536
647203	GCAL ID	1861366
Prep Batch	Sample Type	LCS
646536	Prep Date	10/25/2018 08:10
Prep Method	Analysis Date	11/02/2018 12:19
EPA 3005A Dissolved	Matrix	Water

EPA 6020B Dissolved		Spike Added	Result	%R	Control Limits%R
Barium	7440-39-3	0.050	0.049	98	80 - 120

General Chemistry QC Summary

Analytical Batch 646649	Client ID	MB646649		LCS646649				LCSD646649				
	GCAL ID	1861954		1861955				1861956				
	Sample Type	MB		LCS				LCSD				
	Prep Date	NA		NA				NA				
	Analysis Date	10/25/2018 15:02		10/25/2018 15:02				10/25/2018 15:02				
	Matrix	Water		Water				Water				
SM 2320 B-2011		Units Result	mg/L CaCO3 DL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Total Alkalinity	000000-00-5	0.26U	0.26	200	201	100	90 - 110	200	201	101	0	11

Analytical Batch 646702	Client ID	MB646702		LCS646702			
	GCAL ID	1862265		1862266			
	Sample Type	MB		LCS			
	Prep Date	NA		NA			
	Analysis Date	10/29/2018 14:24		10/29/2018 13:44			
	Matrix	Water		Water			
EPA 300.0, Rev 2.1		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R
Chloride	16887-00-6	0.089J	0.050	2.50	2.51	100	80 - 120
Sulfate	14808-79-8	0.100U	0.100	2.50	2.48	99	80 - 120

Analytical Batch 646702	Client ID	EVANS RSW-SPLIT		1861452MS				1861452MSD				
	GCAL ID	21810244401		1862267				1862268				
	Sample Type	SAMPLE		MS				MSD				
	Prep Date	NA		NA				NA				
	Analysis Date	10/26/2018 16:50		10/26/2018 17:07				10/26/2018 17:23				
	Matrix	Water		Water				Water				
EPA 300.0, Rev 2.1		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Chloride	16887-00-6	103	2.50	125	220	94	80 - 120	125	220	94	0	15
Sulfate	14808-79-8	30.8	5.00	125	147	93	80 - 120	125	152	97	4	15

Analytical Batch 646606	Client ID	MB646606	
	GCAL ID	1861735	
	Sample Type	MB	
	Prep Date	NA	
	Analysis Date	10/25/2018 14:48	
	Matrix	Water	
SM 2540 C-2011		Units Result	mg/L DL
Total Dissolved Solids(TDS)	WET-035	ND	10.0

Analytical Batch 646606	Client ID	EVANS RSW-SPLIT		1861452DUP		
	GCAL ID	21810244401		1861904		
	Sample Type	SAMPLE		DUP		
	Prep Date	NA		NA		
	Analysis Date	10/25/2018 14:48		10/25/2018 14:48		
	Matrix	Water		Water		
SM 2540 C-2011		Units Result	mg/L DL	Result	RPD	RPD Limit
Total Dissolved Solids(TDS)	WET-035	358	10.0	353	1	5.4

GCAL ANALYTICAL LABORATORIES, LLC

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4990 - GSI Environmental
SDG: 218102444
PM: EPM

Report to:
Client: GSI Environmental
Address: 2211 Norfolk, Suite 1000 Houston TX 77098
Contact: Whitney Godwin
Phone: 713-522-6300
E-mail:

Bill to:
Client: GSI Environmental
Address: same
Contact:
Phone:
E-mail:

P.O. Number: 4927
Project Name/Number: XTO Energy
Sampled By: James Kearley

Analytical Requests & Method: VOC, 8260 (incl. TICs); TPH by TX 1006; Cations (Na, Ca, Mg, K); TDS, Chloride, anions; Dissolved Metals

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☑ yes ☐ no E29
Temperature °C 0.1
27 CPM

☑ Dissolved Analysis Requested
☑ Field filtered (metals)
☐ Lab filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	Preservative
W	10/19/18			✓	Evans RSW-split		-1
W	10/19/18			✓	Dup - [redacted] 10'1918		-2

Air Bill No: 7834-0211-4605

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
FedEx	10-24-18	0935	[signature]	10-24-18	0935

Note: Arsenic, barium, cadmium, chromium, iron, manganese, lead, strontium, zinc, mercury

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

SAMPLE RECEIVING CHECKLIST

SAMPLE DELIVERY GROUP 218102444	
Client **PM** EPM 4990 - GSI Environmental	**Transport Method** FEDEX
Profile Number 277552	**Received By** Savage, Tiffany R
Line Item(s) 3 - W - Split	**Receive Date(s)** 10/24/18

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by GCAL?	☑	☐

COOLERS

Airbill	Thermometer ID: E29	Temp °C
7834-0211-4605		0.1

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6