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WORK ORDER NUMBER: 16-12-2246

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: EnSafe, Inc.

Client Project Name: UTC RFF 2016 GW Monitor

Attention: David Dunbar
5724 Summer Trees Lane
Memphis, TN 38134-7309

Approved for release on 01/03/2017 by:
Virendra Patel
Project Manager

ResultLink

Email your PM

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Work Order Number: 16-12-2246

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Work Order Narrative

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 12/22/16. They were assigned to Work Order 16-12-2246.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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CASE NARRATIVE

Eurofins Calscience Work Order 16-12-2246

EPA Method 8260B Volatile Organics:

Table A: Laboratory Control Sample (LCS) / LCS Duplicate outside acceptable limits	
EPA Method 8260B	
Batch #	Analytes(s)
161223L012	Bromomethane[ME], 1,1-Dichloroethene, Trichlorofluoromethane[ME]

ME: LCS Recovery Percentage is within Marginal Exceedance (ME)

The LCS recovery for 1,1,-Dichloroethene is above control limits, the associated samples and method blank are non-detect for this compound, therefore, the results are being released without an further action or clarification. The client did not provide sufficient volume for a site specific Matrix Spike (MS) or MS Duplicate (MSD).

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Sample Summary

Client:	EnSafe, Inc. 5724 Summer Trees Lane Memphis, TN 38134-7309	Work Order:	16-12-2246
		Project Name:	UTC RFF 2016 GW Monitor
		PO Number:	22015
		Date/Time Received:	12/22/16 13:40
		Number of Containers:	10
Attn:	David Dunbar		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
PW15G375	16-12-2246-1	12/22/16 08:45	4	Aqueous
FB1122216	16-12-2246-2	12/22/16 09:00	4	Aqueous
TB1122216	16-12-2246-3	12/22/16 10:00	2	Aqueous

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QC Association Summary

Work Order: 16-12-2246

Client Sample ID	Method Name	Type	Ext Name	Instrument	MS/MSD/SDP	LCS/LCSD
PW15G375	EPA 314.0 Perchlorate		N/A	IC 13	161222S01	161222L01
PW15G375	EPA 8260B Volatile Organics		EPA 5030C	GC/MS JJ		161223L012
FB1122216	EPA 314.0 Perchlorate		N/A	IC 13	161222S01	161222L01
FB1122216	EPA 8260B Volatile Organics		EPA 5030C	GC/MS JJ		161223L012
TB1122216	EPA 8260B Volatile Organics		EPA 5030C	GC/MS JJ		161223L012

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Analytical Report

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	N/A
		Method:	EPA 314.0
		Units:	ug/L
Project: UTC RFF 2016 GW Monitor			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
PW15G375	**16-12-2246-1-D**	**12/22/16 08:45**	**Aqueous**	**IC 13**	**N/A**	**12/22/16 18:50**	**161222L01**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Perchlorate	ND	2.0	0.71	1.00	

FB1122216	**16-12-2246-2-D**	**12/22/16 09:00**	**Aqueous**	**IC 13**	**N/A**	**12/22/16 19:05**	**161222L01**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Perchlorate	ND	2.0	0.71	1.00	

Method Blank	**099-16-242-560**	**N/A**	**Aqueous**	**IC 13**	**N/A**	**12/22/16 12:58**	**161222L01**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Perchlorate	ND	2.0	0.71	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: UTC RFF 2016 GW Monitor			Page 1 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
PW15G375	**16-12-2246-1-A**	**12/22/16 08:45**	**Aqueous**	**GC/MS JJ**	**12/23/16**	**12/23/16 14:17**	**161223L012**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Benzene	ND	0.50	0.14	1.00	
Bromomethane	ND	10	3.9	1.00	
Carbon Tetrachloride	ND	0.50	0.23	1.00	
Chlorobenzene	ND	1.0	0.17	1.00	
Chloroethane	ND	5.0	2.3	1.00	
Chloroform	ND	1.0	0.46	1.00	
Chloromethane	ND	10	1.8	1.00	
1,2-Dibromoethane	ND	1.0	0.36	1.00	
1,2-Dichlorobenzene	ND	1.0	0.46	1.00	
1,3-Dichlorobenzene	ND	1.0	0.40	1.00	
1,4-Dichlorobenzene	ND	1.0	0.43	1.00	
Dichlorodifluoromethane	ND	1.0	0.46	1.00	
1,1-Dichloroethane	ND	1.0	0.28	1.00	
1,2-Dichloroethane	ND	0.50	0.24	1.00	
1,1-Dichloroethene	ND	1.0	0.43	1.00	
c-1,2-Dichloroethene	ND	1.0	0.48	1.00	
1,2-Dichloropropane	ND	1.0	0.42	1.00	
c-1,3-Dichloropropene	ND	0.50	0.25	1.00	
t-1,3-Dichloropropene	ND	0.50	0.25	1.00	
Ethylbenzene	ND	1.0	0.14	1.00	
Methylene Chloride	ND	10	0.64	1.00	
Styrene	ND	1.0	0.17	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	0.41	1.00	
Tetrachloroethene	ND	1.0	0.39	1.00	
Toluene	ND	1.0	0.24	1.00	
1,2,4-Trichlorobenzene	ND	1.0	0.50	1.00	
1,1,1-Trichloroethane	ND	1.0	0.30	1.00	
Hexachloro-1,3-Butadiene	ND	20	0.32	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	0.78	1.00	
1,1,2-Trichloroethane	ND	1.0	0.38	1.00	
Trichloroethene	ND	1.0	0.37	1.00	
Trichlorofluoromethane	ND	10	1.7	1.00	
1,2,4-Trimethylbenzene	ND	1.0	0.36	1.00	
1,3,5-Trimethylbenzene	ND	1.0	0.28	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: UTC RFF 2016 GW Monitor			Page 2 of 8

Parameter	Result	RL	MDL	DF	Qualifiers
Vinyl Chloride	ND	0.50	0.30	1.00	
p/m-Xylene	ND	1.0	0.24	1.00	
o-Xylene	ND	1.0	0.23	1.00	
Isopropanol	ND	100	37	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	102	80-120	
Dibromofluoromethane	108	78-126	
1,2-Dichloroethane-d4	103	75-135	
Toluene-d8	102	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: UTC RFF 2016 GW Monitor			Page 3 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
FB1122216	**16-12-2246-2-A**	**12/22/16 09:00**	**Aqueous**	**GC/MS JJ**	**12/23/16**	**12/23/16 13:19**	**161223L012**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Benzene	ND	0.50	0.14	1.00	
Bromomethane	ND	10	3.9	1.00	
Carbon Tetrachloride	ND	0.50	0.23	1.00	
Chlorobenzene	ND	1.0	0.17	1.00	
Chloroethane	ND	5.0	2.3	1.00	
Chloroform	ND	1.0	0.46	1.00	
Chloromethane	ND	10	1.8	1.00	
1,2-Dibromoethane	ND	1.0	0.36	1.00	
1,2-Dichlorobenzene	ND	1.0	0.46	1.00	
1,3-Dichlorobenzene	ND	1.0	0.40	1.00	
1,4-Dichlorobenzene	ND	1.0	0.43	1.00	
Dichlorodifluoromethane	ND	1.0	0.46	1.00	
1,1-Dichloroethane	ND	1.0	0.28	1.00	
1,2-Dichloroethane	ND	0.50	0.24	1.00	
1,1-Dichloroethene	ND	1.0	0.43	1.00	
c-1,2-Dichloroethene	ND	1.0	0.48	1.00	
1,2-Dichloropropane	ND	1.0	0.42	1.00	
c-1,3-Dichloropropene	ND	0.50	0.25	1.00	
t-1,3-Dichloropropene	ND	0.50	0.25	1.00	
Ethylbenzene	ND	1.0	0.14	1.00	
Methylene Chloride	ND	10	0.64	1.00	
Styrene	ND	1.0	0.17	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	0.41	1.00	
Tetrachloroethene	ND	1.0	0.39	1.00	
Toluene	ND	1.0	0.24	1.00	
1,2,4-Trichlorobenzene	ND	1.0	0.50	1.00	
1,1,1-Trichloroethane	ND	1.0	0.30	1.00	
Hexachloro-1,3-Butadiene	ND	20	0.32	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	0.78	1.00	
1,1,2-Trichloroethane	ND	1.0	0.38	1.00	
Trichloroethene	ND	1.0	0.37	1.00	
Trichlorofluoromethane	ND	10	1.7	1.00	
1,2,4-Trimethylbenzene	ND	1.0	0.36	1.00	
1,3,5-Trimethylbenzene	ND	1.0	0.28	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: UTC RFF 2016 GW Monitor			Page 4 of 8

Parameter	Result	RL	MDL	DF	Qualifiers
Vinyl Chloride	ND	0.50	0.30	1.00	
p/m-Xylene	ND	1.0	0.24	1.00	
o-Xylene	ND	1.0	0.23	1.00	
Isopropanol	ND	100	37	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	80-120	
Dibromofluoromethane	107	78-126	
1,2-Dichloroethane-d4	110	75-135	
Toluene-d8	100	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TB1122216	**16-12-2246-3-A**	**12/22/16 10:00**	**Aqueous**	**GC/MS JJ**	**12/23/16**	**12/23/16 13:48**	**161223L012**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Benzene	ND	0.50	0.14	1.00	
Bromomethane	ND	10	3.9	1.00	
Carbon Tetrachloride	ND	0.50	0.23	1.00	
Chlorobenzene	ND	1.0	0.17	1.00	
Chloroethane	ND	5.0	2.3	1.00	
Chloroform	ND	1.0	0.46	1.00	
Chloromethane	ND	10	1.8	1.00	
1,2-Dibromoethane	ND	1.0	0.36	1.00	
1,2-Dichlorobenzene	ND	1.0	0.46	1.00	
1,3-Dichlorobenzene	ND	1.0	0.40	1.00	
1,4-Dichlorobenzene	ND	1.0	0.43	1.00	
Dichlorodifluoromethane	ND	1.0	0.46	1.00	
1,1-Dichloroethane	ND	1.0	0.28	1.00	
1,2-Dichloroethane	ND	0.50	0.24	1.00	
1,1-Dichloroethene	ND	1.0	0.43	1.00	
c-1,2-Dichloroethene	ND	1.0	0.48	1.00	
1,2-Dichloropropane	ND	1.0	0.42	1.00	
c-1,3-Dichloropropene	ND	0.50	0.25	1.00	
t-1,3-Dichloropropene	ND	0.50	0.25	1.00	
Ethylbenzene	ND	1.0	0.14	1.00	
Methylene Chloride	ND	10	0.64	1.00	
Styrene	ND	1.0	0.17	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	0.41	1.00	
Tetrachloroethene	ND	1.0	0.39	1.00	
Toluene	ND	1.0	0.24	1.00	
1,2,4-Trichlorobenzene	ND	1.0	0.50	1.00	
1,1,1-Trichloroethane	ND	1.0	0.30	1.00	
Hexachloro-1,3-Butadiene	ND	20	0.32	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	0.78	1.00	
1,1,2-Trichloroethane	ND	1.0	0.38	1.00	
Trichloroethene	ND	1.0	0.37	1.00	
Trichlorofluoromethane	ND	10	1.7	1.00	
1,2,4-Trimethylbenzene	ND	1.0	0.36	1.00	
1,3,5-Trimethylbenzene	ND	1.0	0.28	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
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Parameter	Result	RL	MDL	DF	Qualifiers
Vinyl Chloride	ND	0.50	0.30	1.00	
p/m-Xylene	ND	1.0	0.24	1.00	
o-Xylene	ND	1.0	0.23	1.00	
Isopropanol	ND	100	37	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	80-120	
Dibromofluoromethane	104	78-126	
1,2-Dichloroethane-d4	111	75-135	
Toluene-d8	100	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: UTC RFF 2016 GW Monitor			Page 7 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-16-740-17**	**N/A**	**Aqueous**	**GC/MS JJ**	**12/23/16**	**12/23/16 12:49**	**161223L012**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Benzene	ND	0.50	0.14	1.00	
Bromomethane	ND	10	3.9	1.00	
Carbon Tetrachloride	ND	0.50	0.23	1.00	
Chlorobenzene	ND	1.0	0.17	1.00	
Chloroethane	ND	5.0	2.3	1.00	
Chloroform	ND	1.0	0.46	1.00	
Chloromethane	ND	10	1.8	1.00	
1,2-Dibromoethane	ND	1.0	0.36	1.00	
1,2-Dichlorobenzene	ND	1.0	0.46	1.00	
1,3-Dichlorobenzene	ND	1.0	0.40	1.00	
1,4-Dichlorobenzene	ND	1.0	0.43	1.00	
Dichlorodifluoromethane	ND	1.0	0.46	1.00	
1,1-Dichloroethane	ND	1.0	0.28	1.00	
1,2-Dichloroethane	ND	0.50	0.24	1.00	
1,1-Dichloroethene	ND	1.0	0.43	1.00	
c-1,2-Dichloroethene	ND	1.0	0.48	1.00	
1,2-Dichloropropane	ND	1.0	0.42	1.00	
c-1,3-Dichloropropene	ND	0.50	0.25	1.00	
t-1,3-Dichloropropene	ND	0.50	0.25	1.00	
Ethylbenzene	ND	1.0	0.14	1.00	
Methylene Chloride	ND	10	0.64	1.00	
Styrene	ND	1.0	0.17	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	0.41	1.00	
Tetrachloroethene	ND	1.0	0.39	1.00	
Toluene	ND	1.0	0.24	1.00	
1,2,4-Trichlorobenzene	ND	1.0	0.50	1.00	
1,1,1-Trichloroethane	ND	1.0	0.30	1.00	
Hexachloro-1,3-Butadiene	ND	20	0.32	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	0.78	1.00	
1,1,2-Trichloroethane	ND	1.0	0.38	1.00	
Trichloroethene	ND	1.0	0.37	1.00	
Trichlorofluoromethane	ND	10	1.7	1.00	
1,2,4-Trimethylbenzene	ND	1.0	0.36	1.00	
1,3,5-Trimethylbenzene	ND	1.0	0.28	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
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Parameter	Result	RL	MDL	DF	Qualifiers
Vinyl Chloride	ND	0.50	0.30	1.00	
p/m-Xylene	ND	1.0	0.24	1.00	
o-Xylene	ND	1.0	0.23	1.00	
Isopropanol	ND	100	37	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	100	80-120	
Dibromofluoromethane	103	78-126	
1,2-Dichloroethane-d4	108	75-135	
Toluene-d8	100	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	N/A
		Method:	EPA 314.0
Project: UTC RFF 2016 GW Monitor			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
PW15G375	**Sample**	**Aqueous**	**IC 13**	**N/A**	**12/22/16 18:50**	**161222S01**
PW15G375	**Matrix Spike**	**Aqueous**	**IC 13**	**N/A**	**12/22/16 19:21**	**161222S01**
PW15G375	**Matrix Spike Duplicate**	**Aqueous**	**IC 13**	**N/A**	**12/22/16 19:36**	**161222S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Perchlorate	ND	50.00	45.82	92	44.34	89	80-120	3	0-15	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	N/A
		Method:	EPA 314.0
Project: UTC RFF 2016 GW Monitor			Page 1 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-242-560	**LCS**	**Aqueous**	**IC 13**	**N/A**	**12/22/16 13:13**	**161222L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Perchlorate	25.00	25.21	101	85-115	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: UTC RFF 2016 GW Monitor			Page 2 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-740-17	**LCS**	**Aqueous**	**GC/MS JJ**	**12/23/16**	**12/23/16 10:44**	**161223L012**
099-16-740-17	**LCSD**	**Aqueous**	**GC/MS JJ**	**12/23/16**	**12/23/16 11:24**	**161223L012**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	50.00	50.43	101	49.48	99	80-120	73-127	2	0-20	
Bromomethane	50.00	84.64	169	87.40	175	22-160	0-183	3	0-20	ME
Carbon Tetrachloride	50.00	66.07	132	64.69	129	64-148	50-162	2	0-20	
Chlorobenzene	50.00	52.33	105	51.63	103	80-120	73-127	1	0-20	
Chloroethane	50.00	57.59	115	58.47	117	63-123	53-133	2	0-20	
Chloroform	50.00	57.27	115	57.24	114	79-121	72-128	0	0-20	
Chloromethane	50.00	46.82	94	46.15	92	43-133	28-148	1	0-20	
1,2-Dibromoethane	50.00	51.84	104	51.76	104	80-120	73-127	0	0-20	
1,2-Dichlorobenzene	50.00	52.93	106	52.24	104	80-120	73-127	1	0-20	
1,3-Dichlorobenzene	50.00	54.29	109	53.57	107	80-121	73-128	1	0-20	
1,4-Dichlorobenzene	50.00	54.54	109	52.93	106	80-120	73-127	3	0-20	
Dichlorodifluoromethane	50.00	45.66	91	47.56	95	25-187	0-214	4	0-20	
1,1-Dichloroethane	50.00	54.76	110	54.54	109	75-120	68-128	0	0-20	
1,2-Dichloroethane	50.00	57.62	115	58.93	118	80-123	73-130	2	0-20	
1,1-Dichloroethene	50.00	66.25	132	58.87	118	74-122	66-130	12	0-20	X
c-1,2-Dichloroethene	50.00	54.61	109	54.67	109	75-123	67-131	0	0-20	
1,2-Dichloropropane	50.00	48.45	97	49.06	98	80-120	73-127	1	0-20	
c-1,3-Dichloropropene	50.00	58.16	116	57.78	116	80-124	73-131	1	0-20	
t-1,3-Dichloropropene	50.00	54.85	110	54.51	109	68-128	58-138	1	0-20	
Ethylbenzene	50.00	53.85	108	52.83	106	80-120	73-127	2	0-20	
Methylene Chloride	50.00	53.87	108	55.07	110	74-122	66-130	2	0-20	
Styrene	50.00	52.98	106	51.92	104	80-120	73-127	2	0-20	
1,1,2,2-Tetrachloroethane	50.00	42.47	85	42.28	85	78-126	70-134	0	0-20	
Tetrachloroethene	50.00	61.85	124	59.83	120	57-141	43-155	3	0-20	
Toluene	50.00	53.40	107	53.05	106	80-120	73-127	1	0-20	
1,2,4-Trichlorobenzene	50.00	57.96	116	57.03	114	57-153	41-169	2	0-20	
1,1,1-Trichloroethane	50.00	58.02	116	57.66	115	76-124	68-132	1	0-20	
Hexachloro-1,3-Butadiene	50.00	63.88	128	60.62	121	61-151	46-166	5	0-20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	73.62	147	65.71	131	58-148	43-163	11	0-20	
1,1,2-Trichloroethane	50.00	46.69	93	46.56	93	80-120	73-127	0	0-20	
Trichloroethene	50.00	57.43	115	56.67	113	80-120	73-127	1	0-20	
Trichlorofluoromethane	50.00	71.03	142	72.22	144	64-136	52-148	2	0-20	ME
1,2,4-Trimethylbenzene	50.00	53.36	107	51.47	103	80-120	73-127	4	0-20	
1,3,5-Trimethylbenzene	50.00	56.28	113	56.37	113	80-126	72-134	0	0-20	
Vinyl Chloride	50.00	56.84	114	56.88	114	67-127	57-137	0	0-20	
p/m-Xylene	100.0	107.1	107	105.3	105	80-127	72-135	2	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: UTC RFF 2016 GW Monitor			Page 3 of 4

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
o-Xylene	50.00	53.62	107	52.86	106	80-127	72-135	1	0-20	
Isopropanol	250.0	208.7	83	224.9	90	48-138	33-153	7	0-20	

Total number of LCS compounds: 38
Total number of ME compounds: 2
Total number of ME compounds allowed: 2
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

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LCS/LCSD - Surrogate

EnSafe, Inc.		Date Received:	12/22/16
5724 Summer Trees Lane		Work Order:	16-12-2246
Memphis, TN 38134-7309		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: UTC RFF 2016 GW Monitor			Page 4 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-740-17	**LCS**	**Aqueous**	**GC/MS JJ**	**12/23/16**	**12/23/16 10:44**	**161223L012**
099-16-740-17	**LCSD**	**Aqueous**	**GC/MS JJ**	**12/23/16**	**12/23/16 11:24**	**161223L012**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	Qualifiers
1,4-Bromofluorobenzene	50.00	51.14	102	51.81	104	80-120	
Dibromofluoromethane	50.00	54.55	109	55.15	110	78-126	
1,2-Dichloroethane-d4	50.00	54.25	109	55.23	110	75-135	
Toluene-d8	50.00	50.51	101	50.81	102	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-12-2246

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 314.0	N/A	1065	IC 13	1
EPA 8260B	EPA 5030C	986	GC/MS JJ	2

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Glossary of Terms and Qualifiers

Work Order: 16-12-2246 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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ACCUTEST LABORATORIES

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
Tel: 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job #

16-12-2246

Client / Reporting Information

Company Name: EnSafe Inc.
Street Address: 2151 Salvio St.
City: Concord State: CA Zip: 94520
Project Contact: David Dunbar ddunbar@ensafe.com E-mail:
Phone #: 925-305-2109 Fax #:
Sampler(s) Name(s): Robert Torres Phone #: 951-616-8406

Project Information

Project Name: UTC RFF 2016 GW Monitor
Street:
City: Colton State: CA
Project #:
Client Purchase Order #: 22015
Project Manager:

Billing Information (if different from Report to)
Company Name:
Street Address:
City State Zip
Attention:

Requested Analysis (see TEST CODE sheet)

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	VOCs	Perchlorate (314)	LAB USE ONLY
1	PW15G375		12-22	0845	RT	GW	4	3				1				X	X	
2	FB1122216		12-22	0900	RT	WQ	4	3				1				X	X	
3	TB1122216		12-22	1000	RT	WQ	2	2								X		

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Turnaround Time (Business days)

- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days (by Contract only)
- [ ] 10 Day *RUSH*
- [ ] 5 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other EnSafe 3-File EQUIS EDD

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Samples are UTC project samples
Report w/ J flags for all methods
EPA 314 detections must be confirmed by EPA 6850

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Robert Torres	12-22-16 / 1210	1 [signature] ECI	2 [signature] ECI	12/22/16 1340	2 [signature] ECI
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not intact	Preserved where applicable [ ] On Ice [ ] Cooler Temp.

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WORK ORDER NUMBER: 16-12- 2246

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: ENSAFE INC

DATE: 12 / 22 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC3A (CF: 0.0°C); Temperature (w/o CF): 3.8 °C (w/ CF): 3.8 °C; ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: 672

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 672

Sample(s) (-5) ☑ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 1069

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☑	☐	☐
☑ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: 161215A)

Aqueous: ☐ VOA ☑ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☑ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 1069

Reviewed by: [illegible]

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