

The order of this data package is as follows:

1. Chain-of-Custody/Lab Request
2. Copies of field COCs
3. Validation Report
4. Laboratory analysis

Comments:

Additional data begins on page 102.

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAPA-17-130717

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	04-18-2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	13:25		MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	GSP	
LOCATION ID:	R-49 S1		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	REG	
TOP DEPTH:	1		SAMPLE USAGE:	INV	
BOTTOM DEPTH:	1		EXCAVATED:		YES / NO (NA)

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
1	WSP-LL-H-3	1 LITER POLY	1	NONE	1	1

SAMPLE COMMENTS:

Sampled ≈ 50 ft. from running diesel generator

LOCATION COMMENTS:

None

FIELD PARAMETERS:

Dissolved Oxygen	4.12	mg/L	Flow (in gpm)	1.56	GPM	Oxidation-Reduction Potential	208.6	mV
pH	7.98	SU	Specific Conductance	151.3	uS/cm	Temperature	22.7	deg C
Turbidity	6.91	NTU						

COLLECTED BY (PRINT):

A. Vigil

RELINQUISHED BY (Printed Name) Andrew Vigil (Signature) Andrew Vigil	Date/Time 04/18/2017 1533	RECEIVED BY (Printed Name) S. Sherwood (Signature) S. Sherwood	Date/Time 4/18/17 1533
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 03/27/2017

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAPA-17-130741

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	04-18-2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	13:25		MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	DC	
LOCATION ID:	R-49 S1		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	FTB	
TOP DEPTH:	1		SAMPLE USAGE:	QC	
BOTTOM DEPTH:	1		EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B- VOA	40 ML SEPTUM AMBER GLASS	1-2 4/18/2017	HCL	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV
pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C
Turbidity _____ NTU

COLLECTED BY (PRINT): A. Vigil

RELINQUISHED BY (Printed Name) ANDREW VIGIL (Signature) Andrew Vigil	Date/Time 04/18/2017 1535	RECEIVED BY (Printed Name) S. Sherwood (Signature) S. Sherwood	Date/Time 4/18/17 1535
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 03/27/2017

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAPA-17-130718

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	04-18-2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	15:00		MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	GSP	
LOCATION ID:	R-49 S2		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	REG	
TOP DEPTH:	1		SAMPLE USAGE:	INV	
BOTTOM DEPTH:	1		EXCAVATED:		YES / NO <input checked="" type="checkbox"/> NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
1	WSP-LL-H-3	1 LITER POLY	1	NONE	1	1

SAMPLE COMMENTS:

Sampled \approx 50' from running diesel generator.

LOCATION COMMENTS:

None

FIELD PARAMETERS:

Dissolved Oxygen	6.73	mg/L	Flow (in gpm)	246	GPM	Oxidation-Reduction Potential	256.7	mV
pH	8.03	SU	Specific Conductance	14.3	uS/cm	Temperature	22.7	deg C
Turbidity	0.59	NTU						

COLLECTED BY (PRINT): A.V. Gil

RELINQUISHED BY (Printed Name) ANDREW UIGIL (Signature) <i>Andrew Uigil</i>	Date/Time 04/18/2017 1535	RECEIVED BY (Printed Name) S. Sherwood (Signature) <i>S. Sherwood</i>	Date/Time 4/18/17 1535
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 03/27/2017

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAPA-17-130742

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	04-18-2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	15:00		MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	DC	
LOCATION ID:	R-49 S2		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	FTB	
TOP DEPTH:	1		SAMPLE USAGE:	QC	
BOTTOM DEPTH:			EXCAVATED:		YES / NO (NA)

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B- VOA	40 ML SEPTUM AMBER GLASS	1 2 4/18/17	HCL	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) ~~DOT~~ 04-18-2017 GPM Oxidation-Reduction Potential _____ mV
pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C
Turbidity _____ NTU

COLLECTED BY (PRINT): AN Gil

RELINQUISHED BY (Printed Name) ANDREW UGIL (Signature) <i>Andrew Ugil</i>	Date/Time 04/18/2017 1535	RECEIVED BY (Printed Name) S. Sherwood (Signature) <i>S. Sherwood</i>	Date/Time 4/18/17 1535
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 03/27/2017

DATA VALIDATION REPORT

Chain Of Custody No. 2017-1401

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
421069	EPA:170.0	2		2		
421069	SW-846:8260B	2		2		

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
421069	EPA:170.0	NA	NA	2		2															
421069	SW-846:8260B	1659957	1659957	2		2			4					6							

2. Distribution Of Analytes In EDD.

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:170.0	VOC	CAPA-17-130717	421069001	REG	1	0	0	0
EPA:170.0	VOC	CAPA-17-130718	421069003	REG	1	0	0	0
EPA:170.0	VOC	CAPA-17-130741	421069002	FTB	1	0	0	0
EPA:170.0	VOC	CAPA-17-130742	421069004	FTB	1	0	0	0
SW-846:8260B	VOC	CAPA-17-130717	421069001	REG	80	3	0	0
SW-846:8260B	VOC	CAPA-17-130718	421069003	REG	80	3	0	0
SW-846:8260B	VOC	CAPA-17-130741	421069002	FTB	80	3	0	0
SW-846:8260B	VOC	CAPA-17-130742	421069004	FTB	80	3	0	0
SW-846:8260B	VOC	HB	1203779951	MB	80	3	0	0
SW-846:8260B	VOC	LCS	1203777099	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203777100	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1203778034	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203778035	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1203780033	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203780034	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203777098	MB	80	3	0	0
SW-846:8260B	VOC	MB	1203778033	MB	80	3	0	0
SW-846:8260B	VOC	MB	1203780032	MB	80	3	0	0

DATA VALIDATION REPORT

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

						Blank Lab Result	Lab Qualifier	Blank Lab Units	Blank Lab Detection Limit
Blank FS ID	Blank Lab Sample	Blank Type	Analytical Method	Sample	Parameter Name				
CAPA-17-130741	421069002	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	
CAPA-17-130742	421069004	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

DATA VALIDATION REPORT

LCS Lab Sample	LCSD Lab	Analytical Method	Parameter Name	Lab Lot ID	Analysis	Sample Matrix	LCS Spike Recovery	LCSD Spike Recovery	Upper Limit	Lower Limit	Upper Rejection Limit	Lower Rejection Limit	RPD	RPD Limit
1203777099		SW-846:8260B	Butanol[1-]	1659957	04-27-2017	W	151		138	63		10		
1203777099		SW-846:8260B	Methyl tert-Butyl Ether	1659957	04-27-2017	W	134		128	76		10		

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

13. Display Flagged Data.

None.

Reason Code

Description

NQ	The analytical laboratory did not qualify the analyte as not detected and/or any other standard qualify. The analyte is detected in the sample.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Usable Result Count.

DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAPA-17-130717	R-49 S1	REG	EPA:170.0	0	1
CAPA-17-130717	R-49 S1	REG	SW-846:8260B	0	80
CAPA-17-130718	R-49 S2	REG	EPA:170.0	0	1
CAPA-17-130718	R-49 S2	REG	SW-846:8260B	0	80
CAPA-17-130741	R-49 S1	FTB	EPA:170.0	0	1
CAPA-17-130741	R-49 S1	FTB	SW-846:8260B	0	80
CAPA-17-130742	R-49 S2	FTB	EPA:170.0	0	1
CAPA-17-130742	R-49 S2	FTB	SW-846:8260B	0	80



May 02, 2017

gel.com

Mr. Keith Greene
Los Alamos National Laboratory
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

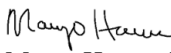
Re: LANL- WQH Water Samples
Work Order: 421069
SDG: 2017-1401

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on April 20, 2017, and analyzed for GC/MS Volatile. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,


Margo Herron for
Valerie Davis
Project Manager

Chain of Custody: 2017-1401
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 421069
SDG: 2017-1401

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 421069
SDG # : 2017-1401**

May 02, 2017

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on April 20, 2017 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
421069001	CAPA-17-130717
421069002	CAPA-17-130741
421069003	CAPA-17-130718
421069004	CAPA-17-130742

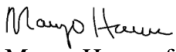
Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Volatile.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.


Margo Herron for
Valerie Davis
Project Manager

List of current GEL Certifications as of 02 May 2017

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122017-22
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client:		SDG/AR/COC/Work Order: <u>421069</u>	
Received By: <u>ZKW</u>		Date Received: <u>4/20/17</u>	
Carrier and Tracking Number		Circle Applicable: <input checked="" type="checkbox"/> FedEx Express <input type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other <u>5908 1781 9775</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
Shipped as a DOT Hazardous?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> <input checked="" type="checkbox"/> CPM/mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
Is package, COC, and/or Samples marked HAZ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. <input checked="" type="checkbox"/> PCB's <input type="checkbox"/> Flammable <input type="checkbox"/> Foreign Soil <input type="checkbox"/> RCRA <input type="checkbox"/> Asbestos <input type="checkbox"/> Beryllium <input type="checkbox"/> Other:	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Wet Ice <input checked="" type="checkbox"/> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: <u>2°C</u>
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>IR3-16</u> Secondary Temperature Device Serial # (If Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: If Preservation added, Lot#: _____
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes _____ No <input checked="" type="checkbox"/> (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes <input checked="" type="checkbox"/> No _____ N/A _____ (If unknown, select No) VOA vials free of headspace? Yes <input checked="" type="checkbox"/> No _____ N/A _____ Sample ID's and containers affected: _____
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected: _____
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected: _____
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
12 Are sample containers identifiable as GEL provided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials ZKPDate 4/21/17Page 1 of 1

GL-CHL-SR-001 Rev 5

ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 19APR17
ACTWGT: 20.0 LB MAN
CAD: 0014176/CAFE2916

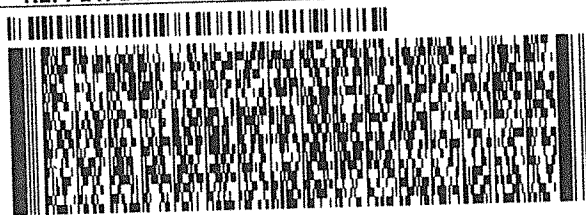
BILL SENDER

TO **VALERIE DAVIS**
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 21PD0ASRGW04BAGWE0



FedEx
Express



538C2/CTB6/329B

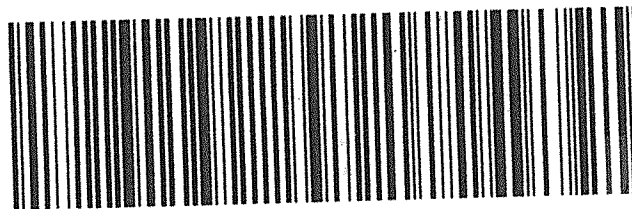
TRK# 5908 1781 9775
0201

THU - 20 APR 10:30A
PRIORITY OVERNIGHT

X7 CHSA

29407
SC-US CHS

Part # 155143V-434 RIT2 06/15



Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
-----------	-------------

*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference.
For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Volatile Analysis

Case Narrative

**GC/MS Volatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2017-1401
Work Order #: 421069**

Method/Analysis Information

Procedure: Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

Analytical Method: SW-846:8260B

Analytical Batch
Number: 1659957

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
421069001	CAPA-17-130717
421069002	CAPA-17-130741
421069003	CAPA-17-130718
421069004	CAPA-17-130742
1203777098	Method Blank (MB)
1203777099	Laboratory Control Sample (LCS)
1203777100	Laboratory Control Sample (LCS)
1203777101	421328001(WST03-17-132679) Post Spike (PS)
1203777102	421328001(WST03-17-132679) Post Spike (PS)
1203777103	421328001(WST03-17-132679) Post Spike Duplicate (PSD)
1203777104	421328001(WST03-17-132679) Post Spike Duplicate (PSD)
1203778033	Method Blank (MB)
1203778034	Laboratory Control Sample (LCS)
1203778035	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The data results reported met all SOP and method criteria, unless otherwise discussed below.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 25.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at

a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements

All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement

The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS/and or LCSD (See Below) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported.

Sample	Analyte	Value
1203777099 (LCS)	n-Butyl alcohol	151* (63%-138%)
	tert-Butyl methyl ether	134* (76%-128%)

QC Sample Designation

Sample 421328001 (WST03-17-132679) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated.

Sample	Analyte	Value
1203777101 (WST03-17-132679PS)	n-Butyl alcohol	161* (60%-140%)
1203777103 (WST03-17-132679PSD)	n-Butyl alcohol	157* (60%-140%)

Relative Percent Difference (RPD) Statement

The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications

All samples in this SDG met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Sample Preservation and Integrity

All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions

Samples 1203777101 (WST03-17-132679PS), 1203777102 (WST03-17-132679PS), 1203777103 (WST03-17-132679PSD) and 1203777104 (WST03-17-132679PSD) were diluted because the sample matrices were not amenable to more concentrated analyses.

Sample Re-extraction/Re-analysis

Re-analyses were not required for samples in this SDG.

Miscellaneous Information**Data Exception (DER) Documentation**

A data exception report (DER) 1627776 was generated for samples 1203777099 (LCS), 1203777101 (WST03-17-132679PS) and 1203777103 (WST03-17-132679PSD) in this SDG/batch.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment

Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, were included on the Sample Data Summary (Form 1) and included with the sample raw data.

Additional Comments

Additional comments were not required for this SDG.

Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
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VOA1.I	Hewlett Packard 5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	RTX-624	Restek, 60m x 0.25mm x 1.4um	Trap 10
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Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2017-1401 GEL Work Order: 421069

The Qualifiers in this report are defined as follows:

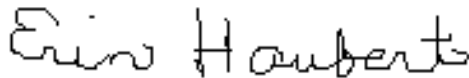
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Erin Haubert

Date: 16 MAY 2017

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/18/2017 13:25	Matrix: W
Lab Sample ID: 421069001	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130717	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 03:03	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 03:03		
Data File: 042717V1\1F437.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/18/2017 13:25	Matrix: W
Lab Sample ID: 421069001	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130717	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 03:03	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 03:03		
Data File: 042717V1\1F437.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401	Date Collected: 04/18/2017 13:25	Matrix: W
Lab Sample ID: 421069001	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130717	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 03:03	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 03:03		
Data File: 042717V1\1F437.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.2	50.0	94	(71%-134%)
Bromofluorobenzene	57.9	50.0	116	(70%-131%)
Toluene-d8	48.6	50.0	97	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	7.18	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 13:25	Matrix:	W
Lab Sample ID:	421069002	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130741	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 03:32	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 03:32				
Data File:	042717V1\1F438.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 13:25	Matrix:	W
Lab Sample ID:	421069002	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130741	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 03:32	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 03:32				
Data File:	042717V1\1F438.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401	Date Collected: 04/18/2017 13:25	Matrix: W
Lab Sample ID: 421069002	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130741	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 03:32	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 03:32		
Data File: 042717V1\1F438.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.2	50.0	ug/L 92	(71%-134%)
Bromofluorobenzene	57.7	50.0	ug/L 115	(70%-131%)
Toluene-d8	47.9	50.0	ug/L 96	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	29.6	ug/L	0	J
	unknown	19.021	9.04	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 15:00	Matrix:	W
Lab Sample ID:	421069003	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130718	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 04:01	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 04:01				
Data File:	042717V1\1F439.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 15:00	Matrix:	W
Lab Sample ID:	421069003	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130718	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 04:01	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 04:01				
Data File:	042717V1\1F439.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401	Date Collected: 04/18/2017 15:00	Matrix: W
Lab Sample ID: 421069003	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130718	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 04:01	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 04:01		
Data File: 042717V1\1F439.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.1	50.0	94	(71%-134%)
Bromofluorobenzene	58.1	50.0	116	(70%-131%)
Toluene-d8	48.1	50.0	96	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	8.68	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 15:00	Matrix:	W
Lab Sample ID:	421069004	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130742	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 04:30	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 04:30				
Data File:	042717V1\1F440.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 15:00	Matrix:	W
Lab Sample ID:	421069004	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130742	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 04:30	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 04:30				
Data File:	042717V1\1F440.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2017-1401	Date Collected: 04/18/2017 15:00	Matrix: W
Lab Sample ID: 421069004	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130742	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 04:30	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 04:30		
Data File: 042717V1\1F440.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.1	50.0	ug/L 96	(71%-134%)
Bromofluorobenzene	59.5	50.0	ug/L 119	(70%-131%)
Toluene-d8	49.1	50.0	ug/L 98	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2017-1401

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203777099	LCS for batch 1659957	89	98	109
1203777100	LCS for batch 1659957	87	97	109
1203777098	MB for batch 1659957	90	97	114
421069001	CAPA-17-130717	94	97	116
421069002	CAPA-17-130741	92	96	115
421069003	CAPA-17-130718	94	96	116
421069004	CAPA-17-130742	96	98	119
1203778034	LCS for batch 1659957	94	97	112
1203778035	LCS for batch 1659957	95	94	110
1203778033	MB for batch 1659957	97	97	119
1203777101	WST03-17-132679PS	92	D 97	D 104
1203777103	WST03-17-132679PSD	86	D 96	D 96
1203777102	WST03-17-132679PS	86	D 94	D 89
1203777104	WST03-17-132679PSD	87	D 95	D 92

Surrogate**Acceptance Limits**

DCED4 = 1,2-Dichloroethane-d4

(71%-134%)

TOL = Toluene-d8

(74%-124%)

BFB = Bromofluorobenzene

(70%-131%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777099

Instrument: VOA1.I

Analysis Date: 04/27/2017 23:12

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS m,p-Xylenes	100	0.0	105	105	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1410	113	61-125
67-64-1	LCS Acetone	250	0.0	244	97	48-157
74-88-4	LCS Iodomethane	250	0.0	243	97	72-128
75-15-0	LCS Carbon disulfide	250	0.0	232	93	69-138
108-05-4	LCS Vinyl acetate	250	0.0	282	113	67-125
78-93-3	LCS 2-Butanone	250	0.0	268	107	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	283	113	66-124
591-78-6	LCS 2-Hexanone	250	0.0	289	115	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	55.8	112	40-160
74-87-3	LCS Chloromethane	50.0	0.0	55.4	111	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	56.7	113	65-137
74-83-9	LCS Bromomethane	50.0	0.0	52.1	104	63-137
75-00-3	LCS Chloroethane	50.0	0.0	52.3	105	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	47.5	95	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	56.8	114	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	45.2	90	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	45.0	90	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	67.2	134 *	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	49.2	98	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	50.4	101	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	51.7	103	75-123

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777099

Instrument: VOA1.I

Analysis Date: 04/27/2017 23:12

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	LCS 2,2-Dichloropropane	50.0	0.0	53.6	107	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	52.1	104	76-125
67-66-3	LCS Chloroform	50.0	0.0	49.2	98	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	49.1	98	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	49.8	100	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	45.9	92	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	48.0	96	74-122
71-43-2	LCS Benzene	50.0	0.0	50.2	100	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	50.3	101	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	52.0	104	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	51.3	103	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	50.3	101	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	50.3	101	78-131
108-88-3	LCS Toluene	50.0	0.0	50.9	102	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	51.7	103	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	53.3	107	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	53.5	107	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	51.0	102	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	53.7	107	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	56.7	113	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	51.0	102	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	52.1	104	73-125

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777099

Instrument: VOA1.I

Analysis Date: 04/27/2017 23:12

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	LCS o-Xylene	50.0	0.0	54.3	109	74-126
100-42-5	LCS Styrene	50.0	0.0	54.7	109	72-130
75-25-2	LCS Bromoform	50.0	0.0	52.8	106	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	54.5	109	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	53.9	108	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	57.2	114	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	52.7	105	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	50.5	101	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	52.5	105	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	54.4	109	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	50.9	102	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	56.9	114	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	53.1	106	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	54.8	110	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	55.0	110	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	50.9	102	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	50.0	100	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	55.0	110	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	52.7	105	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	58.6	117	72-136
91-20-3	LCS Naphthalene	50.0	0.0	60.0	120	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	63.9	128	70-130

Volatile
Quality Control Summary
Spike Recovery Report

Page 4 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777099

Instrument: VOA1.I

Analysis Date: 04/27/2017 23:12

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	LCS 1,2,4-Trichlorobenzene	50.0	0.0	60.9	122	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	53.2	106	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	53.0	106	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	7530	151 *	63-138

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777100

Instrument: VOA1.I

Analysis Date: 04/28/2017 00:10

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS Acrolein	250	0.0	269	108	60-140
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	261	105	61-148
107-05-1	LCS Allyl chloride	250	0.0	275	110	59-125
107-13-1	LCS Acrylonitrile	250	0.0	290	116	65-122
107-12-0	LCS Propionitrile	250	0.0	294	117	64-124
126-98-7	LCS Methacrylonitrile	250	0.0	280	112	64-126
80-62-6	LCS Methyl methacrylate	250	0.0	283	113	69-127
97-63-2	LCS Ethyl methacrylate	250	0.0	268	107	66-130
78-83-1	LCS Isobutyl alcohol	2500	0.0	3020	121	65-135
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	53.2	106	66-147

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777101

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:12

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS m,p-Xylenes	100	0.00 U	110	110	59-132
75-05-8	PS Acetonitrile	1250	0.00 U	1430	115	56-131
67-64-1	PS Acetone	250	0.00 U	193	77	25-155
74-88-4	PS Iodomethane	250	0.00 U	257	103	66-133
75-15-0	PS Carbon disulfide	250	0.00 U	256	102	61-141
108-05-4	PS Vinyl acetate	250	0.00 U	292	117	48-133
78-93-3	PS 2-Butanone	250	0.00 U	245	98	25-143
108-10-1	PS 4-Methyl-2-pentanone	250	0.00 U	291	117	61-127
591-78-6	PS 2-Hexanone	250	0.00 U	288	115	33-138
75-71-8	PS Dichlorodifluoromethane	50.0	0.00 U	60.8	122	33-164
74-87-3	PS Chloromethane	50.0	0.00 U	58.2	116	53-139
75-01-4	PS Vinyl chloride	50.0	0.00 U	60.2	120	58-140
74-83-9	PS Bromomethane	50.0	0.00 U	58.7	117	59-146
75-00-3	PS Chloroethane	50.0	0.00 U	56.4	113	65-129
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	59.9	120	65-141
60-29-7	PS Ethyl ether	50.0	0.00 U	54.2	108	69-127
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	51.2	102	59-130
75-09-2	PS Methylene chloride	50.0	0.00 U	44.9	90	62-123
1634-04-4	PS tert-Butyl methyl ether	50.0	0.00 U	60.0	120	69-132
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	54.1	108	65-127
75-34-3	PS 1,1-Dichloroethane	50.0	0.00 U	53.3	107	67-127
156-59-2	PS cis-1,2-Dichloroethylene	50.0	0.00 U	52.7	105	69-127

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 8

SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777101

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:12

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	PS 2,2-Dichloropropane	50.0	0.00 U	62.8	126	66-137
74-97-5	PS Bromochloromethane	50.0	0.00 U	52.0	104	71-130
67-66-3	PS Chloroform	50.0	0.00 U	53.2	106	71-129
71-55-6	PS 1,1,1-Trichloroethane	50.0	0.00 U	57.6	115	69-139
563-58-6	PS 1,1-Dichloropropene	50.0	0.00 U	55.2	110	67-130
56-23-5	PS Carbon tetrachloride	50.0	0.00 U	58.2	116	66-143
107-06-2	PS 1,2-Dichloroethane	50.0	0.00 U	52.0	104	69-130
71-43-2	PS Benzene	50.0	0.00 U	50.8	102	66-125
79-01-6	PS Trichloroethylene	50.0	0.00 U	54.5	109	65-131
78-87-5	PS 1,2-Dichloropropane	50.0	0.00 U	51.2	102	67-127
74-95-3	PS Dibromomethane	50.0	0.00 U	52.1	104	72-129
75-27-4	PS Bromodichloromethane	50.0	0.00 U	54.1	108	70-138
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00 U	50.1	100	70-134
108-88-3	PS Toluene	50.0	0.00 U	51.9	104	60-126
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00 U	53.0	106	69-135
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00 U	51.5	103	66-125
142-28-9	PS 1,3-Dichloropropane	50.0	0.00 U	51.5	103	67-124
127-18-4	PS Tetrachloroethylene	50.0	0.00 U	55.5	111	60-130
124-48-1	PS Dibromochloromethane	50.0	0.00 U	56.2	112	68-143
106-93-4	PS 1,2-Dibromoethane	50.0	0.00 U	55.0	110	71-127
108-90-7	PS Chlorobenzene	50.0	0.00 U	51.0	102	64-124
100-41-4	PS Ethylbenzene	50.0	0.00 U	55.0	110	61-130

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 8

SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777101

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:12

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	PS o-Xylene	50.0	0.00 U	55.8	112	62-131
100-42-5	PS Styrene	50.0	0.00 U	54.8	110	59-135
75-25-2	PS Bromoform	50.0	0.00 U	57.5	115	64-138
98-82-8	PS Isopropylbenzene	50.0	0.00 U	58.3	117	55-133
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	53.9	108	62-129
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	59.4	119	70-124
108-86-1	PS Bromobenzene	50.0	0.00 U	52.3	105	62-124
103-65-1	PS n-Propylbenzene	50.0	0.00 U	55.6	111	50-133
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	56.2	112	53-135
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	56.1	112	56-128
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	53.4	107	53-130
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	60.8	122	55-135
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	55.7	111	53-132
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	59.8	120	50-138
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	58.7	117	49-138
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	51.1	102	56-126
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	50.0	100	55-125
104-51-8	PS n-Butylbenzene	50.0	0.00 U	56.8	114	43-142
96-12-8	PS 1,2-Dibromo-3-chloropropane	50.0	0.00 U	56.6	113	62-141
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	51.4	103	40-147
91-20-3	PS Naphthalene	50.0	0.00 U	53.7	107	62-134
87-61-6	PS 1,2,3-Trichlorobenzene	50.0	0.00 U	54.7	109	52-135

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777101

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:12

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	PS 1,2,4-Trichlorobenzene	50.0	0.00 U	55.5	111	50-133
630-20-6	PS 1,1,1,2-Tetrachloroethane	50.0	0.00 U	55.7	111	71-133
95-50-1	PS 1,2-Dichlorobenzene	50.0	0.00 U	50.3	101	60-125
71-36-3	PS n-Butyl alcohol	5000	0.00 U	8060	161 *	60-140

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777103

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:40

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD m,p-Xylenes	100	0.00 U	111	111	59-132	1	0-20
75-05-8	PSD Acetonitrile	1250	0.00 U	1340	107	56-131	7	0-20
67-64-1	PSD Acetone	250	0.00 U	184	74	25-155	5	0-20
74-88-4	PSD Iodomethane	250	0.00 U	254	102	66-133	1	0-20
75-15-0	PSD Carbon disulfide	250	0.00 U	256	102	61-141	0	0-20
108-05-4	PSD Vinyl acetate	250	0.00 U	286	114	48-133	2	0-20
78-93-3	PSD 2-Butanone	250	0.00 U	236	95	25-143	3	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00 U	283	113	61-127	3	0-20
591-78-6	PSD 2-Hexanone	250	0.00 U	284	113	33-138	2	0-20
75-71-8	PSD Dichlorodifluoromethane	50.0	0.00 U	59.3	119	33-164	3	0-20
74-87-3	PSD Chloromethane	50.0	0.00 U	59.3	119	53-139	2	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00 U	60.3	121	58-140	0	0-20
74-83-9	PSD Bromomethane	50.0	0.00 U	57.9	116	59-146	1	0-20
75-00-3	PSD Chloroethane	50.0	0.00 U	56.4	113	65-129	0	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00 U	58.9	118	65-141	2	0-20
60-29-7	PSD Ethyl ether	50.0	0.00 U	53.0	106	69-127	2	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00 U	51.0	102	59-130	0	0-20
75-09-2	PSD Methylene chloride	50.0	0.00 U	44.1	88	62-123	2	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.00 U	59.5	119	69-132	1	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00 U	53.2	106	65-127	2	0-20
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00 U	52.6	105	67-127	1	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00 U	53.1	106	69-127	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777103

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:40

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
594-20-7	PSD 2,2-Dichloropropane	50.0	0.00 U	62.0	124	66-137	1	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00 U	50.1	100	71-130	4	0-20
67-66-3	PSD Chloroform	50.0	0.00 U	52.0	104	71-129	2	0-20
71-55-6	PSD 1,1,1-Trichloroethane	50.0	0.00 U	56.4	113	69-139	2	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00 U	55.3	111	67-130	0	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00 U	56.7	113	66-143	3	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00 U	49.5	99	69-130	5	0-20
71-43-2	PSD Benzene	50.0	0.00 U	50.8	102	66-125	0	0-20
79-01-6	PSD Trichloroethylene	50.0	0.00 U	54.7	109	65-131	0	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00 U	51.1	102	67-127	0	0-20
74-95-3	PSD Dibromomethane	50.0	0.00 U	50.7	101	72-129	3	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00 U	52.9	106	70-138	2	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00 U	49.0	98	70-134	2	0-20
108-88-3	PSD Toluene	50.0	0.00 U	52.3	105	60-126	1	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00 U	52.3	105	69-135	1	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00 U	51.0	102	66-125	1	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00 U	52.0	104	67-124	1	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.00 U	57.3	115	60-130	3	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00 U	55.5	111	68-143	1	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00 U	54.9	110	71-127	0	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00 U	51.8	104	64-124	2	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00 U	55.5	111	61-130	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 7 of 8

SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777103

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:40

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
95-47-6	PSD o-Xylene	50.0	0.00 U	56.2	112	62-131	1	0-20
100-42-5	PSD Styrene	50.0	0.00 U	55.7	111	59-135	2	0-20
75-25-2	PSD Bromoform	50.0	0.00 U	58.7	117	64-138	2	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00 U	60.4	121	55-133	3	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00 U	53.3	107	62-129	1	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00 U	58.7	117	70-124	1	0-20
108-86-1	PSD Bromobenzene	50.0	0.00 U	54.0	108	62-124	3	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00 U	57.9	116	50-133	4	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00 U	58.3	117	53-135	4	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00 U	58.6	117	56-128	4	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00 U	55.3	111	53-130	4	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00 U	64.4	129	55-135	6	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00 U	58.3	117	53-132	5	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00 U	62.6	125	50-138	5	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00 U	62.2	124	49-138	6	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00 U	53.8	108	56-126	5	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00 U	53.3	107	55-125	6	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00 U	61.4	123	43-142	8	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00 U	58.9	118	62-141	4	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00 U	57.5	115	40-147	11	0-20
91-20-3	PSD Naphthalene	50.0	0.00 U	57.6	115	62-134	7	0-20
87-61-6	PSD 1,2,3-Trichlorobenzene	50.0	0.00 U	59.7	119	52-135	9	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 8 of 8

SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777103

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:40

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
120-82-1	PSD 1,2,4-Trichlorobenzene	50.0	0.00 U	61.7	123	50-133	11	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	55.1	110	71-133	1	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	53.4	107	60-125	6	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00 U	7860	157 *	60-140	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777102

Instrument: VOA1.I

Analysis Date: 04/28/2017 19:09

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	PS Acrolein	250	0.00 U	313	125	49-141
76-13-1	PS Trichlorotrifluoroethane	250	0.00 U	317	127	57-149
107-05-1	PS Allyl chloride	250	0.00 U	294	117	54-128
107-13-1	PS Acrylonitrile	250	0.00 U	296	119	59-129
107-12-0	PS Propionitrile	250	0.00 U	305	122	58-131
126-98-7	PS Methacrylonitrile	250	0.00 U	285	114	59-134
80-62-6	PS Methyl methacrylate	250	0.00 U	284	114	62-135
97-63-2	PS Ethyl methacrylate	250	0.00 U	264	106	60-136
78-83-1	PS Isobutyl alcohol	2500	0.00 U	3290	132	60-143
126-99-8	PS 2-Chloro-1,3-butadiene	50.0	0.00 U	61.4	123	63-146

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777104

Instrument: VOA1.I

Analysis Date: 04/28/2017 19:38

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
107-02-8	PSD Acrolein	250	0.00 U	301	120	49-141	4	0-20
76-13-1	PSD Trichlorotrifluoroethane	250	0.00 U	301	121	57-149	5	0-20
107-05-1	PSD Allyl chloride	250	0.00 U	290	116	54-128	1	0-20
107-13-1	PSD Acrylonitrile	250	0.00 U	288	115	59-129	3	0-20
107-12-0	PSD Propionitrile	250	0.00 U	300	120	58-131	2	0-20
126-98-7	PSD Methacrylonitrile	250	0.00 U	281	112	59-134	2	0-20
80-62-6	PSD Methyl methacrylate	250	0.00 U	277	111	62-135	3	0-20
97-63-2	PSD Ethyl methacrylate	250	0.00 U	255	102	60-136	3	0-20
78-83-1	PSD Isobutyl alcohol	2500	0.00 U	3170	127	60-143	4	0-20
126-99-8	PSD 2-Chloro-1,3-butadiene	50.0	0.00 U	60.0	120	63-146	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778034

Instrument: VOA1.I

Analysis Date: 04/28/2017 11:28

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS m,p-Xylenes	100	0.0	101	101	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1140	91	61-125
67-64-1	LCS Acetone	250	0.0	275	110	48-157
74-88-4	LCS Iodomethane	250	0.0	239	96	72-128
75-15-0	LCS Carbon disulfide	250	0.0	230	92	69-138
108-05-4	LCS Vinyl acetate	250	0.0	266	107	67-125
78-93-3	LCS 2-Butanone	250	0.0	267	107	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	249	99	66-124
591-78-6	LCS 2-Hexanone	250	0.0	275	110	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	59.2	118	40-160
74-87-3	LCS Chloromethane	50.0	0.0	54.8	110	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	56.8	114	65-137
74-83-9	LCS Bromomethane	50.0	0.0	56.0	112	63-137
75-00-3	LCS Chloroethane	50.0	0.0	53.2	106	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	57.2	114	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	52.6	105	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	47.7	95	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	41.9	84	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	55.6	111	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	49.2	98	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	48.8	98	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	49.5	99	75-123

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778034

Instrument: VOA1.I

Analysis Date: 04/28/2017 11:28

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	LCS 2,2-Dichloropropane	50.0	0.0	58.6	117	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	48.6	97	76-125
67-66-3	LCS Chloroform	50.0	0.0	49.7	99	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	54.0	108	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	50.9	102	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	54.6	109	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	49.5	99	74-122
71-43-2	LCS Benzene	50.0	0.0	47.3	95	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	51.1	102	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	48.0	96	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	49.3	99	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	52.5	105	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	48.5	97	78-131
108-88-3	LCS Toluene	50.0	0.0	48.0	96	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	50.3	101	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	47.8	96	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	48.5	97	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	51.2	102	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	53.8	108	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	51.3	103	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	47.8	96	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	50.9	102	73-125

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778034

Instrument: VOA1.I

Analysis Date: 04/28/2017 11:28

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	LCS o-Xylene	50.0	0.0	51.5	103	74-126
100-42-5	LCS Styrene	50.0	0.0	51.3	103	72-130
75-25-2	LCS Bromoform	50.0	0.0	54.5	109	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	54.3	109	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	47.8	96	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	51.3	103	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	49.7	99	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	50.4	101	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	52.0	104	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	52.2	104	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	49.8	100	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	54.8	110	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	52.2	104	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	54.3	109	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	54.6	109	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	48.6	97	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	48.6	97	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	55.1	110	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	48.4	97	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	55.5	111	72-136
91-20-3	LCS Naphthalene	50.0	0.0	52.9	106	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	58.4	117	70-130

Volatile
Quality Control Summary
Spike Recovery Report

Page 4 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778034

Instrument: VOA1.I

Analysis Date: 04/28/2017 11:28

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	LCS 1,2,4-Trichlorobenzene	50.0	0.0	59.1	118	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	52.7	105	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	50.0	100	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	6130	123	63-138

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778035

Instrument: VOA1.I

Analysis Date: 04/28/2017 12:55

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS Acrolein	250	0.0	318	127	60-140
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	281	112	61-148
107-05-1	LCS Allyl chloride	250	0.0	265	106	59-125
107-13-1	LCS Acrylonitrile	250	0.0	269	108	65-122
107-12-0	LCS Propionitrile	250	0.0	276	110	64-124
126-98-7	LCS Methacrylonitrile	250	0.0	273	109	64-126
80-62-6	LCS Methyl methacrylate	250	0.0	278	111	69-127
97-63-2	LCS Ethyl methacrylate	250	0.0	255	102	66-130
78-83-1	LCS Isobutyl alcohol	2500	0.0	3010	120	65-135
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	55.8	112	66-147

Method Blank Summary

Page 1 of 1

SDG Number: 2017-1401

Client: ARSL004

Matrix: WATER

Client ID: MB for batch 1659957

Instrument ID: VOA1.I

Data File: 042717V1\1F432BA.D

Lab Sample ID: 1203777098

Prep Date: 04/28/2017 00:39

Analyzed: 04/28/17 00:39

Column: DB-624

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1659957	1203777099	042717V1\1F429LA.D	04/27/17	2312
02 LCS for batch 1659957	1203777100	042717V1\1F431LA.D	04/28/17	0010
03 CAPA-17-130717	421069001	042717V1\1F437.D	04/28/17	0303
04 CAPA-17-130741	421069002	042717V1\1F438.D	04/28/17	0332
05 CAPA-17-130718	421069003	042717V1\1F439.D	04/28/17	0401
06 CAPA-17-130742	421069004	042717V1\1F440.D	04/28/17	0430

Method Blank Summary

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SDG Number:	2017-1401	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1659957	Instrument ID:	VOA1.I	Data File:	042817V1\1F508BA.D
Lab Sample ID:	1203778033	Prep Date:	04/28/2017 13:24	Analyzed:	04/28/17 13:24
Column:	DB-624				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
08 LCS for batch 1659957	1203778034	042817V1\1F504LA.D	04/28/17	1128
09 LCS for batch 1659957	1203778035	042817V1\1F507LA.D	04/28/17	1255
10 WST03-17-132679PS	1203777101	042817V1\1F518.D	04/28/17	1812
11 WST03-17-132679PSD	1203777103	042817V1\1F519.D	04/28/17	1840
12 WST03-17-132679PS	1203777102	042817V1\1F520.D	04/28/17	1909
13 WST03-17-132679PSD	1203777104	042817V1\1F521.D	04/28/17	1938

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Matrix: WATER
Lab Sample ID: 1203777098	
Client Sample: QC for batch 1659957	Client: ARSL004
Client ID: MB for batch 1659957	Method: SW-846:8260B
Batch ID: 1659957	Project: QC
Run Date: 04/28/2017 00:39	SOP Ref: GL-OA-E-038
Prep Date: 04/28/2017 00:39	Dilution: 1
Data File: 042717V1\1F432BA.D	Purge Vol: 5 mL
	Analyst: VXY1
	Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Matrix: WATER

Lab Sample ID: 1203777098

Client Sample: QC for batch 1659957

Client: ARSL004

Project: QC

Client ID: MB for batch 1659957

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1659957

Inst: VOA1.I

Dilution: 1

Run Date: 04/28/2017 00:39

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/28/2017 00:39

Data File: 042717V1\1F432BA.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

Page 3 of 3

SDG Number:	2017-1401	Matrix:	WATER
Lab Sample ID:	1203777098		
Client Sample:	QC for batch 1659957	Client:	ARSL004
Client ID:	MB for batch 1659957	Method:	SW-846:8260B
Batch ID:	1659957	Inst:	VOA1.I
Run Date:	04/28/2017 00:39	Analyst:	VXY1
Prep Date:	04/28/2017 00:39	Purge Vol:	5 mL
Data File:	042717V1\1F432BA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.8	50.0	ug/L 90	(71%-134%)
Bromofluorobenzene	56.8	50.0	ug/L 114	(70%-131%)
Toluene-d8	48.7	50.0	ug/L 97	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Lab Sample ID: 1203777099

Client Sample: QC for batch 1659957

Client ID: LCS for batch 1659957

Batch ID: 1659957

Run Date: 04/27/2017 23:12

Prep Date: 04/27/2017 23:12

Data File: 042717V1\1F429LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		53.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		49.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		53.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		53.3	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		50.4	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		45.2	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		49.8	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		63.9	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		57.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		60.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		53.1	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		52.7	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		56.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		53.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		48.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		52.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		52.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		50.9	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		53.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		50.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		53.6	ug/L	0.300	1.00
78-93-3	2-Butanone		268	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		54.4	ug/L	0.300	1.00
591-78-6	2-Hexanone		289	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		50.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		55.0	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		283	ug/L	1.50	5.00
67-64-1	Acetone		244	ug/L	1.50	10.0
75-05-8	Acetonitrile		1410	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		50.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		52.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		52.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		50.3	ug/L	0.300	1.00
75-25-2	Bromoform		52.8	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401

Lab Sample ID: 1203777099

Client Sample: QC for batch 1659957

Client ID: LCS for batch 1659957

Batch ID: 1659957

Run Date: 04/27/2017 23:12

Prep Date: 04/27/2017 23:12

Data File: 042717V1\1F429LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		52.1	ug/L	0.300	1.00
75-15-0	Carbon disulfide		232	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		45.9	ug/L	0.300	1.00
108-90-7	Chlorobenzene		51.0	ug/L	0.300	1.00
75-00-3	Chloroethane		52.3	ug/L	0.300	1.00
67-66-3	Chloroform		49.2	ug/L	0.300	1.00
74-87-3	Chloromethane		55.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.3	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		55.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		56.8	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		52.1	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		58.6	ug/L	0.300	1.00
74-88-4	Iodomethane		243	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		54.5	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		45.0	ug/L	1.00	10.0
91-20-3	Naphthalene		60.0	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		54.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.0	ug/L	0.300	1.00
108-88-3	Toluene		50.9	ug/L	0.300	1.00
79-01-6	Trichloroethylene		50.3	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		47.5	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		282	ug/L	1.50	5.00
75-01-4	Vinyl chloride		56.7	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		51.7	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		50.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		105	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		7530	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		55.0	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.5	ug/L	0.300	1.00
95-47-6	o-Xylene		54.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		54.8	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2017-1401		Matrix: WATER
Lab Sample ID: 1203777099		
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: LCS for batch 1659957	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/27/2017 23:12	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/27/2017 23:12		
Data File: 042717V1\1F429LA.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		67.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		56.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		49.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.5	50.0	ug/L 89	(71%-134%)
Bromofluorobenzene	54.7	50.0	ug/L 109	(70%-131%)
Toluene-d8	48.9	50.0	ug/L 98	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Matrix: WATER

Lab Sample ID: 1203777100

Client Sample: QC for batch 1659957

Client: ARSL004

Project: QC

Client ID: LCS for batch 1659957

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1659957

Inst: VOA1.I

Dilution: 1

Run Date: 04/28/2017 00:10

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/28/2017 00:10

Data File: 042717V1\1F431LA.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		53.2	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		269	ug/L	1.50	5.00
107-13-1	Acrylonitrile		290	ug/L	1.50	5.00
107-05-1	Allyl chloride		275	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Lab Sample ID: 1203777100

Client Sample: QC for batch 1659957

Client ID: LCS for batch 1659957

Batch ID: 1659957

Run Date: 04/28/2017 00:10

Prep Date: 04/28/2017 00:10

Data File: 042717V1\1F431LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		268	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		3020	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		280	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		283	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile		294	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		261	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

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Sample Summary**

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SDG Number:	2017-1401	Matrix:	WATER
Lab Sample ID:	1203777100		
Client Sample:	QC for batch 1659957	Client:	ARSL004
Client ID:	LCS for batch 1659957	Method:	SW-846:8260B
Batch ID:	1659957	Inst:	VOA1.I
Run Date:	04/28/2017 00:10	Analyst:	VXY1
Prep Date:	04/28/2017 00:10	Purge Vol:	5 mL
Data File:	042717V1\1F431LA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.7	50.0	87	(71%-134%)
Bromofluorobenzene	54.5	50.0	109	(70%-131%)
Toluene-d8	48.5	50.0	97	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777101	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 18:12	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 18:12		
Data File: 042817V1\1F518.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		557	ug/L	3.00	10.0
71-55-6	1,1,1-Trichloroethane		576	ug/L	3.00	10.0
79-34-5	1,1,2,2-Tetrachloroethane		539	ug/L	3.00	10.0
79-00-5	1,1,2-Trichloroethane		515	ug/L	3.00	10.0
75-34-3	1,1-Dichloroethane		533	ug/L	3.00	10.0
75-35-4	1,1-Dichloroethylene		512	ug/L	3.00	10.0
563-58-6	1,1-Dichloropropene		552	ug/L	3.00	10.0
87-61-6	1,2,3-Trichlorobenzene		547	ug/L	3.00	10.0
96-18-4	1,2,3-Trichloropropane		594	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		555	ug/L	3.00	10.0
95-63-6	1,2,4-Trimethylbenzene		557	ug/L	3.00	10.0
96-12-8	1,2-Dibromo-3-chloropropane		566	ug/L	5.00	10.0
106-93-4	1,2-Dibromoethane		550	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		503	ug/L	3.00	10.0
107-06-2	1,2-Dichloroethane		520	ug/L	3.00	10.0
78-87-5	1,2-Dichloropropane		512	ug/L	3.00	10.0
108-67-8	1,3,5-Trimethylbenzene		562	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		511	ug/L	3.00	10.0
142-28-9	1,3-Dichloropropane		515	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		500	ug/L	3.00	10.0
594-20-7	2,2-Dichloropropane		628	ug/L	3.00	10.0
78-93-3	2-Butanone		2450	ug/L	15.0	50.0
126-99-8	2-Chloro-1,3-butadiene	U	10.0	ug/L	3.00	10.0
95-49-8	2-Chlorotoluene		561	ug/L	3.00	10.0
591-78-6	2-Hexanone		2880	ug/L	15.0	50.0
106-43-4	4-Chlorotoluene		534	ug/L	3.00	10.0
99-87-6	4-Isopropyltoluene		587	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone		2910	ug/L	15.0	50.0
67-64-1	Acetone		1930	ug/L	15.0	100
75-05-8	Acetonitrile		14300	ug/L	80.0	250
107-02-8	Acrolein	U	50.0	ug/L	15.0	50.0
107-13-1	Acrylonitrile	U	50.0	ug/L	15.0	50.0
107-05-1	Allyl chloride	U	50.0	ug/L	15.0	50.0
71-43-2	Benzene		508	ug/L	3.00	10.0
108-86-1	Bromobenzene		523	ug/L	3.00	10.0
74-97-5	Bromochloromethane		520	ug/L	3.00	10.0
75-27-4	Bromodichloromethane		541	ug/L	3.00	10.0
75-25-2	Bromoform		575	ug/L	3.00	10.0

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Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777101	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 18:12	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 18:12		
Data File: 042817V1\1F518.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		587	ug/L	3.00	10.0
75-15-0	Carbon disulfide		2560	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		582	ug/L	3.00	10.0
108-90-7	Chlorobenzene		510	ug/L	3.00	10.0
75-00-3	Chloroethane		564	ug/L	3.00	10.0
67-66-3	Chloroform		532	ug/L	3.00	10.0
74-87-3	Chloromethane		582	ug/L	3.00	10.0
124-48-1	Dibromochloromethane		562	ug/L	3.00	10.0
74-95-3	Dibromomethane		521	ug/L	3.00	10.0
75-71-8	Dichlorodifluoromethane		608	ug/L	3.00	10.0
60-29-7	Ethyl ether		542	ug/L	3.00	10.0
97-63-2	Ethyl methacrylate	U	50.0	ug/L	15.0	50.0
100-41-4	Ethylbenzene		550	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		514	ug/L	3.00	10.0
74-88-4	Iodomethane		2570	ug/L	15.0	50.0
78-83-1	Isobutyl alcohol	U	500	ug/L	150	500
98-82-8	Isopropylbenzene		583	ug/L	3.00	10.0
126-98-7	Methacrylonitrile	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	50.0	ug/L	15.0	50.0
75-09-2	Methylene chloride		449	ug/L	10.0	100
91-20-3	Naphthalene		537	ug/L	3.00	10.0
107-12-0	Propionitrile	U	50.0	ug/L	15.0	50.0
100-42-5	Styrene		548	ug/L	3.00	10.0
127-18-4	Tetrachloroethylene		555	ug/L	3.00	10.0
108-88-3	Toluene		519	ug/L	3.00	10.0
79-01-6	Trichloroethylene		545	ug/L	3.00	10.0
75-69-4	Trichlorofluoromethane		599	ug/L	3.00	10.0
76-13-1	Trichlorotrifluoroethane	U	50.0	ug/L	20.0	50.0
108-05-4	Vinyl acetate		2920	ug/L	15.0	50.0
75-01-4	Vinyl chloride		602	ug/L	3.00	10.0
156-59-2	cis-1,2-Dichloroethylene		527	ug/L	3.00	10.0
10061-01-5	cis-1,3-Dichloropropylene		501	ug/L	3.00	10.0
179601-23-1	m,p-Xylenes		1100	ug/L	3.00	20.0
71-36-3	n-Butyl alcohol		80600	ug/L	150	500
104-51-8	n-Butylbenzene		568	ug/L	3.00	10.0
103-65-1	n-Propylbenzene		556	ug/L	3.00	10.0
95-47-6	o-Xylene		558	ug/L	3.00	10.0
135-98-8	sec-Butylbenzene		598	ug/L	3.00	10.0

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Sample Summary**

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SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777101	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 18:12	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 18:12		
Data File: 042817V1\1F518.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		600	ug/L	3.00	10.0
98-06-6	tert-Butylbenzene		608	ug/L	3.00	10.0
156-60-5	trans-1,2-Dichloroethylene		541	ug/L	3.00	10.0
10061-02-6	trans-1,3-Dichloropropylene		530	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.1	50.0	92	(71%-134%)
Bromofluorobenzene	51.9	50.0	104	(70%-131%)
Toluene-d8	48.3	50.0	97	(74%-124%)

Volatile
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Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777102	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 19:09	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 19:09		
Data File: 042817V1\1F520.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	10.0	ug/L	3.00	10.0
71-55-6	1,1,1-Trichloroethane	U	10.0	ug/L	3.00	10.0
79-34-5	1,1,2,2-Tetrachloroethane	U	10.0	ug/L	3.00	10.0
79-00-5	1,1,2-Trichloroethane	U	10.0	ug/L	3.00	10.0
75-34-3	1,1-Dichloroethane	U	10.0	ug/L	3.00	10.0
75-35-4	1,1-Dichloroethylene	U	10.0	ug/L	3.00	10.0
563-58-6	1,1-Dichloropropene	U	10.0	ug/L	3.00	10.0
87-61-6	1,2,3-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
96-18-4	1,2,3-Trichloropropane	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
95-63-6	1,2,4-Trimethylbenzene	U	10.0	ug/L	3.00	10.0
96-12-8	1,2-Dibromo-3-chloropropane	U	10.0	ug/L	5.00	10.0
106-93-4	1,2-Dibromoethane	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
107-06-2	1,2-Dichloroethane	U	10.0	ug/L	3.00	10.0
78-87-5	1,2-Dichloropropane	U	10.0	ug/L	3.00	10.0
108-67-8	1,3,5-Trimethylbenzene	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
142-28-9	1,3-Dichloropropane	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
594-20-7	2,2-Dichloropropane	U	10.0	ug/L	3.00	10.0
78-93-3	2-Butanone	U	50.0	ug/L	15.0	50.0
126-99-8	2-Chloro-1,3-butadiene		614	ug/L	3.00	10.0
95-49-8	2-Chlorotoluene	U	10.0	ug/L	3.00	10.0
591-78-6	2-Hexanone	U	50.0	ug/L	15.0	50.0
106-43-4	4-Chlorotoluene	U	10.0	ug/L	3.00	10.0
99-87-6	4-Isopropyltoluene	U	10.0	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone	U	50.0	ug/L	15.0	50.0
67-64-1	Acetone	U	100	ug/L	15.0	100
75-05-8	Acetonitrile	U	250	ug/L	80.0	250
107-02-8	Acrolein		3130	ug/L	15.0	50.0
107-13-1	Acrylonitrile		2960	ug/L	15.0	50.0
107-05-1	Allyl chloride		2940	ug/L	15.0	50.0
71-43-2	Benzene	U	10.0	ug/L	3.00	10.0
108-86-1	Bromobenzene	U	10.0	ug/L	3.00	10.0
74-97-5	Bromochloromethane	U	10.0	ug/L	3.00	10.0
75-27-4	Bromodichloromethane	U	10.0	ug/L	3.00	10.0
75-25-2	Bromoform	U	10.0	ug/L	3.00	10.0

Volatile
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Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777102	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 19:09	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 19:09		
Data File: 042817V1\1F520.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	10.0	ug/L	3.00	10.0
108-90-7	Chlorobenzene	U	10.0	ug/L	3.00	10.0
75-00-3	Chloroethane	U	10.0	ug/L	3.00	10.0
67-66-3	Chloroform	U	10.0	ug/L	3.00	10.0
74-87-3	Chloromethane	U	10.0	ug/L	3.00	10.0
124-48-1	Dibromochloromethane	U	10.0	ug/L	3.00	10.0
74-95-3	Dibromomethane	U	10.0	ug/L	3.00	10.0
75-71-8	Dichlorodifluoromethane	U	10.0	ug/L	3.00	10.0
60-29-7	Ethyl ether	U	10.0	ug/L	3.00	10.0
97-63-2	Ethyl methacrylate		2640	ug/L	15.0	50.0
100-41-4	Ethylbenzene	U	10.0	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
74-88-4	Iodomethane	U	50.0	ug/L	15.0	50.0
78-83-1	Isobutyl alcohol		32900	ug/L	150	500
98-82-8	Isopropylbenzene	U	10.0	ug/L	3.00	10.0
126-98-7	Methacrylonitrile		2850	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		2840	ug/L	15.0	50.0
75-09-2	Methylene chloride	U	100	ug/L	10.0	100
91-20-3	Naphthalene	U	10.0	ug/L	3.00	10.0
107-12-0	Propionitrile		3050	ug/L	15.0	50.0
100-42-5	Styrene	U	10.0	ug/L	3.00	10.0
127-18-4	Tetrachloroethylene	U	10.0	ug/L	3.00	10.0
108-88-3	Toluene	U	10.0	ug/L	3.00	10.0
79-01-6	Trichloroethylene	U	10.0	ug/L	3.00	10.0
75-69-4	Trichlorofluoromethane	U	10.0	ug/L	3.00	10.0
76-13-1	Trichlorotrifluoroethane		3170	ug/L	20.0	50.0
108-05-4	Vinyl acetate	U	50.0	ug/L	15.0	50.0
75-01-4	Vinyl chloride	U	10.0	ug/L	3.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	10.0	ug/L	3.00	10.0
10061-01-5	cis-1,3-Dichloropropylene	U	10.0	ug/L	3.00	10.0
179601-23-1	m,p-Xylenes	U	20.0	ug/L	3.00	20.0
71-36-3	n-Butyl alcohol	U	500	ug/L	150	500
104-51-8	n-Butylbenzene	U	10.0	ug/L	3.00	10.0
103-65-1	n-Propylbenzene	U	10.0	ug/L	3.00	10.0
95-47-6	o-Xylene	U	10.0	ug/L	3.00	10.0
135-98-8	sec-Butylbenzene	U	10.0	ug/L	3.00	10.0

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Sample Summary

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SDG Number:	2017-1401	Date Collected:	04/20/2017 13:27	Matrix:	W
Lab Sample ID:	1203777102	Date Received:	04/22/2017 09:55		
Client Sample:	QC for batch 1659957	Client:	ARSL004	Project:	QC
Client ID:	WST03-17-132679PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	10
Run Date:	04/28/2017 19:09	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 19:09				
Data File:	042817V1\1F520.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	10.0	ug/L	3.00	10.0
98-06-6	tert-Butylbenzene	U	10.0	ug/L	3.00	10.0
156-60-5	trans-1,2-Dichloroethylene	U	10.0	ug/L	3.00	10.0
10061-02-6	trans-1,3-Dichloropropylene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.2	50.0	ug/L 86	(71%-134%)
Bromofluorobenzene	44.6	50.0	ug/L 89	(70%-131%)
Toluene-d8	46.8	50.0	ug/L 94	(74%-124%)

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/20/2017 13:27	Matrix:	W
Lab Sample ID:	1203777103	Date Received:	04/22/2017 09:55		
Client Sample:	QC for batch 1659957	Client:	ARSL004	Project:	QC
Client ID:	WST03-17-132679PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	10
Run Date:	04/28/2017 18:40	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 18:40				
Data File:	042817V1\1F519.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		551	ug/L	3.00	10.0
71-55-6	1,1,1-Trichloroethane		564	ug/L	3.00	10.0
79-34-5	1,1,2,2-Tetrachloroethane		533	ug/L	3.00	10.0
79-00-5	1,1,2-Trichloroethane		510	ug/L	3.00	10.0
75-34-3	1,1-Dichloroethane		526	ug/L	3.00	10.0
75-35-4	1,1-Dichloroethylene		510	ug/L	3.00	10.0
563-58-6	1,1-Dichloropropene		553	ug/L	3.00	10.0
87-61-6	1,2,3-Trichlorobenzene		597	ug/L	3.00	10.0
96-18-4	1,2,3-Trichloropropane		587	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		617	ug/L	3.00	10.0
95-63-6	1,2,4-Trimethylbenzene		583	ug/L	3.00	10.0
96-12-8	1,2-Dibromo-3-chloropropane		589	ug/L	5.00	10.0
106-93-4	1,2-Dibromoethane		549	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		534	ug/L	3.00	10.0
107-06-2	1,2-Dichloroethane		495	ug/L	3.00	10.0
78-87-5	1,2-Dichloropropane		511	ug/L	3.00	10.0
108-67-8	1,3,5-Trimethylbenzene		583	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		538	ug/L	3.00	10.0
142-28-9	1,3-Dichloropropane		520	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		533	ug/L	3.00	10.0
594-20-7	2,2-Dichloropropane		620	ug/L	3.00	10.0
78-93-3	2-Butanone		2360	ug/L	15.0	50.0
126-99-8	2-Chloro-1,3-butadiene	U	10.0	ug/L	3.00	10.0
95-49-8	2-Chlorotoluene		586	ug/L	3.00	10.0
591-78-6	2-Hexanone		2840	ug/L	15.0	50.0
106-43-4	4-Chlorotoluene		553	ug/L	3.00	10.0
99-87-6	4-Isopropyltoluene		622	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone		2830	ug/L	15.0	50.0
67-64-1	Acetone		1840	ug/L	15.0	100
75-05-8	Acetonitrile		13400	ug/L	80.0	250
107-02-8	Acrolein	U	50.0	ug/L	15.0	50.0
107-13-1	Acrylonitrile	U	50.0	ug/L	15.0	50.0
107-05-1	Allyl chloride	U	50.0	ug/L	15.0	50.0
71-43-2	Benzene		508	ug/L	3.00	10.0
108-86-1	Bromobenzene		540	ug/L	3.00	10.0
74-97-5	Bromochloromethane		501	ug/L	3.00	10.0
75-27-4	Bromodichloromethane		529	ug/L	3.00	10.0
75-25-2	Bromoform		587	ug/L	3.00	10.0

**Volatile
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Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/20/2017 13:27	Matrix:	W
Lab Sample ID:	1203777103	Date Received:	04/22/2017 09:55		
Client Sample:	QC for batch 1659957	Client:	ARSL004	Project:	QC
Client ID:	WST03-17-132679PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	10
Run Date:	04/28/2017 18:40	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 18:40				
Data File:	042817V1\1F519.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		579	ug/L	3.00	10.0
75-15-0	Carbon disulfide		2560	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		567	ug/L	3.00	10.0
108-90-7	Chlorobenzene		518	ug/L	3.00	10.0
75-00-3	Chloroethane		564	ug/L	3.00	10.0
67-66-3	Chloroform		520	ug/L	3.00	10.0
74-87-3	Chloromethane		593	ug/L	3.00	10.0
124-48-1	Dibromochloromethane		555	ug/L	3.00	10.0
74-95-3	Dibromomethane		507	ug/L	3.00	10.0
75-71-8	Dichlorodifluoromethane		593	ug/L	3.00	10.0
60-29-7	Ethyl ether		530	ug/L	3.00	10.0
97-63-2	Ethyl methacrylate	U	50.0	ug/L	15.0	50.0
100-41-4	Ethylbenzene		555	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		575	ug/L	3.00	10.0
74-88-4	Iodomethane		2540	ug/L	15.0	50.0
78-83-1	Isobutyl alcohol	U	500	ug/L	150	500
98-82-8	Isopropylbenzene		604	ug/L	3.00	10.0
126-98-7	Methacrylonitrile	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	50.0	ug/L	15.0	50.0
75-09-2	Methylene chloride		441	ug/L	10.0	100
91-20-3	Naphthalene		576	ug/L	3.00	10.0
107-12-0	Propionitrile	U	50.0	ug/L	15.0	50.0
100-42-5	Styrene		557	ug/L	3.00	10.0
127-18-4	Tetrachloroethylene		573	ug/L	3.00	10.0
108-88-3	Toluene		523	ug/L	3.00	10.0
79-01-6	Trichloroethylene		547	ug/L	3.00	10.0
75-69-4	Trichlorofluoromethane		589	ug/L	3.00	10.0
76-13-1	Trichlorotrifluoroethane	U	50.0	ug/L	20.0	50.0
108-05-4	Vinyl acetate		2860	ug/L	15.0	50.0
75-01-4	Vinyl chloride		603	ug/L	3.00	10.0
156-59-2	cis-1,2-Dichloroethylene		531	ug/L	3.00	10.0
10061-01-5	cis-1,3-Dichloropropylene		490	ug/L	3.00	10.0
179601-23-1	m,p-Xylenes		1110	ug/L	3.00	20.0
71-36-3	n-Butyl alcohol		78600	ug/L	150	500
104-51-8	n-Butylbenzene		614	ug/L	3.00	10.0
103-65-1	n-Propylbenzene		579	ug/L	3.00	10.0
95-47-6	o-Xylene		562	ug/L	3.00	10.0
135-98-8	sec-Butylbenzene		626	ug/L	3.00	10.0

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777103	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 18:40	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 18:40		
Data File: 042817V1\1F519.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		595	ug/L	3.00	10.0
98-06-6	tert-Butylbenzene		644	ug/L	3.00	10.0
156-60-5	trans-1,2-Dichloroethylene		532	ug/L	3.00	10.0
10061-02-6	trans-1,3-Dichloropropylene		523	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.0	50.0	86	(71%-134%)
Bromofluorobenzene	47.8	50.0	96	(70%-131%)
Toluene-d8	47.8	50.0	96	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777104	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 19:38	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 19:38		
Data File: 042817V1\1F521.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	10.0	ug/L	3.00	10.0
71-55-6	1,1,1-Trichloroethane	U	10.0	ug/L	3.00	10.0
79-34-5	1,1,2,2-Tetrachloroethane	U	10.0	ug/L	3.00	10.0
79-00-5	1,1,2-Trichloroethane	U	10.0	ug/L	3.00	10.0
75-34-3	1,1-Dichloroethane	U	10.0	ug/L	3.00	10.0
75-35-4	1,1-Dichloroethylene	U	10.0	ug/L	3.00	10.0
563-58-6	1,1-Dichloropropene	U	10.0	ug/L	3.00	10.0
87-61-6	1,2,3-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
96-18-4	1,2,3-Trichloropropane	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
95-63-6	1,2,4-Trimethylbenzene	U	10.0	ug/L	3.00	10.0
96-12-8	1,2-Dibromo-3-chloropropane	U	10.0	ug/L	5.00	10.0
106-93-4	1,2-Dibromoethane	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
107-06-2	1,2-Dichloroethane	U	10.0	ug/L	3.00	10.0
78-87-5	1,2-Dichloropropane	U	10.0	ug/L	3.00	10.0
108-67-8	1,3,5-Trimethylbenzene	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
142-28-9	1,3-Dichloropropane	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
594-20-7	2,2-Dichloropropane	U	10.0	ug/L	3.00	10.0
78-93-3	2-Butanone	U	50.0	ug/L	15.0	50.0
126-99-8	2-Chloro-1,3-butadiene		600	ug/L	3.00	10.0
95-49-8	2-Chlorotoluene	U	10.0	ug/L	3.00	10.0
591-78-6	2-Hexanone	U	50.0	ug/L	15.0	50.0
106-43-4	4-Chlorotoluene	U	10.0	ug/L	3.00	10.0
99-87-6	4-Isopropyltoluene	U	10.0	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone	U	50.0	ug/L	15.0	50.0
67-64-1	Acetone	U	100	ug/L	15.0	100
75-05-8	Acetonitrile	U	250	ug/L	80.0	250
107-02-8	Acrolein		3010	ug/L	15.0	50.0
107-13-1	Acrylonitrile		2880	ug/L	15.0	50.0
107-05-1	Allyl chloride		2900	ug/L	15.0	50.0
71-43-2	Benzene	U	10.0	ug/L	3.00	10.0
108-86-1	Bromobenzene	U	10.0	ug/L	3.00	10.0
74-97-5	Bromochloromethane	U	10.0	ug/L	3.00	10.0
75-27-4	Bromodichloromethane	U	10.0	ug/L	3.00	10.0
75-25-2	Bromoform	U	10.0	ug/L	3.00	10.0

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777104	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 19:38	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 19:38		
Data File: 042817V1\1F521.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	10.0	ug/L	3.00	10.0
108-90-7	Chlorobenzene	U	10.0	ug/L	3.00	10.0
75-00-3	Chloroethane	U	10.0	ug/L	3.00	10.0
67-66-3	Chloroform	U	10.0	ug/L	3.00	10.0
74-87-3	Chloromethane	U	10.0	ug/L	3.00	10.0
124-48-1	Dibromochloromethane	U	10.0	ug/L	3.00	10.0
74-95-3	Dibromomethane	U	10.0	ug/L	3.00	10.0
75-71-8	Dichlorodifluoromethane	U	10.0	ug/L	3.00	10.0
60-29-7	Ethyl ether	U	10.0	ug/L	3.00	10.0
97-63-2	Ethyl methacrylate		2550	ug/L	15.0	50.0
100-41-4	Ethylbenzene	U	10.0	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
74-88-4	Iodomethane	U	50.0	ug/L	15.0	50.0
78-83-1	Isobutyl alcohol		31700	ug/L	150	500
98-82-8	Isopropylbenzene	U	10.0	ug/L	3.00	10.0
126-98-7	Methacrylonitrile		2810	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		2770	ug/L	15.0	50.0
75-09-2	Methylene chloride	U	100	ug/L	10.0	100
91-20-3	Naphthalene	U	10.0	ug/L	3.00	10.0
107-12-0	Propionitrile		3000	ug/L	15.0	50.0
100-42-5	Styrene	U	10.0	ug/L	3.00	10.0
127-18-4	Tetrachloroethylene	U	10.0	ug/L	3.00	10.0
108-88-3	Toluene	U	10.0	ug/L	3.00	10.0
79-01-6	Trichloroethylene	U	10.0	ug/L	3.00	10.0
75-69-4	Trichlorofluoromethane	U	10.0	ug/L	3.00	10.0
76-13-1	Trichlorotrifluoroethane		3010	ug/L	20.0	50.0
108-05-4	Vinyl acetate	U	50.0	ug/L	15.0	50.0
75-01-4	Vinyl chloride	U	10.0	ug/L	3.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	10.0	ug/L	3.00	10.0
10061-01-5	cis-1,3-Dichloropropylene	U	10.0	ug/L	3.00	10.0
179601-23-1	m,p-Xylenes	U	20.0	ug/L	3.00	20.0
71-36-3	n-Butyl alcohol	U	500	ug/L	150	500
104-51-8	n-Butylbenzene	U	10.0	ug/L	3.00	10.0
103-65-1	n-Propylbenzene	U	10.0	ug/L	3.00	10.0
95-47-6	o-Xylene	U	10.0	ug/L	3.00	10.0
135-98-8	sec-Butylbenzene	U	10.0	ug/L	3.00	10.0

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2017-1401	Date Collected:	04/20/2017 13:27	Matrix:	W
Lab Sample ID:	1203777104	Date Received:	04/22/2017 09:55		
Client Sample:	QC for batch 1659957	Client:	ARSL004	Project:	QC
Client ID:	WST03-17-132679PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	10
Run Date:	04/28/2017 19:38	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 19:38				
Data File:	042817V1\1F521.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	10.0	ug/L	3.00	10.0
98-06-6	tert-Butylbenzene	U	10.0	ug/L	3.00	10.0
156-60-5	trans-1,2-Dichloroethylene	U	10.0	ug/L	3.00	10.0
10061-02-6	trans-1,3-Dichloropropylene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.4	50.0	87	(71%-134%)
Bromofluorobenzene	45.9	50.0	92	(70%-131%)
Toluene-d8	47.5	50.0	95	(74%-124%)

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401

Lab Sample ID: 1203778033

Client Sample: QC for batch 1659957

Client ID: MB for batch 1659957

Batch ID: 1659957

Run Date: 04/28/2017 13:24

Prep Date: 04/28/2017 13:24

Data File: 042817V1\1F508BA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Lab Sample ID: 1203778033

Client Sample: QC for batch 1659957

Client ID: MB for batch 1659957

Batch ID: 1659957

Run Date: 04/28/2017 13:24

Prep Date: 04/28/2017 13:24

Data File: 042817V1\1F508BA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401	Matrix: WATER	
Lab Sample ID: 1203778033		
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: MB for batch 1659957	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 13:24	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 13:24		
Data File: 042817V1\1F508BA.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.5	50.0	97	(71%-134%)
Bromofluorobenzene	59.3	50.0	119	(70%-131%)
Toluene-d8	48.6	50.0	97	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401		Matrix:	WATER
Lab Sample ID: 1203778034			
Client Sample: QC for batch 1659957	Client: ARSL004	Project:	QC
Client ID: LCS for batch 1659957	Method: SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution:	1
Run Date: 04/28/2017 11:28	Analyst: VXY1	Purge Vol:	5 mL
Prep Date: 04/28/2017 11:28			
Data File: 042817V1\1F504LA.D	Column: DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		52.7	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		54.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.8	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		48.8	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		47.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		50.9	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		58.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		51.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		59.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		52.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.4	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		51.3	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		50.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		49.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		52.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.6	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		48.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.6	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		58.6	ug/L	0.300	1.00
78-93-3	2-Butanone		267	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		52.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		275	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		49.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		54.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		249	ug/L	1.50	5.00
67-64-1	Acetone		275	ug/L	1.50	10.0
75-05-8	Acetonitrile		1140	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		47.3	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		48.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		52.5	ug/L	0.300	1.00
75-25-2	Bromoform		54.5	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2017-1401

Lab Sample ID: 1203778034

Client Sample: QC for batch 1659957

Client ID: LCS for batch 1659957

Batch ID: 1659957

Run Date: 04/28/2017 11:28

Prep Date: 04/28/2017 11:28

Data File: 042817V1\1F504LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		56.0	ug/L	0.300	1.00
75-15-0	Carbon disulfide		230	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		54.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.8	ug/L	0.300	1.00
75-00-3	Chloroethane		53.2	ug/L	0.300	1.00
67-66-3	Chloroform		49.7	ug/L	0.300	1.00
74-87-3	Chloromethane		54.8	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.8	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.3	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		59.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		52.6	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		50.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		55.5	ug/L	0.300	1.00
74-88-4	Iodomethane		239	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		54.3	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		41.9	ug/L	1.00	10.0
91-20-3	Naphthalene		52.9	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		51.3	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.2	ug/L	0.300	1.00
108-88-3	Toluene		48.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.1	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		57.2	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		266	ug/L	1.50	5.00
75-01-4	Vinyl chloride		56.8	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		49.5	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		48.5	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		6130	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		55.1	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.4	ug/L	0.300	1.00
95-47-6	o-Xylene		51.5	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		54.3	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2017-1401	Matrix:	WATER
Lab Sample ID:	1203778034		
Client Sample:	QC for batch 1659957	Client:	ARSL004
Client ID:	LCS for batch 1659957	Method:	SW-846:8260B
Batch ID:	1659957	Inst:	VOA1.I
Run Date:	04/28/2017 11:28	Analyst:	VXY1
Prep Date:	04/28/2017 11:28		
Data File:	042817V1\1F504LA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		55.6	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		54.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		49.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.3	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.1	50.0	94	(71%-134%)
Bromofluorobenzene	55.9	50.0	112	(70%-131%)
Toluene-d8	48.4	50.0	97	(74%-124%)

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401

Matrix: WATER

Lab Sample ID: 1203778035

Client Sample: QC for batch 1659957

Client: ARSL004

Project: QC

Client ID: LCS for batch 1659957

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1659957

Inst: VOA1.I

Dilution: 1

Run Date: 04/28/2017 12:55

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/28/2017 12:55

Data File: 042817V1\1F507LA.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		55.8	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		318	ug/L	1.50	5.00
107-13-1	Acrylonitrile		269	ug/L	1.50	5.00
107-05-1	Allyl chloride		265	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2017-1401		Matrix:	WATER
Lab Sample ID: 1203778035			
Client Sample: QC for batch 1659957	Client: ARSL004	Project:	QC
Client ID: LCS for batch 1659957	Method: SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution:	1
Run Date: 04/28/2017 12:55	Analyst: VXY1	Purge Vol:	5 mL
Prep Date: 04/28/2017 12:55			
Data File: 042817V1\1F507LA.D	Column: DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		255	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		3010	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		273	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		278	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile		276	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		281	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2017-1401	Matrix: WATER	
Lab Sample ID: 1203778035		
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: LCS for batch 1659957	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 12:55	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 12:55		
Data File: 042817V1\1F507LA.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.6	50.0	95	(71%-134%)
Bromofluorobenzene	55.0	50.0	110	(70%-131%)
Toluene-d8	47.2	50.0	94	(74%-124%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr. 02-MAY-17	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: VOA GC/MS	Test / Method: SW846 8260B DOE-AL	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1659957	Sample Numbers: See Below		
<p>Potentially affected work order(s)(SDG): 420972(2017-1386),420973(2017-1385),421069(2017-1401),421213(2017-1407),421328(2017-1424),421901(2017-1454)</p> <p>Application Issues:</p> <p>Failed Recovery for MS/MSD, or PS/PSD Failed Recovery for LCS/LCSD Failed Yield for Surrogates Failed Internal Standard</p>			
Specification and Requirements Exception Description:		DER Disposition:	
<p>1. Failed Recovery for LCS/LCSD:</p> <p>QC 1203777099LCS</p> <p>2. Failed Recovery for MS/MSD, or PS/PSD:</p> <p>QC 1203777101PS, 1203777103PSD</p> <p>3. Failed Yield for Surrogates and Internal Standard:</p> <p>421901 001</p>		<p>1. The LCS/and or LCSD (See Below) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. 1203777099 (LCS) n-Butyl alcohol [151* (63%-138%)] and tert-Butyl methyl ether [134* (76%-128%)].</p> <p>2. The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated. 1203777101 (WST03-17-132679PS) n-Butyl alcohol [161* (60%-140%)]. 1203777103 (WST03-17-132679PSD) n-Butyl alcohol [157* (60%-140%)].</p> <p>3. Surrogate recoveries and internal standard responses, in sample (See Below) were outside the acceptance limits. Sample re-analysis confirmed matrix interference. The re-analysis results are reported. 421901001 (WST72-17-132859) Bromofluorobenzene [190* (70%-131%)].</p>	

Originator's Name:

Patrick Yib 02-MAY-17

Data Validator/Group Leader:

Erin Haubert 02-MAY-17



May 02, 2017

gel.com

Mr. Keith Greene
Los Alamos National Laboratory
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

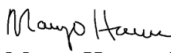
Re: LANL- WQH Water Samples
Work Order: 421069
SDG: 2017-1401

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on April 20, 2017, and analyzed for GC/MS Volatile. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,


Margo Herron for
Valerie Davis
Project Manager

Chain of Custody: 2017-1401
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 421069
SDG: 2017-1401

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 421069
SDG # : 2017-1401**

May 02, 2017

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on April 20, 2017 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
421069001	CAPA-17-130717
421069002	CAPA-17-130741
421069003	CAPA-17-130718
421069004	CAPA-17-130742

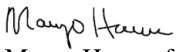
Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Volatile.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.


Margo Herron for
Valerie Davis
Project Manager

List of current GEL Certifications as of 02 May 2017

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122017-22
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client:		SDG/AR/COC/Work Order: <u>421069</u>	
Received By: <u>ZKW</u>		Date Received: <u>4/20/17</u>	
Carrier and Tracking Number		Circle Applicable: <input checked="" type="checkbox"/> FedEx Express <input type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other	
		<u>5908</u> <u>1781</u> <u>9775</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
Shipped as a DOT Hazardous?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> <input checked="" type="checkbox"/> CPM/mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
Is package, COC, and/or Samples marked HAZ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. <input checked="" type="checkbox"/> PCB's <input type="checkbox"/> Flammable <input type="checkbox"/> Foreign Soil <input type="checkbox"/> RCRA <input type="checkbox"/> Asbestos <input type="checkbox"/> Beryllium <input type="checkbox"/> Other:	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Wet Ice <input checked="" type="checkbox"/> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: <u>2°C</u>
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>IR3-16</u> Secondary Temperature Device Serial # (If Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: If Preservation added, Lot#: _____
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes ___ No <input checked="" type="checkbox"/> (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes <input checked="" type="checkbox"/> No ___ N/A ___ (If unknown, select No) VOA vials free of headspace? Yes <input checked="" type="checkbox"/> No ___ N/A ___ Sample ID's and containers affected: _____
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected: _____
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected: _____
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
12 Are sample containers identifiable as GEL provided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Comments (Use Continuation Form if needed):

 PM (or PMA) review: Initials TRP Date 4/21/17 Page 1 of 1

GL-CHL-SR-001 Rev 5

ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 19APR17
ACTWGT: 20.0 LB MAN
CAD: 0014176/CAFE2916

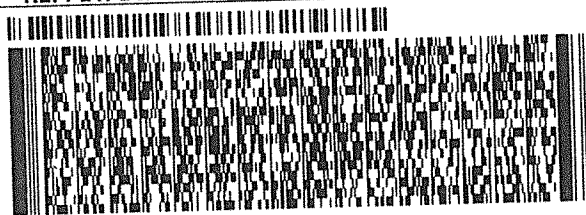
BILL SENDER

TO **VALERIE DAVIS**
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 21PD0ASRGW04BAGWE0



FedEx
Express



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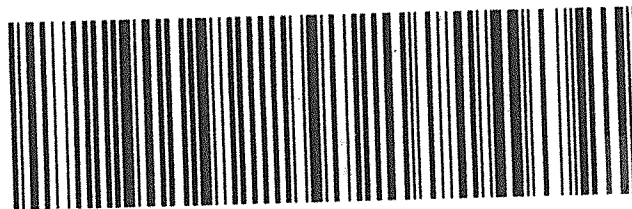
TRK# 5908 1781 9775
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PRIORITY OVERNIGHT

X7 CHSA

29407
SC-US CHS

Part # 155143V-434 RIT2 06/15



Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
-----------	-------------

*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference.
For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Volatile Analysis

Case Narrative

**GC/MS Volatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2017-1401
Work Order #: 421069**

Method/Analysis Information

Procedure: Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

Analytical Method: SW-846:8260B

Analytical Batch Number: 1659957

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
421069001	CAPA-17-130717
421069002	CAPA-17-130741
421069003	CAPA-17-130718
421069004	CAPA-17-130742
1203777098	Method Blank (MB)
1203777099	Laboratory Control Sample (LCS)
1203777100	Laboratory Control Sample (LCS)
1203777101	421328001(WST03-17-132679) Post Spike (PS)
1203777102	421328001(WST03-17-132679) Post Spike (PS)
1203777103	421328001(WST03-17-132679) Post Spike Duplicate (PSD)
1203777104	421328001(WST03-17-132679) Post Spike Duplicate (PSD)
1203778033	Method Blank (MB)
1203778034	Laboratory Control Sample (LCS)
1203778035	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The data results reported met all SOP and method criteria, unless otherwise discussed below.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 25.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at

a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements

All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement

The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS/and or LCSD (See Below) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported.

Sample	Analyte	Value
1203777099 (LCS)	n-Butyl alcohol	151* (63%-138%)
	tert-Butyl methyl ether	134* (76%-128%)

QC Sample Designation

Sample 421328001 (WST03-17-132679) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated.

Sample	Analyte	Value
1203777101 (WST03-17-132679PS)	n-Butyl alcohol	161* (60%-140%)
1203777103 (WST03-17-132679PSD)	n-Butyl alcohol	157* (60%-140%)

Relative Percent Difference (RPD) Statement

The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications

All samples in this SDG met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Sample Preservation and Integrity

All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions

Samples 1203777101 (WST03-17-132679PS), 1203777102 (WST03-17-132679PS), 1203777103 (WST03-17-132679PSD) and 1203777104 (WST03-17-132679PSD) were diluted because the sample matrices were not amenable to more concentrated analyses.

Sample Re-extraction/Re-analysis

Re-analyses were not required for samples in this SDG.

Miscellaneous Information**Data Exception (DER) Documentation**

A data exception report (DER) 1627776 was generated for samples 1203777099 (LCS), 1203777101 (WST03-17-132679PS) and 1203777103 (WST03-17-132679PSD) in this SDG/batch.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment

Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, were included on the Sample Data Summary (Form 1) and included with the sample raw data.

Additional Comments

Additional comments were not required for this SDG.

Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
----------------------	-------------------	-----------------------------	------------------	---------------------------	-----------------------

VOA1.I	Hewlett Packard 5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	RTX-624	Restek, 60m x 0.25mm x 1.4um	Trap 10
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Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2017-1401 GEL Work Order: 421069

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Erin Haubert

Date: 16 MAY 2017

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	2017-1401	Date Collected:	04/18/2017 13:25	Matrix:	W
Lab Sample ID:	421069001	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130717	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 03:03	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 03:03				
Data File:	042717V1\1F437.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 13:25	Matrix:	W
Lab Sample ID:	421069001	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130717	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 03:03	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 03:03				
Data File:	042717V1\1F437.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 13:25	Matrix:	W
Lab Sample ID:	421069001	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130717	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 03:03	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 03:03				
Data File:	042717V1\1F437.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.2	50.0	ug/L 94	(71%-134%)
Bromofluorobenzene	57.9	50.0	ug/L 116	(70%-131%)
Toluene-d8	48.6	50.0	ug/L 97	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	7.18	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/18/2017 13:25	Matrix: W
Lab Sample ID: 421069002	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130741	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 03:32	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 03:32		
Data File: 042717V1\1F438.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 13:25	Matrix:	W
Lab Sample ID:	421069002	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130741	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 03:32	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 03:32				
Data File:	042717V1\1F438.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401	Date Collected: 04/18/2017 13:25	Matrix: W
Lab Sample ID: 421069002	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130741	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 03:32	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 03:32		
Data File: 042717V1\1F438.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.2	50.0	ug/L 92	(71%-134%)
Bromofluorobenzene	57.7	50.0	ug/L 115	(70%-131%)
Toluene-d8	47.9	50.0	ug/L 96	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	29.6	ug/L	0	J
	unknown	19.021	9.04	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 15:00	Matrix:	W
Lab Sample ID:	421069003	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130718	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 04:01	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 04:01				
Data File:	042717V1\1F439.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 15:00	Matrix:	W
Lab Sample ID:	421069003	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130718	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 04:01	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 04:01				
Data File:	042717V1\1F439.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401	Date Collected: 04/18/2017 15:00	Matrix: W
Lab Sample ID: 421069003	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130718	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 04:01	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 04:01		
Data File: 042717V1\1F439.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.1	50.0	94	(71%-134%)
Bromofluorobenzene	58.1	50.0	116	(70%-131%)
Toluene-d8	48.1	50.0	96	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	8.68	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 15:00	Matrix:	W
Lab Sample ID:	421069004	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130742	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 04:30	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 04:30				
Data File:	042717V1\1F440.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/18/2017 15:00	Matrix:	W
Lab Sample ID:	421069004	Date Received:	04/20/2017 14:40		
Client Sample:	VOA ONLY	Client:	ARSL004	Project:	ESHL00114
Client ID:	CAPA-17-130742	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	1
Run Date:	04/28/2017 04:30	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 04:30				
Data File:	042717V1\1F440.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401	Date Collected: 04/18/2017 15:00	Matrix: W
Lab Sample ID: 421069004	Date Received: 04/20/2017 14:40	
Client Sample: VOA ONLY	Client: ARSL004	Project: ESHL00114
Client ID: CAPA-17-130742	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 04:30	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 04:30		
Data File: 042717V1\1F440.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.1	50.0	ug/L 96	(71%-134%)
Bromofluorobenzene	59.5	50.0	ug/L 119	(70%-131%)
Toluene-d8	49.1	50.0	ug/L 98	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2017-1401**Matrix Type: LIQUID**

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203777099	LCS for batch 1659957	89	98	109
1203777100	LCS for batch 1659957	87	97	109
1203777098	MB for batch 1659957	90	97	114
421069001	CAPA-17-130717	94	97	116
421069002	CAPA-17-130741	92	96	115
421069003	CAPA-17-130718	94	96	116
421069004	CAPA-17-130742	96	98	119
1203778034	LCS for batch 1659957	94	97	112
1203778035	LCS for batch 1659957	95	94	110
1203778033	MB for batch 1659957	97	97	119
1203777101	WST03-17-132679PS	92 D	97 D	104 D
1203777103	WST03-17-132679PSD	86 D	96 D	96 D
1203777102	WST03-17-132679PS	86 D	94 D	89 D
1203777104	WST03-17-132679PSD	87 D	95 D	92 D

Surrogate**Acceptance Limits**

DCED4 = 1,2-Dichloroethane-d4

(71%-134%)

TOL = Toluene-d8

(74%-124%)

BFB = Bromofluorobenzene

(70%-131%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777099

Instrument: VOA1.I

Analysis Date: 04/27/2017 23:12

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS m,p-Xylenes	100	0.0	105	105	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1410	113	61-125
67-64-1	LCS Acetone	250	0.0	244	97	48-157
74-88-4	LCS Iodomethane	250	0.0	243	97	72-128
75-15-0	LCS Carbon disulfide	250	0.0	232	93	69-138
108-05-4	LCS Vinyl acetate	250	0.0	282	113	67-125
78-93-3	LCS 2-Butanone	250	0.0	268	107	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	283	113	66-124
591-78-6	LCS 2-Hexanone	250	0.0	289	115	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	55.8	112	40-160
74-87-3	LCS Chloromethane	50.0	0.0	55.4	111	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	56.7	113	65-137
74-83-9	LCS Bromomethane	50.0	0.0	52.1	104	63-137
75-00-3	LCS Chloroethane	50.0	0.0	52.3	105	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	47.5	95	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	56.8	114	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	45.2	90	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	45.0	90	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	67.2	134 *	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	49.2	98	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	50.4	101	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	51.7	103	75-123

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777099

Instrument: VOA1.I

Analysis Date: 04/27/2017 23:12

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	LCS 2,2-Dichloropropane	50.0	0.0	53.6	107	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	52.1	104	76-125
67-66-3	LCS Chloroform	50.0	0.0	49.2	98	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	49.1	98	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	49.8	100	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	45.9	92	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	48.0	96	74-122
71-43-2	LCS Benzene	50.0	0.0	50.2	100	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	50.3	101	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	52.0	104	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	51.3	103	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	50.3	101	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	50.3	101	78-131
108-88-3	LCS Toluene	50.0	0.0	50.9	102	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	51.7	103	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	53.3	107	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	53.5	107	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	51.0	102	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	53.7	107	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	56.7	113	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	51.0	102	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	52.1	104	73-125

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777099

Instrument: VOA1.I

Analysis Date: 04/27/2017 23:12

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	LCS o-Xylene	50.0	0.0	54.3	109	74-126
100-42-5	LCS Styrene	50.0	0.0	54.7	109	72-130
75-25-2	LCS Bromoform	50.0	0.0	52.8	106	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	54.5	109	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	53.9	108	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	57.2	114	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	52.7	105	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	50.5	101	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	52.5	105	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	54.4	109	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	50.9	102	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	56.9	114	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	53.1	106	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	54.8	110	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	55.0	110	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	50.9	102	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	50.0	100	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	55.0	110	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	52.7	105	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	58.6	117	72-136
91-20-3	LCS Naphthalene	50.0	0.0	60.0	120	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	63.9	128	70-130

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777099

Instrument: VOA1.I

Analysis Date: 04/27/2017 23:12

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	LCS 1,2,4-Trichlorobenzene	50.0	0.0	60.9	122	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	53.2	106	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	53.0	106	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	7530	151 *	63-138

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203777100

Instrument: VOA1.I

Analysis Date: 04/28/2017 00:10

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS Acrolein	250	0.0	269	108	60-140
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	261	105	61-148
107-05-1	LCS Allyl chloride	250	0.0	275	110	59-125
107-13-1	LCS Acrylonitrile	250	0.0	290	116	65-122
107-12-0	LCS Propionitrile	250	0.0	294	117	64-124
126-98-7	LCS Methacrylonitrile	250	0.0	280	112	64-126
80-62-6	LCS Methyl methacrylate	250	0.0	283	113	69-127
97-63-2	LCS Ethyl methacrylate	250	0.0	268	107	66-130
78-83-1	LCS Isobutyl alcohol	2500	0.0	3020	121	65-135
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	53.2	106	66-147

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777101

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:12

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS m,p-Xylenes	100	0.00 U	110	110	59-132
75-05-8	PS Acetonitrile	1250	0.00 U	1430	115	56-131
67-64-1	PS Acetone	250	0.00 U	193	77	25-155
74-88-4	PS Iodomethane	250	0.00 U	257	103	66-133
75-15-0	PS Carbon disulfide	250	0.00 U	256	102	61-141
108-05-4	PS Vinyl acetate	250	0.00 U	292	117	48-133
78-93-3	PS 2-Butanone	250	0.00 U	245	98	25-143
108-10-1	PS 4-Methyl-2-pentanone	250	0.00 U	291	117	61-127
591-78-6	PS 2-Hexanone	250	0.00 U	288	115	33-138
75-71-8	PS Dichlorodifluoromethane	50.0	0.00 U	60.8	122	33-164
74-87-3	PS Chloromethane	50.0	0.00 U	58.2	116	53-139
75-01-4	PS Vinyl chloride	50.0	0.00 U	60.2	120	58-140
74-83-9	PS Bromomethane	50.0	0.00 U	58.7	117	59-146
75-00-3	PS Chloroethane	50.0	0.00 U	56.4	113	65-129
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	59.9	120	65-141
60-29-7	PS Ethyl ether	50.0	0.00 U	54.2	108	69-127
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	51.2	102	59-130
75-09-2	PS Methylene chloride	50.0	0.00 U	44.9	90	62-123
1634-04-4	PS tert-Butyl methyl ether	50.0	0.00 U	60.0	120	69-132
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	54.1	108	65-127
75-34-3	PS 1,1-Dichloroethane	50.0	0.00 U	53.3	107	67-127
156-59-2	PS cis-1,2-Dichloroethylene	50.0	0.00 U	52.7	105	69-127

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777101

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:12

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	PS 2,2-Dichloropropane	50.0	0.00 U	62.8	126	66-137
74-97-5	PS Bromochloromethane	50.0	0.00 U	52.0	104	71-130
67-66-3	PS Chloroform	50.0	0.00 U	53.2	106	71-129
71-55-6	PS 1,1,1-Trichloroethane	50.0	0.00 U	57.6	115	69-139
563-58-6	PS 1,1-Dichloropropene	50.0	0.00 U	55.2	110	67-130
56-23-5	PS Carbon tetrachloride	50.0	0.00 U	58.2	116	66-143
107-06-2	PS 1,2-Dichloroethane	50.0	0.00 U	52.0	104	69-130
71-43-2	PS Benzene	50.0	0.00 U	50.8	102	66-125
79-01-6	PS Trichloroethylene	50.0	0.00 U	54.5	109	65-131
78-87-5	PS 1,2-Dichloropropane	50.0	0.00 U	51.2	102	67-127
74-95-3	PS Dibromomethane	50.0	0.00 U	52.1	104	72-129
75-27-4	PS Bromodichloromethane	50.0	0.00 U	54.1	108	70-138
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00 U	50.1	100	70-134
108-88-3	PS Toluene	50.0	0.00 U	51.9	104	60-126
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00 U	53.0	106	69-135
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00 U	51.5	103	66-125
142-28-9	PS 1,3-Dichloropropane	50.0	0.00 U	51.5	103	67-124
127-18-4	PS Tetrachloroethylene	50.0	0.00 U	55.5	111	60-130
124-48-1	PS Dibromochloromethane	50.0	0.00 U	56.2	112	68-143
106-93-4	PS 1,2-Dibromoethane	50.0	0.00 U	55.0	110	71-127
108-90-7	PS Chlorobenzene	50.0	0.00 U	51.0	102	64-124
100-41-4	PS Ethylbenzene	50.0	0.00 U	55.0	110	61-130

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777101

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:12

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	PS o-Xylene	50.0	0.00 U	55.8	112	62-131
100-42-5	PS Styrene	50.0	0.00 U	54.8	110	59-135
75-25-2	PS Bromoform	50.0	0.00 U	57.5	115	64-138
98-82-8	PS Isopropylbenzene	50.0	0.00 U	58.3	117	55-133
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	53.9	108	62-129
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	59.4	119	70-124
108-86-1	PS Bromobenzene	50.0	0.00 U	52.3	105	62-124
103-65-1	PS n-Propylbenzene	50.0	0.00 U	55.6	111	50-133
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	56.2	112	53-135
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	56.1	112	56-128
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	53.4	107	53-130
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	60.8	122	55-135
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	55.7	111	53-132
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	59.8	120	50-138
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	58.7	117	49-138
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	51.1	102	56-126
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	50.0	100	55-125
104-51-8	PS n-Butylbenzene	50.0	0.00 U	56.8	114	43-142
96-12-8	PS 1,2-Dibromo-3-chloropropane	50.0	0.00 U	56.6	113	62-141
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	51.4	103	40-147
91-20-3	PS Naphthalene	50.0	0.00 U	53.7	107	62-134
87-61-6	PS 1,2,3-Trichlorobenzene	50.0	0.00 U	54.7	109	52-135

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777101

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:12

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	PS 1,2,4-Trichlorobenzene	50.0	0.00 U	55.5	111	50-133
630-20-6	PS 1,1,1,2-Tetrachloroethane	50.0	0.00 U	55.7	111	71-133
95-50-1	PS 1,2-Dichlorobenzene	50.0	0.00 U	50.3	101	60-125
71-36-3	PS n-Butyl alcohol	5000	0.00 U	8060	161 *	60-140

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777103

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:40

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD m,p-Xylenes	100	0.00 U	111	111	59-132	1	0-20
75-05-8	PSD Acetonitrile	1250	0.00 U	1340	107	56-131	7	0-20
67-64-1	PSD Acetone	250	0.00 U	184	74	25-155	5	0-20
74-88-4	PSD Iodomethane	250	0.00 U	254	102	66-133	1	0-20
75-15-0	PSD Carbon disulfide	250	0.00 U	256	102	61-141	0	0-20
108-05-4	PSD Vinyl acetate	250	0.00 U	286	114	48-133	2	0-20
78-93-3	PSD 2-Butanone	250	0.00 U	236	95	25-143	3	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00 U	283	113	61-127	3	0-20
591-78-6	PSD 2-Hexanone	250	0.00 U	284	113	33-138	2	0-20
75-71-8	PSD Dichlorodifluoromethane	50.0	0.00 U	59.3	119	33-164	3	0-20
74-87-3	PSD Chloromethane	50.0	0.00 U	59.3	119	53-139	2	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00 U	60.3	121	58-140	0	0-20
74-83-9	PSD Bromomethane	50.0	0.00 U	57.9	116	59-146	1	0-20
75-00-3	PSD Chloroethane	50.0	0.00 U	56.4	113	65-129	0	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00 U	58.9	118	65-141	2	0-20
60-29-7	PSD Ethyl ether	50.0	0.00 U	53.0	106	69-127	2	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00 U	51.0	102	59-130	0	0-20
75-09-2	PSD Methylene chloride	50.0	0.00 U	44.1	88	62-123	2	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.00 U	59.5	119	69-132	1	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00 U	53.2	106	65-127	2	0-20
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00 U	52.6	105	67-127	1	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00 U	53.1	106	69-127	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777103

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:40

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
594-20-7	PSD 2,2-Dichloropropane	50.0	0.00 U	62.0	124	66-137	1	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00 U	50.1	100	71-130	4	0-20
67-66-3	PSD Chloroform	50.0	0.00 U	52.0	104	71-129	2	0-20
71-55-6	PSD 1,1,1-Trichloroethane	50.0	0.00 U	56.4	113	69-139	2	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00 U	55.3	111	67-130	0	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00 U	56.7	113	66-143	3	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00 U	49.5	99	69-130	5	0-20
71-43-2	PSD Benzene	50.0	0.00 U	50.8	102	66-125	0	0-20
79-01-6	PSD Trichloroethylene	50.0	0.00 U	54.7	109	65-131	0	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00 U	51.1	102	67-127	0	0-20
74-95-3	PSD Dibromomethane	50.0	0.00 U	50.7	101	72-129	3	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00 U	52.9	106	70-138	2	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00 U	49.0	98	70-134	2	0-20
108-88-3	PSD Toluene	50.0	0.00 U	52.3	105	60-126	1	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00 U	52.3	105	69-135	1	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00 U	51.0	102	66-125	1	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00 U	52.0	104	67-124	1	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.00 U	57.3	115	60-130	3	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00 U	55.5	111	68-143	1	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00 U	54.9	110	71-127	0	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00 U	51.8	104	64-124	2	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00 U	55.5	111	61-130	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777103

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:40

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
95-47-6	PSD o-Xylene	50.0	0.00 U	56.2	112	62-131	1	0-20
100-42-5	PSD Styrene	50.0	0.00 U	55.7	111	59-135	2	0-20
75-25-2	PSD Bromoform	50.0	0.00 U	58.7	117	64-138	2	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00 U	60.4	121	55-133	3	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00 U	53.3	107	62-129	1	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00 U	58.7	117	70-124	1	0-20
108-86-1	PSD Bromobenzene	50.0	0.00 U	54.0	108	62-124	3	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00 U	57.9	116	50-133	4	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00 U	58.3	117	53-135	4	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00 U	58.6	117	56-128	4	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00 U	55.3	111	53-130	4	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00 U	64.4	129	55-135	6	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00 U	58.3	117	53-132	5	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00 U	62.6	125	50-138	5	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00 U	62.2	124	49-138	6	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00 U	53.8	108	56-126	5	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00 U	53.3	107	55-125	6	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00 U	61.4	123	43-142	8	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00 U	58.9	118	62-141	4	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00 U	57.5	115	40-147	11	0-20
91-20-3	PSD Naphthalene	50.0	0.00 U	57.6	115	62-134	7	0-20
87-61-6	PSD 1,2,3-Trichlorobenzene	50.0	0.00 U	59.7	119	52-135	9	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777103

Instrument: VOA1.I

Analysis Date: 04/28/2017 18:40

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
120-82-1	PSD 1,2,4-Trichlorobenzene	50.0	0.00 U	61.7	123	50-133	11	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	55.1	110	71-133	1	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	53.4	107	60-125	6	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00 U	7860	157 *	60-140	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike

Client ID: WST03-17-132679PS

Matrix: W

Lab Sample ID 1203777102

Instrument: VOA1.I

Analysis Date: 04/28/2017 19:09

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	PS Acrolein	250	0.00 U	313	125	49-141
76-13-1	PS Trichlorotrifluoroethane	250	0.00 U	317	127	57-149
107-05-1	PS Allyl chloride	250	0.00 U	294	117	54-128
107-13-1	PS Acrylonitrile	250	0.00 U	296	119	59-129
107-12-0	PS Propionitrile	250	0.00 U	305	122	58-131
126-98-7	PS Methacrylonitrile	250	0.00 U	285	114	59-134
80-62-6	PS Methyl methacrylate	250	0.00 U	284	114	62-135
97-63-2	PS Ethyl methacrylate	250	0.00 U	264	106	60-136
78-83-1	PS Isobutyl alcohol	2500	0.00 U	3290	132	60-143
126-99-8	PS 2-Chloro-1,3-butadiene	50.0	0.00 U	61.4	123	63-146

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Post Spike Duplicate

Client ID: WST03-17-132679PSD

Matrix: W

Lab Sample ID 1203777104

Instrument: VOA1.I

Analysis Date: 04/28/2017 19:38

Dilution: 10

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
107-02-8	PSD Acrolein	250	0.00 U	301	120	49-141	4	0-20
76-13-1	PSD Trichlorotrifluoroethane	250	0.00 U	301	121	57-149	5	0-20
107-05-1	PSD Allyl chloride	250	0.00 U	290	116	54-128	1	0-20
107-13-1	PSD Acrylonitrile	250	0.00 U	288	115	59-129	3	0-20
107-12-0	PSD Propionitrile	250	0.00 U	300	120	58-131	2	0-20
126-98-7	PSD Methacrylonitrile	250	0.00 U	281	112	59-134	2	0-20
80-62-6	PSD Methyl methacrylate	250	0.00 U	277	111	62-135	3	0-20
97-63-2	PSD Ethyl methacrylate	250	0.00 U	255	102	60-136	3	0-20
78-83-1	PSD Isobutyl alcohol	2500	0.00 U	3170	127	60-143	4	0-20
126-99-8	PSD 2-Chloro-1,3-butadiene	50.0	0.00 U	60.0	120	63-146	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778034

Instrument: VOA1.I

Analysis Date: 04/28/2017 11:28

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS m,p-Xylenes	100	0.0	101	101	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1140	91	61-125
67-64-1	LCS Acetone	250	0.0	275	110	48-157
74-88-4	LCS Iodomethane	250	0.0	239	96	72-128
75-15-0	LCS Carbon disulfide	250	0.0	230	92	69-138
108-05-4	LCS Vinyl acetate	250	0.0	266	107	67-125
78-93-3	LCS 2-Butanone	250	0.0	267	107	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	249	99	66-124
591-78-6	LCS 2-Hexanone	250	0.0	275	110	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	59.2	118	40-160
74-87-3	LCS Chloromethane	50.0	0.0	54.8	110	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	56.8	114	65-137
74-83-9	LCS Bromomethane	50.0	0.0	56.0	112	63-137
75-00-3	LCS Chloroethane	50.0	0.0	53.2	106	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	57.2	114	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	52.6	105	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	47.7	95	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	41.9	84	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	55.6	111	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	49.2	98	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	48.8	98	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	49.5	99	75-123

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778034

Instrument: VOA1.I

Analysis Date: 04/28/2017 11:28

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	LCS 2,2-Dichloropropane	50.0	0.0	58.6	117	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	48.6	97	76-125
67-66-3	LCS Chloroform	50.0	0.0	49.7	99	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	54.0	108	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	50.9	102	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	54.6	109	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	49.5	99	74-122
71-43-2	LCS Benzene	50.0	0.0	47.3	95	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	51.1	102	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	48.0	96	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	49.3	99	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	52.5	105	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	48.5	97	78-131
108-88-3	LCS Toluene	50.0	0.0	48.0	96	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	50.3	101	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	47.8	96	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	48.5	97	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	51.2	102	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	53.8	108	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	51.3	103	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	47.8	96	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	50.9	102	73-125

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778034

Instrument: VOA1.I

Analysis Date: 04/28/2017 11:28

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	LCS o-Xylene	50.0	0.0	51.5	103	74-126
100-42-5	LCS Styrene	50.0	0.0	51.3	103	72-130
75-25-2	LCS Bromoform	50.0	0.0	54.5	109	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	54.3	109	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	47.8	96	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	51.3	103	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	49.7	99	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	50.4	101	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	52.0	104	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	52.2	104	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	49.8	100	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	54.8	110	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	52.2	104	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	54.3	109	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	54.6	109	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	48.6	97	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	48.6	97	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	55.1	110	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	48.4	97	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	55.5	111	72-136
91-20-3	LCS Naphthalene	50.0	0.0	52.9	106	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	58.4	117	70-130

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778034

Instrument: VOA1.I

Analysis Date: 04/28/2017 11:28

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	LCS 1,2,4-Trichlorobenzene	50.0	0.0	59.1	118	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	52.7	105	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	50.0	100	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	6130	123	63-138

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2017-1401

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1659957

Matrix: WATER

Lab Sample ID 1203778035

Instrument: VOA1.I

Analysis Date: 04/28/2017 12:55

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1659957

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS Acrolein	250	0.0	318	127	60-140
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	281	112	61-148
107-05-1	LCS Allyl chloride	250	0.0	265	106	59-125
107-13-1	LCS Acrylonitrile	250	0.0	269	108	65-122
107-12-0	LCS Propionitrile	250	0.0	276	110	64-124
126-98-7	LCS Methacrylonitrile	250	0.0	273	109	64-126
80-62-6	LCS Methyl methacrylate	250	0.0	278	111	69-127
97-63-2	LCS Ethyl methacrylate	250	0.0	255	102	66-130
78-83-1	LCS Isobutyl alcohol	2500	0.0	3010	120	65-135
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	55.8	112	66-147

Method Blank Summary

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SDG Number: 2017-1401

Client: ARSL004

Matrix: WATER

Client ID: MB for batch 1659957

Instrument ID: VOA1.I

Data File: 042717V1\1F432BA.D

Lab Sample ID: 1203777098

Prep Date: 04/28/2017 00:39

Analyzed: 04/28/17 00:39

Column: DB-624

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1659957	1203777099	042717V1\1F429LA.D	04/27/17	2312
02 LCS for batch 1659957	1203777100	042717V1\1F431LA.D	04/28/17	0010
03 CAPA-17-130717	421069001	042717V1\1F437.D	04/28/17	0303
04 CAPA-17-130741	421069002	042717V1\1F438.D	04/28/17	0332
05 CAPA-17-130718	421069003	042717V1\1F439.D	04/28/17	0401
06 CAPA-17-130742	421069004	042717V1\1F440.D	04/28/17	0430

Method Blank Summary

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SDG Number:	2017-1401	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1659957	Instrument ID:	VOA1.I	Data File:	042817V1\1F508BA.D
Lab Sample ID:	1203778033	Prep Date:	04/28/2017 13:24	Analyzed:	04/28/17 13:24
Column:	DB-624				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
08 LCS for batch 1659957	1203778034	042817V1\1F504LA.D	04/28/17	1128
09 LCS for batch 1659957	1203778035	042817V1\1F507LA.D	04/28/17	1255
10 WST03-17-132679PS	1203777101	042817V1\1F518.D	04/28/17	1812
11 WST03-17-132679PSD	1203777103	042817V1\1F519.D	04/28/17	1840
12 WST03-17-132679PS	1203777102	042817V1\1F520.D	04/28/17	1909
13 WST03-17-132679PSD	1203777104	042817V1\1F521.D	04/28/17	1938

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401		Matrix:	WATER
Lab Sample ID: 1203777098			
Client Sample: QC for batch 1659957	Client: ARSL004	Project:	QC
Client ID: MB for batch 1659957	Method: SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution:	1
Run Date: 04/28/2017 00:39	Analyst: VXY1	Purge Vol:	5 mL
Prep Date: 04/28/2017 00:39			
Data File: 042717V1\1F432BA.D	Column: DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-1401	Matrix:	WATER
Lab Sample ID:	1203777098		
Client Sample:	QC for batch 1659957	Client:	ARSL004
Client ID:	MB for batch 1659957	Method:	SW-846:8260B
Batch ID:	1659957	Inst:	VOA1.I
Run Date:	04/28/2017 00:39	Analyst:	VXY1
Prep Date:	04/28/2017 00:39	Purge Vol:	5 mL
Data File:	042717V1\1F432BA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2017-1401	Matrix:	WATER
Lab Sample ID:	1203777098		
Client Sample:	QC for batch 1659957	Client:	ARSL004
Client ID:	MB for batch 1659957	Method:	SW-846:8260B
Batch ID:	1659957	Inst:	VOA1.I
Run Date:	04/28/2017 00:39	Analyst:	VXY1
Prep Date:	04/28/2017 00:39	Purge Vol:	5 mL
Data File:	042717V1\1F432BA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.8	50.0	ug/L 90	(71%-134%)
Bromofluorobenzene	56.8	50.0	ug/L 114	(70%-131%)
Toluene-d8	48.7	50.0	ug/L 97	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Lab Sample ID: 1203777099

Client Sample: QC for batch 1659957

Client ID: LCS for batch 1659957

Batch ID: 1659957

Run Date: 04/27/2017 23:12

Prep Date: 04/27/2017 23:12

Data File: 042717V1\1F429LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		53.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		49.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		53.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		53.3	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		50.4	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		45.2	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		49.8	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		63.9	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		57.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		60.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		53.1	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		52.7	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		56.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		53.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		48.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		52.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		52.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		50.9	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		53.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		50.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		53.6	ug/L	0.300	1.00
78-93-3	2-Butanone		268	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		54.4	ug/L	0.300	1.00
591-78-6	2-Hexanone		289	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		50.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		55.0	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		283	ug/L	1.50	5.00
67-64-1	Acetone		244	ug/L	1.50	10.0
75-05-8	Acetonitrile		1410	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		50.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		52.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		52.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		50.3	ug/L	0.300	1.00
75-25-2	Bromoform		52.8	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Lab Sample ID: 1203777099

Client Sample: QC for batch 1659957

Client ID: LCS for batch 1659957

Batch ID: 1659957

Run Date: 04/27/2017 23:12

Prep Date: 04/27/2017 23:12

Data File: 042717V1\1F429LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		52.1	ug/L	0.300	1.00
75-15-0	Carbon disulfide		232	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		45.9	ug/L	0.300	1.00
108-90-7	Chlorobenzene		51.0	ug/L	0.300	1.00
75-00-3	Chloroethane		52.3	ug/L	0.300	1.00
67-66-3	Chloroform		49.2	ug/L	0.300	1.00
74-87-3	Chloromethane		55.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.3	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		55.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		56.8	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		52.1	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		58.6	ug/L	0.300	1.00
74-88-4	Iodomethane		243	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		54.5	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		45.0	ug/L	1.00	10.0
91-20-3	Naphthalene		60.0	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		54.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.0	ug/L	0.300	1.00
108-88-3	Toluene		50.9	ug/L	0.300	1.00
79-01-6	Trichloroethylene		50.3	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		47.5	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		282	ug/L	1.50	5.00
75-01-4	Vinyl chloride		56.7	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		51.7	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		50.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		105	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		7530	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		55.0	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.5	ug/L	0.300	1.00
95-47-6	o-Xylene		54.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		54.8	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2017-1401	Matrix:	WATER
Lab Sample ID:	1203777099		
Client Sample:	QC for batch 1659957	Client:	ARSL004
Client ID:	LCS for batch 1659957	Method:	SW-846:8260B
Batch ID:	1659957	Inst:	VOA1.I
Run Date:	04/27/2017 23:12	Analyst:	VXY1
Prep Date:	04/27/2017 23:12		
Data File:	042717V1\1F429LA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		67.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		56.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		49.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.5	50.0	ug/L 89	(71%-134%)
Bromofluorobenzene	54.7	50.0	ug/L 109	(70%-131%)
Toluene-d8	48.9	50.0	ug/L 98	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Matrix: WATER

Lab Sample ID: 1203777100

Client Sample: QC for batch 1659957

Client: ARSL004

Project: QC

Client ID: LCS for batch 1659957

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1659957

Inst: VOA1.I

Dilution: 1

Run Date: 04/28/2017 00:10

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/28/2017 00:10

Data File: 042717V1\1F431LA.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		53.2	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		269	ug/L	1.50	5.00
107-13-1	Acrylonitrile		290	ug/L	1.50	5.00
107-05-1	Allyl chloride		275	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401

Lab Sample ID: 1203777100

Client Sample: QC for batch 1659957

Client ID: LCS for batch 1659957

Batch ID: 1659957

Run Date: 04/28/2017 00:10

Prep Date: 04/28/2017 00:10

Data File: 042717V1\1F431LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		268	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		3020	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		280	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		283	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile		294	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		261	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2017-1401	Matrix:	WATER
Lab Sample ID:	1203777100		
Client Sample:	QC for batch 1659957	Client:	ARSL004
Client ID:	LCS for batch 1659957	Method:	SW-846:8260B
Batch ID:	1659957	Inst:	VOA1.I
Run Date:	04/28/2017 00:10	Analyst:	VXY1
Prep Date:	04/28/2017 00:10		
Data File:	042717V1\1F431LA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.7	50.0	87	(71%-134%)
Bromofluorobenzene	54.5	50.0	109	(70%-131%)
Toluene-d8	48.5	50.0	97	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777101	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 18:12	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 18:12		
Data File: 042817V1\1F518.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		557	ug/L	3.00	10.0
71-55-6	1,1,1-Trichloroethane		576	ug/L	3.00	10.0
79-34-5	1,1,2,2-Tetrachloroethane		539	ug/L	3.00	10.0
79-00-5	1,1,2-Trichloroethane		515	ug/L	3.00	10.0
75-34-3	1,1-Dichloroethane		533	ug/L	3.00	10.0
75-35-4	1,1-Dichloroethylene		512	ug/L	3.00	10.0
563-58-6	1,1-Dichloropropene		552	ug/L	3.00	10.0
87-61-6	1,2,3-Trichlorobenzene		547	ug/L	3.00	10.0
96-18-4	1,2,3-Trichloropropane		594	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		555	ug/L	3.00	10.0
95-63-6	1,2,4-Trimethylbenzene		557	ug/L	3.00	10.0
96-12-8	1,2-Dibromo-3-chloropropane		566	ug/L	5.00	10.0
106-93-4	1,2-Dibromoethane		550	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		503	ug/L	3.00	10.0
107-06-2	1,2-Dichloroethane		520	ug/L	3.00	10.0
78-87-5	1,2-Dichloropropane		512	ug/L	3.00	10.0
108-67-8	1,3,5-Trimethylbenzene		562	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		511	ug/L	3.00	10.0
142-28-9	1,3-Dichloropropane		515	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		500	ug/L	3.00	10.0
594-20-7	2,2-Dichloropropane		628	ug/L	3.00	10.0
78-93-3	2-Butanone		2450	ug/L	15.0	50.0
126-99-8	2-Chloro-1,3-butadiene	U	10.0	ug/L	3.00	10.0
95-49-8	2-Chlorotoluene		561	ug/L	3.00	10.0
591-78-6	2-Hexanone		2880	ug/L	15.0	50.0
106-43-4	4-Chlorotoluene		534	ug/L	3.00	10.0
99-87-6	4-Isopropyltoluene		587	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone		2910	ug/L	15.0	50.0
67-64-1	Acetone		1930	ug/L	15.0	100
75-05-8	Acetonitrile		14300	ug/L	80.0	250
107-02-8	Acrolein	U	50.0	ug/L	15.0	50.0
107-13-1	Acrylonitrile	U	50.0	ug/L	15.0	50.0
107-05-1	Allyl chloride	U	50.0	ug/L	15.0	50.0
71-43-2	Benzene		508	ug/L	3.00	10.0
108-86-1	Bromobenzene		523	ug/L	3.00	10.0
74-97-5	Bromochloromethane		520	ug/L	3.00	10.0
75-27-4	Bromodichloromethane		541	ug/L	3.00	10.0
75-25-2	Bromoform		575	ug/L	3.00	10.0

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777101	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 18:12	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 18:12		
Data File: 042817V1\1F518.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		587	ug/L	3.00	10.0
75-15-0	Carbon disulfide		2560	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		582	ug/L	3.00	10.0
108-90-7	Chlorobenzene		510	ug/L	3.00	10.0
75-00-3	Chloroethane		564	ug/L	3.00	10.0
67-66-3	Chloroform		532	ug/L	3.00	10.0
74-87-3	Chloromethane		582	ug/L	3.00	10.0
124-48-1	Dibromochloromethane		562	ug/L	3.00	10.0
74-95-3	Dibromomethane		521	ug/L	3.00	10.0
75-71-8	Dichlorodifluoromethane		608	ug/L	3.00	10.0
60-29-7	Ethyl ether		542	ug/L	3.00	10.0
97-63-2	Ethyl methacrylate	U	50.0	ug/L	15.0	50.0
100-41-4	Ethylbenzene		550	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		514	ug/L	3.00	10.0
74-88-4	Iodomethane		2570	ug/L	15.0	50.0
78-83-1	Isobutyl alcohol	U	500	ug/L	150	500
98-82-8	Isopropylbenzene		583	ug/L	3.00	10.0
126-98-7	Methacrylonitrile	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	50.0	ug/L	15.0	50.0
75-09-2	Methylene chloride		449	ug/L	10.0	100
91-20-3	Naphthalene		537	ug/L	3.00	10.0
107-12-0	Propionitrile	U	50.0	ug/L	15.0	50.0
100-42-5	Styrene		548	ug/L	3.00	10.0
127-18-4	Tetrachloroethylene		555	ug/L	3.00	10.0
108-88-3	Toluene		519	ug/L	3.00	10.0
79-01-6	Trichloroethylene		545	ug/L	3.00	10.0
75-69-4	Trichlorofluoromethane		599	ug/L	3.00	10.0
76-13-1	Trichlorotrifluoroethane	U	50.0	ug/L	20.0	50.0
108-05-4	Vinyl acetate		2920	ug/L	15.0	50.0
75-01-4	Vinyl chloride		602	ug/L	3.00	10.0
156-59-2	cis-1,2-Dichloroethylene		527	ug/L	3.00	10.0
10061-01-5	cis-1,3-Dichloropropylene		501	ug/L	3.00	10.0
179601-23-1	m,p-Xylenes		1100	ug/L	3.00	20.0
71-36-3	n-Butyl alcohol		80600	ug/L	150	500
104-51-8	n-Butylbenzene		568	ug/L	3.00	10.0
103-65-1	n-Propylbenzene		556	ug/L	3.00	10.0
95-47-6	o-Xylene		558	ug/L	3.00	10.0
135-98-8	sec-Butylbenzene		598	ug/L	3.00	10.0

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Sample Summary**

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SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777101	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 18:12	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 18:12		
Data File: 042817V1\1F518.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		600	ug/L	3.00	10.0
98-06-6	tert-Butylbenzene		608	ug/L	3.00	10.0
156-60-5	trans-1,2-Dichloroethylene		541	ug/L	3.00	10.0
10061-02-6	trans-1,3-Dichloropropylene		530	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.1	50.0	92	(71%-134%)
Bromofluorobenzene	51.9	50.0	104	(70%-131%)
Toluene-d8	48.3	50.0	97	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777102	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 19:09	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 19:09		
Data File: 042817V1\1F520.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	10.0	ug/L	3.00	10.0
71-55-6	1,1,1-Trichloroethane	U	10.0	ug/L	3.00	10.0
79-34-5	1,1,2,2-Tetrachloroethane	U	10.0	ug/L	3.00	10.0
79-00-5	1,1,2-Trichloroethane	U	10.0	ug/L	3.00	10.0
75-34-3	1,1-Dichloroethane	U	10.0	ug/L	3.00	10.0
75-35-4	1,1-Dichloroethylene	U	10.0	ug/L	3.00	10.0
563-58-6	1,1-Dichloropropene	U	10.0	ug/L	3.00	10.0
87-61-6	1,2,3-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
96-18-4	1,2,3-Trichloropropane	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
95-63-6	1,2,4-Trimethylbenzene	U	10.0	ug/L	3.00	10.0
96-12-8	1,2-Dibromo-3-chloropropane	U	10.0	ug/L	5.00	10.0
106-93-4	1,2-Dibromoethane	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
107-06-2	1,2-Dichloroethane	U	10.0	ug/L	3.00	10.0
78-87-5	1,2-Dichloropropane	U	10.0	ug/L	3.00	10.0
108-67-8	1,3,5-Trimethylbenzene	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
142-28-9	1,3-Dichloropropane	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
594-20-7	2,2-Dichloropropane	U	10.0	ug/L	3.00	10.0
78-93-3	2-Butanone	U	50.0	ug/L	15.0	50.0
126-99-8	2-Chloro-1,3-butadiene		614	ug/L	3.00	10.0
95-49-8	2-Chlorotoluene	U	10.0	ug/L	3.00	10.0
591-78-6	2-Hexanone	U	50.0	ug/L	15.0	50.0
106-43-4	4-Chlorotoluene	U	10.0	ug/L	3.00	10.0
99-87-6	4-Isopropyltoluene	U	10.0	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone	U	50.0	ug/L	15.0	50.0
67-64-1	Acetone	U	100	ug/L	15.0	100
75-05-8	Acetonitrile	U	250	ug/L	80.0	250
107-02-8	Acrolein		3130	ug/L	15.0	50.0
107-13-1	Acrylonitrile		2960	ug/L	15.0	50.0
107-05-1	Allyl chloride		2940	ug/L	15.0	50.0
71-43-2	Benzene	U	10.0	ug/L	3.00	10.0
108-86-1	Bromobenzene	U	10.0	ug/L	3.00	10.0
74-97-5	Bromochloromethane	U	10.0	ug/L	3.00	10.0
75-27-4	Bromodichloromethane	U	10.0	ug/L	3.00	10.0
75-25-2	Bromoform	U	10.0	ug/L	3.00	10.0

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Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777102	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 19:09	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 19:09		
Data File: 042817V1\1F520.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	10.0	ug/L	3.00	10.0
108-90-7	Chlorobenzene	U	10.0	ug/L	3.00	10.0
75-00-3	Chloroethane	U	10.0	ug/L	3.00	10.0
67-66-3	Chloroform	U	10.0	ug/L	3.00	10.0
74-87-3	Chloromethane	U	10.0	ug/L	3.00	10.0
124-48-1	Dibromochloromethane	U	10.0	ug/L	3.00	10.0
74-95-3	Dibromomethane	U	10.0	ug/L	3.00	10.0
75-71-8	Dichlorodifluoromethane	U	10.0	ug/L	3.00	10.0
60-29-7	Ethyl ether	U	10.0	ug/L	3.00	10.0
97-63-2	Ethyl methacrylate		2640	ug/L	15.0	50.0
100-41-4	Ethylbenzene	U	10.0	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
74-88-4	Iodomethane	U	50.0	ug/L	15.0	50.0
78-83-1	Isobutyl alcohol		32900	ug/L	150	500
98-82-8	Isopropylbenzene	U	10.0	ug/L	3.00	10.0
126-98-7	Methacrylonitrile		2850	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		2840	ug/L	15.0	50.0
75-09-2	Methylene chloride	U	100	ug/L	10.0	100
91-20-3	Naphthalene	U	10.0	ug/L	3.00	10.0
107-12-0	Propionitrile		3050	ug/L	15.0	50.0
100-42-5	Styrene	U	10.0	ug/L	3.00	10.0
127-18-4	Tetrachloroethylene	U	10.0	ug/L	3.00	10.0
108-88-3	Toluene	U	10.0	ug/L	3.00	10.0
79-01-6	Trichloroethylene	U	10.0	ug/L	3.00	10.0
75-69-4	Trichlorofluoromethane	U	10.0	ug/L	3.00	10.0
76-13-1	Trichlorotrifluoroethane		3170	ug/L	20.0	50.0
108-05-4	Vinyl acetate	U	50.0	ug/L	15.0	50.0
75-01-4	Vinyl chloride	U	10.0	ug/L	3.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	10.0	ug/L	3.00	10.0
10061-01-5	cis-1,3-Dichloropropylene	U	10.0	ug/L	3.00	10.0
179601-23-1	m,p-Xylenes	U	20.0	ug/L	3.00	20.0
71-36-3	n-Butyl alcohol	U	500	ug/L	150	500
104-51-8	n-Butylbenzene	U	10.0	ug/L	3.00	10.0
103-65-1	n-Propylbenzene	U	10.0	ug/L	3.00	10.0
95-47-6	o-Xylene	U	10.0	ug/L	3.00	10.0
135-98-8	sec-Butylbenzene	U	10.0	ug/L	3.00	10.0

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Sample Summary

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SDG Number:	2017-1401	Date Collected:	04/20/2017 13:27	Matrix:	W
Lab Sample ID:	1203777102	Date Received:	04/22/2017 09:55		
Client Sample:	QC for batch 1659957	Client:	ARSL004	Project:	QC
Client ID:	WST03-17-132679PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	10
Run Date:	04/28/2017 19:09	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 19:09				
Data File:	042817V1\1F520.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	10.0	ug/L	3.00	10.0
98-06-6	tert-Butylbenzene	U	10.0	ug/L	3.00	10.0
156-60-5	trans-1,2-Dichloroethylene	U	10.0	ug/L	3.00	10.0
10061-02-6	trans-1,3-Dichloropropylene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.2	50.0	86	(71%-134%)
Bromofluorobenzene	44.6	50.0	89	(70%-131%)
Toluene-d8	46.8	50.0	94	(74%-124%)

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Sample Summary**

SDG Number:	2017-1401	Date Collected:	04/20/2017 13:27	Matrix:	W
Lab Sample ID:	1203777103	Date Received:	04/22/2017 09:55		
Client Sample:	QC for batch 1659957	Client:	ARSL004	Project:	QC
Client ID:	WST03-17-132679PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	10
Run Date:	04/28/2017 18:40	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 18:40				
Data File:	042817V1\1F519.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		551	ug/L	3.00	10.0
71-55-6	1,1,1-Trichloroethane		564	ug/L	3.00	10.0
79-34-5	1,1,2,2-Tetrachloroethane		533	ug/L	3.00	10.0
79-00-5	1,1,2-Trichloroethane		510	ug/L	3.00	10.0
75-34-3	1,1-Dichloroethane		526	ug/L	3.00	10.0
75-35-4	1,1-Dichloroethylene		510	ug/L	3.00	10.0
563-58-6	1,1-Dichloropropene		553	ug/L	3.00	10.0
87-61-6	1,2,3-Trichlorobenzene		597	ug/L	3.00	10.0
96-18-4	1,2,3-Trichloropropane		587	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		617	ug/L	3.00	10.0
95-63-6	1,2,4-Trimethylbenzene		583	ug/L	3.00	10.0
96-12-8	1,2-Dibromo-3-chloropropane		589	ug/L	5.00	10.0
106-93-4	1,2-Dibromoethane		549	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		534	ug/L	3.00	10.0
107-06-2	1,2-Dichloroethane		495	ug/L	3.00	10.0
78-87-5	1,2-Dichloropropane		511	ug/L	3.00	10.0
108-67-8	1,3,5-Trimethylbenzene		583	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		538	ug/L	3.00	10.0
142-28-9	1,3-Dichloropropane		520	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		533	ug/L	3.00	10.0
594-20-7	2,2-Dichloropropane		620	ug/L	3.00	10.0
78-93-3	2-Butanone		2360	ug/L	15.0	50.0
126-99-8	2-Chloro-1,3-butadiene	U	10.0	ug/L	3.00	10.0
95-49-8	2-Chlorotoluene		586	ug/L	3.00	10.0
591-78-6	2-Hexanone		2840	ug/L	15.0	50.0
106-43-4	4-Chlorotoluene		553	ug/L	3.00	10.0
99-87-6	4-Isopropyltoluene		622	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone		2830	ug/L	15.0	50.0
67-64-1	Acetone		1840	ug/L	15.0	100
75-05-8	Acetonitrile		13400	ug/L	80.0	250
107-02-8	Acrolein	U	50.0	ug/L	15.0	50.0
107-13-1	Acrylonitrile	U	50.0	ug/L	15.0	50.0
107-05-1	Allyl chloride	U	50.0	ug/L	15.0	50.0
71-43-2	Benzene		508	ug/L	3.00	10.0
108-86-1	Bromobenzene		540	ug/L	3.00	10.0
74-97-5	Bromochloromethane		501	ug/L	3.00	10.0
75-27-4	Bromodichloromethane		529	ug/L	3.00	10.0
75-25-2	Bromoform		587	ug/L	3.00	10.0

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Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777103	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 18:40	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 18:40		
Data File: 042817V1\1F519.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		579	ug/L	3.00	10.0
75-15-0	Carbon disulfide		2560	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		567	ug/L	3.00	10.0
108-90-7	Chlorobenzene		518	ug/L	3.00	10.0
75-00-3	Chloroethane		564	ug/L	3.00	10.0
67-66-3	Chloroform		520	ug/L	3.00	10.0
74-87-3	Chloromethane		593	ug/L	3.00	10.0
124-48-1	Dibromochloromethane		555	ug/L	3.00	10.0
74-95-3	Dibromomethane		507	ug/L	3.00	10.0
75-71-8	Dichlorodifluoromethane		593	ug/L	3.00	10.0
60-29-7	Ethyl ether		530	ug/L	3.00	10.0
97-63-2	Ethyl methacrylate	U	50.0	ug/L	15.0	50.0
100-41-4	Ethylbenzene		555	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		575	ug/L	3.00	10.0
74-88-4	Iodomethane		2540	ug/L	15.0	50.0
78-83-1	Isobutyl alcohol	U	500	ug/L	150	500
98-82-8	Isopropylbenzene		604	ug/L	3.00	10.0
126-98-7	Methacrylonitrile	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	50.0	ug/L	15.0	50.0
75-09-2	Methylene chloride		441	ug/L	10.0	100
91-20-3	Naphthalene		576	ug/L	3.00	10.0
107-12-0	Propionitrile	U	50.0	ug/L	15.0	50.0
100-42-5	Styrene		557	ug/L	3.00	10.0
127-18-4	Tetrachloroethylene		573	ug/L	3.00	10.0
108-88-3	Toluene		523	ug/L	3.00	10.0
79-01-6	Trichloroethylene		547	ug/L	3.00	10.0
75-69-4	Trichlorofluoromethane		589	ug/L	3.00	10.0
76-13-1	Trichlorotrifluoroethane	U	50.0	ug/L	20.0	50.0
108-05-4	Vinyl acetate		2860	ug/L	15.0	50.0
75-01-4	Vinyl chloride		603	ug/L	3.00	10.0
156-59-2	cis-1,2-Dichloroethylene		531	ug/L	3.00	10.0
10061-01-5	cis-1,3-Dichloropropylene		490	ug/L	3.00	10.0
179601-23-1	m,p-Xylenes		1110	ug/L	3.00	20.0
71-36-3	n-Butyl alcohol		78600	ug/L	150	500
104-51-8	n-Butylbenzene		614	ug/L	3.00	10.0
103-65-1	n-Propylbenzene		579	ug/L	3.00	10.0
95-47-6	o-Xylene		562	ug/L	3.00	10.0
135-98-8	sec-Butylbenzene		626	ug/L	3.00	10.0

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Sample Summary**

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SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777103	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 18:40	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 18:40		
Data File: 042817V1\1F519.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		595	ug/L	3.00	10.0
98-06-6	tert-Butylbenzene		644	ug/L	3.00	10.0
156-60-5	trans-1,2-Dichloroethylene		532	ug/L	3.00	10.0
10061-02-6	trans-1,3-Dichloropropylene		523	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.0	50.0	86	(71%-134%)
Bromofluorobenzene	47.8	50.0	96	(70%-131%)
Toluene-d8	47.8	50.0	96	(74%-124%)

Volatile
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Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777104	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 19:38	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 19:38		
Data File: 042817V1\1F521.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	10.0	ug/L	3.00	10.0
71-55-6	1,1,1-Trichloroethane	U	10.0	ug/L	3.00	10.0
79-34-5	1,1,2,2-Tetrachloroethane	U	10.0	ug/L	3.00	10.0
79-00-5	1,1,2-Trichloroethane	U	10.0	ug/L	3.00	10.0
75-34-3	1,1-Dichloroethane	U	10.0	ug/L	3.00	10.0
75-35-4	1,1-Dichloroethylene	U	10.0	ug/L	3.00	10.0
563-58-6	1,1-Dichloropropene	U	10.0	ug/L	3.00	10.0
87-61-6	1,2,3-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
96-18-4	1,2,3-Trichloropropane	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
95-63-6	1,2,4-Trimethylbenzene	U	10.0	ug/L	3.00	10.0
96-12-8	1,2-Dibromo-3-chloropropane	U	10.0	ug/L	5.00	10.0
106-93-4	1,2-Dibromoethane	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
107-06-2	1,2-Dichloroethane	U	10.0	ug/L	3.00	10.0
78-87-5	1,2-Dichloropropane	U	10.0	ug/L	3.00	10.0
108-67-8	1,3,5-Trimethylbenzene	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
142-28-9	1,3-Dichloropropane	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
594-20-7	2,2-Dichloropropane	U	10.0	ug/L	3.00	10.0
78-93-3	2-Butanone	U	50.0	ug/L	15.0	50.0
126-99-8	2-Chloro-1,3-butadiene		600	ug/L	3.00	10.0
95-49-8	2-Chlorotoluene	U	10.0	ug/L	3.00	10.0
591-78-6	2-Hexanone	U	50.0	ug/L	15.0	50.0
106-43-4	4-Chlorotoluene	U	10.0	ug/L	3.00	10.0
99-87-6	4-Isopropyltoluene	U	10.0	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone	U	50.0	ug/L	15.0	50.0
67-64-1	Acetone	U	100	ug/L	15.0	100
75-05-8	Acetonitrile	U	250	ug/L	80.0	250
107-02-8	Acrolein		3010	ug/L	15.0	50.0
107-13-1	Acrylonitrile		2880	ug/L	15.0	50.0
107-05-1	Allyl chloride		2900	ug/L	15.0	50.0
71-43-2	Benzene	U	10.0	ug/L	3.00	10.0
108-86-1	Bromobenzene	U	10.0	ug/L	3.00	10.0
74-97-5	Bromochloromethane	U	10.0	ug/L	3.00	10.0
75-27-4	Bromodichloromethane	U	10.0	ug/L	3.00	10.0
75-25-2	Bromoform	U	10.0	ug/L	3.00	10.0

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Date Collected: 04/20/2017 13:27	Matrix: W
Lab Sample ID: 1203777104	Date Received: 04/22/2017 09:55	
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: WST03-17-132679PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 10
Run Date: 04/28/2017 19:38	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 19:38		
Data File: 042817V1\1F521.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	10.0	ug/L	3.00	10.0
108-90-7	Chlorobenzene	U	10.0	ug/L	3.00	10.0
75-00-3	Chloroethane	U	10.0	ug/L	3.00	10.0
67-66-3	Chloroform	U	10.0	ug/L	3.00	10.0
74-87-3	Chloromethane	U	10.0	ug/L	3.00	10.0
124-48-1	Dibromochloromethane	U	10.0	ug/L	3.00	10.0
74-95-3	Dibromomethane	U	10.0	ug/L	3.00	10.0
75-71-8	Dichlorodifluoromethane	U	10.0	ug/L	3.00	10.0
60-29-7	Ethyl ether	U	10.0	ug/L	3.00	10.0
97-63-2	Ethyl methacrylate		2550	ug/L	15.0	50.0
100-41-4	Ethylbenzene	U	10.0	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
74-88-4	Iodomethane	U	50.0	ug/L	15.0	50.0
78-83-1	Isobutyl alcohol		31700	ug/L	150	500
98-82-8	Isopropylbenzene	U	10.0	ug/L	3.00	10.0
126-98-7	Methacrylonitrile		2810	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		2770	ug/L	15.0	50.0
75-09-2	Methylene chloride	U	100	ug/L	10.0	100
91-20-3	Naphthalene	U	10.0	ug/L	3.00	10.0
107-12-0	Propionitrile		3000	ug/L	15.0	50.0
100-42-5	Styrene	U	10.0	ug/L	3.00	10.0
127-18-4	Tetrachloroethylene	U	10.0	ug/L	3.00	10.0
108-88-3	Toluene	U	10.0	ug/L	3.00	10.0
79-01-6	Trichloroethylene	U	10.0	ug/L	3.00	10.0
75-69-4	Trichlorofluoromethane	U	10.0	ug/L	3.00	10.0
76-13-1	Trichlorotrifluoroethane		3010	ug/L	20.0	50.0
108-05-4	Vinyl acetate	U	50.0	ug/L	15.0	50.0
75-01-4	Vinyl chloride	U	10.0	ug/L	3.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	10.0	ug/L	3.00	10.0
10061-01-5	cis-1,3-Dichloropropylene	U	10.0	ug/L	3.00	10.0
179601-23-1	m,p-Xylenes	U	20.0	ug/L	3.00	20.0
71-36-3	n-Butyl alcohol	U	500	ug/L	150	500
104-51-8	n-Butylbenzene	U	10.0	ug/L	3.00	10.0
103-65-1	n-Propylbenzene	U	10.0	ug/L	3.00	10.0
95-47-6	o-Xylene	U	10.0	ug/L	3.00	10.0
135-98-8	sec-Butylbenzene	U	10.0	ug/L	3.00	10.0

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2017-1401	Date Collected:	04/20/2017 13:27	Matrix:	W
Lab Sample ID:	1203777104	Date Received:	04/22/2017 09:55		
Client Sample:	QC for batch 1659957	Client:	ARSL004	Project:	QC
Client ID:	WST03-17-132679PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1659957	Inst:	VOA1.I	Dilution:	10
Run Date:	04/28/2017 19:38	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	04/28/2017 19:38				
Data File:	042817V1\1F521.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	10.0	ug/L	3.00	10.0
98-06-6	tert-Butylbenzene	U	10.0	ug/L	3.00	10.0
156-60-5	trans-1,2-Dichloroethylene	U	10.0	ug/L	3.00	10.0
10061-02-6	trans-1,3-Dichloropropylene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.4	50.0	87	(71%-134%)
Bromofluorobenzene	45.9	50.0	92	(70%-131%)
Toluene-d8	47.5	50.0	95	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Lab Sample ID: 1203778033

Client Sample: QC for batch 1659957

Client ID: MB for batch 1659957

Batch ID: 1659957

Run Date: 04/28/2017 13:24

Prep Date: 04/28/2017 13:24

Data File: 042817V1\1F508BA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1401		Matrix:	WATER
Lab Sample ID: 1203778033			
Client Sample: QC for batch 1659957	Client: ARSL004	Project:	QC
Client ID: MB for batch 1659957	Method: SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution:	1
Run Date: 04/28/2017 13:24	Analyst: VXY1	Purge Vol:	5 mL
Prep Date: 04/28/2017 13:24			
Data File: 042817V1\1F508BA.D	Column: DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2017-1401	Matrix: WATER	
Lab Sample ID: 1203778033		
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: MB for batch 1659957	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 13:24	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 13:24		
Data File: 042817V1\1F508BA.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.5	50.0	97	(71%-134%)
Bromofluorobenzene	59.3	50.0	119	(70%-131%)
Toluene-d8	48.6	50.0	97	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401	Matrix: WATER
Lab Sample ID: 1203778034	
Client Sample: QC for batch 1659957	Client: ARSL004
Client ID: LCS for batch 1659957	Method: SW-846:8260B
Batch ID: 1659957	Inst: VOA1.I
Run Date: 04/28/2017 11:28	Analyst: VXY1
Prep Date: 04/28/2017 11:28	Purge Vol: 5 mL
Data File: 042817V1\1F504LA.D	Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		52.7	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		54.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.8	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		48.8	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		47.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		50.9	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		58.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		51.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		59.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		52.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.4	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		51.3	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		50.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		49.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		52.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.6	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		48.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.6	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		58.6	ug/L	0.300	1.00
78-93-3	2-Butanone		267	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		52.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		275	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		49.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		54.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		249	ug/L	1.50	5.00
67-64-1	Acetone		275	ug/L	1.50	10.0
75-05-8	Acetonitrile		1140	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		47.3	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		48.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		52.5	ug/L	0.300	1.00
75-25-2	Bromoform		54.5	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Lab Sample ID: 1203778034

Client Sample: QC for batch 1659957

Client ID: LCS for batch 1659957

Batch ID: 1659957

Run Date: 04/28/2017 11:28

Prep Date: 04/28/2017 11:28

Data File: 042817V1\1F504LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		56.0	ug/L	0.300	1.00
75-15-0	Carbon disulfide		230	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		54.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.8	ug/L	0.300	1.00
75-00-3	Chloroethane		53.2	ug/L	0.300	1.00
67-66-3	Chloroform		49.7	ug/L	0.300	1.00
74-87-3	Chloromethane		54.8	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.8	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.3	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		59.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		52.6	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		50.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		55.5	ug/L	0.300	1.00
74-88-4	Iodomethane		239	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		54.3	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		41.9	ug/L	1.00	10.0
91-20-3	Naphthalene		52.9	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		51.3	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.2	ug/L	0.300	1.00
108-88-3	Toluene		48.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.1	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		57.2	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		266	ug/L	1.50	5.00
75-01-4	Vinyl chloride		56.8	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		49.5	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		48.5	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		6130	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		55.1	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.4	ug/L	0.300	1.00
95-47-6	o-Xylene		51.5	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		54.3	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2017-1401	Matrix:	WATER
Lab Sample ID:	1203778034		
Client Sample:	QC for batch 1659957	Client:	ARSL004
Client ID:	LCS for batch 1659957	Method:	SW-846:8260B
Batch ID:	1659957	Inst:	VOA1.I
Run Date:	04/28/2017 11:28	Analyst:	VXY1
Prep Date:	04/28/2017 11:28		
Data File:	042817V1\1F504LA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		55.6	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		54.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		49.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.3	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.1	50.0	94	(71%-134%)
Bromofluorobenzene	55.9	50.0	112	(70%-131%)
Toluene-d8	48.4	50.0	97	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1401

Matrix: WATER

Lab Sample ID: 1203778035

Client Sample: QC for batch 1659957

Client: ARSL004

Project: QC

Client ID: LCS for batch 1659957

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1659957

Inst: VOA1.I

Dilution: 1

Run Date: 04/28/2017 12:55

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/28/2017 12:55

Data File: 042817V1\1F507LA.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		55.8	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		318	ug/L	1.50	5.00
107-13-1	Acrylonitrile		269	ug/L	1.50	5.00
107-05-1	Allyl chloride		265	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2017-1401		Matrix:	WATER
Lab Sample ID: 1203778035			
Client Sample: QC for batch 1659957	Client: ARSL004	Project:	QC
Client ID: LCS for batch 1659957	Method: SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution:	1
Run Date: 04/28/2017 12:55	Analyst: VXY1	Purge Vol:	5 mL
Prep Date: 04/28/2017 12:55			
Data File: 042817V1\1F507LA.D	Column: DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		255	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		3010	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		273	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		278	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile		276	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		281	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2017-1401		Matrix: WATER
Lab Sample ID: 1203778035		
Client Sample: QC for batch 1659957	Client: ARSL004	Project: QC
Client ID: LCS for batch 1659957	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1659957	Inst: VOA1.I	Dilution: 1
Run Date: 04/28/2017 12:55	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 04/28/2017 12:55		
Data File: 042817V1\1F507LA.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.6	50.0	95	(71%-134%)
Bromofluorobenzene	55.0	50.0	110	(70%-131%)
Toluene-d8	47.2	50.0	94	(74%-124%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr. 02-MAY-17	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: VOA GC/MS	Test / Method: SW846 8260B DOE-AL	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1659957	Sample Numbers: See Below		
<p>Potentially affected work order(s)(SDG): 420972(2017-1386),420973(2017-1385),421069(2017-1401),421213(2017-1407),421328(2017-1424),421901(2017-1454)</p> <p>Application Issues:</p> <p>Failed Recovery for MS/MSD, or PS/PSD Failed Recovery for LCS/LCSD Failed Yield for Surrogates Failed Internal Standard</p>			
Specification and Requirements Exception Description:		DER Disposition:	
<p>1. Failed Recovery for LCS/LCSD:</p> <p>QC 1203777099LCS</p> <p>2. Failed Recovery for MS/MSD, or PS/PSD:</p> <p>QC 1203777101PS, 1203777103PSD</p> <p>3. Failed Yield for Surrogates and Internal Standard:</p> <p>421901 001</p>		<p>1. The LCS/and or LCSD (See Below) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. 1203777099 (LCS) n-Butyl alcohol [151* (63%-138%)] and tert-Butyl methyl ether [134* (76%-128%)].</p> <p>2. The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated. 1203777101 (WST03-17-132679PS) n-Butyl alcohol [161* (60%-140%)]. 1203777103 (WST03-17-132679PSD) n-Butyl alcohol [157* (60%-140%)].</p> <p>3. Surrogate recoveries and internal standard responses, in sample (See Below) were outside the acceptance limits. Sample re-analysis confirmed matrix interference. The re-analysis results are reported. 421901001 (WST72-17-132859) Bromofluorobenzene [190* (70%-131%)].</p>	

Originator's Name:

Patrick Yib 02-MAY-17

Data Validator/Group Leader:

Erin Haubert 02-MAY-17