

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:

[illegible]

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11096

EVENT NAME: Pajarito (TA-54) MY2017 Q2

SAMPLE ID: CAPA-17-129185

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	OK	11/19/2017	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	OK	1137	MEDIA:	UA	1
PRS ID:	NA	OK	SAMPLE TECH CODE:	OK	GSP
LOCATION ID:	R-41 S2	OK	FIELD PREP:	UF	OK
LOCATION TYPE:	NA	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:	↓	↓	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	↓	↓	EXCAVATED:		YES <input checked="" type="radio"/> NO <input type="radio"/> NA

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

SAMPLE COMMENTS: Sampled 40' from running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen	6.20	mg/L	Flow (in gpm)	2.67	GPM	Oxidation-Reduction Potential	160.3	mV
pH	8.10	SU	Specific Conductance	158.8	uS/cm	Temperature	20.1	deg C
Turbidity	0.1	NTU						

COLLECTED BY (PRINT): Katrina Tow

RELINQUISHED BY (Printed Name) Wayne Sanchez (Signature) <i>Wayne Sanchez</i>	Date/Time 11/19/17 1239	RECEIVED BY (Printed Name) M. Montoya (Signature) <i>M. Montoya</i>	Date/Time 11/19/17 1239
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 12/29/2016

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11096

EVENT NAME: Pajarito (TA-54) MY2017 Q2

SAMPLE ID: CAPA-17-129210

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	OK	1/19/17	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1	1137	MEDIA:	NA	
PRS ID:	NA	OK	SAMPLE TECH CODE:	OK	678
LOCATION ID:	R-41 S2	OK	FIELD PREP:	UF	OK
LOCATION TYPE:	NA		FIELD QC TYPE:	FB	
TOP DEPTH:	1		SAMPLE USAGE:	INV	
BOTTOM DEPTH:			EXCAVATED:		YES / <u>NO</u> / NA

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

SAMPLE COMMENTS: Collected DI Blank at Pueblo Complex (18.2 mΩ)

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (mL/min) WS 1/19/17 GPM _____ Oxidation-Reduction Potential _____ mV
pH _____ SU Specific Conductance _____ µS/cm Temperature _____ deg C
Turbidity _____ NTU

COLLECTED BY (PRINT): Dan Jaramillo

RELINQUISHED BY (Printed Name) Wayne Sanchez (Signature) <i>Wayne Sanchez</i>	Date/Time 1/19/17 1239	RECEIVED BY (Printed Name) M. Montoya (Signature) <i>M. Montoya</i>	Date/Time 1/19/17 1239
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 01/18/2017

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11096

EVENT NAME: Pajarito (TA-54) MY2017 Q2

SAMPLE ID: CAPA-17-129212

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	OK	1/19/17	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	↓	1137	MEDIA:	NA	1
PRS ID:	NA	ws 1/19/17 OK	SAMPLE TECH CODE:	NA	GSP
LOCATION ID:	R-41 S2	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	NA	↓	FIELD QC TYPE:	FD	↓
TOP DEPTH:	↓	↓	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:			EXCAVATED:		YES <input checked="" type="radio"/> NO <input type="radio"/> NA

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

SAMPLE COMMENTS: Sampled 40' from running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) ws 1/19/17 GPM Oxidation-Reduction Potential _____ mV
 pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C
 Turbidity _____ NTU

COLLECTED BY (PRINT):

D. Jaramillo

RELINQUISHED BY (Printed Name) <u>Wayne Sanchez</u> (Signature) <u>Wayne Sanchez</u>	Date/Time <u>1/19/17</u> <u>1239</u>	RECEIVED BY <u>M. Martinez</u> (Printed Name) (Signature) <u>M. Martinez</u>	Date/Time <u>1/19/17</u> <u>1239</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 01/18/2017

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11096

EVENT NAME: Pajarito (TA-54) MY2017 Q2

SAMPLE ID: CAPA-17-129223

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	OK	1/19/17	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1	1137	MEDIA:	OK	1
PRS ID:	NA	OK	SAMPLE TECH CODE:	1	GSP
LOCATION ID:	R-41 S2	OK	FIELD PREP:	UF	OK
LOCATION TYPE:	NA	↓	FIELD QC TYPE:	FTB	↓
TOP DEPTH:	↓	↓	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	↓	↓	EXCAVATED:		YES / <u>NO</u> / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	1/19/17	HCL	Y	N/A

SAMPLE COMMENTS: Sampled 40' from running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

WS 1/19/17

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): Dan Jaramillo

RELINQUISHED BY (Printed Name) Wayne Sanchez (Signature) <i>Wayne Sanchez</i>	Date/Time 1/19/17 1239	RECEIVED BY (Printed Name) M. Montoya (Signature) <i>M. Montoya</i>	Date/Time 1/19/17 1239
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 12/29/2016

DATA VALIDATION REPORT

Chain Of Custody No. 2017-912

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
414784	SW-846:8260B	1	1	1	1	

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
414784	SW-846:8260B	1635478	1635478	1	1	1	1		1					2							

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
SW-846:8260B	VOC	CAPA-17-129185	414784001	REG	80	3	0	0
SW-846:8260B	VOC	CAPA-17-129210	414784002	FB	80	3	0	0
SW-846:8260B	VOC	CAPA-17-129212	414784003	FD	80	3	0	0
SW-846:8260B	VOC	CAPA-17-129223	414784004	FTB	80	3	0	0
SW-846:8260B	VOC	LCS	1203718733	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203718734	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203718732	MB	80	3	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

DATA VALIDATION REPORT

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?

No.

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

DATA VALIDATION REPORT

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.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAPA-17-129185	R-41 S2	REG	SW-846:8260B	0	80
CAPA-17-129210	R-41 S2	FB	SW-846:8260B	0	80
CAPA-17-129212	R-41 S2	FD	SW-846:8260B	0	80
CAPA-17-129223	R-41 S2	FTB	SW-846:8260B	0	80



February 13, 2017

gel.com

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

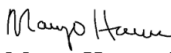
Re: LANL- WQH Water Samples
Work Order: 414784
SDG: 2017-912

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on January 21, 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: 2017-912
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 414784
SDG: 2017-912

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 414784
SDG # : 2017-912**

February 13, 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 January 21, 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>
414784001	CAPA-17-129185
414784002	CAPA-17-129210
414784003	CAPA-17-129212
414784004	CAPA-17-129223

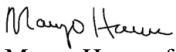
Case Narrative

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 13 February 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	T104704235-16-11
Utah NELAP	SC000122016-21
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

SAMPLE RECEIPT & REVIEW FORM

Client: ESHL		SDG/AR/COC/Work Order: 414784	
Received By: BW		Date Received: 1/21/17	
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: Ice bags <input checked="" type="checkbox"/> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 2°C
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): E5032015830
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?		<input checked="" type="checkbox"/>		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 Do Low Level Perchlorate samples have headspace as required?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7 VOA vials contain acid preservation?	<input checked="" type="checkbox"/>			(If unknown, select No)
8 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
9 Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
11 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
12 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
13 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
14 Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
15 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
16 Carrier and tracking number.				Circle Applicable: <input checked="" type="checkbox"/> FedEx Air <input type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other 5908 1781 6515

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials

MEH

Date

1/23/17

Page

1

of

GL-CHL-SR-001 Rev 3

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: 20JAN17
ACTWGT: 13.0 LB MAN
CAD: 0014176/CAFE2916

BILL SENDER

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

CHARLESTON SC 29407

(R42) 666-8171

REF: 6A000ASRGW04BAGWS0



FedEx
Express



TRK# 5908 1781 6515
0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO CHSA

29407
SC-US CHS



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 #: 2017-912
Work Order #: 414784**

Method/Analysis Information

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

Analytical Method: SW-846:8260B

Analytical Batch Number: 1635478

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
414784001	CAPA-17-129185
414784002	CAPA-17-129210
414784003	CAPA-17-129212
414784004	CAPA-17-129223
1203718732	Method Blank (MB)
1203718733	Laboratory Control Sample (LCS)
1203718734	Laboratory Control Sample (LCS)
1203718735	414667001(CAPA-17-129182) Post Spike (PS)
1203718736	414667001(CAPA-17-129182) Post Spike (PS)
1203718737	414667001(CAPA-17-129182) Post Spike Duplicate (PSD)
1203718738	414667001(CAPA-17-129182) Post Spike Duplicate (PSD)

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# 24.

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

The initial calibration criteria has been evaluated by SW846 8000D and method 8260B/C. All the analytes met the established 8260B/C method criteria. However, 2-Butanone and 2-Hexanone did not meet the guidance provided in SW846 8000D. It is the opinion of the laboratory that the data provided is usable for these compounds.

Continuing Calibration Verification Requirements

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

Quality Control (QC) Information**Blank (MB) Statement**

Target analytes were detected in the blank 1203718732 (MB) below the reporting limit.

Surrogate Recoveries

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

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 414667001 (CAPA-17-129182) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the required acceptance limits.

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

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

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

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

A Data exception reports (DERs) was not generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

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	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	RTX-624	Restek, 60m x 0.25mm x 1.4um	Trap 10

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: 2017-912 GEL Work Order: 414784

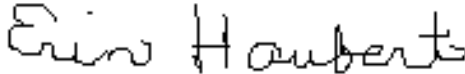
The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- B The target analyte was detected in the associated blank.
- J Value is estimated
- 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: 15 FEB 2017

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-912
Lab Sample ID: 414784001

Date Collected: 01/19/2017 11:37
Date Received: 01/21/2017 09:05

Matrix: W

Client ID: CAPA-17-129185

Client: ARSL004

Project: ESHL00114

Batch ID: 1635478

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Run Date: 01/31/2017 14:33

Inst: VOA1.I

Dilution: 1

Prep Date: 01/31/2017 14:33

Analyst: VXY1

Purge Vol: 5 mL

Data File: 013117V1\1T214.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: 2017-912
Lab Sample ID: 414784001

Date Collected: 01/19/2017 11:37
Date Received: 01/21/2017 09:05

Matrix: W

Client ID: CAPA-17-129185

Client: ARSL004

Project: ESHL00114

Batch ID: 1635478

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Run Date: 01/31/2017 14:33

Inst: VOA1.I

Dilution: 1

Prep Date: 01/31/2017 14:33

Analyst: VXY1

Purge Vol: 5 mL

Data File: 013117V1\1T214.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: 2017-912

Lab Sample ID: 414784001

Date Collected: 01/19/2017 11:37

Date Received: 01/21/2017 09:05

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1635478

Inst: VOA1.I

Dilution: 1

Run Date: 01/31/2017 14:33

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 01/31/2017 14:33

Data File: 013117V1\1T214.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	47.9	50.0	ug/L 96	(71%-134%)
Bromofluorobenzene	52.9	50.0	ug/L 106	(70%-131%)
Toluene-d8	44.3	50.0	ug/L 89	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	5.67	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-912

Lab Sample ID: 414784002

Date Collected: 01/19/2017 11:37

Date Received: 01/21/2017 09:05

Matrix: W

Client ID: CAPA-17-129210

Batch ID: 1635478

Run Date: 01/31/2017 15:02

Prep Date: 01/31/2017 15:02

Data File: 013117V1\1T215.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

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		10.0	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: 2017-912
Lab Sample ID: 414784002

Date Collected: 01/19/2017 11:37
Date Received: 01/21/2017 09:05

Matrix: W

Client ID: CAPA-17-129210

Client: ARSL004

Project: ESHL00114

Batch ID: 1635478

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Run Date: 01/31/2017 15:02

Inst: VOA1.I

Dilution: 1

Prep Date: 01/31/2017 15:02

Analyst: VXY1

Purge Vol: 5 mL

Data File: 013117V1\1T215.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: 2017-912
Lab Sample ID: 414784002

Date Collected: 01/19/2017 11:37
Date Received: 01/21/2017 09:05

Matrix: W

Client ID: CAPA-17-129210

Client: ARSL004

Project: ESHL00114

Batch ID: 1635478

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Run Date: 01/31/2017 15:02

Inst: VOA1.I

Dilution: 1

Prep Date: 01/31/2017 15:02

Analyst: VXY1

Purge Vol: 5 mL

Data File: 013117V1\1T215.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	ug/L 95	(71%-134%)
Bromofluorobenzene	53.9	50.0	ug/L 108	(70%-131%)
Toluene-d8	44.2	50.0	ug/L 88	(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: 2017-912

Lab Sample ID: 414784003

Date Collected: 01/19/2017 11:37

Date Received: 01/21/2017 09:05

Matrix: W

Client ID: CAPA-17-129212

Batch ID: 1635478

Run Date: 01/31/2017 15:30

Prep Date: 01/31/2017 15:30

Data File: 013117V1\1T216.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

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: 2017-912

Lab Sample ID: 414784003

Date Collected: 01/19/2017 11:37

Date Received: 01/21/2017 09:05

Matrix: W

Client ID: CAPA-17-129212

Batch ID: 1635478

Run Date: 01/31/2017 15:30

Prep Date: 01/31/2017 15:30

Data File: 013117V1\1T216.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

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: 2017-912

Lab Sample ID: 414784003

Date Collected: 01/19/2017 11:37

Date Received: 01/21/2017 09:05

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1635478

Inst: VOA1.I

Dilution: 1

Run Date: 01/31/2017 15:30

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 01/31/2017 15:30

Column: DB-624

Data File: 013117V1\1T216.D

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	47.7	50.0	ug/L 95	(71%-134%)
Bromofluorobenzene	54.6	50.0	ug/L 109	(70%-131%)
Toluene-d8	44.3	50.0	ug/L 89	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	6.05	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-912

Lab Sample ID: 414784004

Date Collected: 01/19/2017 11:37

Date Received: 01/21/2017 09:05

Matrix: W

Client ID: CAPA-17-129223

Batch ID: 1635478

Run Date: 01/31/2017 15:59

Prep Date: 01/31/2017 15:59

Data File: 013117V1\1T217.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Project: ESHL00114

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: 2017-912

Lab Sample ID: 414784004

Date Collected: 01/19/2017 11:37

Date Received: 01/21/2017 09:05

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-17-129223

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1635478

Inst: VOA1.I

Dilution: 1

Run Date: 01/31/2017 15:59

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 01/31/2017 15:59

Data File: 013117V1\1T217.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: 2017-912

Lab Sample ID: 414784004

Date Collected: 01/19/2017 11:37

Date Received: 01/21/2017 09:05

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-17-129223

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1635478

Inst: VOA1.I

Dilution: 1

Run Date: 01/31/2017 15:59

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 01/31/2017 15:59

Column: DB-624

Data File: 013117V1\1T217.D

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	54.9	50.0	ug/L 110	(70%-131%)
Toluene-d8	44.0	50.0	ug/L 88	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	7.95	ug/L	0	J

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2017-912**Matrix Type: LIQUID**

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203718733	LCS for batch 1635478	87	88	101
1203718734	LCS for batch 1635478	90	88	101
1203718732	MB for batch 1635478	91	89	106
414784001	CAPA-17-129185	96	89	106
414784002	CAPA-17-129210	95	88	108
414784003	CAPA-17-129212	95	89	109
414784004	CAPA-17-129223	96	88	110
1203718735	CAPA-17-129182PS	96	88	98
1203718737	CAPA-17-129182PSD	93	87	99
1203718736	CAPA-17-129182PS	95	88	99
1203718738	CAPA-17-129182PSD	92	88	101

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: 2017-912

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1635478

Matrix: WATER

Lab Sample ID 1203718733

Instrument: VOA1.I

Analysis Date: 01/31/2017 09:16

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	102	102	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1120	89	61-125
67-64-1	LCS Acetone	250	0.0	268	107	48-157
74-88-4	LCS Iodomethane	250	0.0	291	117	72-128
75-15-0	LCS Carbon disulfide	250	0.0	258	103	69-138
108-05-4	LCS Vinyl acetate	250	0.0	239	96	67-125
78-93-3	LCS 2-Butanone	250	0.0	251	101	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	217	87	66-124
591-78-6	LCS 2-Hexanone	250	0.0	240	96	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	58.4	117	40-160
74-87-3	LCS Chloromethane	50.0	0.0	44.1	88	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	49.9	100	65-137
74-83-9	LCS Bromomethane	50.0	0.0	58.1	116	63-137
75-00-3	LCS Chloroethane	50.0	0.0	51.9	104	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	65.3	131	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	48.7	97	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	53.7	107	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	48.5	97	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	50.3	101	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	52.9	106	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	52.7	105	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	54.2	108	75-123

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2017-912

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1635478

Matrix: WATER

Lab Sample ID 1203718733

Instrument: VOA1.I

Analysis Date: 01/31/2017 09:16

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	58.9	118	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	56.1	112	76-125
67-66-3	LCS Chloroform	50.0	0.0	57.3	115	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	61.8	124	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	55.0	110	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	66.2	132	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	55.8	112	74-122
71-43-2	LCS Benzene	50.0	0.0	50.5	101	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	56.9	114	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	48.6	97	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	54.9	110	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	58.3	117	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	51.7	103	78-131
108-88-3	LCS Toluene	50.0	0.0	48.4	97	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	47.8	96	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	47.0	94	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	56.4	113	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	59.2	118	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	51.7	103	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	50.7	101	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	49.7	99	73-125

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2017-912

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1635478

Matrix: WATER

Lab Sample ID 1203718733

Instrument: VOA1.I

Analysis Date: 01/31/2017 09:16

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	50.4	101	74-126
100-42-5	LCS Styrene	50.0	0.0	50.7	101	72-130
75-25-2	LCS Bromoform	50.0	0.0	57.9	116	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	49.0	98	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	43.8	88	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	50.5	101	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	46.5	93	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	49.0	98	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	50.3	101	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	47.0	94	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	52.7	105	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	50.3	101	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	49.7	99	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	50.8	102	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	49.6	99	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	50.1	100	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	49.0	98	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	55.8	112	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	59.7	119	72-136
91-20-3	LCS Naphthalene	50.0	0.0	51.8	104	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	56.4	113	70-130

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-912

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1635478

Matrix: WATER

Lab Sample ID 1203718733

Instrument: VOA1.I

Analysis Date: 01/31/2017 09:16

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	56.5	113	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	57.1	114	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	49.8	100	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	5240	105	63-138

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2017-912

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1635478

Matrix: WATER

Lab Sample ID 1203718734

Instrument: VOA1.I

Analysis Date: 01/31/2017 10:14

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	243	97	60-140
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	290	116	61-148
107-05-1	LCS Allyl chloride	250	0.0	235	94	59-125
107-13-1	LCS Acrylonitrile	250	0.0	246	99	65-122
107-12-0	LCS Propionitrile	250	0.0	244	98	64-124
126-98-7	LCS Methacrylonitrile	250	0.0	235	94	64-126
80-62-6	LCS Methyl methacrylate	250	0.0	243	97	69-127
97-63-2	LCS Ethyl methacrylate	250	0.0	222	89	66-130
78-83-1	LCS Isobutyl alcohol	2500	0.0	2810	113	65-135
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	50.6	101	66-147

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-912

Sample Type: Post Spike

Client ID: CAPA-17-129182PS

Matrix: W

Lab Sample ID 1203718735

Instrument: VOA1.I

Analysis Date: 01/31/2017 16:57

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	88.6	89	59-132
75-05-8	PS Acetonitrile	1250	0.00 U	1140	91	56-131
67-64-1	PS Acetone	250	0.00 U	112	45	25-155
74-88-4	PS Iodomethane	250	0.00 U	279	112	66-133
75-15-0	PS Carbon disulfide	250	0.00 U	227	91	61-141
108-05-4	PS Vinyl acetate	250	0.00 U	240	96	48-133
78-93-3	PS 2-Butanone	250	0.00 U	143	57	25-143
108-10-1	PS 4-Methyl-2-pentanone	250	0.00 U	214	86	61-127
591-78-6	PS 2-Hexanone	250	0.00 U	162	65	33-138
75-71-8	PS Dichlorodifluoromethane	50.0	0.00 U	56.8	114	33-164
74-87-3	PS Chloromethane	50.0	0.00 U	40.4	81	53-139
75-01-4	PS Vinyl chloride	50.0	0.00 U	44.2	88	58-140
74-83-9	PS Bromomethane	50.0	0.00 U	57.7	115	59-146
75-00-3	PS Chloroethane	50.0	0.00 U	44.8	90	65-129
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	64.7	129	65-141
60-29-7	PS Ethyl ether	50.0	0.00 U	47.8	96	69-127
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	47.6	95	59-130
75-09-2	PS Methylene chloride	50.0	0.00 U	45.2	90	62-123
1634-04-4	PS tert-Butyl methyl ether	50.0	0.00 U	47.0	94	69-132
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	48.9	98	65-127
75-34-3	PS 1,1-Dichloroethane	50.0	0.00 U	48.7	97	67-127
156-59-2	PS cis-1,2-Dichloroethylene	50.0	0.00 U	50.7	101	69-127

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-912

Sample Type: Post Spike

Client ID: CAPA-17-129182PS

Matrix: W

Lab Sample ID 1203718735

Instrument: VOA1.I

Analysis Date: 01/31/2017 16:57

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	50.6	101	66-137
74-97-5	PS Bromochloromethane	50.0	0.00 U	56.3	113	71-130
67-66-3	PS Chloroform	50.0	0.00 U	57.1	114	71-129
71-55-6	PS 1,1,1-Trichloroethane	50.0	0.00 U	58.4	117	69-139
563-58-6	PS 1,1-Dichloropropene	50.0	0.00 U	47.9	96	67-130
56-23-5	PS Carbon tetrachloride	50.0	0.00 U	65.2	130	66-143
107-06-2	PS 1,2-Dichloroethane	50.0	0.00 U	62.3	125	69-130
71-43-2	PS Benzene	50.0	0.00 U	45.3	91	66-125
79-01-6	PS Trichloroethylene	50.0	0.00 U	52.5	105	65-131
78-87-5	PS 1,2-Dichloropropane	50.0	0.00 U	45.8	92	67-127
74-95-3	PS Dibromomethane	50.0	0.00 U	57.8	116	72-129
75-27-4	PS Bromodichloromethane	50.0	0.00 U	60.8	122	70-138
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00 U	50.2	100	70-134
108-88-3	PS Toluene	50.0	0.00 U	42.9	86	60-126
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00 U	51.2	102	69-135
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00 U	45.6	91	66-125
142-28-9	PS 1,3-Dichloropropane	50.0	0.00 U	46.5	93	67-124
127-18-4	PS Tetrachloroethylene	50.0	0.00 U	48.6	97	60-130
124-48-1	PS Dibromochloromethane	50.0	0.00 U	61.4	123	68-143
106-93-4	PS 1,2-Dibromoethane	50.0	0.00 U	52.0	104	71-127
108-90-7	PS Chlorobenzene	50.0	0.00 U	46.4	93	64-124
100-41-4	PS Ethylbenzene	50.0	0.00 U	44.9	90	61-130

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-912

Sample Type: Post Spike

Client ID: CAPA-17-129182PS

Matrix: W

Lab Sample ID 1203718735

Instrument: VOA1.I

Analysis Date: 01/31/2017 16:57

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	44.5	89	62-131
100-42-5	PS Styrene	50.0	0.00 U	45.7	91	59-135
75-25-2	PS Bromoform	50.0	0.00 U	58.1	116	64-138
98-82-8	PS Isopropylbenzene	50.0	0.00 U	40.5	81	55-133
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	41.4	83	62-129
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	52.1	104	70-124
108-86-1	PS Bromobenzene	50.0	0.00 U	44.9	90	62-124
103-65-1	PS n-Propylbenzene	50.0	0.00 U	38.2	76	50-133
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	41.9	84	53-135
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	42.0	84	56-128
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	40.8	82	53-130
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	42.4	85	55-135
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	42.4	85	53-132
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	40.6	81	50-138
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	42.1	84	49-138
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	42.7	85	56-126
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	43.2	86	55-125
104-51-8	PS n-Butylbenzene	50.0	0.00 U	40.1	80	43-142
96-12-8	PS 1,2-Dibromo-3-chloropropane	50.0	0.00 U	54.5	109	62-141
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	48.4	97	40-147
91-20-3	PS Naphthalene	50.0	0.00 U	45.9	92	62-134
87-61-6	PS 1,2,3-Trichlorobenzene	50.0	0.00 U	47.8	96	52-135

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-912

Sample Type: Post Spike

Client ID: CAPA-17-129182PS

Matrix: W

Lab Sample ID 1203718735

Instrument: VOA1.I

Analysis Date: 01/31/2017 16:57

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	46.2	92	50-133
630-20-6	PS 1,1,1,2-Tetrachloroethane	50.0	0.00 U	56.6	113	71-133
95-50-1	PS 1,2-Dichlorobenzene	50.0	0.00 U	44.4	89	60-125
71-36-3	PS n-Butyl alcohol	5000	0.00 U	5570	111	60-140

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-912

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-129182PSD

Matrix: W

Lab Sample ID 1203718737

Instrument: VOA1.I

Analysis Date: 01/31/2017 17:26

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	88.6	89	59-132	0	0-20
75-05-8	PSD Acetonitrile	1250	0.00 U	1130	90	56-131	1	0-20
67-64-1	PSD Acetone	250	0.00 U	111	44	25-155	1	0-20
74-88-4	PSD Iodomethane	250	0.00 U	284	114	66-133	2	0-20
75-15-0	PSD Carbon disulfide	250	0.00 U	231	92	61-141	2	0-20
108-05-4	PSD Vinyl acetate	250	0.00 U	235	94	48-133	2	0-20
78-93-3	PSD 2-Butanone	250	0.00 U	141	56	25-143	1	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00 U	209	84	61-127	2	0-20
591-78-6	PSD 2-Hexanone	250	0.00 U	159	64	33-138	2	0-20
75-71-8	PSD Dichlorodifluoromethane	50.0	0.00 U	55.9	112	33-164	2	0-20
74-87-3	PSD Chloromethane	50.0	0.00 U	41.0	82	53-139	1	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00 U	43.6	87	58-140	1	0-20
74-83-9	PSD Bromomethane	50.0	0.00 U	58.7	117	59-146	2	0-20
75-00-3	PSD Chloroethane	50.0	0.00 U	46.2	92	65-129	3	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00 U	64.5	129	65-141	0	0-20
60-29-7	PSD Ethyl ether	50.0	0.00 U	47.3	95	69-127	1	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00 U	48.0	96	59-130	1	0-20
75-09-2	PSD Methylene chloride	50.0	0.00 U	46.0	92	62-123	2	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.00 U	48.4	97	69-132	3	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00 U	49.1	98	65-127	0	0-20
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00 U	49.7	99	67-127	2	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00 U	51.2	102	69-127	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-912

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-129182PSD

Matrix: W

Lab Sample ID 1203718737

Instrument: VOA1.I

Analysis Date: 01/31/2017 17:26

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	50.9	102	66-137	1	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00 U	56.1	112	71-130	0	0-20
67-66-3	PSD Chloroform	50.0	0.00 U	57.3	115	71-129	0	0-20
71-55-6	PSD 1,1,1-Trichloroethane	50.0	0.00 U	58.8	118	69-139	1	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00 U	48.6	97	67-130	1	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00 U	64.7	129	66-143	1	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00 U	62.1	124	69-130	0	0-20
71-43-2	PSD Benzene	50.0	0.00 U	46.0	92	66-125	1	0-20
79-01-6	PSD Trichloroethylene	50.0	0.00 U	52.8	106	65-131	0	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00 U	45.9	92	67-127	0	0-20
74-95-3	PSD Dibromomethane	50.0	0.00 U	58.3	117	72-129	1	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00 U	60.6	121	70-138	0	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00 U	50.6	101	70-134	1	0-20
108-88-3	PSD Toluene	50.0	0.00 U	43.7	87	60-126	2	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00 U	51.0	102	69-135	0	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00 U	46.6	93	66-125	2	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00 U	46.7	93	67-124	1	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.00 U	49.9	100	60-130	3	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00 U	61.6	123	68-143	0	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00 U	51.5	103	71-127	1	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00 U	47.1	94	64-124	1	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00 U	45.6	91	61-130	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-912

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-129182PSD

Matrix: W

Lab Sample ID 1203718737

Instrument: VOA1.I

Analysis Date: 01/31/2017 17:26

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	46.2	92	62-131	4	0-20
100-42-5	PSD Styrene	50.0	0.00 U	47.1	94	59-135	3	0-20
75-25-2	PSD Bromoform	50.0	0.00 U	58.4	117	64-138	1	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00 U	41.8	84	55-133	3	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00 U	41.6	83	62-129	0	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00 U	51.0	102	70-124	2	0-20
108-86-1	PSD Bromobenzene	50.0	0.00 U	46.1	92	62-124	3	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00 U	39.7	79	50-133	4	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00 U	43.4	87	53-135	3	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00 U	44.6	89	56-128	6	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00 U	42.3	85	53-130	4	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00 U	44.2	88	55-135	4	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00 U	44.7	89	53-132	5	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00 U	42.4	85	50-138	4	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00 U	43.7	87	49-138	4	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00 U	45.0	90	56-126	5	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00 U	46.0	92	55-125	6	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00 U	41.8	84	43-142	4	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00 U	55.7	111	62-141	2	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00 U	51.9	104	40-147	7	0-20
91-20-3	PSD Naphthalene	50.0	0.00 U	49.9	100	62-134	8	0-20
87-61-6	PSD 1,2,3-Trichlorobenzene	50.0	0.00 U	52.1	104	52-135	8	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 8 of 8

SDG Number: 2017-912

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-129182PSD

Matrix: W

Lab Sample ID 1203718737

Instrument: VOA1.I

Analysis Date: 01/31/2017 17:26

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	50.0	100	50-133	8	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	57.4	115	71-133	1	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	46.0	92	60-125	4	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00 U	5520	110	60-140	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 2017-912

Sample Type: Post Spike

Client ID: CAPA-17-129182PS

Matrix: W

Lab Sample ID 1203718736

Instrument: VOA1.I

Analysis Date: 01/31/2017 17:54

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	233	93	49-141
76-13-1	PS	Trichlorotrifluoroethane	250	0.00	U	323	129	57-149
107-05-1	PS	Allyl chloride	250	0.00	U	234	94	54-128
107-13-1	PS	Acrylonitrile	250	0.00	U	260	104	59-129
107-12-0	PS	Propionitrile	250	0.00	U	260	104	58-131
126-98-7	PS	Methacrylonitrile	250	0.00	U	253	101	59-134
80-62-6	PS	Methyl methacrylate	250	0.00	U	255	102	62-135
97-63-2	PS	Ethyl methacrylate	250	0.00	U	227	91	60-136
78-83-1	PS	Isobutyl alcohol	2500	0.00	U	3240	129	60-143
126-99-8	PS	2-Chloro-1,3-butadiene	50.0	0.00	U	53.9	108	63-146

Volatile

Page 2 of 2

Quality Control Summary
Spike Recovery Report

SDG Number: 2017-912

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-129182PSD

Matrix: W

Lab Sample ID 1203718738

Instrument: VOA1.I

Analysis Date: 01/31/2017 18:23

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1635478

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	209	84	49-141	11	0-20
76-13-1	PSD Trichlorotrifluoroethane	250	0.00 U	317	127	57-149	2	0-20
107-05-1	PSD Allyl chloride	250	0.00 U	236	95	54-128	1	0-20
107-13-1	PSD Acrylonitrile	250	0.00 U	235	94	59-129	10	0-20
107-12-0	PSD Propionitrile	250	0.00 U	231	93	58-131	12	0-20
126-98-7	PSD Methacrylonitrile	250	0.00 U	233	93	59-134	9	0-20
80-62-6	PSD Methyl methacrylate	250	0.00 U	239	96	62-135	6	0-20
97-63-2	PSD Ethyl methacrylate	250	0.00 U	216	87	60-136	5	0-20
78-83-1	PSD Isobutyl alcohol	2500	0.00 U	2830	113	60-143	14	0-20
126-99-8	PSD 2-Chloro-1,3-butadiene	50.0	0.00 U	53.0	106	63-146	2	0-20

Method Blank Summary

Page 1 of 1

SDG Number:	2017-912	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1635478	Instrument ID:	VOA1.I	Data File:	013117V1\1T206A.D
Lab Sample ID:	1203718732	Prep Date:	01/31/2017 10:42	Analyzed:	01/31/17 10:42
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 1635478	1203718733	013117V1\1T203A.D	01/31/17	0916
02 LCS for batch 1635478	1203718734	013117V1\1T205A.D	01/31/17	1014
03 CAPA-17-129185	414784001	013117V1\1T214.D	01/31/17	1433
04 CAPA-17-129210	414784002	013117V1\1T215.D	01/31/17	1502
05 CAPA-17-129212	414784003	013117V1\1T216.D	01/31/17	1530
06 CAPA-17-129223	414784004	013117V1\1T217.D	01/31/17	1559
07 CAPA-17-129182PS	1203718735	013117V1\1T219.D	01/31/17	1657
08 CAPA-17-129182PSD	1203718737	013117V1\1T220.D	01/31/17	1726
09 CAPA-17-129182PS	1203718736	013117V1\1T221.D	01/31/17	1754
10 CAPA-17-129182PSD	1203718738	013117V1\1T222.D	01/31/17	1823

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2017-912

Lab Sample ID: 1203718732

Client Sample: QC for batch 1635478

Client ID: MB for batch 1635478

Batch ID: 1635478

Run Date: 01/31/2017 10:42

Prep Date: 01/31/2017 10:42

Data File: 013117V1\1T206A.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	J	0.430	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	J	0.330	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: 2017-912

Matrix: WATER

Lab Sample ID: 1203718732

Client Sample: QC for batch 1635478

Client: ARSL004

Project: QC

Client ID: MB for batch 1635478

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1635478

Inst: VOA1.I

Dilution: 1

Run Date: 01/31/2017 10:42

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 01/31/2017 10:42

Data File: 013117V1\1T206A.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: 2017-912	Matrix: WATER	
Lab Sample ID: 1203718732		
Client Sample: QC for batch 1635478	Client: ARSL004	Project: QC
Client ID: MB for batch 1635478	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1635478	Inst: VOA1.I	Dilution: 1
Run Date: 01/31/2017 10:42	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 01/31/2017 10:42		
Data File: 013117V1\1T206A.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	45.6	50.0	ug/L 91	(71%-134%)
Bromofluorobenzene	52.8	50.0	ug/L 106	(70%-131%)
Toluene-d8	44.4	50.0	ug/L 89	(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

Page 1 of 3

SDG Number: 2017-912

Lab Sample ID: 1203718733

Client Sample: QC for batch 1635478

Client ID: LCS for batch 1635478

Batch ID: 1635478

Run Date: 01/31/2017 09:16

Prep Date: 01/31/2017 09:16

Data File: 013117V1\1T203A.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		57.1	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		61.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		43.8	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		52.7	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		53.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		55.0	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	B	56.4	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	B	56.5	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		50.3	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		55.8	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		51.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.8	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		55.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.6	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		49.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		49.6	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		47.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		50.1	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		58.9	ug/L	0.300	1.00
78-93-3	2-Butanone		251	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		50.3	ug/L	0.300	1.00
591-78-6	2-Hexanone		240	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		47.0	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		50.8	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		217	ug/L	1.50	5.00
67-64-1	Acetone		268	ug/L	1.50	10.0
75-05-8	Acetonitrile		1120	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		50.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.5	ug/L	0.300	1.00
74-97-5	Bromochloromethane		56.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		58.3	ug/L	0.300	1.00
75-25-2	Bromoform		57.9	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-912

Lab Sample ID: 1203718733

Client Sample: QC for batch 1635478

Client ID: LCS for batch 1635478

Batch ID: 1635478

Run Date: 01/31/2017 09:16

Prep Date: 01/31/2017 09:16

Data File: 013117V1\1T203A.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		58.1	ug/L	0.300	1.00
75-15-0	Carbon disulfide		258	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		66.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene		50.7	ug/L	0.300	1.00
75-00-3	Chloroethane		51.9	ug/L	0.300	1.00
67-66-3	Chloroform		57.3	ug/L	0.300	1.00
74-87-3	Chloromethane		44.1	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		59.2	ug/L	0.300	1.00
74-95-3	Dibromomethane		54.9	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		58.4	ug/L	0.300	1.00
60-29-7	Ethyl ether		48.7	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		49.7	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		59.7	ug/L	0.300	1.00
74-88-4	Iodomethane		291	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		49.0	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		48.5	ug/L	1.00	10.0
91-20-3	Naphthalene		51.8	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		50.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		56.4	ug/L	0.300	1.00
108-88-3	Toluene		48.4	ug/L	0.300	1.00
79-01-6	Trichloroethylene		56.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		65.3	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		239	ug/L	1.50	5.00
75-01-4	Vinyl chloride		49.9	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		54.2	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		51.7	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		102	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5240	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		49.0	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		46.5	ug/L	0.300	1.00
95-47-6	o-Xylene		50.4	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		49.7	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2017-912	Matrix:	WATER
Lab Sample ID:	1203718733		
Client Sample:	QC for batch 1635478	Client:	ARSL004
Client ID:	LCS for batch 1635478	Method:	SW-846:8260B
Batch ID:	1635478	Inst:	VOA1.I
Run Date:	01/31/2017 09:16	Analyst:	VXY1
Prep Date:	01/31/2017 09:16		
Data File:	013117V1\1T203A.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		50.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		52.7	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		52.9	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	43.6	50.0	87	(71%-134%)
Bromofluorobenzene	50.6	50.0	101	(70%-131%)
Toluene-d8	43.8	50.0	88	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2017-912

Lab Sample ID: 1203718734

Client Sample: QC for batch 1635478

Client ID: LCS for batch 1635478

Batch ID: 1635478

Run Date: 01/31/2017 10:14

Prep Date: 01/31/2017 10:14

Data File: 013117V1\1T205A.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		50.6	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		243	ug/L	1.50	5.00
107-13-1	Acrylonitrile		246	ug/L	1.50	5.00
107-05-1	Allyl chloride		235	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: 2017-912

Matrix: WATER

Lab Sample ID: 1203718734

Client Sample: QC for batch 1635478

Client: ARSL004

Project: QC

Client ID: LCS for batch 1635478

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1635478

Inst: VOA1.I

Dilution: 1

Run Date: 01/31/2017 10:14

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 01/31/2017 10:14

Column: DB-624

Data File: 013117V1\1T205A.D

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		222	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		2810	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		235	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		243	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		244	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		290	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:	2017-912	Matrix:	WATER
Lab Sample ID:	1203718734		
Client Sample:	QC for batch 1635478	Client:	ARSL004
Client ID:	LCS for batch 1635478	Method:	SW-846:8260B
Batch ID:	1635478	Inst:	VOA1.I
Run Date:	01/31/2017 10:14	Analyst:	VXY1
Prep Date:	01/31/2017 10:14		
Data File:	013117V1\1T205A.D	Column:	DB-624
		Project:	QC
		SOP Ref:	GL-OA-E-038
		Dilution:	1
		Purge Vol:	5 mL

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	44.9	50.0	90	(71%-134%)
Bromofluorobenzene	50.5	50.0	101	(70%-131%)
Toluene-d8	44.1	50.0	88	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2017-912	Date Collected: 01/18/2017 12:33	Matrix: W
Lab Sample ID: 1203718735	Date Received: 01/20/2017 09:05	
Client Sample: QC for batch 1635478	Client: ARSL004	Project: QC
Client ID: CAPA-17-129182PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1635478	Inst: VOA1.I	Dilution: 1
Run Date: 01/31/2017 16:57	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 01/31/2017 16:57		
Data File: 013117V1\1T219.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		56.6	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		58.4	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		41.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		45.6	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		48.7	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		47.6	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		47.9	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	B	47.8	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		52.1	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	B	46.2	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		42.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		54.5	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		52.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		44.4	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		62.3	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.8	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		41.9	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		42.7	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		46.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		43.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		50.6	ug/L	0.300	1.00
78-93-3	2-Butanone		143	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		42.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		162	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		40.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		42.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		214	ug/L	1.50	5.00
67-64-1	Acetone		112	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		45.3	ug/L	0.300	1.00
108-86-1	Bromobenzene		44.9	ug/L	0.300	1.00
74-97-5	Bromochloromethane		56.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		60.8	ug/L	0.300	1.00
75-25-2	Bromoform		58.1	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-912	Date Collected:	01/18/2017 12:33	Matrix:	W
Lab Sample ID:	1203718735	Date Received:	01/20/2017 09:05		
Client Sample:	QC for batch 1635478	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-129182PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1635478	Inst:	VOA1.I	Dilution:	1
Run Date:	01/31/2017 16:57	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	01/31/2017 16:57				
Data File:	013117V1\1T219.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		57.7	ug/L	0.300	1.00
75-15-0	Carbon disulfide		227	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		65.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.4	ug/L	0.300	1.00
75-00-3	Chloroethane		44.8	ug/L	0.300	1.00
67-66-3	Chloroform		57.1	ug/L	0.300	1.00
74-87-3	Chloromethane		40.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		61.4	ug/L	0.300	1.00
74-95-3	Dibromomethane		57.8	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		56.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.8	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		44.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.4	ug/L	0.300	1.00
74-88-4	Iodomethane		279	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		40.5	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		45.2	ug/L	1.00	10.0
91-20-3	Naphthalene		45.9	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		45.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		48.6	ug/L	0.300	1.00
108-88-3	Toluene		42.9	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		64.7	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		240	ug/L	1.50	5.00
75-01-4	Vinyl chloride		44.2	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		50.7	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		50.2	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		88.6	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5570	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		40.1	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		38.2	ug/L	0.300	1.00
95-47-6	o-Xylene		44.5	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		40.6	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-912	Date Collected:	01/18/2017 12:33	Matrix:	W
Lab Sample ID:	1203718735	Date Received:	01/20/2017 09:05		
Client Sample:	QC for batch 1635478	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-129182PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1635478	Inst:	VOA1.I	Dilution:	1
Run Date:	01/31/2017 16:57	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	01/31/2017 16:57				
Data File:	013117V1\1T219.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		47.0	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		42.4	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		48.9	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.2	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.2	50.0	96	(71%-134%)
Bromofluorobenzene	48.9	50.0	98	(70%-131%)
Toluene-d8	43.8	50.0	88	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2017-912	Date Collected: 01/18/2017 12:33	Matrix: W
Lab Sample ID: 1203718736	Date Received: 01/20/2017 09:05	
Client Sample: QC for batch 1635478	Client: ARSL004	Project: QC
Client ID: CAPA-17-129182PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1635478	Inst: VOA1.I	Dilution: 1
Run Date: 01/31/2017 17:54	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 01/31/2017 17:54		
Data File: 013117V1\1T221.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		53.9	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		233	ug/L	1.50	5.00
107-13-1	Acrylonitrile		260	ug/L	1.50	5.00
107-05-1	Allyl chloride		234	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:	2017-912	Date Collected:	01/18/2017 12:33	Matrix:	W
Lab Sample ID:	1203718736	Date Received:	01/20/2017 09:05		
Client Sample:	QC for batch 1635478	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-129182PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1635478	Inst:	VOA1.I	Dilution:	1
Run Date:	01/31/2017 17:54	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	01/31/2017 17:54				
Data File:	013117V1\1T221.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		227	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		3240	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		253	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		255	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		260	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		323	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: 2017-912	Date Collected: 01/18/2017 12:33	Matrix: W
Lab Sample ID: 1203718736	Date Received: 01/20/2017 09:05	
Client Sample: QC for batch 1635478	Client: ARSL004	Project: QC
Client ID: CAPA-17-129182PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1635478	Inst: VOA1.I	Dilution: 1
Run Date: 01/31/2017 17:54	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 01/31/2017 17:54		
Data File: 013117V1\1T221.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	47.7	50.0	95	(71%-134%)
Bromofluorobenzene	49.7	50.0	99	(70%-131%)
Toluene-d8	43.8	50.0	88	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2017-912	Date Collected: 01/18/2017 12:33	Matrix: W
Lab Sample ID: 1203718737	Date Received: 01/20/2017 09:05	
Client Sample: QC for batch 1635478	Client: ARSL004	Project: QC
Client ID: CAPA-17-129182PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1635478	Inst: VOA1.I	Dilution: 1
Run Date: 01/31/2017 17:26	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 01/31/2017 17:26		
Data File: 013117V1\1T220.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		57.4	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		58.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		41.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.6	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		49.7	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		48.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.6	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	B	52.1	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		51.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	B	50.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		44.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		55.7	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		51.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		46.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		62.1	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		43.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		45.0	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		46.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		50.9	ug/L	0.300	1.00
78-93-3	2-Butanone		141	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		44.6	ug/L	0.300	1.00
591-78-6	2-Hexanone		159	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		42.3	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		43.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		209	ug/L	1.50	5.00
67-64-1	Acetone		111	ug/L	1.50	10.0
75-05-8	Acetonitrile		1130	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		46.0	ug/L	0.300	1.00
108-86-1	Bromobenzene		46.1	ug/L	0.300	1.00
74-97-5	Bromochloromethane		56.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		60.6	ug/L	0.300	1.00
75-25-2	Bromoform		58.4	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-912	Date Collected:	01/18/2017 12:33	Matrix:	W
Lab Sample ID:	1203718737	Date Received:	01/20/2017 09:05		
Client Sample:	QC for batch 1635478	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-129182PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1635478	Inst:	VOA1.I	Dilution:	1
Run Date:	01/31/2017 17:26	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	01/31/2017 17:26				
Data File:	013117V1\1T220.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		58.7	ug/L	0.300	1.00
75-15-0	Carbon disulfide		231	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		64.7	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.1	ug/L	0.300	1.00
75-00-3	Chloroethane		46.2	ug/L	0.300	1.00
67-66-3	Chloroform		57.3	ug/L	0.300	1.00
74-87-3	Chloromethane		41.0	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		61.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		58.3	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		55.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.3	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		45.6	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		51.9	ug/L	0.300	1.00
74-88-4	Iodomethane		284	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		41.8	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		46.0	ug/L	1.00	10.0
91-20-3	Naphthalene		49.9	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		47.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		49.9	ug/L	0.300	1.00
108-88-3	Toluene		43.7	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.8	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		64.5	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		235	ug/L	1.50	5.00
75-01-4	Vinyl chloride		43.6	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		51.2	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		50.6	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		88.6	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5520	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		41.8	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		39.7	ug/L	0.300	1.00
95-47-6	o-Xylene		46.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		42.4	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-912	Date Collected: 01/18/2017 12:33	Matrix: W
Lab Sample ID: 1203718737	Date Received: 01/20/2017 09:05	
Client Sample: QC for batch 1635478	Client: ARSL004	Project: QC
Client ID: CAPA-17-129182PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1635478	Inst: VOA1.I	Dilution: 1
Run Date: 01/31/2017 17:26	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 01/31/2017 17:26		
Data File: 013117V1\1T220.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		48.4	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		44.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		49.1	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.5	50.0	93	(71%-134%)
Bromofluorobenzene	49.7	50.0	99	(70%-131%)
Toluene-d8	43.5	50.0	87	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2017-912	Date Collected: 01/18/2017 12:33	Matrix: W
Lab Sample ID: 1203718738	Date Received: 01/20/2017 09:05	
Client Sample: QC for batch 1635478	Client: ARSL004	Project: QC
Client ID: CAPA-17-129182PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1635478	Inst: VOA1.I	Dilution: 1
Run Date: 01/31/2017 18:23	Analyst: VXY1	Purge Vol: 5 mL
Prep Date: 01/31/2017 18:23		
Data File: 013117V1\1T222.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		53.0	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		209	ug/L	1.50	5.00
107-13-1	Acrylonitrile		235	ug/L	1.50	5.00
107-05-1	Allyl chloride		236	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:	2017-912	Date Collected:	01/18/2017 12:33	Matrix:	W
Lab Sample ID:	1203718738	Date Received:	01/20/2017 09:05		
Client Sample:	QC for batch 1635478	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-129182PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1635478	Inst:	VOA1.I	Dilution:	1
Run Date:	01/31/2017 18:23	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	01/31/2017 18:23				
Data File:	013117V1\1T222.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		216	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		2830	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		233	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		239	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		231	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		317	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:	2017-912	Date Collected:	01/18/2017 12:33	Matrix:	W
Lab Sample ID:	1203718738	Date Received:	01/20/2017 09:05		
Client Sample:	QC for batch 1635478	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-129182PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1635478	Inst:	VOA1.I	Dilution:	1
Run Date:	01/31/2017 18:23	Analyst:	VXY1	Purge Vol:	5 mL
Prep Date:	01/31/2017 18:23				
Data File:	013117V1\1T222.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	46.0	50.0	ug/L	92	(71%-134%)
Bromofluorobenzene	50.3	50.0	ug/L	101	(70%-131%)
Toluene-d8	44.0	50.0	ug/L	88	(74%-124%)