

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:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11313

EVENT NAME: Pajarito (TA-54) MY2017 Q4

SAMPLE ID: CAPA-17-139144

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	07/18/17	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1044 0944 TV 7/18/17		MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	GSP	
LOCATION ID:	R-39		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	INV	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / <u>NA</u>

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

SAMPLE COMMENTS:

~~none~~ sampled soft from running diesel generator.
TV 7/18/17

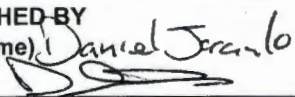
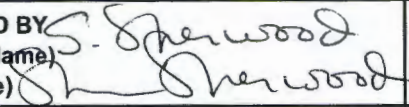
LOCATION COMMENTS:

none

FIELD PARAMETERS:

Sample Time	1044	HH:MM	Dissolved Oxygen	5.74 mg/L	Flow (in gpm)	2.23 gpm
Oxidation-Reduction Potential	146.7 mV		pH	6.26 STU	Specific Conductance	139.4 μ S/cm
Temperature	20.5°C		Turbidity	1.42 NTU		

COLLECTED BY (PRINT): D. Jaramillo

RELINQUISHED BY (Printed Name) Daniel Jaramillo (Signature) 	Date/Time 7/18/17 11:30	RECEIVED BY (Printed Name) S. Sherwood (Signature) 	Date/Time 7/18/17 11:30
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 07/06/2017

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11313

EVENT NAME: Pajarito (TA-54) MY2017 Q4

SAMPLE ID: CAPA-17-139150

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	07/18/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1040		MEDIA:	UA	
PRS ID:	OK		SAMPLE TECH CODE:	GSP	
LOCATION ID:	R-56 S1		FIELD PREP:	UF	
LOCATION TYPE:	OK		FIELD QC TYPE:	REG	
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	2	HCL	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓

SAMPLE COMMENTS: Sampled 50 ft. from running diesel generator

LOCATION COMMENTS: Breezy while sampling

FIELD PARAMETERS:

Sample Time	1040	HH:MM	Dissolved Oxygen	6.60	Flow (in gpm)	4.17
Oxidation-Reduction Potential	182.6		pH	8.09	Specific Conductance	149.6
Temperature	21.7		Turbidity	0.59		

COLLECTED BY (PRINT): A. Stanfield

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 07/18/2017 1150	RECEIVED BY (Printed Name) (Signature)	Date/Time 7/18/17 1150
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 07/06/2017

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11313

EVENT NAME: Pajarito (TA-54) MY2017 Q4

SAMPLE ID: CAPA-17-139157

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	07/18/17	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1044 TV 7/18/17		MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	DC	
LOCATION ID:	R-39		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	FTB	
TOP DEPTH:			SAMPLE USAGE:	QC	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / <u>NA</u>

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

SAMPLE COMMENTS:

07/18/17
Custody Seal broken on FTB, SMO personnel confirmed okay to use.

LOCATION COMMENTS:

none

FIELD PARAMETERS:

Sample Time	_____	HH:MM	Dissolved Oxygen	_____	Flow (in gpm)	_____
Oxidation-Reduction Potential	_____	TV 7/18/17	pH	_____	Specific Conductance	_____
Temperature	_____		Turbidity	_____		

COLLECTED BY (PRINT): D. Jaramillo

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 7/18/17 11:30	RECEIVED BY (Printed Name) (Signature)	Date/Time 7/18/17 11:30
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 07/06/2017

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11313

EVENT NAME: Pajarito (TA-54) MY2017 Q4

SAMPLE ID: CAPA-17-139163

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	07/18/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1040		MEDIA:	UA	
PRS ID:	OK		SAMPLE TECH CODE:	DC	
LOCATION ID:	R-56 S1		FIELD PREP:	UF	
LOCATION TYPE:	OK		FIELD QC TYPE:	FTB	
TOP DEPTH:			SAMPLE USAGE:	QC	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

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

SAMPLE COMMENTS:

0718-17

Factory Seal Broken on FTB. Personal @ SMO Advised crew to proceed as normal & use FTB. ^{YB} 7/18/17 ^{as}

LOCATION COMMENTS:

FIELD PARAMETERS:

Sample Time	_____	HH:MM	Dissolved Oxygen	_____	Flow (in gpm)	_____
Oxidation-Reduction Potential	_____	pH	07/18/2017	_____	Specific Conductance	_____
Temperature	_____	Turbidity	_____	_____		_____

COLLECTED BY (PRINT): A. Stanfield

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 07/18/2017 1150	RECEIVED BY (Printed Name) (Signature)	Date/Time 7/18/17 1150
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 07/06/2017

DATA VALIDATION REPORT

Chain Of Custody No. 2017-2017

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
428364	EPA:170.0	2		2		
428364	SW-846:8260B	2		2		

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
428364	EPA:170.0	NA	NA	2		2															
428364	SW-846:8260B	1685732	1685732	2		2			2					4							

2. Distribution Of Analytes In EDD.

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:170.0	VOC	CAPA-17-139144	428364001	REG	1	0	0	0
EPA:170.0	VOC	CAPA-17-139150	428364003	REG	1	0	0	0
EPA:170.0	VOC	CAPA-17-139157	428364002	FTB	1	0	0	0
EPA:170.0	VOC	CAPA-17-139163	428364004	FTB	1	0	0	0
SW-846:8260B	VOC	CAPA-17-139144	428364001	REG	80	3	0	0
SW-846:8260B	VOC	CAPA-17-139150	428364003	REG	80	3	0	0
SW-846:8260B	VOC	CAPA-17-139157	428364002	FTB	80	3	0	0
SW-846:8260B	VOC	CAPA-17-139163	428364004	FTB	80	3	0	0
SW-846:8260B	VOC	LCS	1203839374	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203839375	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1203839376	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203839377	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203839372	MB	80	3	0	0
SW-846:8260B	VOC	MB	1203839373	MB	80	3	0	0

3. Are any analytes missing?

No.

DATA VALIDATION REPORT

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Blank FS ID	Blank Lab Sample	Blank Type	Analytical Method	Sample	Parameter Name	Blank Lab Result	Lab Qualifier	Blank Lab Units	Blank Lab Detection Limit
MB	1203839372	METHOD BLANK	SW-846:8260B	W	Hexachlorobutadiene	0.38	J	ug/L	1.00
CAPA-17-139157	428364002	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	
CAPA-17-139163	428364004	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	

Field Sample ID	Blank Lab	Blank Type	Analytical Method	Parameter Name	Blank Lab Result	Blank Lab Units	Lab Result	Lab Qualifier	Lab Detection Limit	Detect Flag	Detect to Nondetect Factor	Detect to Estimated Factor	Use Factors
CAPA-17-139157	1203839372	METHOD BLANK	SW-846:8260B	Hexachlorobutadiene	0.38	ug/L	0.34	BJ	1.00	Y	5	100	Y

6. Any surrogate recoveries outside the control limits?

No.

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

No.

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

DATA VALIDATION REPORT

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.

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
R-39	2017-2017	CAPA-17-139157	FTB	INIT	VOC	SW-846:8260B	Hexachlorobutadiene	BJ	U	V4	N	0.34	ug/L	0.34	ug/L			W	07/18/2017	1685732	VAL	Y	

Reason Code

Description

NQ

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

U_LAB

The analytical laboratory qualified the analyte as not detected.

V4

The sample result is less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.

14. Usable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAPA-17-139144	R-39	REG	EPA:170.0	0	1
CAPA-17-139144	R-39	REG	SW-846:8260B	0	80

DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAPA-17-139150	R-56 S1	REG	EPA:170.0	0	1
CAPA-17-139150	R-56 S1	REG	SW-846:8260B	0	80
CAPA-17-139157	R-39	FTB	EPA:170.0	0	1
CAPA-17-139157	R-39	FTB	SW-846:8260B	0	80
CAPA-17-139163	R-56 S1	FTB	EPA:170.0	0	1
CAPA-17-139163	R-56 S1	FTB	SW-846:8260B	0	80



August 16, 2017

gel.com

Ms. Nita Patel
Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico 87545

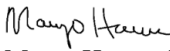
Re: LANL- WQH Water Samples
Work Order: 428364
SDG: 2017-2017

Dear Ms. Patel:

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

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

Sincerely,


Margo Herron for
Valerie Davis
Project Manager

Chain of Custody: 2017-2017
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 428364
SDG: 2017-2017

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 428364
SDG # : 2017-2017**

August 01, 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 July 20, 2017 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
428364001	CAPA-17-139144
428364002	CAPA-17-139157
428364003	CAPA-17-139150
428364004	CAPA-17-139163

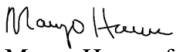
Case Narrative

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 01 August 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	SC000122017-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122017-23
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

SAMPLE RECEIPT & REVIEW FORM

Client: ESHU		SDG/AR/COC/Work Order: 428364	
Received By: ZKW		Date Received: 7/20/17	
Carrier and Tracking Number		Circle Applicable: <input checked="" type="checkbox"/> FedEx Express <input type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other 5909 1762 3020	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
Shipped as a DOT Hazardous?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> <input checked="" type="checkbox"/> CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
Is package, COC, and/or Samples marked HAZ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: _____	
Sample Receipt Criteria		Yes <input type="checkbox"/> NA <input type="checkbox"/> No <input type="checkbox"/>	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	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	Preservation Method: Wet Ice <input checked="" type="checkbox"/> Ice Packs Dry ice None Other: _____ *all temperatures are recorded in Celsius TEMP: 2°C
4	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	Temperature Device Serial #: <u>IR3-16</u> Secondary Temperature Device Serial # (If Applicable): _____
5	Sample containers intact and sealed?	<input checked="" type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) _____
6	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	Sample ID's and Containers Affected: <u>-141766 rec'd unpreserved,</u> If Preservation added, Lot#: <u>170530</u> <u>Preserved w/ HNO3</u>
7	Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes _____ No _____ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes _____ No _____ N/A _____ (If unknown, select No) VOA vials free of headspace? Yes _____ No _____ N/A _____ Sample ID's and containers affected: _____
8	Samples received within holding time?	<input checked="" type="checkbox"/>	ID's and tests affected: _____
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	Sample ID's and containers affected: _____
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	Sample ID's affected: <u>Collect time on -141766 is 1200</u>
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	Sample ID's affected: <u>We only rec'd two Exp cont. for -141949</u>
12	Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	
13	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	
Comments (Use Continuation Form if needed):			

ST 257

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TAC00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DA:
ACTAGT:
CAD: 0014
BILL SENDER

538C1/COC2/3298

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

2c

CHARLESTON SC 29407

(843) 566-8171
REF: WE6L11551000



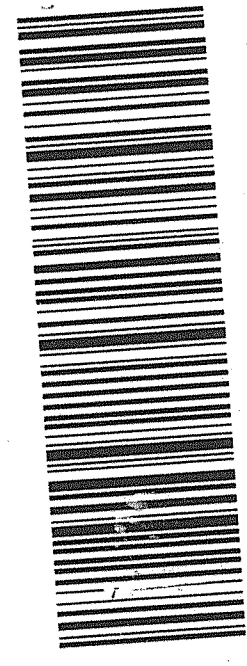
FedEx
Express

THU - 20 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 5908 1782 3620
0201

X7 RBWA

29407
SC-US
CHS



Part # 156148V-434 R1T2 06/15

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier Explanation

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

< Result is less than value reported

> Result is greater than value reported

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL

A The TIC is a suspected aldol-condensation product

B Target analyte was detected in the associated blank

B Metals-Either presence of analyte detected in the associated blank, or
MDL/IDL < sample value < PQL

BD Results are either below the MDC or tracer recovery is low

C Analyte has been confirmed by GC/MS analysis

D Results are reported from a diluted aliquot of the sample

d 5-day BOD-The 2:1 depletion requirement was not met for this sample

E Organics-Concentration of the target analyte exceeds the instrument calibration range

E Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria

H Analytical holding time was exceeded

h Preparation or preservation holding time was exceeded

J Value is estimated

N Metals-The Matrix spike sample recovery is not within specified control limits

N Organics-Presumptive evidence based on mass spectral library search to make a tentative
identification of the analyte (TIC). Quantitation is based on nearest internal standard
response factor

N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration
by 4X or more

ND Analyte concentration is not detected above the reporting limit

UI Gamma Spectroscopy-Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

Z Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

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

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

Volatile Analysis

Case Narrative

**GC/MS Volatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2017-2017
Work Order #: 428364**

Method/Analysis Information

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

Analytical Method: SW-846:8260B

Analytical Batch
Number: 1685732

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
428364001	CAPA-17-139144
428364002	CAPA-17-139157
428364003	CAPA-17-139150
428364004	CAPA-17-139163
1203839372	Method Blank (MB)
1203839373	Method Blank (MB)
1203839374	Laboratory Control Sample (LCS)
1203839375	Laboratory Control Sample (LCS)
1203839377	Laboratory Control Sample (LCS)
1203839378	428364001(CAPA-17-139144) Post Spike (PS)
1203839379	428364001(CAPA-17-139144) Post Spike (PS)
1203839380	428364001(CAPA-17-139144) Post Spike Duplicate (PSD)
1203839381	428364001(CAPA-17-139144) 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# 26.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate

recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration

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

Continuing Calibration Verification Requirements

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

Quality Control (QC) Information

Blank (MB) Statement

Target analytes were detected in the blanks 1203839372 (MB) and 1203839373 (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 428364001 (CAPA-17-139144) 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

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
VOA6.I	Agilent 6890N/5975 GC/MS w/ OI 4560/Archon Autosampler	HP6890N/HP5975	DB-624	J&W, 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: 2017-2017 GEL Work Order: 428364

The Qualifiers in this report are defined as follows:

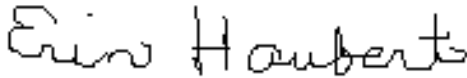
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- B The target analyte was detected in the associated blank.
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- DL Indicates that 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: 16 AUG 2017

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-2017

Lab Sample ID: 428364001

Date Collected: 07/18/2017 10:44

Date Received: 07/20/2017 09:10

Matrix: W

Client ID: CAPA-17-139144

Batch ID: 1685732

Run Date: 07/26/2017 18:04

Prep Date: 07/26/2017 18:04

Data File: 072617V6\6R319.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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: 2017-2017

Lab Sample ID: 428364001

Date Collected: 07/18/2017 10:44

Date Received: 07/20/2017 09:10

Matrix: W

Client ID: CAPA-17-139144

Batch ID: 1685732

Run Date: 07/26/2017 18:04

Prep Date: 07/26/2017 18:04

Data File: 072617V6\6R319.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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
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: 2017-2017

Lab Sample ID: 428364001

Date Collected: 07/18/2017 10:44

Date Received: 07/20/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1685732

Inst: VOA6.I

Dilution: 1

Run Date: 07/26/2017 18:04

Analyst: JP1

Purge Vol: 5 mL

Prep Date: 07/26/2017 18:04

Data File: 072617V6\6R319.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	46.8	50.0	ug/L 94	(71%-134%)
Bromofluorobenzene	49.9	50.0	ug/L 100	(70%-131%)
Toluene-d8	47.3	50.0	ug/L 95	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	3.68	6.54	ug/L	0	J
	unknown siloxane	11.348	5.2	ug/L	0	J
	unknown siloxane	13.75	9.89	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-2017

Lab Sample ID: 428364002

Date Collected: 07/18/2017 10:44

Date Received: 07/20/2017 09:10

Matrix: W

Client ID: CAPA-17-139157

Batch ID: 1685732

Run Date: 07/27/2017 12:56

Prep Date: 07/27/2017 12:56

Data File: 072717V6\6R407.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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: 2017-2017

Lab Sample ID: 428364002

Date Collected: 07/18/2017 10:44

Date Received: 07/20/2017 09:10

Matrix: W

Client ID: CAPA-17-139157

Batch ID: 1685732

Run Date: 07/27/2017 12:56

Prep Date: 07/27/2017 12:56

Data File: 072717V6\6R407.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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	BJ	0.340	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: 2017-2017

Lab Sample ID: 428364002

Date Collected: 07/18/2017 10:44

Date Received: 07/20/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-17-139157

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1685732

Inst: VOA6.I

Dilution: 1

Run Date: 07/27/2017 12:56

Analyst: JP1

Purge Vol: 5 mL

Prep Date: 07/27/2017 12:56

Column: DB-624

Data File: 072717V6\6R407.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	51.8	50.0	ug/L 104	(71%-134%)
Bromofluorobenzene	54.4	50.0	ug/L 109	(70%-131%)
Toluene-d8	52.5	50.0	ug/L 105	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	3.592	5.42	ug/L	0	J
	unknown siloxane	13.75	6.34	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-2017

Lab Sample ID: 428364003

Date Collected: 07/18/2017 10:40

Date Received: 07/20/2017 09:10

Matrix: W

Client ID: CAPA-17-139150

Batch ID: 1685732

Run Date: 07/27/2017 13:24

Prep Date: 07/27/2017 13:24

Data File: 072717V6\6R408.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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: 2017-2017

Lab Sample ID: 428364003

Date Collected: 07/18/2017 10:40

Date Received: 07/20/2017 09:10

Matrix: W

Client ID: CAPA-17-139150

Batch ID: 1685732

Run Date: 07/27/2017 13:24

Prep Date: 07/27/2017 13:24

Data File: 072717V6\6R408.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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: 2017-2017

Lab Sample ID: 428364003

Date Collected: 07/18/2017 10:40

Date Received: 07/20/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1685732

Inst: VOA6.I

Dilution: 1

Run Date: 07/27/2017 13:24

Analyst: JP1

Purge Vol: 5 mL

Prep Date: 07/27/2017 13:24

Data File: 072717V6\6R408.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	45.4	50.0	ug/L 91	(71%-134%)
Bromofluorobenzene	49.2	50.0	ug/L 98	(70%-131%)
Toluene-d8	47.5	50.0	ug/L 95	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	3.592	6.48	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-2017

Lab Sample ID: 428364004

Date Collected: 07/18/2017 10:40

Date Received: 07/20/2017 09:10

Matrix: W

Client ID: CAPA-17-139163

Batch ID: 1685732

Run Date: 07/27/2017 13:52

Prep Date: 07/27/2017 13:52

Data File: 072717V6\6R409.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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: 2017-2017

Lab Sample ID: 428364004

Date Collected: 07/18/2017 10:40

Date Received: 07/20/2017 09:10

Matrix: W

Client ID: CAPA-17-139163

Batch ID: 1685732

Run Date: 07/27/2017 13:52

Prep Date: 07/27/2017 13:52

Data File: 072717V6\6R409.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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: 2017-2017

Lab Sample ID: 428364004

Date Collected: 07/18/2017 10:40

Date Received: 07/20/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-17-139163

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1685732

Inst: VOA6.I

Dilution: 1

Run Date: 07/27/2017 13:52

Analyst: JP1

Purge Vol: 5 mL

Prep Date: 07/27/2017 13:52

Data File: 072717V6\6R409.D

Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.2	50.0	ug/L 92	(71%-134%)
Bromofluorobenzene	49.7	50.0	ug/L 99	(70%-131%)
Toluene-d8	47.7	50.0	ug/L 95	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	3.592	5.19	ug/L	0	J
	unknown siloxane	13.75	7.19	ug/L	0	J

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 1

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

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203839374	LCS for batch 1685732	103	104	108
1203839375	LCS for batch 1685732	95	95	99
1203839372	MB for batch 1685732	101	104	108
428364001	CAPA-17-139144	94	95	100
1203839378	CAPA-17-139144PS	102	105	107
1203839380	CAPA-17-139144PSD	92	95	97
1203839379	CAPA-17-139144PS	94	94	98
1203839381	CAPA-17-139144PSD	92	95	99
1203839377	LCS for batch 1685732	92	96	99
1203839373	MB for batch 1685732	89	94	96
428364002	CAPA-17-139157	104	105	109
428364003	CAPA-17-139150	91	95	98
428364004	CAPA-17-139163	92	95	99

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: 2017-2017

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1685732

Matrix: WATER

Lab Sample ID 1203839374

Instrument: VOA6.I

Analysis Date: 07/26/2017 10:37

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	84.1	84	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1140	91	61-125
67-64-1	LCS Acetone	250	0.0	267	107	48-157
74-88-4	LCS Iodomethane	250	0.0	195	78	72-128
75-15-0	LCS Carbon disulfide	250	0.0	201	81	69-138
108-05-4	LCS Vinyl acetate	250	0.0	312	125	67-125
78-93-3	LCS 2-Butanone	250	0.0	271	108	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	262	105	66-124
591-78-6	LCS 2-Hexanone	250	0.0	291	116	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	41.6	83	40-160
74-87-3	LCS Chloromethane	50.0	0.0	47.1	94	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	48.0	96	65-137
74-83-9	LCS Bromomethane	50.0	0.0	42.6	85	63-137
75-00-3	LCS Chloroethane	50.0	0.0	46.2	92	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	46.3	93	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	49.2	98	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	39.1	78	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	37.3	75	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	45.1	90	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	41.0	82	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	40.6	81	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	42.3	85	75-123

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-2017

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1685732

Matrix: WATER

Lab Sample ID 1203839374

Instrument: VOA6.I

Analysis Date: 07/26/2017 10:37

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	43.1	86	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	42.5	85	76-125
67-66-3	LCS Chloroform	50.0	0.0	40.0	80	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	40.8	82	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	41.0	82	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	42.6	85	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	40.4	81	74-122
71-43-2	LCS Benzene	50.0	0.0	41.8	84	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	42.2	84	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	42.8	86	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	43.3	87	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	45.5	91	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	46.6	93	78-131
108-88-3	LCS Toluene	50.0	0.0	41.2	82	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	47.6	95	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	44.3	89	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	42.5	85	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	39.4	79	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	41.5	83	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	47.0	94	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	41.3	83	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	42.0	84	73-125

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2017-2017

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1685732

Matrix: WATER

Lab Sample ID 1203839374

Instrument: VOA6.I

Analysis Date: 07/26/2017 10:37

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	42.2	84	74-126
100-42-5	LCS Styrene	50.0	0.0	46.4	93	72-130
75-25-2	LCS Bromoform	50.0	0.0	53.4	107	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	43.7	87	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	47.8	96	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	46.9	94	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	42.0	84	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	42.5	85	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	43.4	87	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	42.3	85	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	42.3	85	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	43.7	87	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	43.5	87	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	43.5	87	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	41.7	83	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	41.2	82	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	41.0	82	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	43.5	87	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	55.4	111	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	41.8	84	72-136
91-20-3	LCS Naphthalene	50.0	0.0	53.2	106	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	45.2	90	70-130

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-2017

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1685732

Matrix: WATER

Lab Sample ID 1203839374

Instrument: VOA6.I

Analysis Date: 07/26/2017 10:37

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	44.7	89	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	44.6	89	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	42.1	84	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	6040	121	63-138

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-2017

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1685732

Matrix: WATER

Lab Sample ID 1203839375

Instrument: VOA6.I

Analysis Date: 07/26/2017 12:00

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	294	117	60-140
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	253	101	61-148
107-05-1	LCS Allyl chloride	250	0.0	238	95	59-125
107-13-1	LCS Acrylonitrile	250	0.0	275	110	65-122
107-12-0	LCS Propionitrile	250	0.0	281	112	64-124
126-98-7	LCS Methacrylonitrile	250	0.0	275	110	64-126
80-62-6	LCS Methyl methacrylate	250	0.0	282	113	69-127
97-63-2	LCS Ethyl methacrylate	250	0.0	270	108	66-130
78-83-1	LCS Isobutyl alcohol	2500	0.0	2930	117	65-135
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	45.4	91	66-147

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2017-2017

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1685732

Matrix: WATER

Lab Sample ID 1203839377

Instrument: VOA6.I

Analysis Date: 07/27/2017 12:01

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	260	104	60-140
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	253	101	61-148
107-05-1	LCS Allyl chloride	250	0.0	231	92	59-125
107-13-1	LCS Acrylonitrile	250	0.0	237	95	65-122
107-12-0	LCS Propionitrile	250	0.0	234	94	64-124
126-98-7	LCS Methacrylonitrile	250	0.0	240	96	64-126
80-62-6	LCS Methyl methacrylate	250	0.0	244	97	69-127
97-63-2	LCS Ethyl methacrylate	250	0.0	240	96	66-130
78-83-1	LCS Isobutyl alcohol	2500	0.0	2370	95	65-135
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	45.0	90	66-147

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-2017

Sample Type: Post Spike

Client ID: CAPA-17-139144PS

Matrix: W

Lab Sample ID 1203839378

Instrument: VOA6.I

Analysis Date: 07/26/2017 18:59

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	93.8	94	59-132
75-05-8	PS Acetonitrile	1250	0.00 U	1130	90	56-131
67-64-1	PS Acetone	250	0.00 U	150	60	25-155
74-88-4	PS Iodomethane	250	0.00 U	229	92	66-133
75-15-0	PS Carbon disulfide	250	0.00 U	237	95	61-141
108-05-4	PS Vinyl acetate	250	0.00 U	256	103	48-133
78-93-3	PS 2-Butanone	250	0.00 U	160	64	25-143
108-10-1	PS 4-Methyl-2-pentanone	250	0.00 U	235	94	61-127
591-78-6	PS 2-Hexanone	250	0.00 U	176	70	33-138
75-71-8	PS Dichlorodifluoromethane	50.0	0.00 U	37.3	75	33-164
74-87-3	PS Chloromethane	50.0	0.00 U	43.4	87	53-139
75-01-4	PS Vinyl chloride	50.0	0.00 U	44.0	88	58-140
74-83-9	PS Bromomethane	50.0	0.00 U	50.6	101	59-146
75-00-3	PS Chloroethane	50.0	0.00 U	44.3	89	65-129
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	44.0	88	65-141
60-29-7	PS Ethyl ether	50.0	0.00 U	45.4	91	69-127
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	45.3	91	59-130
75-09-2	PS Methylene chloride	50.0	0.00 U	44.2	88	62-123
1634-04-4	PS tert-Butyl methyl ether	50.0	0.00 U	48.9	98	69-132
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	47.9	96	65-127
75-34-3	PS 1,1-Dichloroethane	50.0	0.00 U	48.2	96	67-127
156-59-2	PS cis-1,2-Dichloroethylene	50.0	0.00 U	49.6	99	69-127

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-2017

Sample Type: Post Spike

Client ID: CAPA-17-139144PS

Matrix: W

Lab Sample ID 1203839378

Instrument: VOA6.I

Analysis Date: 07/26/2017 18:59

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	48.0	96	66-137
74-97-5	PS Bromochloromethane	50.0	0.00 U	49.1	98	71-130
67-66-3	PS Chloroform	50.0	0.00 U	48.1	96	71-129
71-55-6	PS 1,1,1-Trichloroethane	50.0	0.00 U	47.3	95	69-139
563-58-6	PS 1,1-Dichloropropene	50.0	0.00 U	47.1	94	67-130
56-23-5	PS Carbon tetrachloride	50.0	0.00 U	49.1	98	66-143
107-06-2	PS 1,2-Dichloroethane	50.0	0.00 U	47.8	96	69-130
71-43-2	PS Benzene	50.0	0.00 U	48.0	96	66-125
79-01-6	PS Trichloroethylene	50.0	0.00 U	48.7	97	65-131
78-87-5	PS 1,2-Dichloropropane	50.0	0.00 U	49.4	99	67-127
74-95-3	PS Dibromomethane	50.0	0.00 U	48.5	97	72-129
75-27-4	PS Bromodichloromethane	50.0	0.00 U	53.0	106	70-138
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00 U	51.9	104	70-134
108-88-3	PS Toluene	50.0	0.00 U	47.0	94	60-126
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00 U	52.9	106	69-135
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00 U	49.5	99	66-125
142-28-9	PS 1,3-Dichloropropane	50.0	0.00 U	48.1	96	67-124
127-18-4	PS Tetrachloroethylene	50.0	0.00 U	45.1	90	60-130
124-48-1	PS Dibromochloromethane	50.0	0.00 U	47.2	94	68-143
106-93-4	PS 1,2-Dibromoethane	50.0	0.00 U	52.2	104	71-127
108-90-7	PS Chlorobenzene	50.0	0.00 U	47.1	94	64-124
100-41-4	PS Ethylbenzene	50.0	0.00 U	47.6	95	61-130

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-2017

Sample Type: Post Spike

Client ID: CAPA-17-139144PS

Matrix: W

Lab Sample ID 1203839378

Instrument: VOA6.I

Analysis Date: 07/26/2017 18:59

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	48.1	96	62-131
100-42-5	PS Styrene	50.0	0.00 U	50.9	102	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	49.3	99	55-133
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	49.9	100	62-129
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	49.8	100	70-124
108-86-1	PS Bromobenzene	50.0	0.00 U	48.5	97	62-124
103-65-1	PS n-Propylbenzene	50.0	0.00 U	47.2	94	50-133
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	48.5	97	53-135
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	48.1	96	56-128
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	47.3	95	53-130
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	49.3	99	55-135
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	48.7	97	53-132
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	48.6	97	50-138
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	47.6	95	49-138
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	46.0	92	56-126
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	45.5	91	55-125
104-51-8	PS n-Butylbenzene	50.0	0.00 U	46.2	92	43-142
96-12-8	PS 1,2-Dibromo-3-chloropropane	50.0	0.00 U	53.2	106	62-141
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	43.3	87	40-147
91-20-3	PS Naphthalene	50.0	0.00 U	52.3	105	62-134
87-61-6	PS 1,2,3-Trichlorobenzene	50.0	0.00 U	46.1	92	52-135

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-2017

Sample Type: Post Spike

Client ID: CAPA-17-139144PS

Matrix: W

Lab Sample ID 1203839378

Instrument: VOA6.I

Analysis Date: 07/26/2017 18:59

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	44.7	89	50-133
630-20-6	PS 1,1,1,2-Tetrachloroethane	50.0	0.00 U	52.7	105	71-133
95-50-1	PS 1,2-Dichlorobenzene	50.0	0.00 U	47.0	94	60-125
71-36-3	PS n-Butyl alcohol	5000	0.00 U	5230	105	60-140

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-2017

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-139144PSD

Matrix: W

Lab Sample ID 1203839380

Instrument: VOA6.I

Analysis Date: 07/26/2017 19:26

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	90.7	91	59-132	3	0-20
75-05-8	PSD Acetonitrile	1250	0.00 U	1150	92	56-131	2	0-20
67-64-1	PSD Acetone	250	0.00 U	153	61	25-155	2	0-20
74-88-4	PSD Iodomethane	250	0.00 U	225	90	66-133	2	0-20
75-15-0	PSD Carbon disulfide	250	0.00 U	230	92	61-141	3	0-20
108-05-4	PSD Vinyl acetate	250	0.00 U	259	104	48-133	1	0-20
78-93-3	PSD 2-Butanone	250	0.00 U	167	67	25-143	4	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00 U	246	98	61-127	4	0-20
591-78-6	PSD 2-Hexanone	250	0.00 U	185	74	33-138	5	0-20
75-71-8	PSD Dichlorodifluoromethane	50.0	0.00 U	35.0	70	33-164	6	0-20
74-87-3	PSD Chloromethane	50.0	0.00 U	41.7	83	53-139	4	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00 U	42.7	85	58-140	3	0-20
74-83-9	PSD Bromomethane	50.0	0.00 U	48.6	97	59-146	4	0-20
75-00-3	PSD Chloroethane	50.0	0.00 U	42.8	86	65-129	3	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00 U	41.9	84	65-141	5	0-20
60-29-7	PSD Ethyl ether	50.0	0.00 U	45.7	91	69-127	1	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00 U	44.4	89	59-130	2	0-20
75-09-2	PSD Methylene chloride	50.0	0.00 U	44.0	88	62-123	1	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.00 U	50.0	100	69-132	2	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00 U	47.5	95	65-127	1	0-20
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00 U	47.5	95	67-127	1	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00 U	49.0	98	69-127	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-2017

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-139144PSD

Matrix: W

Lab Sample ID 1203839380

Instrument: VOA6.I

Analysis Date: 07/26/2017 19:26

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	46.9	94	66-137	2	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00 U	49.0	98	71-130	0	0-20
67-66-3	PSD Chloroform	50.0	0.00 U	47.3	95	71-129	2	0-20
71-55-6	PSD 1,1,1-Trichloroethane	50.0	0.00 U	46.3	93	69-139	2	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00 U	45.8	92	67-130	3	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00 U	48.4	97	66-143	2	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00 U	47.4	95	69-130	1	0-20
71-43-2	PSD Benzene	50.0	0.00 U	47.1	94	66-125	2	0-20
79-01-6	PSD Trichloroethylene	50.0	0.00 U	47.1	94	65-131	3	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00 U	48.8	98	67-127	1	0-20
74-95-3	PSD Dibromomethane	50.0	0.00 U	49.2	98	72-129	1	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00 U	52.7	105	70-138	0	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00 U	51.9	104	70-134	0	0-20
108-88-3	PSD Toluene	50.0	0.00 U	46.2	92	60-126	2	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00 U	53.6	107	69-135	1	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00 U	49.5	99	66-125	0	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00 U	48.5	97	67-124	1	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.00 U	43.4	87	60-130	4	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00 U	47.9	96	68-143	1	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00 U	52.9	106	71-127	1	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00 U	46.3	93	64-124	2	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00 U	45.9	92	61-130	4	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 7 of 8

SDG Number: 2017-2017

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-139144PSD

Matrix: W

Lab Sample ID 1203839380

Instrument: VOA6.I

Analysis Date: 07/26/2017 19:26

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	46.5	93	62-131	3	0-20
100-42-5	PSD Styrene	50.0	0.00 U	49.7	99	59-135	2	0-20
75-25-2	PSD Bromoform	50.0	0.00 U	60.9	122	64-138	5	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00 U	47.7	95	55-133	3	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00 U	51.7	103	62-129	4	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00 U	50.6	101	70-124	2	0-20
108-86-1	PSD Bromobenzene	50.0	0.00 U	47.6	95	62-124	2	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00 U	45.5	91	50-133	4	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00 U	47.0	94	53-135	3	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00 U	46.7	93	56-128	3	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00 U	46.0	92	53-130	3	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00 U	47.9	96	55-135	3	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00 U	47.1	94	53-132	3	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00 U	46.7	93	50-138	4	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00 U	45.7	91	49-138	4	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00 U	44.6	89	56-126	3	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00 U	44.0	88	55-125	3	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00 U	44.1	88	43-142	5	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00 U	55.2	110	62-141	4	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00 U	42.1	84	40-147	3	0-20
91-20-3	PSD Naphthalene	50.0	0.00 U	53.5	107	62-134	2	0-20
87-61-6	PSD 1,2,3-Trichlorobenzene	50.0	0.00 U	46.2	92	52-135	0	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 8 of 8

SDG Number: 2017-2017

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-139144PSD

Matrix: W

Lab Sample ID 1203839380

Instrument: VOA6.I

Analysis Date: 07/26/2017 19:26

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	44.9	90	50-133	1	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	52.6	105	71-133	0	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	46.4	93	60-125	1	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00 U	5410	108	60-140	3	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 2017-2017

Sample Type: Post Spike

Client ID: CAPA-17-139144PS

Matrix: W

Lab Sample ID 1203839379

Instrument: VOA6.I

Analysis Date: 07/26/2017 19:55

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	271	108	49-141
76-13-1	PS Trichlorotrifluoroethane	250	0.00 U	243	97	57-149
107-05-1	PS Allyl chloride	250	0.00 U	231	93	54-128
107-13-1	PS Acrylonitrile	250	0.00 U	262	105	59-129
107-12-0	PS Propionitrile	250	0.00 U	264	106	58-131
126-98-7	PS Methacrylonitrile	250	0.00 U	263	105	59-134
80-62-6	PS Methyl methacrylate	250	0.00 U	263	105	62-135
97-63-2	PS Ethyl methacrylate	250	0.00 U	251	100	60-136
78-83-1	PS Isobutyl alcohol	2500	0.00 U	2710	108	60-143
126-99-8	PS 2-Chloro-1,3-butadiene	50.0	0.00 U	43.7	87	63-146

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 2017-2017

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-139144PSD

Matrix: W

Lab Sample ID 1203839381

Instrument: VOA6.I

Analysis Date: 07/26/2017 20:23

Dilution: 1

Analyst: JP1

Purge Vol: 5 mL

Batch ID: 1685732

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	257	103	49-141	5	0-20
76-13-1	PSD Trichlorotrifluoroethane	250	0.00 U	247	99	57-149	2	0-20
107-05-1	PSD Allyl chloride	250	0.00 U	234	93	54-128	1	0-20
107-13-1	PSD Acrylonitrile	250	0.00 U	254	102	59-129	3	0-20
107-12-0	PSD Propionitrile	250	0.00 U	255	102	58-131	4	0-20
126-98-7	PSD Methacrylonitrile	250	0.00 U	256	102	59-134	3	0-20
80-62-6	PSD Methyl methacrylate	250	0.00 U	257	103	62-135	2	0-20
97-63-2	PSD Ethyl methacrylate	250	0.00 U	248	99	60-136	1	0-20
78-83-1	PSD Isobutyl alcohol	2500	0.00 U	2560	102	60-143	6	0-20
126-99-8	PSD 2-Chloro-1,3-butadiene	50.0	0.00 U	44.2	88	63-146	1	0-20

Method Blank Summary

Page 1 of 1

SDG Number: 2017-2017

Client: ARSL004

Matrix: WATER

Client ID: MB for batch 1685732

Instrument ID: VOA6.I

Data File: 072617V6\6R308BA.D

Lab Sample ID: 1203839372

Prep Date: 07/26/2017 12:56

Analyzed: 07/26/17 12:56

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 1685732	1203839374	072617V6\6R303LA.D	07/26/17	1037
02 LCS for batch 1685732	1203839375	072617V6\6R306LA.D	07/26/17	1200
03 CAPA-17-139144	428364001	072617V6\6R319.D	07/26/17	1804
04 CAPA-17-139144PS	1203839378	072617V6\6R321.D	07/26/17	1859
05 CAPA-17-139144PSD	1203839380	072617V6\6R322.D	07/26/17	1926
06 CAPA-17-139144PS	1203839379	072617V6\6R323.D	07/26/17	1955
07 CAPA-17-139144PSD	1203839381	072617V6\6R324.D	07/26/17	2023

Method Blank Summary

Page 1 of 1

SDG Number:	2017-2017	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1685732	Instrument ID:	VOA6.I	Data File:	072717V6\6R406BA.D
Lab Sample ID:	1203839373	Prep Date:	07/27/2017 12:29	Analyzed:	07/27/17 12:29
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
09 LCS for batch 1685732	1203839377	072717V6\6R405LA.D	07/27/17	1201
10 CAPA-17-139157	428364002	072717V6\6R407.D	07/27/17	1256
11 CAPA-17-139150	428364003	072717V6\6R408.D	07/27/17	1324
12 CAPA-17-139163	428364004	072717V6\6R409.D	07/27/17	1352

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-2017

Matrix: WATER

Lab Sample ID: 1203839372

Client Sample: QC for batch 1685732

Client: ARSL004

Project: QC

Client ID: MB for batch 1685732

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1685732

Inst: VOA6.I

Dilution: 1

Run Date: 07/26/2017 12:56

Analyst: JP1

Purge Vol: 5 mL

Prep Date: 07/26/2017 12:56

Data File: 072617V6\6R308BA.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	J	0.300	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: 2017-2017

Lab Sample ID: 1203839372

Client Sample: QC for batch 1685732

Client ID: MB for batch 1685732

Batch ID: 1685732

Run Date: 07/26/2017 12:56

Prep Date: 07/26/2017 12:56

Data File: 072617V6\6R308BA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	J	0.380	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: 2017-2017	Matrix: WATER	
Lab Sample ID: 1203839372		
Client Sample: QC for batch 1685732	Client: ARSL004	Project: QC
Client ID: MB for batch 1685732	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1685732	Inst: VOA6.I	Dilution: 1
Run Date: 07/26/2017 12:56	Analyst: JP1	Purge Vol: 5 mL
Prep Date: 07/26/2017 12:56		
Data File: 072617V6\6R308BA.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	50.3	50.0	ug/L 101	(71%-134%)
Bromofluorobenzene	53.8	50.0	ug/L 108	(70%-131%)
Toluene-d8	51.8	50.0	ug/L 104	(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: 2017-2017

Lab Sample ID: 1203839373

Client Sample: QC for batch 1685732

Client ID: MB for batch 1685732

Batch ID: 1685732

Run Date: 07/27/2017 12:29

Prep Date: 07/27/2017 12:29

Data File: 072717V6\6R406BA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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	0.440	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: 2017-2017

Matrix: WATER

Lab Sample ID: 1203839373

Client Sample: QC for batch 1685732

Client: ARSL004

Project: QC

Client ID: MB for batch 1685732

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1685732

Inst: VOA6.I

Dilution: 1

Run Date: 07/27/2017 12:29

Analyst: JP1

Purge Vol: 5 mL

Prep Date: 07/27/2017 12:29

Data File: 072717V6\6R406BA.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	J	0.490	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: 2017-2017	Matrix: WATER
Lab Sample ID: 1203839373	
Client Sample: QC for batch 1685732	Client: ARSL004
Client ID: MB for batch 1685732	Method: SW-846:8260B
Batch ID: 1685732	Inst: VOA6.I
Run Date: 07/27/2017 12:29	Analyst: JP1
Prep Date: 07/27/2017 12:29	Purge Vol: 5 mL
Data File: 072717V6\6R406BA.D	Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.3	50.0	ug/L 89	(71%-134%)
Bromofluorobenzene	47.8	50.0	ug/L 96	(70%-131%)
Toluene-d8	47.0	50.0	ug/L 94	(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: 2017-2017

Lab Sample ID: 1203839374

Client Sample: QC for batch 1685732

Client ID: LCS for batch 1685732

Batch ID: 1685732

Run Date: 07/26/2017 10:37

Prep Date: 07/26/2017 10:37

Data File: 072617V6\6R303LA.D

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		44.6	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		40.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		44.3	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		40.6	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		39.1	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		41.0	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	B	45.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.9	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.7	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		43.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		55.4	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		47.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		42.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		40.4	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		42.8	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		41.2	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		42.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		41.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		43.1	ug/L	0.300	1.00
78-93-3	2-Butanone		271	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		42.3	ug/L	0.300	1.00
591-78-6	2-Hexanone		291	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		42.3	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		41.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		262	ug/L	1.50	5.00
67-64-1	Acetone		267	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		41.8	ug/L	0.300	1.00
108-86-1	Bromobenzene		42.0	ug/L	0.300	1.00
74-97-5	Bromochloromethane		42.5	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		45.5	ug/L	0.300	1.00
75-25-2	Bromoform		53.4	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-2017

Lab Sample ID: 1203839374

Client Sample: QC for batch 1685732

Client ID: LCS for batch 1685732

Batch ID: 1685732

Run Date: 07/26/2017 10:37

Prep Date: 07/26/2017 10:37

Data File: 072617V6\6R303LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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		42.6	ug/L	0.300	1.00
75-15-0	Carbon disulfide		201	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		42.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		41.3	ug/L	0.300	1.00
75-00-3	Chloroethane		46.2	ug/L	0.300	1.00
67-66-3	Chloroform		40.0	ug/L	0.300	1.00
74-87-3	Chloromethane		47.1	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		41.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		43.3	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		41.6	ug/L	0.300	1.00
60-29-7	Ethyl ether		49.2	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		42.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	B	41.8	ug/L	0.300	1.00
74-88-4	Iodomethane		195	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		43.7	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		37.3	ug/L	1.00	10.0
91-20-3	Naphthalene		53.2	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		46.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		39.4	ug/L	0.300	1.00
108-88-3	Toluene		41.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		42.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		46.3	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		312	ug/L	1.50	5.00
75-01-4	Vinyl chloride		48.0	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		42.3	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		46.6	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		84.1	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		6040	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		43.5	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		42.5	ug/L	0.300	1.00
95-47-6	o-Xylene		42.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		43.5	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-2017	Matrix:	WATER
Lab Sample ID:	1203839374		
Client Sample:	QC for batch 1685732	Client:	ARSL004
Client ID:	LCS for batch 1685732	Method:	SW-846:8260B
Batch ID:	1685732	Inst:	VOA6.I
Run Date:	07/26/2017 10:37	Analyst:	JP1
Prep Date:	07/26/2017 10:37		
Data File:	072617V6\6R303LA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		45.1	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		43.7	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		41.0	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.4	50.0	ug/L 103	(71%-134%)
Bromofluorobenzene	53.9	50.0	ug/L 108	(70%-131%)
Toluene-d8	52.0	50.0	ug/L 104	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-2017

Lab Sample ID: 1203839375

Client Sample: QC for batch 1685732

Client ID: LCS for batch 1685732

Batch ID: 1685732

Run Date: 07/26/2017 12:00

Prep Date: 07/26/2017 12:00

Data File: 072617V6\6R306LA.D

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Client: ARSL004

Method: SW-846:8260B

Inst: VOA6.I

Analyst: JP1

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		45.4	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		294	ug/L	1.50	5.00
107-13-1	Acrylonitrile		275	ug/L	1.50	5.00
107-05-1	Allyl chloride		238	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: 2017-2017

Matrix: WATER

Lab Sample ID: 1203839375

Client Sample: QC for batch 1685732

Client: ARSL004

Project: QC

Client ID: LCS for batch 1685732

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1685732

Inst: VOA6.I

Dilution: 1

Run Date: 07/26/2017 12:00

Analyst: JP1

Purge Vol: 5 mL

Prep Date: 07/26/2017 12:00

Data File: 072617V6\6R306LA.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		270	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		2930	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		275	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		282	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		281	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		253	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:	2017-2017	Matrix:	WATER
Lab Sample ID:	1203839375		
Client Sample:	QC for batch 1685732	Client:	ARSL004
Client ID:	LCS for batch 1685732	Method:	SW-846:8260B
Batch ID:	1685732	Inst:	VOA6.I
Run Date:	07/26/2017 12:00	Analyst:	JP1
Prep Date:	07/26/2017 12:00	Purge Vol:	5 mL
Data File:	072617V6\6R306LA.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	47.3	50.0	95	(71%-134%)
Bromofluorobenzene	49.6	50.0	99	(70%-131%)
Toluene-d8	47.7	50.0	95	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-2017

Matrix: WATER

Lab Sample ID: 1203839377

Client Sample: QC for batch 1685732

Client: ARSL004

Project: QC

Client ID: LCS for batch 1685732

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1685732

Inst: VOA6.I

Dilution: 1

Run Date: 07/27/2017 12:01

Analyst: JP1

Purge Vol: 5 mL

Prep Date: 07/27/2017 12:01

Data File: 072717V6\6R405LA.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		45.0	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		260	ug/L	1.50	5.00
107-13-1	Acrylonitrile		237	ug/L	1.50	5.00
107-05-1	Allyl chloride		231	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: 2017-2017

Matrix: WATER

Lab Sample ID: 1203839377

Client Sample: QC for batch 1685732

Client: ARSL004

Project: QC

Client ID: LCS for batch 1685732

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1685732

Inst: VOA6.I

Dilution: 1

Run Date: 07/27/2017 12:01

Analyst: JP1

Purge Vol: 5 mL

Prep Date: 07/27/2017 12:01

Data File: 072717V6\6R405LA.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		240	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		2370	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		240	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		244	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		234	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		253	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: 2017-2017		Matrix: WATER
Lab Sample ID: 1203839377		
Client Sample: QC for batch 1685732	Client: ARSL004	Project: QC
Client ID: LCS for batch 1685732	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1685732	Inst: VOA6.I	Dilution: 1
Run Date: 07/27/2017 12:01	Analyst: JP1	Purge Vol: 5 mL
Prep Date: 07/27/2017 12:01		
Data File: 072717V6\6R405LA.D	Column: DB-624	

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.2	50.0	92	(71%-134%)
Bromofluorobenzene	49.5	50.0	99	(70%-131%)
Toluene-d8	48.0	50.0	96	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-2017	Date Collected: 07/18/2017 10:44	Matrix: W
Lab Sample ID: 1203839378	Date Received: 07/20/2017 09:10	
Client Sample: QC for batch 1685732	Client: ARSL004	Project: QC
Client ID: CAPA-17-139144PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1685732	Inst: VOA6.I	Dilution: 1
Run Date: 07/26/2017 18:59	Analyst: JP1	Purge Vol: 5 mL
Prep Date: 07/26/2017 18:59		
Data File: 072617V6\6R321.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		52.7	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		47.3	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		49.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		49.5	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		48.2	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		45.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		47.1	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	B	46.1	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		49.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.7	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		48.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		53.2	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		52.2	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		49.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		48.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.0	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		48.1	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		45.5	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		48.0	ug/L	0.300	1.00
78-93-3	2-Butanone		160	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		48.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		176	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		47.3	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		47.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		235	ug/L	1.50	5.00
67-64-1	Acetone		150	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		48.0	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.5	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.0	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:	2017-2017	Date Collected:	07/18/2017 10:44	Matrix:	W
Lab Sample ID:	1203839378	Date Received:	07/20/2017 09:10		
Client Sample:	QC for batch 1685732	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-139144PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1685732	Inst:	VOA6.I	Dilution:	1
Run Date:	07/26/2017 18:59	Analyst:	JP1	Purge Vol:	5 mL
Prep Date:	07/26/2017 18:59				
Data File:	072617V6\6R321.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		50.6	ug/L	0.300	1.00
75-15-0	Carbon disulfide		237	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		49.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.1	ug/L	0.300	1.00
75-00-3	Chloroethane		44.3	ug/L	0.300	1.00
67-66-3	Chloroform		48.1	ug/L	0.300	1.00
74-87-3	Chloromethane		43.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		47.2	ug/L	0.300	1.00
74-95-3	Dibromomethane		48.5	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		37.3	ug/L	0.300	1.00
60-29-7	Ethyl ether		45.4	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		47.6	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	B	43.3	ug/L	0.300	1.00
74-88-4	Iodomethane		229	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		49.3	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		44.2	ug/L	1.00	10.0
91-20-3	Naphthalene		52.3	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		50.9	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		45.1	ug/L	0.300	1.00
108-88-3	Toluene		47.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		48.7	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		44.0	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		256	ug/L	1.50	5.00
75-01-4	Vinyl chloride		44.0	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		49.6	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		51.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		93.8	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5230	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		46.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		47.2	ug/L	0.300	1.00
95-47-6	o-Xylene		48.1	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		48.6	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2017-2017	Date Collected:	07/18/2017 10:44	Matrix:	W
Lab Sample ID:	1203839378	Date Received:	07/20/2017 09:10		
Client Sample:	QC for batch 1685732	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-139144PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1685732	Inst:	VOA6.I	Dilution:	1
Run Date:	07/26/2017 18:59	Analyst:	JP1	Purge Vol:	5 mL
Prep Date:	07/26/2017 18:59				
Data File:	072617V6\6R321.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		48.9	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.3	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.9	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		52.9	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.9	50.0	102	(71%-134%)
Bromofluorobenzene	53.6	50.0	107	(70%-131%)
Toluene-d8	52.4	50.0	105	(74%-124%)

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-2017	Date Collected:	07/18/2017 10:44	Matrix:	W
Lab Sample ID:	1203839379	Date Received:	07/20/2017 09:10		
Client Sample:	QC for batch 1685732	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-139144PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1685732	Inst:	VOA6.I	Dilution:	1
Run Date:	07/26/2017 19:55	Analyst:	JP1	Purge Vol:	5 mL
Prep Date:	07/26/2017 19:55				
Data File:	072617V6\6R323.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		43.7	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		271	ug/L	1.50	5.00
107-13-1	Acrylonitrile		262	ug/L	1.50	5.00
107-05-1	Allyl chloride		231	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: 2017-2017	Date Collected: 07/18/2017 10:44	Matrix: W
Lab Sample ID: 1203839379	Date Received: 07/20/2017 09:10	
Client Sample: QC for batch 1685732	Client: ARSL004	Project: QC
Client ID: CAPA-17-139144PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1685732	Inst: VOA6.I	Dilution: 1
Run Date: 07/26/2017 19:55	Analyst: JP1	Purge Vol: 5 mL
Prep Date: 07/26/2017 19:55		
Data File: 072617V6\6R323.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		251	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		2710	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		263	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		263	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		264	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		243	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:	2017-2017	Date Collected:	07/18/2017 10:44	Matrix:	W
Lab Sample ID:	1203839379	Date Received:	07/20/2017 09:10		
Client Sample:	QC for batch 1685732	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-139144PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1685732	Inst:	VOA6.I	Dilution:	1
Run Date:	07/26/2017 19:55	Analyst:	JP1	Purge Vol:	5 mL
Prep Date:	07/26/2017 19:55				
Data File:	072617V6\6R323.D	Column:	DB-624		

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.1	50.0	94	(71%-134%)
Bromofluorobenzene	49.0	50.0	98	(70%-131%)
Toluene-d8	47.0	50.0	94	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2017-2017	Date Collected: 07/18/2017 10:44	Matrix: W
Lab Sample ID: 1203839380	Date Received: 07/20/2017 09:10	
Client Sample: QC for batch 1685732	Client: ARSL004	Project: QC
Client ID: CAPA-17-139144PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1685732	Inst: VOA6.I	Dilution: 1
Run Date: 07/26/2017 19:26	Analyst: JP1	Purge Vol: 5 mL
Prep Date: 07/26/2017 19:26		
Data File: 072617V6\6R322.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		52.6	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		46.3	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		51.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		49.5	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		47.5	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		44.4	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		45.8	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	B	46.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.6	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		47.1	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		55.2	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		52.9	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		46.4	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.4	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.8	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		47.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		44.6	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		48.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		44.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		46.9	ug/L	0.300	1.00
78-93-3	2-Butanone		167	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		46.7	ug/L	0.300	1.00
591-78-6	2-Hexanone		185	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		46.0	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		45.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		246	ug/L	1.50	5.00
67-64-1	Acetone		153	ug/L	1.50	10.0
75-05-8	Acetonitrile		1150	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		47.1	ug/L	0.300	1.00
108-86-1	Bromobenzene		47.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.0	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		52.7	ug/L	0.300	1.00
75-25-2	Bromoform		60.9	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-2017	Date Collected:	07/18/2017 10:44	Matrix:	W
Lab Sample ID:	1203839380	Date Received:	07/20/2017 09:10		
Client Sample:	QC for batch 1685732	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-139144PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1685732	Inst:	VOA6.I	Dilution:	1
Run Date:	07/26/2017 19:26	Analyst:	JP1	Purge Vol:	5 mL
Prep Date:	07/26/2017 19:26				
Data File:	072617V6\6R322.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		48.6	ug/L	0.300	1.00
75-15-0	Carbon disulfide		230	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		48.4	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.3	ug/L	0.300	1.00
75-00-3	Chloroethane		42.8	ug/L	0.300	1.00
67-66-3	Chloroform		47.3	ug/L	0.300	1.00
74-87-3	Chloromethane		41.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		47.9	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.2	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		35.0	ug/L	0.300	1.00
60-29-7	Ethyl ether		45.7	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		45.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	B	42.1	ug/L	0.300	1.00
74-88-4	Iodomethane		225	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		47.7	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		44.0	ug/L	1.00	10.0
91-20-3	Naphthalene		53.5	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		49.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		43.4	ug/L	0.300	1.00
108-88-3	Toluene		46.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		47.1	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		41.9	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		259	ug/L	1.50	5.00
75-01-4	Vinyl chloride		42.7	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		49.0	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		51.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		90.7	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5410	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		44.1	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		45.5	ug/L	0.300	1.00
95-47-6	o-Xylene		46.5	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		46.7	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-2017	Date Collected:	07/18/2017 10:44	Matrix:	W
Lab Sample ID:	1203839380	Date Received:	07/20/2017 09:10		
Client Sample:	QC for batch 1685732	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-139144PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1685732	Inst:	VOA6.I	Dilution:	1
Run Date:	07/26/2017 19:26	Analyst:	JP1	Purge Vol:	5 mL
Prep Date:	07/26/2017 19:26				
Data File:	072617V6\6R322.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		50.0	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		47.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.5	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		53.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.0	50.0	92	(71%-134%)
Bromofluorobenzene	48.6	50.0	97	(70%-131%)
Toluene-d8	47.4	50.0	95	(74%-124%)

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2017-2017	Date Collected:	07/18/2017 10:44	Matrix:	W
Lab Sample ID:	1203839381	Date Received:	07/20/2017 09:10		
Client Sample:	QC for batch 1685732	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-139144PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1685732	Inst:	VOA6.I	Dilution:	1
Run Date:	07/26/2017 20:23	Analyst:	JP1	Purge Vol:	5 mL
Prep Date:	07/26/2017 20:23				
Data File:	072617V6\6R324.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		44.2	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		257	ug/L	1.50	5.00
107-13-1	Acrylonitrile		254	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:	2017-2017	Date Collected:	07/18/2017 10:44	Matrix:	W
Lab Sample ID:	1203839381	Date Received:	07/20/2017 09:10		
Client Sample:	QC for batch 1685732	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-139144PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1685732	Inst:	VOA6.I	Dilution:	1
Run Date:	07/26/2017 20:23	Analyst:	JP1	Purge Vol:	5 mL
Prep Date:	07/26/2017 20:23				
Data File:	072617V6\6R324.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		248	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		2560	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		256	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		257	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		255	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		247	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:	2017-2017	Date Collected:	07/18/2017 10:44	Matrix:	W
Lab Sample ID:	1203839381	Date Received:	07/20/2017 09:10		
Client Sample:	QC for batch 1685732	Client:	ARSL004	Project:	QC
Client ID:	CAPA-17-139144PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1685732	Inst:	VOA6.I	Dilution:	1
Run Date:	07/26/2017 20:23	Analyst:	JP1	Purge Vol:	5 mL
Prep Date:	07/26/2017 20:23				
Data File:	072617V6\6R324.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	45.8	50.0	92	(71%-134%)
Bromofluorobenzene	49.5	50.0	99	(70%-131%)
Toluene-d8	47.6	50.0	95	(74%-124%)