

The order of this data package is as follows:

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

Comments:

[illegible]

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAPA-17-130723

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	04/04/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1056	OK	MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	158	
LOCATION ID:	R-53 S1		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	REG	
TOP DEPTH:	↓		SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	↓	↓	EXCAVATED:		YES / NO / <del>NA</del>

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

SAMPLE COMMENTS: nae

LOCATION COMMENTS: Sampled 50 ft from running drill generator

## FIELD PARAMETERS:

Dissolved Oxygen	<u>6.31</u>	mg/L	Flow (in gpm)	<u>3.84</u>	GPM	Oxidation-Reduction Potential	<u>127.5</u>	mV
pH	<u>7.98</u>	SU	Specific Conductance	<u>125.1</u>	uS/cm	Temperature	<u>20.3</u>	deg C
Turbidity	<u>0.20</u>	NTU						

COLLECTED BY (PRINT): W. Pryce

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 04/04/17 1335	RECEIVED BY (Printed Name) (Signature)	Date/Time 4/4/17 1335
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 03/27/2017



## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAPA-17-130724

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	04/04/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1251	OK	MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	GSR	
LOCATION ID:	R-53 S2		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	REG	
TOP DEPTH:	↓		SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	↓	↓	EXCAVATED:		YES / NO / <input checked="" type="checkbox"/> NA

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

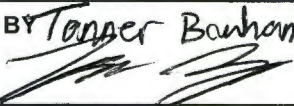
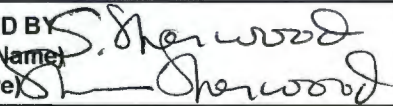
SAMPLE COMMENTS: none

LOCATION COMMENTS: Sampled 50 ft from running diesel generator

## FIELD PARAMETERS:

Dissolved Oxygen	<u>6.40</u>	mg/L	Flow (in gpm)	<u>3.9</u>	GPM	Oxidation-Reduction Potential	<u>1546</u>	mV
pH	<u>4.15</u>	SU	Specific Conductance	<u>122.7</u>	uS/cm	Temperature	<u>20.3</u>	deg C
Turbidity	<u>0.11</u>	NTU						

COLLECTED BY (PRINT): T. Bankham

RELINQUISHED BY (Printed Name) (Signature)	Tanner Bankham 	Date/Time 4/4/17 1335	RECEIVED BY (Printed Name) (Signature)	S. Sherwood 	Date/Time 4/4/17 1335
RELINQUISHED BY (Printed Name) (Signature)		Date/Time	RECEIVED BY (Printed Name) (Signature)		Date/Time

Report Date: 03/27/2017

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAPA-17-130747

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	04/04/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1056	OK	MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	DL	
LOCATION ID:	R-53 S1		FIELD PREP:	UF	
LOCATION TYPE:	M		FIELD QC TYPE:	FTB	
TOP DEPTH:			SAMPLE USAGE:	QC	
BOTTOM DEPTH:			EXCAVATED:		YES / NO <del>NA</del>

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

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): T. Bertram

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 4/4/17 1335	RECEIVED BY (Printed Name) (Signature)	Date/Time 4/4/17 1335
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 03/27/2017

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAPA-17-130748

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	04/04/2017	ck	FIELD MATRIX:	WG	ck
TIME COLLECTED (HH:MM):	1251	ck	MEDIA:	UA	
PRS ID:	NA		SAMPLE TECH CODE:	DC	
LOCATION ID:	R-53 S2		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	FTB	
TOP DEPTH:			SAMPLE USAGE:	QC	
BOTTOM DEPTH:			EXCAVATED:		YES / NO <del>NA</del>

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B- VOA	40 ML SEPTUM AMBER GLASS	AS 4417 21	HCL	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): W. Sanchez

RELINQUISHED BY (Printed Name) Wayne Sanchez (Signature) <i>Wayne Sanchez</i>	Date/Time 4/4/17 1335	RECEIVED BY (Printed Name) S. Sherwood (Signature) <i>S. Sherwood</i>	Date/Time 4/4/17 1335
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 03/27/2017



## DATA VALIDATION REPORT

Chain Of Custody No. 2017-1308

### 1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
419962	EPA:170.0	2		2		
419962	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
419962	EPA:170.0	NA	NA	2		2															
419962	SW-846:8260B	1655646	1655646	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-17-130723	419962001	REG	1	0	0	0
EPA:170.0	VOC	CAPA-17-130724	419962003	REG	1	0	0	0
EPA:170.0	VOC	CAPA-17-130747	419962002	FTB	1	0	0	0
EPA:170.0	VOC	CAPA-17-130748	419962004	FTB	1	0	0	0
SW-846:8260B	VOC	CAPA-17-130723	419962001	REG	80	3	0	0
SW-846:8260B	VOC	CAPA-17-130724	419962003	REG	80	3	0	0
SW-846:8260B	VOC	CAPA-17-130747	419962002	FTB	80	3	0	0
SW-846:8260B	VOC	CAPA-17-130748	419962004	FTB	80	3	0	0
SW-846:8260B	VOC	LCS	1203766807	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203766808	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1203767491	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203767492	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203766806	MB	80	3	0	0
SW-846:8260B	VOC	MB	1203767490	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?

No.

6. Any surrogate recoveries outside the control limits?

No.

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

No.

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

LCS Lab Sample	LCSD Lab	Analytical Method	Parameter Name	Lab Lot ID	Analysis	Sample Matrix	LCS Spike Recovery	LCSD Spike Recovery	Upper Limit	Lower Limit	Upper Rejection Limit	Lower Rejection Limit	RPD	RPD Limit
1203766807		SW-846:8260B	Acetone	1655646	04-12-2017	W	47		157	48		10		
1203766807		SW-846:8260B	Carbon Disulfide	1655646	04-12-2017	W	68		138	69		10		

9. Any Field Duplicate RPDs outside the desired limits?

No.



## DATA VALIDATION REPORT

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	Paramter 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-53 S1	2017-1308	CAPA-17-130723	REG	INIT	VOC	SW-846:8260B	Acetone	U	UJ	V12a	N	10.0	ug/L	10.0	ug/L			W	04/04/2017		1655646	VAL	Y
R-53 S1	2017-1308	CAPA-17-130723	REG	INIT	VOC	SW-846:8260B	Carbon Disulfide	U	UJ	V12a	N	5.00	ug/L	5.00	ug/L			W	04/04/2017		1655646	VAL	Y
R-53 S2	2017-1308	CAPA-17-130724	REG	INIT	VOC	SW-846:8260B	Acetone	U	UJ	V12a	N	10.0	ug/L	10.0	ug/L			W	04/04/2017		1655646	VAL	Y
R-53 S2	2017-1308	CAPA-17-130724	REG	INIT	VOC	SW-846:8260B	Carbon Disulfide	U	UJ	V12a	N	5.00	ug/L	5.00	ug/L			W	04/04/2017		1655646	VAL	Y
R-53 S1	2017-1308	CAPA-17-130747	FTB	INIT	VOC	SW-846:8260B	Acetone	U	UJ	V12a	N	10.0	ug/L	10.0	ug/L			W	04/04/2017		1655646	VAL	Y
R-53 S1	2017-1308	CAPA-17-130747	FTB	INIT	VOC	SW-846:8260B	Carbon Disulfide	U	UJ	V12a	N	5.00	ug/L	5.00	ug/L			W	04/04/2017		1655646	VAL	Y
R-53 S2	2017-1308	CAPA-17-130748	FTB	INIT	VOC	SW-846:8260B	Acetone	U	UJ	V12a	N	10.0	ug/L	10.0	ug/L			W	04/04/2017		1655646	VAL	Y
R-53 S2	2017-1308	CAPA-17-130748	FTB	INIT	VOC	SW-846:8260B	Carbon Disulfide	U	UJ	V12a	N	5.00	ug/L	5.00	ug/L			W	04/04/2017		1655646	VAL	Y

### Reason Code

### Description

NQ	The analytical laboratory did not qualify the analyte as not detected and/or any other standard qualify. The analyte is detected in the sample.
U_LAB	The analytical laboratory qualified the analyte as not detected.
V12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.

14. Usable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAPA-17-130723	R-53 S1	REG	EPA:170.0	0	1
CAPA-17-130723	R-53 S1	REG	SW-846:8260B	0	80

## DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAPA-17-130724	R-53 S2	REG	EPA:170.0	0	1
CAPA-17-130724	R-53 S2	REG	SW-846:8260B	0	80
CAPA-17-130747	R-53 S1	FTB	EPA:170.0	0	1
CAPA-17-130747	R-53 S1	FTB	SW-846:8260B	0	80
CAPA-17-130748	R-53 S2	FTB	EPA:170.0	0	1
CAPA-17-130748	R-53 S2	FTB	SW-846:8260B	0	80

April 26, 2017

[gel.com](http://gel.com)

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

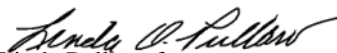
Re: LANL- WQH Water Samples  
Work Order: 419962  
SDG: 2017-1308

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on April 06, 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,

  
Linda Pullano for  
Valerie Davis  
Project Manager

Chain of Custody: 2017-1308  
Enclosures



**ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)**  
**LANL- WQH Water Samples**  
**Work Order #: 419962**  
**SDG: 2017-1308**



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# Case Narrative

**Case Narrative for  
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)  
LANL- WQH Water Samples  
Workorder #: 419962  
SDG # : 2017-1308**

**April 26, 2017**

**Laboratory Identification:**

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

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on April 06, 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:

<b><u>Laboratory ID</u></b>	<b><u>Client ID</u></b>
419962001	CAPA-17-130723
419962002	CAPA-17-130747
419962003	CAPA-17-130724
419962004	CAPA-17-130748

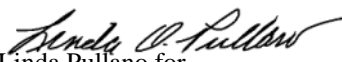
**Case Narrative**

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.

  
Linda Pullano for  
Valerie Davis  
Project Manager



**List of current GEL Certifications as of 26 April 2017**

<b>State</b>	<b>Certification</b>
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122016-21
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

# **Chain of Custody and Supporting Documentation**





Laboratories LLC

## SAMPLE RECEIPT &amp; REVIEW FORM

Client: <u>ESHL</u>		SDG/AR/COC/Work Order: <u>419962</u>	
Received By: <u>ZKW</u>		Date Received: <u>4/6/17</u>	
Carrier and Tracking Number		Circle Applicable: <input checked="" type="radio"/> FedEx Express <input type="radio"/> FedEx Ground <input type="radio"/> UPS <input type="radio"/> Field Services <input type="radio"/> Courier <input type="radio"/> Other	
		<u>5908 1781 9168</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input 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 checked="" type="checkbox"/> No <input type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> <input checked="" type="radio"/> PM / mR/Hr Classified as: Rad 1    Rad 2    Rad 3	
Is package, COC, and/or Samples marked HAZ?	Yes <input checked="" type="checkbox"/> No <input 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	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken    Damaged container    Leaking container    Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Wet Ice <input checked="" type="checkbox"/> Ice Packs    Dry ice    None    Other: _____ *all temperatures are recorded in Celsius <span style="float: right;">TEMP: <u>32</u></span>
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>IR3-16</u> Secondary Temperature Device Serial # (If Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken    Damaged container    Leaking container    Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: _____ If Preservation added, Lot#: _____
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes _____ No <input checked="" type="checkbox"/> (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes <input checked="" type="checkbox"/> No _____ N/A _____ (If unknown, select No) VOA vials free of headspace? Yes <input checked="" type="checkbox"/> No _____ N/A _____ Sample ID's and containers affected: _____
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected: _____
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected: _____
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
12 Are sample containers identifiable as GEL provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials ADDate 4/6/17Page 1 of 1

GL-CHL-SR-001 Rev 5



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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 05APR17  
ACTWGT: 21.0 LB MAN  
CAD: 0014176/CAFE2916

BILL SENDER

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

**CHARLESTON SC 29407**

(843) 558-8171

REF: 21PD0ASRGW04BAGWE0



**FedEx**  
Express



J15137506130114

TRK# 5908 1781 9168  
0201

**THU - 06 APR 10:30A**  
**PRIORITY OVERNIGHT**

**X7 CHSA**

**29407**  
**SC-US CHS**



Part #: 156148V-434 RIT2 06/15 2003

538C2/CF06/3298

# **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 #: 2017-1308  
Work Order #: 419962**

**Method/Analysis Information**

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

Analytical Method: SW-846:8260B

Analytical Batch Number: 1655646

**Sample Analysis**

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

<b>Sample ID</b>	<b>Client ID</b>
419962001	CAPA-17-130723
419962002	CAPA-17-130747
419962003	CAPA-17-130724
419962004	CAPA-17-130748
1203766806	Method Blank (MB)
1203766807	Laboratory Control Sample (LCS)
1203766808	Laboratory Control Sample (LCS)
1203766809	419962001(CAPA-17-130723) Post Spike (PS)
1203766810	419962001(CAPA-17-130723) Post Spike (PS)
1203766811	419962001(CAPA-17-130723) Post Spike Duplicate (PSD)
1203766812	419962001(CAPA-17-130723) 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# 25.

**Calibration Information**

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



**Initial Calibration**

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

**Continuing Calibration Verification Requirements**

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

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

The blank analyzed with this SDG met the acceptance criteria.

**Surrogate Recoveries**

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

**Laboratory Control Sample (LCS) Recovery**

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

Sample	Analyte	Value
1203766807 (LCS)	Acetone	47* (48%-157%)
	Carbon disulfide	68* (69%-138%)

**QC Sample Designation**

Sample 419962001 (CAPA-17-130723) was designated for spike analysis.

**Matrix Spike/Matrix Spike Duplicate Recovery Statement**

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

**Relative Percent Difference (RPD) Statement**

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

**Internal Standard (ISTD) Acceptance**

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

**Technical Information****Holding Time Specifications**

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

**Sample Preservation and Integrity**

All samples met the sample preservation and integrity requirements.

**Sample Dilutions/Methanol Dilutions**

The samples in this SDG did not require dilutions.

**Sample Re-extraction/Re-analysis**

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

## **Miscellaneous Information**

### **Data Exception (DER) Documentation**

A data exception report (DER) 1623600 was generated for sample 1203766807 (LCS) in this SDG/batch.

### **Manual Integrations**

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

### **TIC Comment**

Tentatively identified compounds (TIC) were not required for this SDG.

### **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:

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

## **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: 2017-1308 GEL Work Order: 419962

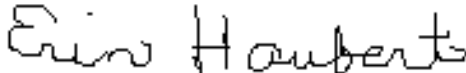
#### The Qualifiers in this report are defined as follows:

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

#### Review/Validation

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

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

Signature: 

Name: Erin Haubert

Date: 03 MAY 2017

Title: Data Validator

# **Sample Data Summary**

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962001

Date Collected: 04/04/2017 10:56

Date Received: 04/06/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-17-130723

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/12/2017 23:50

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/12/2017 23:50

Data File: 041217V1\1D332.D

Column: DB-624

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

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962001

Date Collected: 04/04/2017 10:56

Date Received: 04/06/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/12/2017 23:50

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/12/2017 23:50

Data File: 041217V1\1D332.D

Column: DB-624

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

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962001

Date Collected: 04/04/2017 10:56

Date Received: 04/06/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-17-130723

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/12/2017 23:50

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/12/2017 23:50

Data File: 041217V1\1D332.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	49.7	50.0	ug/L 99	(71%-134%)
Bromofluorobenzene	53.1	50.0	ug/L 106	(70%-131%)
Toluene-d8	50.8	50.0	ug/L 102	(74%-124%)

**Tentatively Identified Compound Summary**

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	26.5	ug/L	0	J

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962002

Date Collected: 04/04/2017 10:56

Date Received: 04/06/2017 09:10

Matrix: W

Client ID: CAPA-17-130747

Batch ID: 1655646

Run Date: 04/13/2017 00:19

Prep Date: 04/13/2017 00:19

Data File: 041217V1\1D333.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Column: DB-624

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



**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962002

Date Collected: 04/04/2017 10:56

Date Received: 04/06/2017 09:10

Matrix: W

Client ID: CAPA-17-130747

Batch ID: 1655646

Run Date: 04/13/2017 00:19

Prep Date: 04/13/2017 00:19

Data File: 041217V1\1D333.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Column: DB-624

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

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962002

Date Collected: 04/04/2017 10:56

Date Received: 04/06/2017 09:10

Matrix: W

Client ID: CAPA-17-130747

Batch ID: 1655646

Run Date: 04/13/2017 00:19

Prep Date: 04/13/2017 00:19

Data File: 041217V1\1D333.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
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	51.3	50.0	ug/L 103	(71%-134%)
Bromofluorobenzene	53.4	50.0	ug/L 107	(70%-131%)
Toluene-d8	51.4	50.0	ug/L 103	(74%-124%)

**Tentatively Identified Compound Summary**

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	13.4	ug/L	0	J
	unknown	19.021	5.29	ug/L	0	J

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962003

Date Collected: 04/04/2017 12:51

Date Received: 04/06/2017 09:10

Matrix: W

Client ID: CAPA-17-130724

Batch ID: 1655646

Run Date: 04/13/2017 00:48

Prep Date: 04/13/2017 00:48

Data File: 041217V1\1D334.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Column: DB-624

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

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962003

Date Collected: 04/04/2017 12:51

Date Received: 04/06/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/13/2017 00:48

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/13/2017 00:48

Data File: 041217V1\1D334.D

Column: DB-624

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

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962003

Date Collected: 04/04/2017 12:51

Date Received: 04/06/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-17-130724

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/13/2017 00:48

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/13/2017 00:48

Data File: 041217V1\1D334.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	51.1	50.0	ug/L 102	(71%-134%)
Bromofluorobenzene	54.3	50.0	ug/L 109	(70%-131%)
Toluene-d8	51.7	50.0	ug/L 103	(74%-124%)

**Tentatively Identified Compound Summary**

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	13.1	ug/L	0	J

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962004

Date Collected: 04/04/2017 12:51

Date Received: 04/06/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-17-130748

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/13/2017 01:16

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/13/2017 01:16

Data File: 041217V1\1D335.D

Column: DB-624

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

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962004

Date Collected: 04/04/2017 12:51

Date Received: 04/06/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/13/2017 01:16

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/13/2017 01:16

Data File: 041217V1\1D335.D

Column: DB-624

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

**Volatile  
Certificate of Analysis  
Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 419962004

Date Collected: 04/04/2017 12:51

Date Received: 04/06/2017 09:10

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-17-130748

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/13/2017 01:16

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/13/2017 01:16

Data File: 041217V1\1D335.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	53.9	50.0	ug/L 108	(71%-134%)
Bromofluorobenzene	55.0	50.0	ug/L 110	(70%-131%)
Toluene-d8	52.3	50.0	ug/L 105	(74%-124%)

**Tentatively Identified Compound Summary**

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.549	17.2	ug/L	0	J



# **Quality Control Summary**

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**Volatile**  
**Surrogate Recovery Report**

Page 1 of 1

**SDG Number: 2017-1308****Matrix Type: LIQUID**

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Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203766807	LCS for batch 1655646	97	101	102
1203766808	LCS for batch 1655646	100	102	102
1203766806	MB for batch 1655646	100	101	107
419962001	CAPA-17-130723	99	102	106
419962002	CAPA-17-130747	103	103	107
419962003	CAPA-17-130724	102	103	109
419962004	CAPA-17-130748	108	105	110
1203766809	CAPA-17-130723PS	102	103	102
1203766811	CAPA-17-130723PSD	103	103	103
1203766810	CAPA-17-130723PS	99	101	102
1203766812	CAPA-17-130723PSD	97	101	101

**Surrogate****Acceptance Limits**

DCED4	= 1,2-Dichloroethane-d4	(71%-134%)
TOL	= Toluene-d8	(74%-124%)
BFB	= Bromofluorobenzene	(70%-131%)

\* Recovery outside Acceptance Limits

# Column to be used to flag recovery values

D Sample Diluted

Volatile  
Quality Control Summary  
Spike Recovery Report

Page 1 of 4

SDG Number: 2017-1308

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1655646

Matrix: WATER

Lab Sample ID 1203766807

Instrument: VOA1.I

Analysis Date: 04/12/2017 21:54

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	79.7	80	71-127
75-05-8	LCS Acetonitrile	1250	0.0	894	72	61-125
67-64-1	LCS Acetone	250	0.0	117	47 *	48-157
74-88-4	LCS Iodomethane	250	0.0	185	74	72-128
75-15-0	LCS Carbon disulfide	250	0.0	170	68 *	69-138
108-05-4	LCS Vinyl acetate	250	0.0	205	82	67-125
78-93-3	LCS 2-Butanone	250	0.0	138	55	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	195	78	66-124
591-78-6	LCS 2-Hexanone	250	0.0	159	64	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	31.2	62	40-160
74-87-3	LCS Chloromethane	50.0	0.0	36.4	73	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	37.1	74	65-137
74-83-9	LCS Bromomethane	50.0	0.0	41.5	83	63-137
75-00-3	LCS Chloroethane	50.0	0.0	38.0	76	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	39.6	79	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	43.0	86	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	33.3	67	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	36.5	73	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	40.8	82	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	36.1	72	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	37.3	75	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	38.8	78	75-123

Volatile  
Quality Control Summary  
Spike Recovery Report

Page 2 of 4

SDG Number: 2017-1308

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1655646

Matrix: WATER

Lab Sample ID 1203766807

Instrument: VOA1.I

Analysis Date: 04/12/2017 21:54

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	36.7	73	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	39.5	79	76-125
67-66-3	LCS Chloroform	50.0	0.0	39.3	79	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	37.6	75	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	35.8	72	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	38.4	77	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	40.8	82	74-122
71-43-2	LCS Benzene	50.0	0.0	36.6	73	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	37.5	75	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	37.9	76	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	40.5	81	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	42.2	84	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	41.4	83	78-131
108-88-3	LCS Toluene	50.0	0.0	38.7	77	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	45.5	91	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	41.0	82	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	41.4	83	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	38.0	76	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	47.1	94	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	43.5	87	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	39.2	78	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	40.4	81	73-125

Volatile  
Quality Control Summary  
Spike Recovery Report

Page 3 of 4

SDG Number: 2017-1308

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1655646

Matrix: WATER

Lab Sample ID 1203766807

Instrument: VOA1.I

Analysis Date: 04/12/2017 21:54

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	41.2	82	74-126
100-42-5	LCS Styrene	50.0	0.0	42.4	85	72-130
75-25-2	LCS Bromoform	50.0	0.0	47.4	95	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	41.7	83	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	41.2	82	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	43.6	87	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	41.4	83	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	39.4	79	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	41.2	82	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	41.4	83	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	39.8	80	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	42.2	84	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	41.5	83	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	41.5	83	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	41.3	83	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	39.0	78	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	39.6	79	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	41.6	83	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	46.3	93	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	40.8	82	72-136
91-20-3	LCS Naphthalene	50.0	0.0	43.8	88	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	43.5	87	70-130

Volatile  
Quality Control Summary  
Spike Recovery Report

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SDG Number: 2017-1308

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1655646

Matrix: WATER

Lab Sample ID 1203766807

Instrument: VOA1.I

Analysis Date: 04/12/2017 21:54

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	40.8	82	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	44.3	89	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	40.4	81	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	3840	77	63-138

Volatile  
Quality Control Summary  
Spike Recovery Report

Page 1 of 1

SDG Number: 2017-1308

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1655646

Matrix: WATER

Lab Sample ID 1203766808

Instrument: VOA1.I

Analysis Date: 04/12/2017 22:53

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	280	112	60-140
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	239	95	61-148
107-05-1	LCS Allyl chloride	250	0.0	233	93	59-125
107-13-1	LCS Acrylonitrile	250	0.0	227	91	65-122
107-12-0	LCS Propionitrile	250	0.0	217	87	64-124
126-98-7	LCS Methacrylonitrile	250	0.0	228	91	64-126
80-62-6	LCS Methyl methacrylate	250	0.0	233	93	69-127
97-63-2	LCS Ethyl methacrylate	250	0.0	243	97	66-130
78-83-1	LCS Isobutyl alcohol	2500	0.0	2350	94	65-135
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	46.7	93	66-147

Volatile  
Quality Control Summary  
Spike Recovery Report

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SDG Number: 2017-1308

Sample Type: Post Spike

Client ID: CAPA-17-130723PS

Matrix: W

Lab Sample ID 1203766809

Instrument: VOA1.I

Analysis Date: 04/13/2017 06:34

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	82.2	82	59-132
75-05-8	PS Acetonitrile	1250	0.00 U	887	71	56-131
67-64-1	PS Acetone	250	0.00 U	91.3	37	25-155
74-88-4	PS Iodomethane	250	0.00 U	197	79	66-133
75-15-0	PS Carbon disulfide	250	0.00 U	177	71	61-141
108-05-4	PS Vinyl acetate	250	0.00 U	178	71	48-133
78-93-3	PS 2-Butanone	250	0.00 U	124	50	25-143
108-10-1	PS 4-Methyl-2-pentanone	250	0.00 U	204	82	61-127
591-78-6	PS 2-Hexanone	250	0.00 U	161	64	33-138
75-71-8	PS Dichlorodifluoromethane	50.0	0.00 U	30.5	61	33-164
74-87-3	PS Chloromethane	50.0	0.00 U	37.1	74	53-139
75-01-4	PS Vinyl chloride	50.0	0.00 U	37.7	75	58-140
74-83-9	PS Bromomethane	50.0	0.00 U	45.0	90	59-146
75-00-3	PS Chloroethane	50.0	0.00 U	39.2	78	65-129
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	42.4	85	65-141
60-29-7	PS Ethyl ether	50.0	0.00 U	43.3	87	69-127
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	35.0	70	59-130
75-09-2	PS Methylene chloride	50.0	0.00 U	38.6	77	62-123
1634-04-4	PS tert-Butyl methyl ether	50.0	0.00 U	40.5	81	69-132
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	38.7	77	65-127
75-34-3	PS 1,1-Dichloroethane	50.0	0.00 U	40.3	81	67-127
156-59-2	PS cis-1,2-Dichloroethylene	50.0	0.00 U	41.0	82	69-127



Volatile  
Quality Control Summary  
Spike Recovery Report

Page 2 of 8

SDG Number: 2017-1308

Sample Type: Post Spike

Client ID: CAPA-17-130723PS

Matrix: W

Lab Sample ID 1203766809

Instrument: VOA1.I

Analysis Date: 04/13/2017 06:34

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	38.3	77	66-137
74-97-5	PS Bromochloromethane	50.0	0.00 U	41.9	84	71-130
67-66-3	PS Chloroform	50.0	0.00 U	43.4	87	71-129
71-55-6	PS 1,1,1-Trichloroethane	50.0	0.00 U	40.8	82	69-139
563-58-6	PS 1,1-Dichloropropene	50.0	0.00 U	38.2	76	67-130
56-23-5	PS Carbon tetrachloride	50.0	0.00 U	42.3	85	66-143
107-06-2	PS 1,2-Dichloroethane	50.0	0.00 U	45.9	92	69-130
71-43-2	PS Benzene	50.0	0.00 U	39.0	78	66-125
79-01-6	PS Trichloroethylene	50.0	0.00 U	40.4	81	65-131
78-87-5	PS 1,2-Dichloropropane	50.0	0.00 U	40.5	81	67-127
74-95-3	PS Dibromomethane	50.0	0.00 U	44.0	88	72-129
75-27-4	PS Bromodichloromethane	50.0	0.00 U	46.6	93	70-138
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00 U	42.1	84	70-134
108-88-3	PS Toluene	50.0	0.00 U	40.3	81	60-126
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00 U	47.5	95	69-135
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00 U	43.6	87	66-125
142-28-9	PS 1,3-Dichloropropane	50.0	0.00 U	44.7	89	67-124
127-18-4	PS Tetrachloroethylene	50.0	0.00 U	39.2	78	60-130
124-48-1	PS Dibromochloromethane	50.0	0.00 U	50.8	102	68-143
106-93-4	PS 1,2-Dibromoethane	50.0	0.00 U	45.1	90	71-127
108-90-7	PS Chlorobenzene	50.0	0.00 U	42.0	84	64-124
100-41-4	PS Ethylbenzene	50.0	0.00 U	42.2	84	61-130

Volatile  
Quality Control Summary  
Spike Recovery Report

Page 3 of 8

SDG Number: 2017-1308

Sample Type: Post Spike

Client ID: CAPA-17-130723PS

Matrix: W

Lab Sample ID 1203766809

Instrument: VOA1.I

Analysis Date: 04/13/2017 06:34

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	42.9	86	62-131
100-42-5	PS Styrene	50.0	0.00 U	43.8	88	59-135
75-25-2	PS Bromoform	50.0	0.00 U	49.7	99	64-138
98-82-8	PS Isopropylbenzene	50.0	0.00 U	42.6	85	55-133
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	41.9	84	62-129
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	45.3	91	70-124
108-86-1	PS Bromobenzene	50.0	0.00 U	42.5	85	62-124
103-65-1	PS n-Propylbenzene	50.0	0.00 U	40.3	81	50-133
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	42.5	85	53-135
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	42.2	84	56-128
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	41.1	82	53-130
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	43.0	86	55-135
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	43.2	86	53-132
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	42.3	85	50-138
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	42.2	84	49-138
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	40.0	80	56-126
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	39.5	79	55-125
104-51-8	PS n-Butylbenzene	50.0	0.00 U	41.2	82	43-142
96-12-8	PS 1,2-Dibromo-3-chloropropane	50.0	0.00 U	44.2	88	62-141
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	38.7	77	40-147
91-20-3	PS Naphthalene	50.0	0.00 U	40.0	80	62-134
87-61-6	PS 1,2,3-Trichlorobenzene	50.0	0.00 U	39.3	79	52-135

Volatile  
Quality Control Summary  
Spike Recovery Report

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SDG Number: 2017-1308

Sample Type: Post Spike

Client ID: CAPA-17-130723PS

Matrix: W

Lab Sample ID 1203766809

Instrument: VOA1.I

Analysis Date: 04/13/2017 06:34

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	38.9	78	50-133
630-20-6	PS 1,1,1,2-Tetrachloroethane	50.0	0.00 U	47.5	95	71-133
95-50-1	PS 1,2-Dichlorobenzene	50.0	0.00 U	41.7	83	60-125
71-36-3	PS n-Butyl alcohol	5000	0.00 U	3810	76	60-140

Volatile  
Quality Control Summary  
Spike Recovery Report

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SDG Number: 2017-1308

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130723PSD

Matrix: W

Lab Sample ID 1203766811

Instrument: VOA1.I

Analysis Date: 04/13/2017 07:02

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	84.6	85	59-132	3	0-20
75-05-8	PSD Acetonitrile	1250	0.00 U	911	73	56-131	3	0-20
67-64-1	PSD Acetone	250	0.00 U	91.5	37	25-155	0	0-20
74-88-4	PSD Iodomethane	250	0.00 U	198	79	66-133	1	0-20
75-15-0	PSD Carbon disulfide	250	0.00 U	178	71	61-141	1	0-20
108-05-4	PSD Vinyl acetate	250	0.00 U	178	71	48-133	0	0-20
78-93-3	PSD 2-Butanone	250	0.00 U	123	49	25-143	1	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00 U	201	81	61-127	2	0-20
591-78-6	PSD 2-Hexanone	250	0.00 U	157	63	33-138	2	0-20
75-71-8	PSD Dichlorodifluoromethane	50.0	0.00 U	31.0	62	33-164	2	0-20
74-87-3	PSD Chloromethane	50.0	0.00 U	38.7	77	53-139	4	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00 U	39.1	78	58-140	4	0-20
74-83-9	PSD Bromomethane	50.0	0.00 U	45.6	91	59-146	1	0-20
75-00-3	PSD Chloroethane	50.0	0.00 U	40.1	80	65-129	2	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00 U	42.0	84	65-141	1	0-20
60-29-7	PSD Ethyl ether	50.0	0.00 U	44.9	90	69-127	4	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00 U	35.9	72	59-130	2	0-20
75-09-2	PSD Methylene chloride	50.0	0.00 U	39.2	78	62-123	2	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.00 U	42.1	84	69-132	4	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00 U	39.0	78	65-127	1	0-20
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00 U	40.9	82	67-127	1	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00 U	42.1	84	69-127	3	0-20

Volatile  
Quality Control Summary  
Spike Recovery Report

Page 6 of 8

SDG Number: 2017-1308

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130723PSD

Matrix: W

Lab Sample ID 1203766811

Instrument: VOA1.I

Analysis Date: 04/13/2017 07:02

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	39.0	78	66-137	2	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00 U	42.9	86	71-130	2	0-20
67-66-3	PSD Chloroform	50.0	0.00 U	43.7	87	71-129	1	0-20
71-55-6	PSD 1,1,1-Trichloroethane	50.0	0.00 U	40.9	82	69-139	0	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00 U	38.4	77	67-130	1	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00 U	42.2	84	66-143	0	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00 U	45.4	91	69-130	1	0-20
71-43-2	PSD Benzene	50.0	0.00 U	39.3	79	66-125	1	0-20
79-01-6	PSD Trichloroethylene	50.0	0.00 U	40.5	81	65-131	0	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00 U	41.4	83	67-127	2	0-20
74-95-3	PSD Dibromomethane	50.0	0.00 U	44.4	89	72-129	1	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00 U	46.2	92	70-138	1	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00 U	43.3	87	70-134	3	0-20
108-88-3	PSD Toluene	50.0	0.00 U	41.3	83	60-126	2	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00 U	47.7	95	69-135	0	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00 U	43.3	87	66-125	1	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00 U	44.3	89	67-124	1	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.00 U	39.3	79	60-130	0	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00 U	50.8	102	68-143	0	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00 U	45.9	92	71-127	2	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00 U	42.6	85	64-124	1	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00 U	43.0	86	61-130	2	0-20

Volatile  
Quality Control Summary  
Spike Recovery Report

Page 7 of 8

SDG Number: 2017-1308

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130723PSD

Matrix: W

Lab Sample ID 1203766811

Instrument: VOA1.I

Analysis Date: 04/13/2017 07:02

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	44.1	88	62-131	3	0-20
100-42-5	PSD Styrene	50.0	0.00 U	44.8	90	59-135	2	0-20
75-25-2	PSD Bromoform	50.0	0.00 U	50.6	101	64-138	2	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00 U	44.5	89	55-133	4	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00 U	42.5	85	62-129	2	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00 U	45.2	90	70-124	0	0-20
108-86-1	PSD Bromobenzene	50.0	0.00 U	43.2	86	62-124	2	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00 U	40.9	82	50-133	1	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00 U	43.8	88	53-135	3	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00 U	43.6	87	56-128	3	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00 U	42.0	84	53-130	2	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00 U	44.7	89	55-135	4	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00 U	43.8	88	53-132	1	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00 U	44.3	89	50-138	5	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00 U	43.1	86	49-138	2	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00 U	40.5	81	56-126	1	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00 U	40.8	82	55-125	3	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00 U	42.7	85	43-142	4	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00 U	46.8	94	62-141	6	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00 U	41.9	84	40-147	8	0-20
91-20-3	PSD Naphthalene	50.0	0.00 U	43.2	86	62-134	8	0-20
87-61-6	PSD 1,2,3-Trichlorobenzene	50.0	0.00 U	41.7	83	52-135	6	0-20

Volatile  
Quality Control Summary  
Spike Recovery Report

Page 8 of 8

SDG Number: 2017-1308

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130723PSD

Matrix: W

Lab Sample ID 1203766811

Instrument: VOA1.I

Analysis Date: 04/13/2017 07:02

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	40.0	80	50-133	3	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	48.3	97	71-133	2	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	43.0	86	60-125	3	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00 U	4030	81	60-140	6	0-20

Volatile  
Quality Control Summary  
Spike Recovery Report

Page 1 of 2

SDG Number: 2017-1308

Sample Type: Post Spike

Client ID: CAPA-17-130723PS

Matrix: W

Lab Sample ID 1203766810

Instrument: VOA1.I

Analysis Date: 04/13/2017 07:31

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

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	260	104	49-141
76-13-1	PS Trichlorotrifluoroethane	250	0.00 U	244	98	57-149
107-05-1	PS Allyl chloride	250	0.00 U	243	97	54-128
107-13-1	PS Acrylonitrile	250	0.00 U	238	95	59-129
107-12-0	PS Propionitrile	250	0.00 U	231	92	58-131
126-98-7	PS Methacrylonitrile	250	0.00 U	244	97	59-134
80-62-6	PS Methyl methacrylate	250	0.00 U	246	98	62-135
97-63-2	PS Ethyl methacrylate	250	0.00 U	253	101	60-136
78-83-1	PS Isobutyl alcohol	2500	0.00 U	2500	100	60-143
126-99-8	PS 2-Chloro-1,3-butadiene	50.0	0.00 U	49.3	99	63-146



Volatile  
Quality Control Summary  
Spike Recovery Report

Page 2 of 2

SDG Number: 2017-1308

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130723PSD

Matrix: W

Lab Sample ID 1203766812

Instrument: VOA1.I

Analysis Date: 04/13/2017 08:00

Dilution: 1

Analyst: VXY1

Purge Vol: 5 mL

Batch ID: 1655646

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	Acceptance RPD %	Acceptance Limits
107-02-8	PSD Acrolein	250	0.00 U	249	100	49-141	4	0-20
76-13-1	PSD Trichlorotrifluoroethane	250	0.00 U	238	95	57-149	2	0-20
107-05-1	PSD Allyl chloride	250	0.00 U	236	94	54-128	3	0-20
107-13-1	PSD Acrylonitrile	250	0.00 U	228	91	59-129	4	0-20
107-12-0	PSD Propionitrile	250	0.00 U	219	88	58-131	5	0-20
126-98-7	PSD Methacrylonitrile	250	0.00 U	233	93	59-134	5	0-20
80-62-6	PSD Methyl methacrylate	250	0.00 U	234	93	62-135	5	0-20
97-63-2	PSD Ethyl methacrylate	250	0.00 U	245	98	60-136	3	0-20
78-83-1	PSD Isobutyl alcohol	2500	0.00 U	2330	93	60-143	7	0-20
126-99-8	PSD 2-Chloro-1,3-butadiene	50.0	0.00 U	47.7	95	63-146	3	0-20

## Method Blank Summary

Page 1 of 1

SDG Number:	2017-1308	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1655646	Instrument ID:	VOA1.I	Data File:	041217V1\1D331BA.D
Lab Sample ID:	1203766806	Prep Date:	04/12/2017 23:22	Analyzed:	04/12/17 23:22
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 1655646	1203766807	041217V1\1D328LA.D	04/12/17	2154
02 LCS for batch 1655646	1203766808	041217V1\1D330LA.D	04/12/17	2253
03 CAPA-17-130723	419962001	041217V1\1D332.D	04/12/17	2350
04 CAPA-17-130747	419962002	041217V1\1D333.D	04/13/17	0019
05 CAPA-17-130724	419962003	041217V1\1D334.D	04/13/17	0048
06 CAPA-17-130748	419962004	041217V1\1D335.D	04/13/17	0116
07 CAPA-17-130723PS	1203766809	041217V1\1D346.D	04/13/17	0634
08 CAPA-17-130723PSD	1203766811	041217V1\1D347.D	04/13/17	0702
09 CAPA-17-130723PS	1203766810	041217V1\1D348.D	04/13/17	0731
10 CAPA-17-130723PSD	1203766812	041217V1\1D349.D	04/13/17	0800

# Quality Control Data

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 1203766806

Client Sample: QC for batch 1655646

Client ID: MB for batch 1655646

Batch ID: 1655646

Run Date: 04/12/2017 23:22

Prep Date: 04/12/2017 23:22

Data File: 041217V1\ID331BA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

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

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

SDG Number: 2017-1308

Matrix: WATER

Lab Sample ID: 1203766806

Client Sample: QC for batch 1655646

Client: ARSL004

Project: QC

Client ID: MB for batch 1655646

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/12/2017 23:22

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/12/2017 23:22

Column: DB-624

Data File: 041217V1\1D331BA.D

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

**Volatile  
Certificate of Analysis  
Sample Summary**

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<b>SDG Number:</b> 2017-1308	<b>Matrix:</b> WATER	
<b>Lab Sample ID:</b> 1203766806		
<b>Client Sample:</b> QC for batch 1655646	<b>Client:</b> ARSL004	<b>Project:</b> QC
<b>Client ID:</b> MB for batch 1655646	<b>Method:</b> SW-846:8260B	<b>SOP Ref:</b> GL-OA-E-038
<b>Batch ID:</b> 1655646	<b>Inst:</b> VOA1.I	<b>Dilution:</b> 1
<b>Run Date:</b> 04/12/2017 23:22	<b>Analyst:</b> VXY1	<b>Purge Vol:</b> 5 mL
<b>Prep Date:</b> 04/12/2017 23:22		
<b>Data File:</b> 041217V1\1D331BA.D	<b>Column:</b> 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	49.8	50.0	ug/L 100	(71%-134%)
Bromofluorobenzene	53.4	50.0	ug/L 107	(70%-131%)
Toluene-d8	50.7	50.0	ug/L 101	(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: 2017-1308

Lab Sample ID: 1203766807

Client Sample: QC for batch 1655646

Client ID: LCS for batch 1655646

Batch ID: 1655646

Run Date: 04/12/2017 21:54

Prep Date: 04/12/2017 21:54

Data File: 041217V1\1D328LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		44.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		37.6	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		41.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		41.0	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		37.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		33.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		35.8	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		43.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		43.6	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		40.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		41.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		46.3	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		43.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		40.4	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		40.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		37.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		41.2	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		39.0	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		41.4	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		39.6	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		36.7	ug/L	0.300	1.00
78-93-3	2-Butanone		138	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		41.4	ug/L	0.300	1.00
591-78-6	2-Hexanone		159	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		39.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		41.3	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		195	ug/L	1.50	5.00
67-64-1	Acetone		117	ug/L	1.50	10.0
75-05-8	Acetonitrile		894	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		36.6	ug/L	0.300	1.00
108-86-1	Bromobenzene		41.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		39.5	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		42.2	ug/L	0.300	1.00
75-25-2	Bromoform		47.4	ug/L	0.300	1.00

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 1203766807

Client Sample: QC for batch 1655646

Client ID: LCS for batch 1655646

Batch ID: 1655646

Run Date: 04/12/2017 21:54

Prep Date: 04/12/2017 21:54

Data File: 041217V1\1D328LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		41.5	ug/L	0.300	1.00
75-15-0	Carbon disulfide		170	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		38.4	ug/L	0.300	1.00
108-90-7	Chlorobenzene		39.2	ug/L	0.300	1.00
75-00-3	Chloroethane		38.0	ug/L	0.300	1.00
67-66-3	Chloroform		39.3	ug/L	0.300	1.00
74-87-3	Chloromethane		36.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		47.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		40.5	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		31.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		43.0	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		40.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		40.8	ug/L	0.300	1.00
74-88-4	Iodomethane		185	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		41.7	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		36.5	ug/L	1.00	10.0
91-20-3	Naphthalene		43.8	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		42.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		38.0	ug/L	0.300	1.00
108-88-3	Toluene		38.7	ug/L	0.300	1.00
79-01-6	Trichloroethylene		37.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		39.6	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		205	ug/L	1.50	5.00
75-01-4	Vinyl chloride		37.1	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		38.8	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		41.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		79.7	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		3840	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		41.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		39.4	ug/L	0.300	1.00
95-47-6	o-Xylene		41.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		41.5	ug/L	0.300	1.00



**Volatile  
Certificate of Analysis  
Sample Summary**

Page 3 of 3

<b>SDG Number:</b>	2017-1308	<b>Matrix:</b>	WATER
<b>Lab Sample ID:</b>	1203766807		
<b>Client Sample:</b>	QC for batch 1655646	<b>Client:</b>	ARSL004
<b>Client ID:</b>	LCS for batch 1655646	<b>Method:</b>	SW-846:8260B
<b>Batch ID:</b>	1655646	<b>Inst:</b>	VOA1.I
<b>Run Date:</b>	04/12/2017 21:54	<b>Analyst:</b>	VXY1
<b>Prep Date:</b>	04/12/2017 21:54		
<b>Data File:</b>	041217V1\1D328LA.D	<b>Column:</b>	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		40.8	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		42.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		36.1	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		45.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.7	50.0	97	(71%-134%)
Bromofluorobenzene	51.1	50.0	102	(70%-131%)
Toluene-d8	50.3	50.0	101	(74%-124%)

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

SDG Number: 2017-1308

Lab Sample ID: 1203766808

Client Sample: QC for batch 1655646

Client ID: LCS for batch 1655646

Batch ID: 1655646

Run Date: 04/12/2017 22:53

Prep Date: 04/12/2017 22:53

Data File: 041217V1\1D330LA.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: VXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		46.7	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		280	ug/L	1.50	5.00
107-13-1	Acrylonitrile		227	ug/L	1.50	5.00
107-05-1	Allyl chloride		233	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: 2017-1308

Matrix: WATER

Lab Sample ID: 1203766808

Client Sample: QC for batch 1655646

Client: ARSL004

Project: QC

Client ID: LCS for batch 1655646

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1655646

Inst: VOA1.I

Dilution: 1

Run Date: 04/12/2017 22:53

Analyst: VXY1

Purge Vol: 5 mL

Prep Date: 04/12/2017 22:53

Column: DB-624

Data File: 041217V1\1D330LA.D

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		243	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		2350	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		228	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		233	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		217	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		239	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile  
Certificate of Analysis  
Sample Summary**

Page 3 of 3

<b>SDG Number:</b>	2017-1308	<b>Matrix:</b>	WATER
<b>Lab Sample ID:</b>	1203766808		
<b>Client Sample:</b>	QC for batch 1655646	<b>Client:</b>	ARSL004
<b>Client ID:</b>	LCS for batch 1655646	<b>Method:</b>	SW-846:8260B
<b>Batch ID:</b>	1655646	<b>Inst:</b>	VOA1.I
<b>Run Date:</b>	04/12/2017 22:53	<b>Analyst:</b>	VXY1
<b>Prep Date:</b>	04/12/2017 22:53		
<b>Data File:</b>	041217V1\1D330LA.D	<b>Column:</b>	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	49.8	50.0	100	(71%-134%)
Bromofluorobenzene	51.0	50.0	102	(70%-131%)
Toluene-d8	51.0	50.0	102	(74%-124%)

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

<b>SDG Number:</b>	<b>2017-1308</b>	<b>Date Collected:</b>	<b>04/04/2017 10:56</b>	<b>Matrix:</b>	<b>W</b>
<b>Lab Sample ID:</b>	<b>1203766809</b>	<b>Date Received:</b>	<b>04/06/2017 09:10</b>		
<b>Client Sample:</b>	<b>QC for batch 1655646</b>	<b>Client:</b>	<b>ARSL004</b>	<b>Project:</b>	<b>QC</b>
<b>Client ID:</b>	<b>CAPA-17-130723PS</b>	<b>Method:</b>	<b>SW-846:8260B</b>	<b>SOP Ref:</b>	<b>GL-OA-E-038</b>
<b>Batch ID:</b>	<b>1655646</b>	<b>Inst:</b>	<b>VOA1.I</b>	<b>Dilution:</b>	<b>1</b>
<b>Run Date:</b>	<b>04/13/2017 06:34</b>	<b>Analyst:</b>	<b>VXY1</b>	<b>Purge Vol:</b>	<b>5 mL</b>
<b>Prep Date:</b>	<b>04/13/2017 06:34</b>				
<b>Data File:</b>	<b>041217V1\1D346.D</b>	<b>Column:</b>	<b>DB-624</b>		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		47.5	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		41.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		43.6	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		40.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		35.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		38.2	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		39.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		45.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		38.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		43.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		44.2	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		45.1	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		41.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.9	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		40.5	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		42.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		40.0	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		44.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		39.5	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		38.3	ug/L	0.300	1.00
78-93-3	2-Butanone		124	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		42.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		161	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		41.1	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		42.2	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		204	ug/L	1.50	5.00
67-64-1	Acetone		91.3	ug/L	1.50	10.0
75-05-8	Acetonitrile		887	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		39.0	ug/L	0.300	1.00
108-86-1	Bromobenzene		42.5	ug/L	0.300	1.00
74-97-5	Bromochloromethane		41.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		46.6	ug/L	0.300	1.00
75-25-2	Bromoform		49.7	ug/L	0.300	1.00

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

<b>SDG Number:</b> 2017-1308	<b>Date Collected:</b> 04/04/2017 10:56	<b>Matrix:</b> W
<b>Lab Sample ID:</b> 1203766809	<b>Date Received:</b> 04/06/2017 09:10	
<b>Client Sample:</b> QC for batch 1655646	<b>Client:</b> ARSL004	<b>Project:</b> QC
<b>Client ID:</b> CAPA-17-130723PS	<b>Method:</b> SW-846:8260B	<b>SOP Ref:</b> GL-OA-E-038
<b>Batch ID:</b> 1655646	<b>Inst:</b> VOA1.I	<b>Dilution:</b> 1
<b>Run Date:</b> 04/13/2017 06:34	<b>Analyst:</b> VXY1	<b>Purge Vol:</b> 5 mL
<b>Prep Date:</b> 04/13/2017 06:34		
<b>Data File:</b> 041217V1\1D346.D	<b>Column:</b> DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		45.0	ug/L	0.300	1.00
75-15-0	Carbon disulfide		177	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		42.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		42.0	ug/L	0.300	1.00
75-00-3	Chloroethane		39.2	ug/L	0.300	1.00
67-66-3	Chloroform		43.4	ug/L	0.300	1.00
74-87-3	Chloromethane		37.1	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		50.8	ug/L	0.300	1.00
74-95-3	Dibromomethane		44.0	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		30.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		43.3	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		42.2	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		38.7	ug/L	0.300	1.00
74-88-4	Iodomethane		197	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		42.6	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		38.6	ug/L	1.00	10.0
91-20-3	Naphthalene		40.0	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		43.8	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		39.2	ug/L	0.300	1.00
108-88-3	Toluene		40.3	ug/L	0.300	1.00
79-01-6	Trichloroethylene		40.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		42.4	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		178	ug/L	1.50	5.00
75-01-4	Vinyl chloride		37.7	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		41.0	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		42.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		82.2	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		3810	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		41.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		40.3	ug/L	0.300	1.00
95-47-6	o-Xylene		42.9	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		42.3	ug/L	0.300	1.00

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

<b>SDG Number:</b>	<b>2017-1308</b>	<b>Date Collected:</b>	<b>04/04/2017 10:56</b>	<b>Matrix:</b>	<b>W</b>
<b>Lab Sample ID:</b>	<b>1203766809</b>	<b>Date Received:</b>	<b>04/06/2017 09:10</b>		
<b>Client Sample:</b>	<b>QC for batch 1655646</b>	<b>Client:</b>	<b>ARSL004</b>	<b>Project:</b>	<b>QC</b>
<b>Client ID:</b>	<b>CAPA-17-130723PS</b>	<b>Method:</b>	<b>SW-846:8260B</b>	<b>SOP Ref:</b>	<b>GL-OA-E-038</b>
<b>Batch ID:</b>	<b>1655646</b>	<b>Inst:</b>	<b>VOA1.I</b>	<b>Dilution:</b>	<b>1</b>
<b>Run Date:</b>	<b>04/13/2017 06:34</b>	<b>Analyst:</b>	<b>VXY1</b>	<b>Purge Vol:</b>	<b>5 mL</b>
<b>Prep Date:</b>	<b>04/13/2017 06:34</b>				
<b>Data File:</b>	<b>041217V1\1D346.D</b>	<b>Column:</b>	<b>DB-624</b>		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		40.5	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		43.0	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		38.7	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.8	50.0	ug/L	102	(71%-134%)
Bromofluorobenzene	50.9	50.0	ug/L	102	(70%-131%)
Toluene-d8	51.4	50.0	ug/L	103	(74%-124%)

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

<b>SDG Number:</b>	<b>2017-1308</b>	<b>Date Collected:</b>	<b>04/04/2017 10:56</b>	<b>Matrix:</b>	<b>W</b>
<b>Lab Sample ID:</b>	<b>1203766810</b>	<b>Date Received:</b>	<b>04/06/2017 09:10</b>		
<b>Client Sample:</b>	<b>QC for batch 1655646</b>	<b>Client:</b>	<b>ARSL004</b>	<b>Project:</b>	<b>QC</b>
<b>Client ID:</b>	<b>CAPA-17-130723PS</b>	<b>Method:</b>	<b>SW-846:8260B</b>	<b>SOP Ref:</b>	<b>GL-OA-E-038</b>
<b>Batch ID:</b>	<b>1655646</b>	<b>Inst:</b>	<b>VOA1.I</b>	<b>Dilution:</b>	<b>1</b>
<b>Run Date:</b>	<b>04/13/2017 07:31</b>	<b>Analyst:</b>	<b>VXY1</b>	<b>Purge Vol:</b>	<b>5 mL</b>
<b>Prep Date:</b>	<b>04/13/2017 07:31</b>				
<b>Data File:</b>	<b>041217V1\1D348.D</b>	<b>Column:</b>	<b>DB-624</b>		

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		49.3	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		238	ug/L	1.50	5.00
107-05-1	Allyl chloride		243	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**

<b>SDG Number:</b> 2017-1308	<b>Date Collected:</b> 04/04/2017 10:56	<b>Matrix:</b> W
<b>Lab Sample ID:</b> 1203766810	<b>Date Received:</b> 04/06/2017 09:10	
<b>Client Sample:</b> QC for batch 1655646	<b>Client:</b> ARSL004	<b>Project:</b> QC
<b>Client ID:</b> CAPA-17-130723PS	<b>Method:</b> SW-846:8260B	<b>SOP Ref:</b> GL-OA-E-038
<b>Batch ID:</b> 1655646	<b>Inst:</b> VOA1.I	<b>Dilution:</b> 1
<b>Run Date:</b> 04/13/2017 07:31	<b>Analyst:</b> VXY1	<b>Purge Vol:</b> 5 mL
<b>Prep Date:</b> 04/13/2017 07:31		
<b>Data File:</b> 041217V1\1D348.D	<b>Column:</b> 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		253	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		2500	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		244	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		246	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile		231	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		244	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**

<b>SDG Number:</b>	2017-1308	<b>Date Collected:</b>	04/04/2017 10:56	<b>Matrix:</b>	W
<b>Lab Sample ID:</b>	1203766810	<b>Date Received:</b>	04/06/2017 09:10		
<b>Client Sample:</b>	QC for batch 1655646	<b>Client:</b>	ARSL004	<b>Project:</b>	QC
<b>Client ID:</b>	CAPA-17-130723PS	<b>Method:</b>	SW-846:8260B	<b>SOP Ref:</b>	GL-OA-E-038
<b>Batch ID:</b>	1655646	<b>Inst:</b>	VOA1.I	<b>Dilution:</b>	1
<b>Run Date:</b>	04/13/2017 07:31	<b>Analyst:</b>	VXY1	<b>Purge Vol:</b>	5 mL
<b>Prep Date:</b>	04/13/2017 07:31				
<b>Data File:</b>	041217V1\1D348.D	<b>Column:</b>	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	49.7	50.0	99	(71%-134%)
Bromofluorobenzene	50.8	50.0	102	(70%-131%)
Toluene-d8	50.6	50.0	101	(74%-124%)

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

<b>SDG Number:</b> 2017-1308	<b>Date Collected:</b> 04/04/2017 10:56	<b>Matrix:</b> W
<b>Lab Sample ID:</b> 1203766811	<b>Date Received:</b> 04/06/2017 09:10	
<b>Client Sample:</b> QC for batch 1655646	<b>Client:</b> ARSL004	<b>Project:</b> QC
<b>Client ID:</b> CAPA-17-130723PSD	<b>Method:</b> SW-846:8260B	<b>SOP Ref:</b> GL-OA-E-038
<b>Batch ID:</b> 1655646	<b>Inst:</b> VOA1.I	<b>Dilution:</b> 1
<b>Run Date:</b> 04/13/2017 07:02	<b>Analyst:</b> VXY1	<b>Purge Vol:</b> 5 mL
<b>Prep Date:</b> 04/13/2017 07:02		
<b>Data File:</b> 041217V1\1D347.D	<b>Column:</b> DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		48.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		40.9	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		42.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		43.3	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		40.9	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		35.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		38.4	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		41.7	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		45.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		40.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		43.8	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		46.8	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		45.9	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		43.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.4	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		41.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		43.8	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		40.5	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		44.3	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		40.8	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		39.0	ug/L	0.300	1.00
78-93-3	2-Butanone		123	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		43.6	ug/L	0.300	1.00
591-78-6	2-Hexanone		157	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		42.0	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		43.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		201	ug/L	1.50	5.00
67-64-1	Acetone		91.5	ug/L	1.50	10.0
75-05-8	Acetonitrile		911	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		39.3	ug/L	0.300	1.00
108-86-1	Bromobenzene		43.2	ug/L	0.300	1.00
74-97-5	Bromochloromethane		42.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		46.2	ug/L	0.300	1.00
75-25-2	Bromoform		50.6	ug/L	0.300	1.00

**Volatile  
Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b>	<b>2017-1308</b>	<b>Date Collected:</b>	<b>04/04/2017 10:56</b>	<b>Matrix:</b>	<b>W</b>
<b>Lab Sample ID:</b>	<b>1203766811</b>	<b>Date Received:</b>	<b>04/06/2017 09:10</b>		
<b>Client Sample:</b>	<b>QC for batch 1655646</b>	<b>Client:</b>	<b>ARSL004</b>	<b>Project:</b>	<b>QC</b>
<b>Client ID:</b>	<b>CAPA-17-130723PSD</b>	<b>Method:</b>	<b>SW-846:8260B</b>	<b>SOP Ref:</b>	<b>GL-OA-E-038</b>
<b>Batch ID:</b>	<b>1655646</b>	<b>Inst:</b>	<b>VOA1.I</b>	<b>Dilution:</b>	<b>1</b>
<b>Run Date:</b>	<b>04/13/2017 07:02</b>	<b>Analyst:</b>	<b>VXY1</b>	<b>Purge Vol:</b>	<b>5 mL</b>
<b>Prep Date:</b>	<b>04/13/2017 07:02</b>				
<b>Data File:</b>	<b>041217V1\1D347.D</b>	<b>Column:</b>	<b>DB-624</b>		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		45.6	ug/L	0.300	1.00
75-15-0	Carbon disulfide		178	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		42.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene		42.6	ug/L	0.300	1.00
75-00-3	Chloroethane		40.1	ug/L	0.300	1.00
67-66-3	Chloroform		43.7	ug/L	0.300	1.00
74-87-3	Chloromethane		38.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		50.8	ug/L	0.300	1.00
74-95-3	Dibromomethane		44.4	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		31.0	ug/L	0.300	1.00
60-29-7	Ethyl ether		44.9	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		43.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		41.9	ug/L	0.300	1.00
74-88-4	Iodomethane		198	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		44.5	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		39.2	ug/L	1.00	10.0
91-20-3	Naphthalene		43.2	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		44.8	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		39.3	ug/L	0.300	1.00
108-88-3	Toluene		41.3	ug/L	0.300	1.00
79-01-6	Trichloroethylene		40.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		42.0	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		178	ug/L	1.50	5.00
75-01-4	Vinyl chloride		39.1	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		42.1	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		43.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		84.6	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4030	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		42.7	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		40.9	ug/L	0.300	1.00
95-47-6	o-Xylene		44.1	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		44.3	ug/L	0.300	1.00

**Volatile  
Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b>	<b>2017-1308</b>	<b>Date Collected:</b>	<b>04/04/2017 10:56</b>	<b>Matrix:</b>	<b>W</b>
<b>Lab Sample ID:</b>	<b>1203766811</b>	<b>Date Received:</b>	<b>04/06/2017 09:10</b>		
<b>Client Sample:</b>	<b>QC for batch 1655646</b>	<b>Client:</b>	<b>ARSL004</b>	<b>Project:</b>	<b>QC</b>
<b>Client ID:</b>	<b>CAPA-17-130723PSD</b>	<b>Method:</b>	<b>SW-846:8260B</b>	<b>SOP Ref:</b>	<b>GL-OA-E-038</b>
<b>Batch ID:</b>	<b>1655646</b>	<b>Inst:</b>	<b>VOA1.I</b>	<b>Dilution:</b>	<b>1</b>
<b>Run Date:</b>	<b>04/13/2017 07:02</b>	<b>Analyst:</b>	<b>VXY1</b>	<b>Purge Vol:</b>	<b>5 mL</b>
<b>Prep Date:</b>	<b>04/13/2017 07:02</b>				
<b>Data File:</b>	<b>041217V1\1D347.D</b>	<b>Column:</b>	<b>DB-624</b>		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		42.1	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		44.7	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		39.0	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.3	50.0	ug/L	103	(71%-134%)
Bromofluorobenzene	51.4	50.0	ug/L	103	(70%-131%)
Toluene-d8	51.5	50.0	ug/L	103	(74%-124%)

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

<b>SDG Number:</b> 2017-1308	<b>Date Collected:</b> 04/04/2017 10:56	<b>Matrix:</b> W
<b>Lab Sample ID:</b> 1203766812	<b>Date Received:</b> 04/06/2017 09:10	
<b>Client Sample:</b> QC for batch 1655646	<b>Client:</b> ARSL004	<b>Project:</b> QC
<b>Client ID:</b> CAPA-17-130723PSD	<b>Method:</b> SW-846:8260B	<b>SOP Ref:</b> GL-OA-E-038
<b>Batch ID:</b> 1655646	<b>Inst:</b> VOA1.I	<b>Dilution:</b> 1
<b>Run Date:</b> 04/13/2017 08:00	<b>Analyst:</b> VXY1	<b>Purge Vol:</b> 5 mL
<b>Prep Date:</b> 04/13/2017 08:00		
<b>Data File:</b> 041217V1\1D349.D	<b>Column:</b> 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		47.7	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		249	ug/L	1.50	5.00
107-13-1	Acrylonitrile		228	ug/L	1.50	5.00
107-05-1	Allyl chloride		236	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

**Volatile**  
**Certificate of Analysis**  
**Sample Summary**

<b>SDG Number:</b> 2017-1308	<b>Date Collected:</b> 04/04/2017 10:56	<b>Matrix:</b> W
<b>Lab Sample ID:</b> 1203766812	<b>Date Received:</b> 04/06/2017 09:10	
<b>Client Sample:</b> QC for batch 1655646	<b>Client:</b> ARSL004	<b>Project:</b> QC
<b>Client ID:</b> CAPA-17-130723PSD	<b>Method:</b> SW-846:8260B	<b>SOP Ref:</b> GL-OA-E-038
<b>Batch ID:</b> 1655646	<b>Inst:</b> VOA1.I	<b>Dilution:</b> 1
<b>Run Date:</b> 04/13/2017 08:00	<b>Analyst:</b> VXY1	<b>Purge Vol:</b> 5 mL
<b>Prep Date:</b> 04/13/2017 08:00		
<b>Data File:</b> 041217V1\1D349.D	<b>Column:</b> 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		245	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		2330	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		233	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		234	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		219	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		238	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**

<b>SDG Number:</b> 2017-1308	<b>Date Collected:</b> 04/04/2017 10:56	<b>Matrix:</b> W
<b>Lab Sample ID:</b> 1203766812	<b>Date Received:</b> 04/06/2017 09:10	
<b>Client Sample:</b> QC for batch 1655646	<b>Client:</b> ARSL004	<b>Project:</b> QC
<b>Client ID:</b> CAPA-17-130723PSD	<b>Method:</b> SW-846:8260B	<b>SOP Ref:</b> GL-OA-E-038
<b>Batch ID:</b> 1655646	<b>Inst:</b> VOA1.I	<b>Dilution:</b> 1
<b>Run Date:</b> 04/13/2017 08:00	<b>Analyst:</b> VXY1	<b>Purge Vol:</b> 5 mL
<b>Prep Date:</b> 04/13/2017 08:00		
<b>Data File:</b> 041217V1\1D349.D	<b>Column:</b> DB-624	

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.4	50.0	97	(71%-134%)
Bromofluorobenzene	50.6	50.0	101	(70%-131%)
Toluene-d8	50.5	50.0	101	(74%-124%)



# Miscellaneous

### DATA EXCEPTION REPORT

<b>Mo.Day Yr.</b> 17-APR-17	<b>Division:</b> Industrial	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> VOA GC/MS	<b>Test / Method:</b> SW846 8260B DOE-AL	<b>Matrix Type:</b> Liquid	<b>Client Code:</b> ESHL
<b>Batch ID:</b> 1655646	<b>Sample Numbers:</b> See Below		
<b>Potentially affected work order(s)(SDG):</b> 419962(2017-1308),419968(2017-1309),420090(2017-1317),420312(2017-1331),420409(2017-1339) <b>Application Issues:</b> Failed Recovery for LCS/LCSD			
<b>Specification and Requirements Exception Description:</b>		<b>DER Disposition:</b>	
1. Failed Recovery for LCS/LCSD: QC 1203766807LCS		1. The LCS/and or LCSD (See Below) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. 1203766807 (LCS) Acetone [47* (48%-157%)] and Carbon disulfide [68* (69%-138%)].	

**Originator's Name:**

Patrick Yib 17-APR-17

**Data Validator/Group Leader:**

Kelle Bellamy 02-MAY-17