

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: 11605

EVENT NAME: Water/CdV (TA16 260) Q1 MY2018

SAMPLE ID: CAWA-18-148914

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	12/11/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1017		MEDIA:	OK	
PRS ID:	OK		SAMPLE TECH CODE:	GSP	
LOCATION ID:	R-47		FIELD PREP:	UF	
LOCATION TYPE:	OK		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	INV	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
↓	WSP-8330B-NMED HEXMOD	1 LITER AMBER GLASS	3	ICE	↓	↓

SAMPLE COMMENTS: sampled soft, from running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Sample Time	1017	HH:MM	Discharge Rate	3.90	Dissolved Oxygen	6.24
Groundwater Elevation	6113.37		Oxidation-Reduction Potential	172.6	Period Purge Volume	NA
pH	7.16		Purge Volume	158.0	Specific Conductance	107.3
Temperature	13.8		Total Volume Pumped	237.9	Turbidity	1.24

COLLECTED BY (PRINT): T. Barthorn

RELINQUISHED BY (Printed Name) <u>Tanner Barthorn</u> (Signature) <u>[Signature]</u>	Date/Time 12/11/2017 1100	RECEIVED BY <u>S. Sherwood</u> (Printed Name) <u>[Signature]</u> (Signature) <u>[Signature]</u>	Date/Time 12/11/17 11:00
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11605

EVENT NAME: Water/CdV (TA16 260) Q1 MY2018

SAMPLE ID: CAWA-18-148938

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	12/11/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1017		MEDIA:	OK	
PRS ID:	OK		SAMPLE TECH CODE:	DC	
LOCATION ID:	R-47		FIELD PREP:	UF	
LOCATION TYPE:	OK		FIELD QC TYPE:	FTB	
TOP DEPTH:			SAMPLE USAGE:	QC	✓
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

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

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Sample Time	_____	HH:MM	Discharge Rate	_____	Dissolved Oxygen	_____
Groundwater Elevation	_____		Oxidation-Reduction Potential	_____	Period Purge Volume	_____
pH	_____		Purge Volume	_____	Specific Conductance	_____
Temperature	_____		Total Volume Rumped	_____	Turbidity	_____

COLLECTED BY (PRINT): T. Bonham

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 12/11/2017 1100	RECEIVED BY (Printed Name) (Signature)	Date/Time 12/11/17 11:00
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11605

EVENT NAME: Water/CdV (TA16 260) Q1 MY2018

SAMPLE ID: CAWA-18-148941

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
Date Collected (MM/DD/YYYY):	12/11/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1017		MEDIA:	OK	
PRS ID:	OK		SAMPLE TECH CODE:	DC	
LOCATION ID:	R-47		FIELD PREP:	UF	
LOCATION TYPE:	OK		FIELD QC TYPE:	FB	
TOP DEPTH:			SAMPLE USAGE:	QC	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

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

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Sample Time	_____	HH:MM	Discharge Rate	_____	Dissolved Oxygen	_____
Groundwater Elevation	_____		Oxidation-Reduction Potential	_____	Period Purge Volume	_____
pH	_____		Purge Volume	_____	Specific Conductance	_____
Temperature	_____		Total Volume Pumped	_____	Turbidity	_____

COLLECTED BY (PRINT): T. Bonham

RELINQUISHED BY (Printed Name) (Signature)	Tanner Bonham <i>[Signature]</i>	Date/Time 12/11/2017 1109	RECEIVED BY (Printed Name) (Signature)	Sherwood <i>[Signature]</i>	Date/Time 12/11/17 11:00
RELINQUISHED BY (Printed Name) (Signature)		Date/Time	RECEIVED BY (Printed Name) (Signature)		Date/Time

Report Date: 12/01/2017

TEST - Explosives		YES	NO
Samples collected from a WFO area? (TAs -08, 09, 11, 14, 15, 16, 22, 36, 37, 39, 40, and 49)		<input checked="" type="checkbox"/>	
Field Test for Explosives Results		YES	NO
HE SPOT test result positive. If YES - Do not transport.			<input checked="" type="checkbox"/>

TEST - Chemical Preservation		YES	NO
Samples are chemically preserved?			<input checked="" type="checkbox"/>
Field Team Member Statement		YES	NO
Chemical preservation exceeds limits given 40 CFR 136, Table II - Required Containers, Preservation Techniques and Holding Times (footnote 3). If YES - Do not ship.			<input checked="" type="checkbox"/>

TEST - Field Screen			YES	NO
The sample has field screening measurements of alpha activity and beta activity?				<input checked="" type="checkbox"/>
Sample Activity (dpm/100cm ²)	Shipment Activity (dpm*g/100cm ²)	Sampled Location	YES	NO
Alpha detectable	AND Alpha ≥ 160,000	AT TA-1 and adjacent hillsides, TA-21, Acid Canyon, MDA C at TA-50, Area G at TA-54, TA-48, or TA-49		<input checked="" type="checkbox"/>
Alpha ≥ 125	AND Alpha ≥ 1,250,000	AT other locations		
Beta ≥ 1,500	AND Beta ≥ 15,000,000	AT any location		
The sample Alpha ≥ 16,000,000 dpm*g/100cm ² or Beta ≥ 160,000,000 dpm*g/100cm ² . If YES - Do not ship.				
On the external surface of the sample container, alpha activity ≥ 24 dpm/cm ² , beta activity ≥ 240 dpm/cm ² , or surface activity ≥ 0.5 mR/hr. If YES - Do not ship.				
The sample is tentatively identified as DOT Hazard Class 7 (Radioactive). The shipment is labeled Radioactive Material, Excepted Package - Limited Quantity of Material - UN2910, based on field screening measurements of alpha and beta activity.				<input checked="" type="checkbox"/>

TEST - Location			YES	NO
Prior analytical measurements of radioactive isotopes are available?			<input checked="" type="checkbox"/>	
Sample Activity (pCi/g)	Shipment Activity (pCi)		YES	NO
• Am-241 ≥ 27 pCi/g	AND	Am-241 ≥ 270,000 pCi Total		<input checked="" type="checkbox"/>
• Cs-137 ≥ 270 pCi/g	AND	Cs-137 ≥ 270,000 pCi Total		
• Pu-238 ≥ 27 pCi/g	AND	Pu-238 ≥ 270,000 pCi Total		
• Pu-239/240 ≥ 27 pCi/g	AND	Pu-239/240 ≥ 270,000 pCi Total		
• Th-228 ≥ 27 pCi/g	AND	Th-228 ≥ 270,000 pCi Total		
• U-234 ≥ 270 pCi/g	AND	U-234 ≥ 1,600,000,000 pCi Total		
• U-238 ≥ 270 pCi/g	AND	U-238 ≥ unlimited		
• H-3 ≥ 27,000,000 pCi/g	AND	H-3 ≥ 27,000,000,000 pCi Total		
Am-241, Pu-238, Pu-239/240, or Th-228 ≥ 27,000,000 pCi; or Cs-137 ≥ 270,000,000 pCi or U-234 ≥ 160,000,000 pCi; or H-3 ≥ 1 Ci. If YES - Do not ship.				
The sample is tentatively identified as DOT Hazard Class 7 (Radioactive). The shipment is labeled Radioactive Material, Excepted Package - Limited Quantity of Material - UN2910, based on prior analytical measurements of radioactive isotopes.				<input checked="" type="checkbox"/>

TEST - AK		YES	NO
The shippers documented knowledge of the sample positively identifies appropriate labeling.			<input checked="" type="checkbox"/>
Documented Field Team Member Statement		YES	NO
The sample is tentatively identified as DOT Hazard Class 7 (Radioactive). The shipment is labeled Radioactive Material, Excepted Package - Limited Quantity of Material - UN2910, and the sample is submitted to ARS or RP for hazard classification analysis.			<input checked="" type="checkbox"/>

These samples do not meet the criteria for classification in any hazard class according to regulation OSHA 29 CFR 1910.1200. The sample(s) contained in this shipment have been assigned a tentative proper DOT shipping name, hazard class, identification number, and packing group, based on the shipper's knowledge of the sample:

Hazard Assessment Completed By:	Date/Time
(Printed Name) <u>James Borham</u>	<u>12/11/2017</u>
(Signature) <u>[Signature]</u>	<u>11:10</u>

Hazard Assessment Reviewed By:	Date/Time
(Printed Name) <u>S. Shewwood</u>	<u>12/14/17</u>
(Signature) <u>[Signature]</u>	<u>11:10</u>

DATA VALIDATION REPORT

Chain Of Custody No. 2018-1241

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
439931	EPA:170.0	1		1	1	
439931	SW-846:8260B	1		1	1	
439931	SW-846:8330B	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
439931	EPA:170.0	NA	NA	1		1	1														
439931	SW-846:8260B	1728172	1728172	1		1	1		2					4							
439931	SW-846:8330B	1726272	1726271	1					1	1	1			1							

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	CAWA-18-148914	439931001	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-148938	439931002	FTB	1	0	0	0
EPA:170.0	VOC	CAWA-18-148941	439931003	FB	1	0	0	0
SW-846:8260B	VOC	CAWA-18-148914	439931001	REG	80	3	0	0
SW-846:8260B	VOC	CAWA-18-148938	439931002	FTB	80	3	0	0
SW-846:8260B	VOC	CAWA-18-148941	439931003	FB	80	3	0	0
SW-846:8260B	VOC	LCS	1203943491	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203943492	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1203948056	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203948057	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203943490	MB	80	3	0	0
SW-846:8260B	VOC	MB	1203948055	MB	80	3	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-148902	1203938679	MS	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-148902	1203938680	MSD	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-148914	439931001	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	LCS	1203938678	LCS	0	1	23	0

Only results shown in Section 13 'Display Flagged Data' are current as of this report generation. All other sections are valid for the date the COC data was inserted into EIM, and may have changed due to data updates in the intervening time.

DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
SW-846:8330B	LCMS/MS HIGH	MB	1203938677	MB	23	1	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Blank FS ID	Blank Lab Sample	Blank Type	Analytical Method	Sample	Parameter Name	Blank Lab Result	Lab Qualifier	Blank Lab Units	Blank Lab Detection Limit
CAWA-18-148938	439931002	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	
CAWA-18-148941	439931003	FIELD BLANK	EPA:170.0	W	Temperature	2		Deg C	

No.

6. Any surrogate recoveries outside the control limits?

No.

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

No.

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

Only results shown in Section 13 'Display Flagged Data' are current as of this report generation. All other sections are valid for the date the COC data was inserted into EIM, and may have changed due to data updates in the intervening time.

DATA VALIDATION REPORT

LCS Lab Sample	LCSD Lab	Analytical Method	Parameter Name	Lab Lot ID	Analysis	Sample Matrix	LCS Spike Recovery	LCSD Spike Recovery	Upper Limit	Lower Limit	Upper Rejection Limit	Lower Rejection Limit	RPD	RPD Limit
1203943491		SW-846:8260B	Dichloroethane[1,2-]	1728172	12-23-2017	W	124		122	74		10		

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

13. Display Flagged Data.

None.

Reason Code

Description

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

14. Usable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
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DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAWA-18-148914	R-47	REG	EPA:170.0	0	1
CAWA-18-148914	R-47	REG	SW-846:8260B	0	80
CAWA-18-148914	R-47	REG	SW-846:8330B	0	23
CAWA-18-148938	R-47	FTB	EPA:170.0	0	1
CAWA-18-148938	R-47	FTB	SW-846:8260B	0	80
CAWA-18-148941	R-47	FB	EPA:170.0	0	1
CAWA-18-148941	R-47	FB	SW-846:8260B	0	80



January 09, 2018

gel.com

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

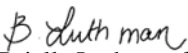
Re: LANL- WQH Water Samples
Work Order: 439931
SDG: 2018-1241

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on December 13, 2017, and analyzed for Explosives by LCMSMS and 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,


Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-1241
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 439931
SDG: 2018-1241

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 439931
SDG # : 2018-1241**

January 09, 2018

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 December 13, 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 temperatures were checked, documented, and within specifications. Shipping container temperature was within specification (0 - 6C). There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
439931001	CAWA-18-148914
439931002	CAWA-18-148938
439931003	CAWA-18-148941

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: Explosives by LCMSMS and 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.

B. Luthman
Brielle Luthman for
Valerie Davis
Project Manager

List of current GEL Certifications as of 09 January 2018

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122018-1
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
Puerto Rico	SC00012
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122017-25
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

SAMPLE RECEIPT & REVIEW FORM

Client: ESHLC		SDG/AR/COC/Work Order: 439931	
Received By: ZKW		Date Received: 12/13/17	
Carrier and Tracking Number		Circle Applicable: <input checked="" type="checkbox"/> FedEx Express <input checked="" type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other 5908 1783 3231 (3c) 5908 1783 3253 (4c) 5908 1783 3220 (2c) 5908 1783 3242 (2c) 5908 1783 3210 (14c) (rechem)	
		*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Shipped as a DOT Hazardous? <input checked="" type="checkbox"/> Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM 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. <input type="checkbox"/> PCB's <input type="checkbox"/> Flammable <input type="checkbox"/> Foreign Soil <input type="checkbox"/> RCRA <input type="checkbox"/> Asbestos <input type="checkbox"/> Beryllium <input type="checkbox"/> Other:	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input 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 <input checked="" type="checkbox"/> Dry ice <input type="checkbox"/> None <input checked="" type="checkbox"/> Other: _____ *all temperatures are recorded in Celsius <div style="text-align: right;">TEMP: Sgc Alacur</div>
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: IR3-16 Secondary Temperature Device Serial # (If Applicable): _____
5 Sample containers intact and sealed? 243/17	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken <input checked="" type="checkbox"/> Damaged container <input checked="" type="checkbox"/> Leaking container <input type="checkbox"/> Other (describe) one HexP Cont. rec'd broken
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input 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 ___ No <input checked="" type="checkbox"/> N/A ___ Sample ID's and containers affected: -148938 rec'd w/headspace
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 BL Date 12/14/17 Page 1 of 1

Subject: RE: 2018-1241 receipt issue
From: "Patel, Nita" <npatel@lanl.gov>
Date: 12/14/2017 4:16 AM
To: Brielle Luthman <Brielle.Luthman@gel.com>

Please continue and document.

Thanks,
Nita

From: Brielle Luthman <Brielle.Luthman@gel.com>
Sent: Wednesday, December 13, 2017 2:45:27 PM
To: Patel, Nita
Subject: 2018-1241 receipt issue

Nita,

Sample ID CAWA-18-148938 for WSP-8260B-VOA was received with headspace, please advise if you would like us to continue with the sample

Thank you,
Brielle

--

Brielle Luthman
Project Manager Assistant



2040 Savage Road, Charleston, SC 29407 | PO Box 30712, Charleston, SC 29417
Office Main: 843.556.8171 ext. 4487 | Fax: 843.766.1178
E-Mail: brielle.luthman@gel.com | Website: www.gel.com
Environmental | Engineering | Surveying | Analytical Testing

Please note that our offices will be closed on December 25th and January 1st to observe the holidays.

<http://www.gellaboratories.com>

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: 12DEC17
ACTWGT: 30.0 LB MAN
CAD: 0014176/CAFE2916

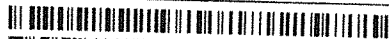
BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: 21PDAWE991158W1100



FedEx
Express



1 of 3

TRK# 5908 1783 3210
0201

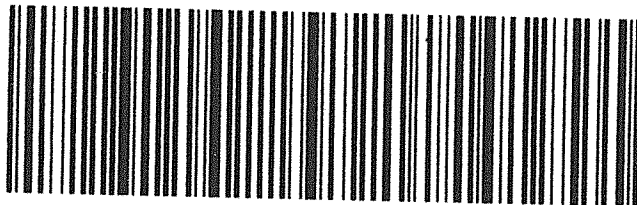
MASTER

X7 RBWA

WED - 13 DEC 10:30A
PRIORITY OVERNIGHT

29407

SC-US CHS



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: 12DEC17
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2916

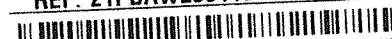
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TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: 21PDAWE991158W1100



FedEx
Express



3 of 3

MPS# 5908 1783 3231
0263

Mstr# 5908 1783 3210

0201

X7 RBWA

WED - 13 DEC 10:30A
PRIORITY OVERNIGHT

29407

SC-US CHS



Part# 156148V-434 RT2 06/15 93

SHIP DATE: 12DEC17
ACTWGT: 57.0 LB MAN
CAD: 0014176/CAFE2916

BILL SENDER

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

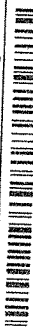
LOS ALAMOS, NM 87545
UNITED STATES US

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0ASRGW04BAGWS0



FedEx
Express



WED - 13 DEC 10:30A
PRIORITY OVERNIGHT

2 of 2

5908 1783 3253

5908 1783 3242

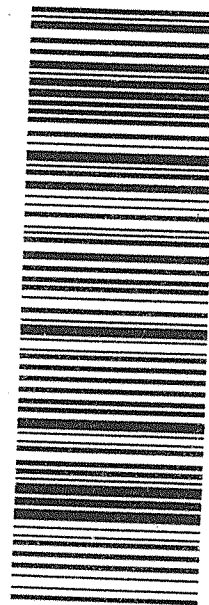
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7 RBWA

29407

SC-US

CHS



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

SHIP DATE: 12DEC17
ACTWGT: 50.0 LB MAN
CAD: 0014176/CAFE2916

LOS ALAMOS, NM 87545
UNITED STATES US

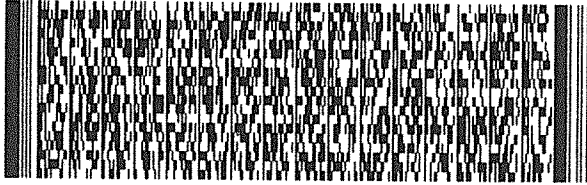
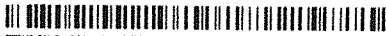
BILL SENDER

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

CHARLESTON SC 29407

(843) 666-8171

REF: 21PDAWE991158W1100



2 of 3

MPS# 5908 1783 3220
0263

Mstr# 5908 1783 3210

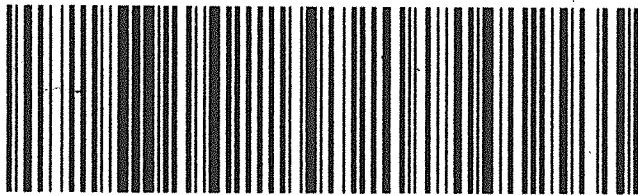
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WED - 13 DEC 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407

SC-US CHS



Part #: 156148V-434 RIT2 06/15 88

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

SHIP DATE: 12DEC17
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2916

LOS ALAMOS, NM 87545
UNITED STATES US

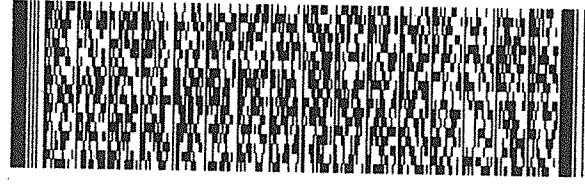
BILL SENDER

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

CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0ASRGW04BAGWS0



1 of 2

TRK# 5908 1783 3242
0201

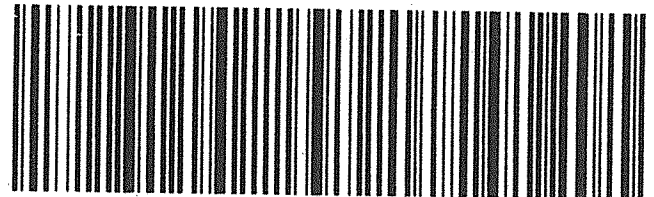
MASTER

WED - 13 DEC 10:30
PRIORITY OVERNIGHT

X7 RBWA

2940

SC-US CH



Part #: 156148V-434 RIT2 06/15 88

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 #: 2018-1241
Work Order #: 439931**

Method/Analysis Information

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

Analytical Method: SW-846:8260B

Analytical Batch
Number: 1728172

Sample Analysis

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

Sample ID	Client ID
439931001	CAWA-18-148914
439931002	CAWA-18-148938
439931003	CAWA-18-148941
1203943490	Method Blank (MB)
1203943491	Laboratory Control Sample (LCS)
1203943492	Laboratory Control Sample (LCS)
1203943493	440189010(CALA-18-150423) Post Spike (PS)
1203943494	440189010(CALA-18-150423) Post Spike (PS)
1203943495	440189010(CALA-18-150423) Post Spike Duplicate (PSD)
1203943496	440189010(CALA-18-150423) Post Spike Duplicate (PSD)
1203948055	Method Blank (MB)
1203948056	Laboratory Control Sample (LCS)
1203948057	Laboratory Control Sample (LCS)

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

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 26.

Calibration Information

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

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

Initial Calibration

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

Continuing Calibration Verification Requirements

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

Quality Control (QC) Information

Blank (MB) Statement

The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

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

Laboratory Control Sample (LCS) Recovery

The LCS/and or LCSD (See Below) recovery was not within the acceptance limits for all analytes. The unacceptable analyte was not detected in the samples associated with the laboratory control sample. Therefore, the data were reported.

Sample	Analyte	Value
1203943491 (LCS)	1, 2-Dichloroethane	124* (74%-122%)

QC Sample Designation

Spike analyses were not required for this SDG.

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

Sample 439931002 (CAWA-18-148938) contained head-space greater than pea size. The Project Manager was notified and the results are reported.

Sample Dilutions/Methanol Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

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

Miscellaneous Information

Manual Integrations

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

TIC Comment

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

Additional Comments

Additional comments were not required for this SDG.

Residual Chlorine

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

Electronic Package Comment

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

System Configuration

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
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: 2018-1241 GEL Work Order: 439931

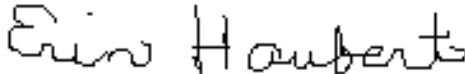
The Qualifiers in this report are defined as follows:

- * 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: 09 JAN 2018

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1241

Lab Sample ID: 439931001

Date Collected: 12/11/2017 10:17

Date Received: 12/13/2017 09:20

Matrix: W

Client ID: CAWA-18-148914

Batch ID: 1728172

Run Date: 12/23/2017 19:33

Prep Date: 12/23/2017 19:33

Data File: 122317V1\1N612.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: PXY1

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	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	0.300	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	1.50	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	0.300	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	0.300	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	1.50	ug/L	1.50	5.00
67-64-1	Acetone	U	1.50	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	8.00	ug/L	8.00	25.0
107-02-8	Acrolein	U	1.50	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	1.50	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	1.50	ug/L	1.50	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	0.300	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

Page 2 of 3

SDG Number: 2018-1241
Lab Sample ID: 439931001

Client ID: CAWA-18-148914
Batch ID: 1728172
Run Date: 12/23/2017 19:33
Prep Date: 12/23/2017 19:33
Data File: 122317V1\1N612.D

Date Collected: 12/11/2017 10:17
Date Received: 12/13/2017 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

Project: ESHL00114
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241
Lab Sample ID: 439931001

Client ID: CAWA-18-148914
Batch ID: 1728172
Run Date: 12/23/2017 19:33
Prep Date: 12/23/2017 19:33
Data File: 122317V1\1N612.D

Date Collected: 12/11/2017 10:17
Date Received: 12/13/2017 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

Project: ESHL00114
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.2	50.0	ug/L 96	(71%-134%)
Bromofluorobenzene	57.7	50.0	ug/L 115	(70%-131%)
Toluene-d8	43.4	50.0	ug/L 87	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	8.25	86.8	ug/L	0	J
	unknown siloxane	14.549	17.5	ug/L	0	J
	unknown	19.021	15.1	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 439931002

Client ID: CAWA-18-148938
Batch ID: 1728172
Run Date: 12/23/2017 20:03
Prep Date: 12/23/2017 20:03
Data File: 122317V1\1N613.D

Date Collected: 12/11/2017 10:17
Date Received: 12/13/2017 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

Project: ESHL00114
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 439931002

Client ID: CAWA-18-148938
Batch ID: 1728172
Run Date: 12/23/2017 20:03
Prep Date: 12/23/2017 20:03
Data File: 122317V1\1N613.D

Date Collected: 12/11/2017 10:17
Date Received: 12/13/2017 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

Project: ESHL00114
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241

Lab Sample ID: 439931002

Date Collected: 12/11/2017 10:17

Date Received: 12/13/2017 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1728172

Inst: VOA1.I

Dilution: 1

Run Date: 12/23/2017 20:03

Analyst: PXY1

Purge Vol: 5 mL

Prep Date: 12/23/2017 20:03

Data File: 122317V1\1N613.D

Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.6	50.0	ug/L 97	(71%-134%)
Bromofluorobenzene	58.6	50.0	ug/L 117	(70%-131%)
Toluene-d8	43.4	50.0	ug/L 87	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	10.3	86.2	ug/L	0	J
	unknown siloxane	14.549	16.7	ug/L	0	J
	unknown	19.02	14.9	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 439931003

Client ID: CAWA-18-148941
Batch ID: 1728172
Run Date: 12/23/2017 20:32
Prep Date: 12/23/2017 20:32
Data File: 122317V1\1N614.D

Date Collected: 12/11/2017 10:17
Date Received: 12/13/2017 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

Project: ESHL00114
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 439931003

Client ID: CAWA-18-148941
Batch ID: 1728172
Run Date: 12/23/2017 20:32
Prep Date: 12/23/2017 20:32
Data File: 122317V1\1N614.D

Date Collected: 12/11/2017 10:17
Date Received: 12/13/2017 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

Project: ESHL00114
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241
Lab Sample ID: 439931003

Client ID: CAWA-18-148941
Batch ID: 1728172
Run Date: 12/23/2017 20:32
Prep Date: 12/23/2017 20:32
Data File: 122317V1\1N614.D

Date Collected: 12/11/2017 10:17
Date Received: 12/13/2017 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

Project: ESHL00114
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.6	50.0	ug/L 99	(71%-134%)
Bromofluorobenzene	59.4	50.0	ug/L 119	(70%-131%)
Toluene-d8	43.9	50.0	ug/L 88	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	8.25	88.5	ug/L	0	J
	unknown siloxane	14.549	15.7	ug/L	0	J
	unknown	19.021	14.5	ug/L	0	J

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2018-1241**Matrix Type: LIQUID**

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203943491	LCS for batch 1728172	96	87	104
1203943492	LCS for batch 1728172	93	85	105
1203943490	MB for batch 1728172	95	87	112
439931001	CAWA-18-148914	96	87	115
439931002	CAWA-18-148938	97	87	117
439931003	CAWA-18-148941	99	88	119
1203948056	LCS for batch 1728172	88	82	105
1203948057	LCS for batch 1728172	87	83	108
1203948055	MB for batch 1728172	89	85	116
1203943493	CALA-18-150423PS	88	83	105
1203943495	CALA-18-150423PSD	86	84	108
1203943494	CALA-18-150423PS	86	84	108
1203943496	CALA-18-150423PSD	83	82	106

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: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203943491

Instrument: VOA1.I

Analysis Date: 12/23/2017 15:13

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS m,p-Xylenes	100	0.0	101	101	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1440	115	61-125
67-64-1	LCS Acetone	250	0.0	299	119	48-157
74-88-4	LCS Iodomethane	250	0.0	288	115	72-128
75-15-0	LCS Carbon disulfide	250	0.0	272	109	69-138
108-05-4	LCS Vinyl acetate	250	0.0	246	98	67-125
78-93-3	LCS 2-Butanone	250	0.0	279	112	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	246	98	66-124
591-78-6	LCS 2-Hexanone	250	0.0	326	130	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	55.6	111	40-160
74-87-3	LCS Chloromethane	50.0	0.0	47.9	96	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	51.8	104	65-137
74-83-9	LCS Bromomethane	50.0	0.0	58.1	116	63-137
75-00-3	LCS Chloroethane	50.0	0.0	54.2	108	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	62.1	124	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	54.2	108	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	59.9	120	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	53.3	107	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	51.6	103	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	60.1	120	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	58.1	116	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	58.3	117	75-123

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203943491

Instrument: VOA1.I

Analysis Date: 12/23/2017 15:13

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	59.9	120	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	59.2	118	76-125
67-66-3	LCS Chloroform	50.0	0.0	59.4	119	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	62.3	125	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	56.9	114	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	65.5	131	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	61.8	124 *	74-122
71-43-2	LCS Benzene	50.0	0.0	54.2	108	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	60.3	121	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	55.9	112	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	59.6	119	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	61.4	123	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	55.1	110	78-131
108-88-3	LCS Toluene	50.0	0.0	48.9	98	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	52.0	104	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	51.7	103	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	49.6	99	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	54.2	108	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	56.7	113	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	53.4	107	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	49.5	99	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	49.4	99	73-125

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203943491

Instrument: VOA1.I

Analysis Date: 12/23/2017 15:13

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	LCS o-Xylene	50.0	0.0	50.2	100	74-126
100-42-5	LCS Styrene	50.0	0.0	49.2	98	72-130
75-25-2	LCS Bromoform	50.0	0.0	54.5	109	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	45.6	91	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	46.7	93	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	52.7	105	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	48.7	97	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	45.7	91	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	46.5	93	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	47.8	96	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	46.7	93	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	48.4	97	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	46.7	93	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	46.6	93	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	47.2	94	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	47.4	95	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	48.3	97	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	47.6	95	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	53.4	107	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	55.4	111	72-136
91-20-3	LCS Naphthalene	50.0	0.0	57.2	114	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	58.5	117	70-130

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203943491

Instrument: VOA1.I

Analysis Date: 12/23/2017 15:13

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	54.9	110	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	55.1	110	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	48.5	97	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	5920	118	63-138

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203943492

Instrument: VOA1.I

Analysis Date: 12/23/2017 16:10

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	266	106	60-140
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	293	117	61-148
107-05-1	LCS	Allyl chloride	250	0.0	264	106	59-125
107-13-1	LCS	Acrylonitrile	250	0.0	279	112	65-122
107-12-0	LCS	Propionitrile	250	0.0	267	107	64-124
126-98-7	LCS	Methacrylonitrile	250	0.0	276	111	64-126
80-62-6	LCS	Methyl methacrylate	250	0.0	266	107	69-127
97-63-2	LCS	Ethyl methacrylate	250	0.0	220	88	66-130
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2730	109	65-135
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	53.5	107	66-147

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Post Spike

Client ID: CALA-18-150423PS

Matrix: W

Lab Sample ID 1203943493

Instrument: VOA1.I

Analysis Date: 12/26/2017 19:41

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	85.6	86	59-132
75-05-8	PS Acetonitrile	1250	0.00 U	1310	104	56-131
67-64-1	PS Acetone	250	0.00 U	119	48	25-155
74-88-4	PS Iodomethane	250	0.00 U	262	105	66-133
75-15-0	PS Carbon disulfide	250	0.00 U	227	91	61-141
108-05-4	PS Vinyl acetate	250	0.00 U	254	102	48-133
78-93-3	PS 2-Butanone	250	0.00 U	150	60	25-143
108-10-1	PS 4-Methyl-2-pentanone	250	0.00 U	207	83	61-127
591-78-6	PS 2-Hexanone	250	0.00 U	186	74	33-138
75-71-8	PS Dichlorodifluoromethane	50.0	0.00 U	60.1	120	33-164
74-87-3	PS Chloromethane	50.0	0.00 U	52.7	105	53-139
75-01-4	PS Vinyl chloride	50.0	0.00 U	52.3	105	58-140
74-83-9	PS Bromomethane	50.0	0.00 U	62.4	125	59-146
75-00-3	PS Chloroethane	50.0	0.00 U	53.7	107	65-129
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	58.5	117	65-141
60-29-7	PS Ethyl ether	50.0	0.00 U	57.1	114	69-127
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	48.9	98	59-130
75-09-2	PS Methylene chloride	50.0	0.00 U	49.8	100	62-123
1634-04-4	PS tert-Butyl methyl ether	50.0	0.00 U	47.6	95	69-132
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	51.9	104	65-127
75-34-3	PS 1,1-Dichloroethane	50.0	0.00 U	52.1	104	67-127
156-59-2	PS cis-1,2-Dichloroethylene	50.0	0.00 U	53.6	107	69-127

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Post Spike

Client ID: CALA-18-150423PS

Matrix: W

Lab Sample ID 1203943493

Instrument: VOA1.I

Analysis Date: 12/26/2017 19:41

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	PS 2,2-Dichloropropane	50.0	0.00 U	50.3	101	66-137
74-97-5	PS Bromochloromethane	50.0	0.00 U	56.3	113	71-130
67-66-3	PS Chloroform	50.0	0.00 U	55.2	110	71-129
71-55-6	PS 1,1,1-Trichloroethane	50.0	0.00 U	52.2	104	69-139
563-58-6	PS 1,1-Dichloropropene	50.0	0.00 U	46.9	94	67-130
56-23-5	PS Carbon tetrachloride	50.0	0.00 U	54.8	110	66-143
107-06-2	PS 1,2-Dichloroethane	50.0	0.00 U	59.0	118	69-130
71-43-2	PS Benzene	50.0	0.00 U	47.9	96	66-125
79-01-6	PS Trichloroethylene	50.0	0.00 U	52.2	104	65-131
78-87-5	PS 1,2-Dichloropropane	50.0	0.00 U	52.0	104	67-127
74-95-3	PS Dibromomethane	50.0	0.00 U	56.7	113	72-129
75-27-4	PS Bromodichloromethane	50.0	0.00 U	57.5	115	70-138
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00 U	50.9	102	70-134
108-88-3	PS Toluene	50.0	0.00 U	41.9	84	60-126
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00 U	46.8	94	69-135
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00 U	47.3	95	66-125
142-28-9	PS 1,3-Dichloropropane	50.0	0.00 U	46.0	92	67-124
127-18-4	PS Tetrachloroethylene	50.0	0.00 U	44.4	89	60-130
124-48-1	PS Dibromochloromethane	50.0	0.00 U	52.8	106	68-143
106-93-4	PS 1,2-Dibromoethane	50.0	0.00 U	49.1	98	71-127
108-90-7	PS Chlorobenzene	50.0	0.00 U	44.4	89	64-124
100-41-4	PS Ethylbenzene	50.0	0.00 U	42.1	84	61-130

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 8

SDG Number: 2018-1241

Sample Type: Post Spike

Client ID: CALA-18-150423PS

Matrix: W

Lab Sample ID 1203943493

Instrument: VOA1.I

Analysis Date: 12/26/2017 19:41

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	43.9	88	62-131
100-42-5	PS Styrene	50.0	0.00 U	44.2	88	59-135
75-25-2	PS Bromoform	50.0	0.00 U	49.4	99	64-138
98-82-8	PS Isopropylbenzene	50.0	0.00 U	37.9	76	55-133
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	42.0	84	62-129
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	46.9	94	70-124
108-86-1	PS Bromobenzene	50.0	0.00 U	43.6	87	62-124
103-65-1	PS n-Propylbenzene	50.0	0.00 U	37.5	75	50-133
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	39.8	80	53-135
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	40.8	82	56-128
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	40.0	80	53-130
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	39.6	79	55-135
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	40.6	81	53-132
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	38.4	77	50-138
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	39.2	78	49-138
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	41.6	83	56-126
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	42.8	86	55-125
104-51-8	PS n-Butylbenzene	50.0	0.00 U	38.4	77	43-142
96-12-8	PS 1,2-Dibromo-3-chloropropane	50.0	0.00 U	46.2	92	62-141
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	44.8	90	40-147
91-20-3	PS Naphthalene	50.0	0.00 U	48.7	97	62-134
87-61-6	PS 1,2,3-Trichlorobenzene	50.0	0.00 U	50.0	100	52-135

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Post Spike

Client ID: CALA-18-150423PS

Matrix: W

Lab Sample ID 1203943493

Instrument: VOA1.I

Analysis Date: 12/26/2017 19:41

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	46.4	93	50-133
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	51.3	103	71-133
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	43.7	87	60-125
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5410	108	60-140

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Post Spike Duplicate

Client ID: CALA-18-150423PSD

Matrix: W

Lab Sample ID 1203943495

Instrument: VOA1.I

Analysis Date: 12/26/2017 20:10

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	85.2	85	59-132	1	0-20
75-05-8	PSD Acetonitrile	1250	0.00 U	1300	104	56-131	0	0-20
67-64-1	PSD Acetone	250	0.00 U	121	48	25-155	1	0-20
74-88-4	PSD Iodomethane	250	0.00 U	252	101	66-133	4	0-20
75-15-0	PSD Carbon disulfide	250	0.00 U	217	87	61-141	5	0-20
108-05-4	PSD Vinyl acetate	250	0.00 U	244	98	48-133	4	0-20
78-93-3	PSD 2-Butanone	250	0.00 U	151	61	25-143	1	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00 U	213	85	61-127	3	0-20
591-78-6	PSD 2-Hexanone	250	0.00 U	194	78	33-138	4	0-20
75-71-8	PSD Dichlorodifluoromethane	50.0	0.00 U	57.4	115	33-164	5	0-20
74-87-3	PSD Chloromethane	50.0	0.00 U	50.4	101	53-139	4	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00 U	47.4	95	58-140	10	0-20
74-83-9	PSD Bromomethane	50.0	0.00 U	60.4	121	59-146	3	0-20
75-00-3	PSD Chloroethane	50.0	0.00 U	52.0	104	65-129	3	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00 U	55.8	112	65-141	5	0-20
60-29-7	PSD Ethyl ether	50.0	0.00 U	56.5	113	69-127	1	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00 U	46.7	93	59-130	5	0-20
75-09-2	PSD Methylene chloride	50.0	0.00 U	48.8	98	62-123	2	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.00 U	47.7	95	69-132	0	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00 U	50.5	101	65-127	3	0-20
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00 U	50.3	101	67-127	3	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00 U	52.1	104	69-127	3	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Post Spike Duplicate

Client ID: CALA-18-150423PSD

Matrix: W

Lab Sample ID 1203943495

Instrument: VOA1.I

Analysis Date: 12/26/2017 20:10

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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 47.7	95	66-137	5	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00	U 54.9	110	71-130	3	0-20
67-66-3	PSD Chloroform	50.0	0.00	U 53.3	107	71-129	4	0-20
71-55-6	PSD 1,1,1-Trichloroethane	50.0	0.00	U 49.9	100	69-139	4	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00	U 44.7	89	67-130	5	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00	U 52.1	104	66-143	5	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00	U 57.0	114	69-130	3	0-20
71-43-2	PSD Benzene	50.0	0.00	U 46.8	94	66-125	2	0-20
79-01-6	PSD Trichloroethylene	50.0	0.00	U 50.1	100	65-131	4	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00	U 50.2	100	67-127	4	0-20
74-95-3	PSD Dibromomethane	50.0	0.00	U 56.0	112	72-129	1	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00	U 56.1	112	70-138	2	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00	U 49.0	98	70-134	4	0-20
108-88-3	PSD Toluene	50.0	0.00	U 42.6	85	60-126	2	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00	U 47.4	95	69-135	1	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00	U 48.3	97	66-125	2	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00	U 46.9	94	67-124	2	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.00	U 44.1	88	60-130	1	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00	U 53.3	107	68-143	1	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00	U 49.9	100	71-127	2	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00	U 44.6	89	64-124	0	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00	U 42.4	85	61-130	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Post Spike Duplicate

Client ID: CALA-18-150423PSD

Matrix: W

Lab Sample ID 1203943495

Instrument: VOA1.I

Analysis Date: 12/26/2017 20:10

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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 43.3	87	62-131	1	0-20
100-42-5	PSD Styrene	50.0	0.00	U 43.9	88	59-135	1	0-20
75-25-2	PSD Bromoform	50.0	0.00	U 51.4	103	64-138	4	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00	U 38.1	76	55-133	1	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00	U 44.1	88	62-129	5	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00	U 49.0	98	70-124	4	0-20
108-86-1	PSD Bromobenzene	50.0	0.00	U 44.1	88	62-124	1	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00	U 37.0	74	50-133	1	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00	U 39.3	79	53-135	1	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00	U 41.0	82	56-128	0	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00	U 40.2	80	53-130	0	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00	U 39.9	80	55-135	1	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00	U 40.5	81	53-132	0	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00	U 37.9	76	50-138	1	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00	U 38.5	77	49-138	2	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00	U 42.0	84	56-126	1	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00	U 42.2	84	55-125	1	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00	U 37.4	75	43-142	3	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00	U 48.3	97	62-141	5	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00	U 43.5	87	40-147	3	0-20
91-20-3	PSD Naphthalene	50.0	0.00	U 49.6	99	62-134	2	0-20
87-61-6	PSD 1,2,3-Trichlorobenzene	50.0	0.00	U 49.4	99	52-135	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1241

Sample Type: Post Spike Duplicate

Client ID: CALA-18-150423PSD

Matrix: W

Lab Sample ID 1203943495

Instrument: VOA1.I

Analysis Date: 12/26/2017 20:10

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	45.4	91	50-133	2	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	50.6	101	71-133	1	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	43.5	87	60-125	1	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00 U	5460	109	60-140	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 2018-1241

Sample Type: Post Spike

Client ID: CALA-18-150423PS

Matrix: W

Lab Sample ID 1203943494

Instrument: VOA1.I

Analysis Date: 12/26/2017 20:39

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	U	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	PS	Acrolein	250	0.00	U	238	95	49-141
76-13-1	PS	Trichlorotrifluoroethane	250	0.00	U	243	97	57-149
107-05-1	PS	Allyl chloride	250	0.00	U	244	97	54-128
107-13-1	PS	Acrylonitrile	250	0.00	U	257	103	59-129
107-12-0	PS	Propionitrile	250	0.00	U	244	97	58-131
126-98-7	PS	Methacrylonitrile	250	0.00	U	255	102	59-134
80-62-6	PS	Methyl methacrylate	250	0.00	U	251	101	62-135
97-63-2	PS	Ethyl methacrylate	250	0.00	U	206	82	60-136
78-83-1	PS	Isobutyl alcohol	2500	0.00	U	2370	95	60-143
126-99-8	PS	2-Chloro-1,3-butadiene	50.0	0.00	U	46.5	93	63-146

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 2018-1241

Sample Type: Post Spike Duplicate

Client ID: CALA-18-150423PSD

Matrix: W

Lab Sample ID 1203943496

Instrument: VOA1.I

Analysis Date: 12/26/2017 21:08

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	U	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
107-02-8	PSD	Acrolein	250	0.00	U	229	91	49-141	4	0-20
76-13-1	PSD	Trichlorotrifluoroethane	250	0.00	U	233	93	57-149	4	0-20
107-05-1	PSD	Allyl chloride	250	0.00	U	237	95	54-128	3	0-20
107-13-1	PSD	Acrylonitrile	250	0.00	U	254	102	59-129	1	0-20
107-12-0	PSD	Propionitrile	250	0.00	U	239	95	58-131	2	0-20
126-98-7	PSD	Methacrylonitrile	250	0.00	U	248	99	59-134	3	0-20
80-62-6	PSD	Methyl methacrylate	250	0.00	U	243	97	62-135	3	0-20
97-63-2	PSD	Ethyl methacrylate	250	0.00	U	204	82	60-136	1	0-20
78-83-1	PSD	Isobutyl alcohol	2500	0.00	U	2370	95	60-143	0	0-20
126-99-8	PSD	2-Chloro-1,3-butadiene	50.0	0.00	U	45.6	91	63-146	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203948056

Instrument: VOA1.I

Analysis Date: 12/26/2017 10:36

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	95.3	95	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1310	105	61-125
67-64-1	LCS Acetone	250	0.0	294	118	48-157
74-88-4	LCS Iodomethane	250	0.0	279	111	72-128
75-15-0	LCS Carbon disulfide	250	0.0	252	101	69-138
108-05-4	LCS Vinyl acetate	250	0.0	285	114	67-125
78-93-3	LCS 2-Butanone	250	0.0	269	108	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	225	90	66-124
591-78-6	LCS 2-Hexanone	250	0.0	299	120	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	71.8	144	40-160
74-87-3	LCS Chloromethane	50.0	0.0	56.4	113	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	57.8	116	65-137
74-83-9	LCS Bromomethane	50.0	0.0	66.2	132	63-137
75-00-3	LCS Chloroethane	50.0	0.0	60.0	120	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	67.0	134	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	58.2	116	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	56.1	112	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	50.7	101	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	49.4	99	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	57.4	115	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	56.0	112	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	56.0	112	75-123

Volatile
Quality Control Summary
Spike Recovery Report

SDG Number: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203948056

Instrument: VOA1.I

Analysis Date: 12/26/2017 10:36

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	57.3	115	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	56.6	113	76-125
67-66-3	LCS Chloroform	50.0	0.0	58.1	116	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	59.1	118	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	53.9	108	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	62.8	126	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	59.9	120	74-122
71-43-2	LCS Benzene	50.0	0.0	51.9	104	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	57.6	115	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	54.2	108	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	57.5	115	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	59.7	119	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	53.2	106	78-131
108-88-3	LCS Toluene	50.0	0.0	46.5	93	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	48.5	97	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	48.8	98	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	46.9	94	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	51.6	103	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	54.1	108	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	50.6	101	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	47.8	96	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	46.8	94	73-125

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203948056

Instrument: VOA1.I

Analysis Date: 12/26/2017 10:36

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	47.4	95	74-126
100-42-5	LCS Styrene	50.0	0.0	46.7	93	72-130
75-25-2	LCS Bromoform	50.0	0.0	51.4	103	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	43.5	87	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	43.5	87	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	49.0	98	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	46.7	93	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	43.3	87	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	44.6	89	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	45.2	90	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	44.1	88	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	46.2	92	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	44.6	89	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	44.3	89	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	45.5	91	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	45.9	92	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	46.9	94	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	44.9	90	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	48.9	98	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	53.3	107	72-136
91-20-3	LCS Naphthalene	50.0	0.0	52.2	104	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	54.4	109	70-130

Volatile
Quality Control Summary
Spike Recovery Report

Page 4 of 4

SDG Number: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203948056

Instrument: VOA1.I

Analysis Date: 12/26/2017 10:36

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	51.0	102	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	53.6	107	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	46.6	93	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	5350	107	63-138

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2018-1241

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728172

Matrix: WATER

Lab Sample ID 1203948057

Instrument: VOA1.I

Analysis Date: 12/26/2017 12:02

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728172

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	266	107	60-140
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	269	107	61-148
107-05-1	LCS	Allyl chloride	250	0.0	257	103	59-125
107-13-1	LCS	Acrylonitrile	250	0.0	266	106	65-122
107-12-0	LCS	Propionitrile	250	0.0	251	100	64-124
126-98-7	LCS	Methacrylonitrile	250	0.0	267	107	64-126
80-62-6	LCS	Methyl methacrylate	250	0.0	257	103	69-127
97-63-2	LCS	Ethyl methacrylate	250	0.0	211	85	66-130
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2500	100	65-135
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	50.0	100	66-147

Method Blank Summary

Page 1 of 1

SDG Number:	2018-1241	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1728172	Instrument ID:	VOA1.I	Data File:	122317V1\1N606A.D
Lab Sample ID:	1203943490	Prep Date:	12/23/2017 16:39	Analyzed:	12/23/17 16:39
Column:	DB-624				

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

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1728172	1203943491	122317V1\1N603A.D	12/23/17	1513
02 LCS for batch 1728172	1203943492	122317V1\1N605A.D	12/23/17	1610
03 CAWA-18-148914	439931001	122317V1\1N612.D	12/23/17	1933
04 CAWA-18-148938	439931002	122317V1\1N613.D	12/23/17	2003
05 CAWA-18-148941	439931003	122317V1\1N614.D	12/23/17	2032

Method Blank Summary

Page 1 of 1

SDG Number: 2018-1241

Client: ARSL004

Matrix: WATER

Client ID: MB for batch 1728172

Instrument ID: VOA1.I

Data File: 122617V1\1O108A.D

Lab Sample ID: 1203948055

Prep Date: 12/26/2017 13:00

Analyzed: 12/26/17 13:00

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
07 LCS for batch 1728172	1203948056	122617V1\1O103A.D	12/26/17	1036
08 LCS for batch 1728172	1203948057	122617V1\1O106A.D	12/26/17	1202
09 CALA-18-150423PS	1203943493	122617V1\1O122.D	12/26/17	1941
10 CALA-18-150423PSD	1203943495	122617V1\1O123.D	12/26/17	2010
11 CALA-18-150423PS	1203943494	122617V1\1O124.D	12/26/17	2039
12 CALA-18-150423PSD	1203943496	122617V1\1O125.D	12/26/17	2108

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2018-1241
Lab Sample ID: 1203943490
Client Sample: QC for batch 1728172
Client ID: MB for batch 1728172
Batch ID: 1728172
Run Date: 12/23/2017 16:39
Prep Date: 12/23/2017 16:39
Data File: 122317V1\1N606A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

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	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	0.300	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	1.50	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	0.300	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	0.300	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	1.50	ug/L	1.50	5.00
67-64-1	Acetone	U	1.50	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	8.00	ug/L	8.00	25.0
107-02-8	Acrolein	U	1.50	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	1.50	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	1.50	ug/L	1.50	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	0.300	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 1203943490
Client Sample: QC for batch 1728172
Client ID: MB for batch 1728172
Batch ID: 1728172
Run Date: 12/23/2017 16:39
Prep Date: 12/23/2017 16:39
Data File: 122317V1\1N606A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: WATER

Project: QC
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241
Lab Sample ID: 1203943490
Client Sample: QC for batch 1728172
Client ID: MB for batch 1728172
Batch ID: 1728172
Run Date: 12/23/2017 16:39
Prep Date: 12/23/2017 16:39
Data File: 122317V1\1N606A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1
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
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.4	50.0	ug/L 95	(71%-134%)
Bromofluorobenzene	56.1	50.0	ug/L 112	(70%-131%)
Toluene-d8	43.5	50.0	ug/L 87	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	8.241	97.5	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1241
Lab Sample ID: 1203943491
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/23/2017 15:13
Prep Date: 12/23/2017 15:13
Data File: 122317V1\1N603A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

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		55.1	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		62.3	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.7	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		58.1	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		59.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		56.9	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		58.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		52.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		54.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		46.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		53.4	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		53.4	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		48.5	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		61.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		55.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		46.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.4	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		49.6	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.3	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		59.9	ug/L	0.300	1.00
78-93-3	2-Butanone		279	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		47.8	ug/L	0.300	1.00
591-78-6	2-Hexanone		326	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		46.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		47.2	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		246	ug/L	1.50	5.00
67-64-1	Acetone		299	ug/L	1.50	10.0
75-05-8	Acetonitrile		1440	ug/L	8.00	25.0
107-02-8	Acrolein	U	1.50	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	1.50	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	1.50	ug/L	1.50	5.00
71-43-2	Benzene		54.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		59.2	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		61.4	ug/L	0.300	1.00
75-25-2	Bromoform		54.5	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241
Lab Sample ID: 1203943491
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/23/2017 15:13
Prep Date: 12/23/2017 15:13
Data File: 122317V1\1N603A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: WATER

Project: QC
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		58.1	ug/L	0.300	1.00
75-15-0	Carbon disulfide		272	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		65.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.5	ug/L	0.300	1.00
75-00-3	Chloroethane		54.2	ug/L	0.300	1.00
67-66-3	Chloroform		59.4	ug/L	0.300	1.00
74-87-3	Chloromethane		47.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		56.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		59.6	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		55.6	ug/L	0.300	1.00
60-29-7	Ethyl ether		54.2	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		49.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		55.4	ug/L	0.300	1.00
74-88-4	Iodomethane		288	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		45.6	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	1.50	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	1.50	ug/L	1.50	5.00
75-09-2	Methylene chloride		53.3	ug/L	1.00	10.0
91-20-3	Naphthalene		57.2	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		49.2	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		54.2	ug/L	0.300	1.00
108-88-3	Toluene		48.9	ug/L	0.300	1.00
79-01-6	Trichloroethylene		60.3	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		62.1	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		246	ug/L	1.50	5.00
75-01-4	Vinyl chloride		51.8	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		58.3	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		55.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5920	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		47.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		45.7	ug/L	0.300	1.00
95-47-6	o-Xylene		50.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		46.6	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number:	2018-1241	Matrix:	WATER
Lab Sample ID:	1203943491		
Client Sample:	QC for batch 1728172	Client:	ARSL004
Client ID:	LCS for batch 1728172	Method:	SW-846:8260B
Batch ID:	1728172	Inst:	VOA1.I
Run Date:	12/23/2017 15:13	Analyst:	PXY1
Prep Date:	12/23/2017 15:13		
Data File:	122317V1\1N603A.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		51.6	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		48.4	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		60.1	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		52.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.9	50.0	ug/L	96	(71%-134%)
Bromofluorobenzene	52.0	50.0	ug/L	104	(70%-131%)
Toluene-d8	43.4	50.0	ug/L	87	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 1203943492
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/23/2017 16:10
Prep Date: 12/23/2017 16:10
Data File: 122317V1\1N605A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

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	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		53.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	0.300	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	1.50	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	0.300	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	0.300	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	1.50	ug/L	1.50	5.00
67-64-1	Acetone	U	1.50	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	8.00	ug/L	8.00	25.0
107-02-8	Acrolein		266	ug/L	1.50	5.00
107-13-1	Acrylonitrile		279	ug/L	1.50	5.00
107-05-1	Allyl chloride		264	ug/L	1.50	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	0.300	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241
Lab Sample ID: 1203943492
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/23/2017 16:10
Prep Date: 12/23/2017 16:10
Data File: 122317V1\1N605A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: WATER

Project: QC
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	1.50	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
75-00-3	Chloroethane	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	0.300	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	0.300	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		220	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	0.300	ug/L	0.300	1.00
74-88-4	Iodomethane	U	1.50	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2730	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		276	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		266	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
107-12-0	Propionitrile		267	ug/L	1.50	5.00
100-42-5	Styrene	U	0.300	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		293	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	1.50	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	15.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	0.300	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	0.300	ug/L	0.300	1.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	0.300	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241
Lab Sample ID: 1203943492
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/23/2017 16:10
Prep Date: 12/23/2017 16:10
Data File: 122317V1\1N605A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

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
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.3	50.0	ug/L	93	(71%-134%)
Bromofluorobenzene	52.6	50.0	ug/L	105	(70%-131%)
Toluene-d8	42.6	50.0	ug/L	85	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241	Date Collected: 12/13/2017 11:12	Matrix: W
Lab Sample ID: 1203943493	Date Received: 12/15/2017 09:05	
Client Sample: QC for batch 1728172	Client: ARSL004	Project: QC
Client ID: CALA-18-150423PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1728172	Inst: VOA1.I	Dilution: 1
Run Date: 12/26/2017 19:41	Analyst: PXY1	Purge Vol: 5 mL
Prep Date: 12/26/2017 19:41		
Data File: 122617V1\10122.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		51.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		52.2	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		42.0	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.3	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		52.1	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		48.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		46.9	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		50.0	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.9	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.4	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		40.6	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		46.2	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		49.1	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		43.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		59.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		52.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		39.8	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		41.6	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		46.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		42.8	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		50.3	ug/L	0.300	1.00
78-93-3	2-Butanone		150	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		40.8	ug/L	0.300	1.00
591-78-6	2-Hexanone		186	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		40.0	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		39.2	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		207	ug/L	1.50	5.00
67-64-1	Acetone		119	ug/L	1.50	10.0
75-05-8	Acetonitrile		1310	ug/L	8.00	25.0
107-02-8	Acrolein	U	1.50	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	1.50	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	1.50	ug/L	1.50	5.00
71-43-2	Benzene		47.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		43.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane		56.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		57.5	ug/L	0.300	1.00
75-25-2	Bromoform		49.4	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241	Date Collected: 12/13/2017 11:12	Matrix: W
Lab Sample ID: 1203943493	Date Received: 12/15/2017 09:05	
Client Sample: QC for batch 1728172	Client: ARSL004	Project: QC
Client ID: CALA-18-150423PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1728172	Inst: VOA1.I	Dilution: 1
Run Date: 12/26/2017 19:41	Analyst: PXY1	Purge Vol: 5 mL
Prep Date: 12/26/2017 19:41		
Data File: 122617V1\10122.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		62.4	ug/L	0.300	1.00
75-15-0	Carbon disulfide		227	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		54.8	ug/L	0.300	1.00
108-90-7	Chlorobenzene		44.4	ug/L	0.300	1.00
75-00-3	Chloroethane		53.7	ug/L	0.300	1.00
67-66-3	Chloroform		55.2	ug/L	0.300	1.00
74-87-3	Chloromethane		52.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.8	ug/L	0.300	1.00
74-95-3	Dibromomethane		56.7	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		60.1	ug/L	0.300	1.00
60-29-7	Ethyl ether		57.1	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		42.1	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		44.8	ug/L	0.300	1.00
74-88-4	Iodomethane		262	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		37.9	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	1.50	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	1.50	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.8	ug/L	1.00	10.0
91-20-3	Naphthalene		48.7	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		44.2	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		44.4	ug/L	0.300	1.00
108-88-3	Toluene		41.9	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		58.5	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		254	ug/L	1.50	5.00
75-01-4	Vinyl chloride		52.3	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		53.6	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		50.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		85.6	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5410	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		38.4	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		37.5	ug/L	0.300	1.00
95-47-6	o-Xylene		43.9	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		38.4	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number:	2018-1241	Date Collected:	12/13/2017 11:12	Matrix:	W
Lab Sample ID:	1203943493	Date Received:	12/15/2017 09:05		
Client Sample:	QC for batch 1728172	Client:	ARSL004	Project:	QC
Client ID:	CALA-18-150423PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1728172	Inst:	VOA1.I	Dilution:	1
Run Date:	12/26/2017 19:41	Analyst:	PXY1	Purge Vol:	5 mL
Prep Date:	12/26/2017 19:41				
Data File:	122617V1\10122.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		47.6	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		39.6	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		51.9	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		46.8	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.2	50.0	ug/L	88	(71%-134%)
Bromofluorobenzene	52.6	50.0	ug/L	105	(70%-131%)
Toluene-d8	41.5	50.0	ug/L	83	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241	Date Collected: 12/13/2017 11:12	Matrix: W
Lab Sample ID: 1203943494	Date Received: 12/15/2017 09:05	
Client Sample: QC for batch 1728172	Client: ARSL004	Project: QC
Client ID: CALA-18-150423PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1728172	Inst: VOA1.I	Dilution: 1
Run Date: 12/26/2017 20:39	Analyst: PXY1	Purge Vol: 5 mL
Prep Date: 12/26/2017 20:39		
Data File: 122617V1\10124.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		46.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	0.300	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	1.50	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	0.300	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	0.300	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	1.50	ug/L	1.50	5.00
67-64-1	Acetone	U	1.50	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	8.00	ug/L	8.00	25.0
107-02-8	Acrolein		238	ug/L	1.50	5.00
107-13-1	Acrylonitrile		257	ug/L	1.50	5.00
107-05-1	Allyl chloride		244	ug/L	1.50	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	0.300	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 1203943494
Client Sample: QC for batch 1728172
Client ID: CALA-18-150423PS
Batch ID: 1728172
Run Date: 12/26/2017 20:39
Prep Date: 12/26/2017 20:39
Data File: 122617V1\10124.D

Date Collected: 12/13/2017 11:12
Date Received: 12/15/2017 09:05
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

Project: QC
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	1.50	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
75-00-3	Chloroethane	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	0.300	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	0.300	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		206	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	0.300	ug/L	0.300	1.00
74-88-4	Iodomethane	U	1.50	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2370	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		255	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		251	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
107-12-0	Propionitrile		244	ug/L	1.50	5.00
100-42-5	Styrene	U	0.300	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		243	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	1.50	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	15.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	0.300	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	0.300	ug/L	0.300	1.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	0.300	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241	Date Collected: 12/13/2017 11:12	Matrix: W
Lab Sample ID: 1203943494	Date Received: 12/15/2017 09:05	
Client Sample: QC for batch 1728172	Client: ARSL004	Project: QC
Client ID: CALA-18-150423PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1728172	Inst: VOA1.I	Dilution: 1
Run Date: 12/26/2017 20:39	Analyst: PXY1	Purge Vol: 5 mL
Prep Date: 12/26/2017 20:39		
Data File: 122617V1\10124.D	Column: DB-624	

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.1	50.0	ug/L 86	(71%-134%)
Bromofluorobenzene	54.0	50.0	ug/L 108	(70%-131%)
Toluene-d8	41.9	50.0	ug/L 84	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2018-1241
Lab Sample ID: 1203943495
Client Sample: QC for batch 1728172
Client ID: CALA-18-150423PSD
Batch ID: 1728172
Run Date: 12/26/2017 20:10
Prep Date: 12/26/2017 20:10
Data File: 122617V1\10123.D

Date Collected: 12/13/2017 11:12
Date Received: 12/15/2017 09:05
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

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		50.6	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		49.9	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		44.1	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.3	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		50.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		46.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		44.7	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		49.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		49.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		45.4	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		40.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.3	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		49.9	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		43.5	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		57.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.2	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		39.3	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		42.0	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		46.9	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		42.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		47.7	ug/L	0.300	1.00
78-93-3	2-Butanone		151	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		41.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		194	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		40.2	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		38.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		213	ug/L	1.50	5.00
67-64-1	Acetone		121	ug/L	1.50	10.0
75-05-8	Acetonitrile		1300	ug/L	8.00	25.0
107-02-8	Acrolein	U	1.50	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	1.50	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	1.50	ug/L	1.50	5.00
71-43-2	Benzene		46.8	ug/L	0.300	1.00
108-86-1	Bromobenzene		44.1	ug/L	0.300	1.00
74-97-5	Bromochloromethane		54.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		56.1	ug/L	0.300	1.00
75-25-2	Bromoform		51.4	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 1203943495
Client Sample: QC for batch 1728172
Client ID: CALA-18-150423PSD
Batch ID: 1728172
Run Date: 12/26/2017 20:10
Prep Date: 12/26/2017 20:10
Data File: 122617V1\10123.D

Date Collected: 12/13/2017 11:12
Date Received: 12/15/2017 09:05
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

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		60.4	ug/L	0.300	1.00
75-15-0	Carbon disulfide		217	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		52.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		44.6	ug/L	0.300	1.00
75-00-3	Chloroethane		52.0	ug/L	0.300	1.00
67-66-3	Chloroform		53.3	ug/L	0.300	1.00
74-87-3	Chloromethane		50.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		56.0	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		57.4	ug/L	0.300	1.00
60-29-7	Ethyl ether		56.5	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		42.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		43.5	ug/L	0.300	1.00
74-88-4	Iodomethane		252	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		38.1	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	1.50	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	1.50	ug/L	1.50	5.00
75-09-2	Methylene chloride		48.8	ug/L	1.00	10.0
91-20-3	Naphthalene		49.6	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		43.9	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		44.1	ug/L	0.300	1.00
108-88-3	Toluene		42.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene		50.1	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		55.8	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		244	ug/L	1.50	5.00
75-01-4	Vinyl chloride		47.4	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		52.1	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		49.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		85.2	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5460	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		37.4	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		37.0	ug/L	0.300	1.00
95-47-6	o-Xylene		43.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		37.9	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number:	2018-1241	Date Collected:	12/13/2017 11:12	Matrix:	W
Lab Sample ID:	1203943495	Date Received:	12/15/2017 09:05		
Client Sample:	QC for batch 1728172	Client:	ARSL004	Project:	QC
Client ID:	CALA-18-150423PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1728172	Inst:	VOA1.I	Dilution:	1
Run Date:	12/26/2017 20:10	Analyst:	PXY1	Purge Vol:	5 mL
Prep Date:	12/26/2017 20:10				
Data File:	122617V1\10123.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		47.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		39.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.5	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.4	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.1	50.0	ug/L	86	(71%-134%)
Bromofluorobenzene	53.8	50.0	ug/L	108	(70%-131%)
Toluene-d8	41.9	50.0	ug/L	84	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 1203943496
Client Sample: QC for batch 1728172
Client ID: CALA-18-150423PSD
Batch ID: 1728172
Run Date: 12/26/2017 21:08
Prep Date: 12/26/2017 21:08
Data File: 122617V1\10125.D

Date Collected: 12/13/2017 11:12
Date Received: 12/15/2017 09:05
Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: W

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	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		45.6	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	0.300	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	1.50	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	0.300	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	0.300	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	1.50	ug/L	1.50	5.00
67-64-1	Acetone	U	1.50	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	8.00	ug/L	8.00	25.0
107-02-8	Acrolein		229	ug/L	1.50	5.00
107-13-1	Acrylonitrile		254	ug/L	1.50	5.00
107-05-1	Allyl chloride		237	ug/L	1.50	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	0.300	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2018-1241	Date Collected:	12/13/2017 11:12	Matrix:	W
Lab Sample ID:	1203943496	Date Received:	12/15/2017 09:05		
Client Sample:	QC for batch 1728172	Client:	ARSL004	Project:	QC
Client ID:	CALA-18-150423PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1728172	Inst:	VOA1.I	Dilution:	1
Run Date:	12/26/2017 21:08	Analyst:	PXY1	Purge Vol:	5 mL
Prep Date:	12/26/2017 21:08				
Data File:	122617V1\10125.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	1.50	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
75-00-3	Chloroethane	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	0.300	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	0.300	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		204	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	0.300	ug/L	0.300	1.00
74-88-4	Iodomethane	U	1.50	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2370	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		248	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		243	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
107-12-0	Propionitrile		239	ug/L	1.50	5.00
100-42-5	Styrene	U	0.300	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		233	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	1.50	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	15.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	0.300	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	0.300	ug/L	0.300	1.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	0.300	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number:	2018-1241	Date Collected:	12/13/2017 11:12	Matrix:	W
Lab Sample ID:	1203943496	Date Received:	12/15/2017 09:05		
Client Sample:	QC for batch 1728172	Client:	ARSL004	Project:	QC
Client ID:	CALA-18-150423PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1728172	Inst:	VOA1.I	Dilution:	1
Run Date:	12/26/2017 21:08	Analyst:	PXY1	Purge Vol:	5 mL
Prep Date:	12/26/2017 21:08				
Data File:	122617V1\10125.D	Column:	DB-624		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	41.7	50.0	ug/L	83	(71%-134%)
Bromofluorobenzene	53.2	50.0	ug/L	106	(70%-131%)
Toluene-d8	41.1	50.0	ug/L	82	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 1203948055
Client Sample: QC for batch 1728172
Client ID: MB for batch 1728172
Batch ID: 1728172
Run Date: 12/26/2017 13:00
Prep Date: 12/26/2017 13:00
Data File: 122617V1\1O108A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

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	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	0.300	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	1.50	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	0.300	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	0.300	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	1.50	ug/L	1.50	5.00
67-64-1	Acetone	U	1.50	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	8.00	ug/L	8.00	25.0
107-02-8	Acrolein	U	1.50	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	1.50	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	1.50	ug/L	1.50	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	0.300	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241
Lab Sample ID: 1203948055
Client Sample: QC for batch 1728172
Client ID: MB for batch 1728172
Batch ID: 1728172
Run Date: 12/26/2017 13:00
Prep Date: 12/26/2017 13:00
Data File: 122617V1\1O108A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: WATER

Project: QC
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

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

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1241	Matrix: WATER
Lab Sample ID: 1203948055	
Client Sample: QC for batch 1728172	Client: ARSL004
Client ID: MB for batch 1728172	Method: SW-846:8260B
Batch ID: 1728172	Inst: VOA1.I
Run Date: 12/26/2017 13:00	Analyst: PXY1
Prep Date: 12/26/2017 13:00	Project: QC
Data File: 122617V1\1O108A.D	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	0.300	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.3	50.0	ug/L 89	(71%-134%)
Bromofluorobenzene	58.0	50.0	ug/L 116	(70%-131%)
Toluene-d8	42.4	50.0	ug/L 85	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	6.023	73.1	ug/L	0	J
	unknown	10.929	6.95	ug/L	0	J
	unknown siloxane	14.549	7.7	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2018-1241
Lab Sample ID: 1203948056
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/26/2017 10:36
Prep Date: 12/26/2017 10:36
Data File: 122617V1\1O103A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: WATER

Project: QC
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		53.6	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		59.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		43.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.8	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		56.0	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		56.1	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		53.9	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		54.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		49.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		51.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		44.6	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.9	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		50.6	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		46.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		59.9	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		54.2	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		44.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		45.9	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		46.9	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.9	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		57.3	ug/L	0.300	1.00
78-93-3	2-Butanone		269	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		45.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		299	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		44.1	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		45.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		225	ug/L	1.50	5.00
67-64-1	Acetone		294	ug/L	1.50	10.0
75-05-8	Acetonitrile		1310	ug/L	8.00	25.0
107-02-8	Acrolein	U	1.50	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	1.50	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	1.50	ug/L	1.50	5.00
71-43-2	Benzene		51.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		46.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		56.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		59.7	ug/L	0.300	1.00
75-25-2	Bromoform		51.4	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241
Lab Sample ID: 1203948056
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/26/2017 10:36
Prep Date: 12/26/2017 10:36
Data File: 122617V1\1O103A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

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		66.2	ug/L	0.300	1.00
75-15-0	Carbon disulfide		252	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		62.8	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.8	ug/L	0.300	1.00
75-00-3	Chloroethane		60.0	ug/L	0.300	1.00
67-66-3	Chloroform		58.1	ug/L	0.300	1.00
74-87-3	Chloromethane		56.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		54.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		57.5	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		71.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		58.2	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		46.8	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		53.3	ug/L	0.300	1.00
74-88-4	Iodomethane		279	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		43.5	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	1.50	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	1.50	ug/L	1.50	5.00
75-09-2	Methylene chloride		50.7	ug/L	1.00	10.0
91-20-3	Naphthalene		52.2	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		46.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.6	ug/L	0.300	1.00
108-88-3	Toluene		46.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		57.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		67.0	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		285	ug/L	1.50	5.00
75-01-4	Vinyl chloride		57.8	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		56.0	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		53.2	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		95.3	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5350	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		44.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		43.3	ug/L	0.300	1.00
95-47-6	o-Xylene		47.4	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**

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SDG Number:	2018-1241	Matrix:	WATER
Lab Sample ID:	1203948056		
Client Sample:	QC for batch 1728172	Client:	ARSL004
Client ID:	LCS for batch 1728172	Method:	SW-846:8260B
Batch ID:	1728172	Inst:	VOA1.I
Run Date:	12/26/2017 10:36	Analyst:	PXY1
Prep Date:	12/26/2017 10:36	Purge Vol:	5 mL
Data File:	122617V1\1O103A.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		49.4	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		46.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		57.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		48.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.9	50.0	ug/L	88	(71%-134%)
Bromofluorobenzene	52.6	50.0	ug/L	105	(70%-131%)
Toluene-d8	41.2	50.0	ug/L	82	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 1203948057
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/26/2017 12:02
Prep Date: 12/26/2017 12:02
Data File: 122617V1\1O106A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

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	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		50.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	0.300	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	1.50	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	0.300	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	0.300	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	1.50	ug/L	1.50	5.00
67-64-1	Acetone	U	1.50	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	8.00	ug/L	8.00	25.0
107-02-8	Acrolein		266	ug/L	1.50	5.00
107-13-1	Acrylonitrile		266	ug/L	1.50	5.00
107-05-1	Allyl chloride		257	ug/L	1.50	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	0.300	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1241
Lab Sample ID: 1203948057
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/26/2017 12:02
Prep Date: 12/26/2017 12:02
Data File: 122617V1\1O106A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

Column: DB-624

Matrix: WATER

Project: QC
SOP Ref: GL-OA-E-038
Dilution: 1
Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	1.50	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
75-00-3	Chloroethane	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	0.300	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	0.300	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		211	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	0.300	ug/L	0.300	1.00
74-88-4	Iodomethane	U	1.50	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2500	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		267	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		257	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
107-12-0	Propionitrile		251	ug/L	1.50	5.00
100-42-5	Styrene	U	0.300	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		269	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	1.50	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	15.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	0.300	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	0.300	ug/L	0.300	1.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	0.300	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1241
Lab Sample ID: 1203948057
Client Sample: QC for batch 1728172
Client ID: LCS for batch 1728172
Batch ID: 1728172
Run Date: 12/26/2017 12:02
Prep Date: 12/26/2017 12:02
Data File: 122617V1\1O106A.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA1.I
Analyst: PXY1

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
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.6	50.0	ug/L	87	(71%-134%)
Bromofluorobenzene	54.0	50.0	ug/L	108	(70%-131%)
Toluene-d8	41.3	50.0	ug/L	83	(74%-124%)

Explosives by LCMSMS Analysis

Case Narrative

**Explosives by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-1241
Work Order #: 439931**

Method/Analysis Information

Procedure: The Processing, Extraction, and Analysis of Nitroaromatics, Nitroamines, and Nitrate Esters by SW-846 8330B

Analytical Method: SW846 3535A/8330B

Prep Method: SW846 3535A

Analytical Batch Number: 1726272

Prep Batch Number: 1726271

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535A/8330B:

Sample ID	Client ID
439931001	CAWA-18-148914
1203938677	Method Blank (MB)
1203938678	Laboratory Control Sample (LCS)
1203938679	439826001(CAWA-18-148902) Matrix Spike (MS)
1203938680	439826001(CAWA-18-148902) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

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-068 REV# 7.

Calibration Information

Initial Calibration

All initial calibration requirements for this analysis have been met for this SDG.

Calibration Verification Standard Requirements

All associated calibration verification standards (ICV and CCV) for this analysis met the acceptance criteria.

Calibration Blank Requirements

All initial and continuing calibration blanks (ICB and CCB) bracketing the analyses associated with this batch for this analysis were within acceptance criteria. Due to software limitations, the CCBs and/or the ICBs may have a concentration for target analytes in the Found column. These values should be zero.

CRI Requirements

All low level calibration verification (CRI) requirements for this analysis were met by all bracketing CRI standards.

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

The MB analyzed with this SDG for this analysis met the acceptance criteria.

Surrogate Recoveries

All the surrogate recoveries were within the established acceptance criteria in this SDG in this analytical batch for this analysis.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries were within the established acceptance limits.

QC Sample Designation

Client sample 439826001 (CAWA-18-148902) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement

The MS spike recoveries were within the established acceptance limits for this analysis.

MS/MSD Relative Percent Difference (RPD) Statement

The RPDs between the MS and MSD met the acceptance limits for this analysis.

Internal Standard (ISTD) Acceptance

The internal standard responses were within the required acceptance criteria for all samples and QC in this SDG.

Technical Information**Holding Time Specifications**

All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of 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. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

In accordance with GEL SOP GL-OA-056, all sample and QC extracts are diluted 1:1 v/v with LC reagent grade Water. The samples in this SDG in this analytical batch for this analysis did not require any additional dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG in this analytical batch for this analysis.

Miscellaneous Information**Manual Integrations**

Manual integrations were not required for any data file associated with this SDG.

Additional Comments

Due to software limitations, all initial calibration blanks must be designated as XIB001 in order for the forms to be correct. Due to software limitations, file extensions such as DL, RE, etc. may not appear on the generated

forms and/or raw data. Relative Retention Time (RRT) is used by the laboratory to establish peak identity. The RRT of each target analyte is calculated using the retention time of the corresponding internal standard. The RRT of each analyte in a sample must be within 2.0 of the analyte's calculated RRT in the ICV.

System Configuration

The laboratory utilizes an Agilent 1100 liquid chromatography instrument for either Primary or Secondary analyte analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as either LC/MS/MS #3 or LC/MS/MS #4. The laboratory also utilizes a Shimadzu Nexera XC liquid chromatography instrument for Primary and/or Secondary analyte analysis. It is coupled with an Applied Biosystems 5500 Mass Spectrometer/ Mass Spectrometer, designated as LC/MS/MS #5. All are fitted with an APCI (Atmospheric Pressure Chemical Ionization) probe that is operated in the negative ionization mode for both the Primary and Secondary analyte analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to 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 will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

The LC-MS/MS Explosives analysis was performed on a ABSciex 5500 LCMSMS.

The detection of the Primary and Secondary Nitroaromatic and Nitramine analytes is accomplished through analysis on the following reversed phase column:

Phenomenex: Ultracarb 5u ODS (20), 250 x 4.60 mm ID.

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: 2018-1241 GEL Work Order: 439931

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: Michael Penny

Date: 21 DEC 2017

Title: Group Leader

Sample Data Summary

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148914

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 439931001

Sample Amount 960 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1215030.wiff

Date Analyzed: 16-DEC-17 09:08

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.0833	U	0.0833	0.260
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.0833	U	0.0833	0.260
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	.0833	U	0.0833	0.260
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	.0833	U	0.0833	0.260
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.0833	U	0.0833	0.260
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	.0833	U	0.0833	0.260
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.0833	U	0.0833	0.260
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
479-45-8	Tetryl	.0833	U	0.0833	0.521
<i>479-45-8</i>	<i>Tetryl</i>				
5755-27-1	MNX	.0833	U	0.0833	0.260
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	.0833	U	0.0833	0.260
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	.0833	U	0.0833	0.260
<i>80251-29-2</i>	<i>DNX</i>				
98-95-3	Nitrobenzene	.0833	U	0.0833	0.260
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.0833	U	0.0833	0.260
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148914

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 439931001

Sample Amount 960 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	.0833	U	0.0833	0.260
99-35-4	1,3,5-Trinitrobenzene				
99-65-0	m-Dinitrobenzene	.0833	U	0.0833	0.260
99-65-0	m-Dinitrobenzene				
88-72-2	o-Nitrotoluene	.0854	U	0.0854	0.260
88-72-2	o-Nitrotoluene				
78-11-5	PETN	.104	U	0.104	0.521
78-11-5	PETN				
99-99-0	p-Nitrotoluene	.156	U	0.156	0.521
99-99-0	p-Nitrotoluene				
3058-38-6	TATB	.313	U	0.313	1.04
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	.313	U	0.313	1.04
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	.313	U	0.313	1.04
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	.521	U	0.521	2.60
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	.521	U	0.521	2.60
6629-29-4	2,4-Diamino-6-nitrotoluene				

Quality Control Summary

High Explosives Surrogate Recovery Summary**Lab Name:** GEL Laboratories LLC**GEL Job No (SDG):** 2018-1241**Lab Code:** GEL**HPLC Column:** Ultracarb Phenomenex 5u ODS (20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
439931001	CAWA-18-148914	97	55 - 115	
1203938677	MB for batch 1726271	100	55 - 115	
1203938678	LCS for batch 1726271	83	55 - 115	
1203938679	CAWA-18-148902MS	91	55 - 115	
1203938680	CAWA-18-148902MSD	96	55 - 115	

DNT = 3,4-Dinitrotoluene

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Extract Batch Code: 1726271

Date Extracted: 14-DEC-17

GEL LCS ID: 1203938678

GEL LCSDUP ID: .

Analysis Date/Time: 16-DEC-17 06:12

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
2,4,6-Trinitrotoluene	5	4.58	92					69 - 113
2,4-Diamino-6-nitrotoluene	5	5.28	106					50 - 121
2,4-Dinitrotoluene	5	4.92	98					71 - 110
2,6-Diamino-4-nitrotoluene	5	4.52	90					53 - 127
2,6-Dinitrotoluene	5	4.43	89					72 - 105
2-Amino-4,6-dinitrotoluene	5	4.89	98					70 - 112
3,5-Dinitroaniline	5	4.6	92					70 - 121
4-Amino-2,6-dinitrotoluene	5	4.49	90					74 - 116
DNX	.5	.441	88					65 - 113
HMX	5	4.11	82					58 - 113
MXN	.5	.408	82					66 - 114
Nitrobenzene	5	5.03	101					64 - 115
PETN	5	4.11	82					57 - 126
RDX	5	5.36	107					64 - 117
TATB	3	1.9	63					47 - 135
TNX	.5	.433	87					51 - 110
Tetryl	5	4.25	85					55 - 122
m-Dinitrobenzene	5	4.79	96					74 - 117
m-Nitrotoluene	5	4.92	98					66 - 114
o-Nitrotoluene	5	4.63	93					64 - 115
p-Nitrotoluene	5	4.74	95					66 - 127
tris(o-cresyl) phosphate	5	3.83	77					43 - 104
1,3,5-Trinitrobenzene	5	4.24	85					70 - 110

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

3
High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAWA-18-148902

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Extract Batch Code: 1726271

Date Extracted: 14-DEC-17

GEL Spike ID: 1203938679

GEL SpikeDup ID: 1203938680

Analysis Date/Time: 16-DEC-17 07:22

MSD Analysis Date/Time: 16-DEC-17 07:57

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Rec Limits
1,3,5-Trinitrobenzene	5.31915	0	5.02	94	5.02	93	0	30	67 - 111
2,4,6-Trinitrotoluene	5.31915	0	5.46	103	5.75	107	5	30	66 - 112
2,4-Diamino-6-nitrotoluene	5.31915	0	5.52	104	5.13	95	7	30	50 - 121
2,4-Dinitrotoluene	5.31915	0	5.1	96	5.38	100	5	30	69 - 113
2,6-Diamino-4-nitrotoluene	5.31915	0	5.46	103	5.41	101	1	30	53 - 127
2,6-Dinitrotoluene	5.31915	0	4.82	91	5.25	98	9	30	70 - 106
2-Amino-4,6-dinitrotoluene	5.31915	.0807	5.01	93	5.33	98	6	30	67 - 115
3,5-Dinitroaniline	5.31915	0	4.89	92	5.45	101	11	30	70 - 121
4-Amino-2,6-dinitrotoluene	5.31915	.146	5.38	98	5.67	103	5	30	65 - 120
DNX	.53191	.137	.696	105	.653	96	6	30	53 - 124
HMX	5.31915	1.63	5.66	76	5.88	79	4	30	44 - 128
MXN	.53191	.295	.837	102	.663	69	23	30	60 - 121
Nitrobenzene	5.31915	0	5.1	96	4.26	79	18	30	62 - 116
PETN	5.31915	0	4.14	78	4.25	79	3	30	51 - 131
RDX	5.31915	28	26.7	28 *	27.1	36 *	2	30	57 - 125
TATB	3.19149	0	2.44	76	2.5	77	2	30	38 - 149
TNX	.53191	.246	.796	103	.724	89	9	30	46 - 120
Tetryl	5.31915	0	5.34	100	5.12	95	4	30	50 - 126
m-Dinitrobenzene	5.31915	0	5.16	97	5.24	97	1	30	74 - 117
m-Nitrotoluene	5.31915	0	4.55	85	4.98	93	9	30	59 - 120
o-Nitrotoluene	5.31915	0	5.25	99	3.94	73	29	30	56 - 119
p-Nitrotoluene	5.31915	0	5.35	101	5.49	102	3	30	61 - 129
tris(o-cresyl) phosphate	5.31915	0	4.48	84	4.31	80	4	30	38 - 105

#Column to be used to flag recovery and RPD values with an asterisk

Quality Control Data

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1726271

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 1203938677

Sample Amount 1000 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1215024.wiff

Date Analyzed: 16-DEC-17 05:37

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.08	U	0.080	0.250
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.08	U	0.080	0.250
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	.08	U	0.080	0.250
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	.08	U	0.080	0.250
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.08	U	0.080	0.250
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	.08	U	0.080	0.250
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.08	U	0.080	0.250
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
479-45-8	Tetryl	.08	U	0.080	0.500
<i>479-45-8</i>	<i>Tetryl</i>				
5755-27-1	MNX	.08	U	0.080	0.250
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	.08	U	0.080	0.250
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	.08	U	0.080	0.250
<i>80251-29-2</i>	<i>DNX</i>				
98-95-3	Nitrobenzene	.08	U	0.080	0.250
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.08	U	0.080	0.250
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1726271

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 1203938677

Sample Amount 1000 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	.08	U	0.080	0.250
99-35-4	1,3,5-Trinitrobenzene				
99-65-0	m-Dinitrobenzene	.08	U	0.080	0.250
99-65-0	m-Dinitrobenzene				
88-72-2	o-Nitrotoluene	.082	U	0.082	0.250
88-72-2	o-Nitrotoluene				
78-11-5	PETN	.1	U	0.100	0.500
78-11-5	PETN				
99-99-0	p-Nitrotoluene	.15	U	0.150	0.500
99-99-0	p-Nitrotoluene				
3058-38-6	TATB	.3	U	0.300	1.00
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	.3	U	0.300	1.00
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	.3	U	0.300	1.00
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	.5	U	0.500	2.50
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	.5	U	0.500	2.50
6629-29-4	2,4-Diamino-6-nitrotoluene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1726271

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 1203938678

Sample Amount 1000 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1215025.wiff

Date Analyzed: 16-DEC-17 06:12

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
5755-27-1	MNX	.408		0.080	0.250
<i>5755-27-1</i>	<i>MNX</i>				
13980-04-6	TNX	.433		0.080	0.250
<i>13980-04-6</i>	<i>TNX</i>				
80251-29-2	DNX	.441		0.080	0.250
<i>80251-29-2</i>	<i>DNX</i>				
3058-38-6	TATB	1.9		0.300	1.00
<i>3058-38-6</i>	<i>TATB</i>				
78-30-8	tris(o-cresyl) phosphate	3.83		0.300	1.00
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
2691-41-0	HMX	4.11		0.080	0.250
<i>2691-41-0</i>	<i>HMX</i>				
78-11-5	PETN	4.11		0.100	0.500
<i>78-11-5</i>	<i>PETN</i>				
99-35-4	1,3,5-Trinitrobenzene	4.24		0.080	0.250
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
479-45-8	Tetryl	4.25		0.080	0.500
<i>479-45-8</i>	<i>Tetryl</i>				
606-20-2	2,6-Dinitrotoluene	4.43		0.080	0.250
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.49		0.080	0.250
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.52		0.500	2.50
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
118-96-7	2,4,6-Trinitrotoluene	4.58		0.080	0.250
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1726271

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 1203938678

Sample Amount 1000 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
618-87-1	3,5-Dinitroaniline	4.6		0.300	1.00
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
88-72-2	o-Nitrotoluene	4.63		0.082	0.250
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
99-99-0	p-Nitrotoluene	4.74		0.150	0.500
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
99-65-0	m-Dinitrobenzene	4.79		0.080	0.250
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.89		0.080	0.250
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	4.92		0.080	0.250
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
99-08-1	m-Nitrotoluene	4.92		0.080	0.250
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
98-95-3	Nitrobenzene	5.03		0.080	0.250
<i>98-95-3</i>	<i>Nitrobenzene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.28		0.500	2.50
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
121-82-4	RDX	5.36		0.080	0.250
<i>121-82-4</i>	<i>RDX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148902(439826001MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 1203938679

Sample Amount 940 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1215027.wiff

Date Analyzed: 16-DEC-17 07:22

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
80251-29-2	DNX	.696		0.0851	0.266
80251-29-2	DNX				
13980-04-6	TNX	.796		0.0851	0.266
13980-04-6	TNX				
5755-27-1	MNX	.837		0.0851	0.266
5755-27-1	MNX				
3058-38-6	TATB	2.44		0.319	1.06
3058-38-6	TATB				
78-11-5	PETN	4.14		0.106	0.532
78-11-5	PETN				
78-30-8	tris(o-cresyl) phosphate	4.48		0.319	1.06
78-30-8	tris(o-cresyl) phosphate				
99-08-1	m-Nitrotoluene	4.55		0.0851	0.266
99-08-1	m-Nitrotoluene				
606-20-2	2,6-Dinitrotoluene	4.82		0.0851	0.266
606-20-2	2,6-Dinitrotoluene				
618-87-1	3,5-Dinitroaniline	4.89		0.319	1.06
618-87-1	3,5-Dinitroaniline				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.01		0.0851	0.266
35572-78-2	2-Amino-4,6-dinitrotoluene				
99-35-4	1,3,5-Trinitrobenzene	5.02		0.0851	0.266
99-35-4	1,3,5-Trinitrobenzene				
121-14-2	2,4-Dinitrotoluene	5.1		0.0851	0.266
121-14-2	2,4-Dinitrotoluene				
98-95-3	Nitrobenzene	5.1		0.0851	0.266
98-95-3	Nitrobenzene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148902(439826001MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 1203938679

Sample Amount 940 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-65-0	m-Dinitrobenzene	5.16		0.0851	0.266
99-65-0	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	5.25		0.0872	0.266
88-72-2	<i>o-Nitrotoluene</i>				
479-45-8	Tetryl	5.34		0.0851	0.532
479-45-8	<i>Tetryl</i>				
99-99-0	p-Nitrotoluene	5.35		0.160	0.532
99-99-0	<i>p-Nitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.38		0.0851	0.266
19406-51-0	<i>4-Amino-2,6-dinitrotoluene</i>				
118-96-7	2,4,6-Trinitrotoluene	5.46		0.0851	0.266
118-96-7	<i>2,4,6-Trinitrotoluene</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	5.46		0.532	2.66
59229-75-3	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.52		0.532	2.66
6629-29-4	<i>2,4-Diamino-6-nitrotoluene</i>				
2691-41-0	HMX	5.66		0.0851	0.266
2691-41-0	<i>HMX</i>				
121-82-4	RDX	26.7		0.0851	0.266
121-82-4	<i>RDX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148902(439826001MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 1203938680

Sample Amount 930 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1215028.wiff

Date Analyzed: 16-DEC-17 07:57

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
80251-29-2	DNX	.653		0.086	0.269
80251-29-2	DNX				
5755-27-1	MNX	.663		0.086	0.269
5755-27-1	MNX				
13980-04-6	TNX	.724		0.086	0.269
13980-04-6	TNX				
3058-38-6	TATB	2.5		0.323	1.08
3058-38-6	TATB				
88-72-2	o-Nitrotoluene	3.94		0.0882	0.269
88-72-2	o-Nitrotoluene				
78-11-5	PETN	4.25		0.108	0.538
78-11-5	PETN				
98-95-3	Nitrobenzene	4.26		0.086	0.269
98-95-3	Nitrobenzene				
78-30-8	tris(o-cresyl) phosphate	4.31		0.323	1.08
78-30-8	tris(o-cresyl) phosphate				
99-08-1	m-Nitrotoluene	4.98		0.086	0.269
99-08-1	m-Nitrotoluene				
99-35-4	1,3,5-Trinitrobenzene	5.02		0.086	0.269
99-35-4	1,3,5-Trinitrobenzene				
479-45-8	Tetryl	5.12		0.086	0.538
479-45-8	Tetryl				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.13		0.538	2.69
6629-29-4	2,4-Diamino-6-nitrotoluene				
99-65-0	m-Dinitrobenzene	5.24		0.086	0.269
99-65-0	m-Dinitrobenzene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148902(439826001MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-1241

Matrix: WATER

GEL Sample ID: 1203938680

Sample Amount 930 mL

Date Received: 13-DEC-17

Moisture: .

Extraction Batch ID: 1726271

Extraction Type Sol Exchange

Date Extracted: 14-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
606-20-2	2,6-Dinitrotoluene	5.25		0.086	0.269
606-20-2	2,6-Dinitrotoluene				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.33		0.086	0.269
35572-78-2	2-Amino-4,6-dinitrotoluene				
121-14-2	2,4-Dinitrotoluene	5.38		0.086	0.269
121-14-2	2,4-Dinitrotoluene				
59229-75-3	2,6-Diamino-4-nitrotoluene	5.41		0.538	2.69
59229-75-3	2,6-Diamino-4-nitrotoluene				
618-87-1	3,5-Dinitroaniline	5.45		0.323	1.08
618-87-1	3,5-Dinitroaniline				
99-99-0	p-Nitrotoluene	5.49		0.161	0.538
99-99-0	p-Nitrotoluene				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.67		0.086	0.269
19406-51-0	4-Amino-2,6-dinitrotoluene				
118-96-7	2,4,6-Trinitrotoluene	5.75		0.086	0.269
118-96-7	2,4,6-Trinitrotoluene				
2691-41-0	HMX	5.88		0.086	0.269
2691-41-0	HMX				
121-82-4	RDX	27.1		0.086	0.269
121-82-4	RDX				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2018-1241Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 15-DEC-17 16:09GEL Data File: EXP1215001.wiffInstrument ID: LCMSMS7Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2018-1241Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 15-DEC-17 16:44GEL Data File: EXP1215002.wiffInstrument ID: LCMSMS7Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1241

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 15-DEC-17 21:25

GEL Data File: EXP1215010.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1241

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 15-DEC-17 23:46

GEL Data File: EXP1215014.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1241

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 16-DEC-17 03:17

GEL Data File: EXP1215020.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1241

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 16-DEC-17 04:27

GEL Data File: EXP1215022.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1241

Lab Code: GEL

Lab Sample ID: XIBLK06

Analysis Date: 16-DEC-17 10:53

GEL Data File: EXP1215033.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1241

Lab Code: GEL

Lab Sample ID: XIBLK07

Analysis Date: 16-DEC-17 12:03

GEL Data File: EXP1215035.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0