

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: CAPA-18-148934

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	12/15/17	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	0942		MEDIA:	OK	
PRS ID:	OK		SAMPLE TECH CODE:	GSP	
LOCATION ID:	R-18		FIELD PREP:	UF	
LOCATION TYPE:	OK		FIELD QC TYPE:	REG	
TOP DEPTH:	↓		SAMPLE USAGE:	INV	✓
BOTTOM DEPTH:	↓	✓	EXCAVATED:		YES / <u>NO</u> / NA

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

SAMPLE COMMENTS: HE spot test results negative. Sampled 40 ft from running diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Sample Time	0942	HH:MM	Discharge Rate	6.66	Dissolved Oxygen	5.49
Groundwater Elevation	6109.04		Oxidation-Reduction Potential	174.3	Period Purge Volume	33.3
pH	7.69		Purge Volume	293.04	Specific Conductance	113.8
Temperature	15.1		Total Volume Pumped	366.30	Turbidity	0.16

COLLECTED BY (PRINT): T. Vander-Viz, D. Scamillo

RELINQUISHED BY (Printed Name) <u>Atty Lyn Stanford</u> (Signature) <u>[Signature]</u>	Date/Time 12/15/17 1030	RECEIVED BY (Printed Name) <u>Ranee Onstott</u> (Signature) <u>[Signature]</u>	Date/Time 12/15/17 1030
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: CAPA-18-148936

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	12/15/17	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	0942		MEDIA:	OK	
PRS ID:	OK		SAMPLE TECH CODE:	DC	
LOCATION ID:	R-18		FIELD PREP:	UF	
LOCATION TYPE:	OK		FIELD QC TYPE:	FTB	
TOP DEPTH:	↓		SAMPLE USAGE:	QC	↓
BOTTOM DEPTH:	↓	↓	EXCAVATED:		YES / <u>NO</u> / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B- VOA	40 ML SEPTUM AMBER GLASS	1 2 12/15/17	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 Pumped	_____	Turbidity	_____

COLLECTED BY (PRINT): T. Vander Vliet, D. Jaramillo

RELINQUISHED BY (Printed Name) Allison Stanfield (Signature) <i>[Signature]</i>	Date/Time 12/15/17 1030	RECEIVED BY (Printed Name) Laree Gustoff (Signature) <i>[Signature]</i>	Date/Time 12/15/17 1030
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-18-148911

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	12/15/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1142		MEDIA:	OK	
PRS ID:	NA		SAMPLE TECH CODE:	GSP	
LOCATION ID:	R-471		FIELD PREP:	UF	
LOCATION TYPE:	NA		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-8330B-NMED HEXMOD	1 LITER AMBER GLASS	3	ICE	Y	NA


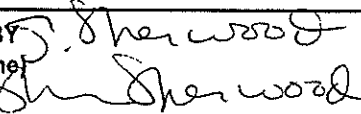
SAMPLE COMMENTS: Sampled 40 ft. from running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Sample Time	1142	HH:MM	Discharge Rate	0.79	Dissolved Oxygen	6.43
Groundwater Elevation	6520.63		Oxidation-Reduction Potential	160.3	Period Purge Volume	NA
pH	7.24		Purge Volume	101.18	Specific Conductance	119.6
Temperature	14.3		Total Volume Pumped	139.07	Turbidity	0.95

COLLECTED BY (PRINT): M. Shendo

RELINQUISHED BY (Printed Name) (Signature)	Katrina Tow 	Date/Time 12/15/17 1254	RECEIVED BY (Printed Name) (Signature)	J. Sherwood 	Date/Time 12/15/17 1254
RELINQUISHED BY (Printed Name) (Signature)		Date/Time	RECEIVED BY (Printed Name) (Signature)		Date/Time

Sampling Plan ID/Name: 11605COC: 2018-1294

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 NA
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 NA
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 NA
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		<input checked="" type="checkbox"/>
Beta ≥ 1,500	AND Beta ≥ 15,000,000	AT any location		<input checked="" type="checkbox"/>
The sample Alpha ≥ 16,000,000 dpm*g/100cm ² or Beta ≥ 160,000,000 dpm*g/100cm ² . If YES – Do not ship.				<input checked="" type="checkbox"/>
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.				<input checked="" type="checkbox"/>
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 NA
• 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.				<input checked="" type="checkbox"/>
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 NA
The sample is tentatively identified as DOT Hazard Class 7 (Radioactive). The shipment is labeled <i>Radioactive Material, Excepted Package – Limited Quantity of Material – UN2910</i> , 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) Katrina Tow	12/15/17
(Signature)	1254

R-47i

Hazard Assessment Reviewed By:	Date/Time
(Printed Name) J. Sherwood	12/15/17
(Signature)	1254

ER-SOP-10094, R1, Attachmen

TEST – Explosives		YES	NO
Samples collected from a WFO area? (TAs -08, 09, 11, 14, 15, 16, 22, 36, 37, 39, 40, and 49)			✓
Field Test for Explosives Results		YES	NO
HE SPOT test result positive. If YES - Do not transport.			✓

TEST – Chemical Preservation		YES	NO
Samples are chemically preserved?		✓	
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.			✓

TEST – Field Screen			YES	NO
The sample has field screening measurements of alpha activity and beta activity?				✓
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		✓
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.				

TEST - Location		YES	NO
Prior analytical measurements of radioactive isotopes are available?		✓	
Sample Activity (pCi/g)	Shipment Activity (pCi)	YES	NO
• Am-241 ≥ 27 pCi/g	AND Am-241 ≥ 270,000 pCi Total		✓
• 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.			

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

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) Allizyn Stanfield	12/15/17
(Signature)	1030

Hazard Assessment Reviewed By:	Date/Time
(Printed Name) Lanee Ongstott	12/15/17
(Signature)	1030

DATA VALIDATION REPORT

Chain Of Custody No. 2018-1294

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
440292	EPA:170.0	2		1		
440292	SW-846:8260B	1		1		
440292	SW-846:8330B	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
440292	EPA:170.0	NA	NA	2		1															
440292	SW-846:8260B	1728901	1728901	1		1			1					2							
440292	SW-846:8330B	1727669	1727668	2					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	CAPA-18-148934	440292001	REG	1	0	0	0
EPA:170.0	VOC	CAPA-18-148936	440292002	FTB	1	0	0	0
EPA:170.0	VOC	CAWA-18-148911	440292003	REG	1	0	0	0
SW-846:8260B	VOC	CAPA-18-148934	440292001	REG	80	3	0	0
SW-846:8260B	VOC	CAPA-18-148936	440292002	FTB	80	3	0	0
SW-846:8260B	VOC	LCS	1203945322	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203945323	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203945321	MB	80	3	0	0
SW-846:8330B	LCMS/MS HIGH	CAPA-18-148934	1203942133	MS	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	CAPA-18-148934	1203942134	MSD	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	CAPA-18-148934	440292001	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-148911	440292003	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	LCS	1203942132	LCS	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	MB	1203942131	MB	23	1	0	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

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

						Blank Lab Result	Lab Qualifier	Blank Lab Units	Blank Lab Detection Limit
Blank FS ID	Blank Lab Sample	Blank Type	Analytical Method	Sample	Parameter Name				
CAPA-18-148936	440292002	TRIP BLANK	EPA:170.0	W	Temperature	3		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?

No.

9. Any Field Duplicate RPDs outside the desired 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

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
CAPA-18-148934	R-18	REG	EPA:170.0	0	1
CAPA-18-148934	R-18	REG	SW-846:8260B	0	80
CAPA-18-148934	R-18	REG	SW-846:8330B	0	23
CAPA-18-148936	R-18	FTB	EPA:170.0	0	1
CAPA-18-148936	R-18	FTB	SW-846:8260B	0	80
CAWA-18-148911	R-47i	REG	EPA:170.0	0	1
CAWA-18-148911	R-47i	REG	SW-846:8330B	0	23



January 08, 2018

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

Re: LANL- WQH Water Samples
Work Order: 440292
SDG: 2018-1294

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on December 19, 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,

B Luthman
Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-1294
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 440292
SDG: 2018-1294

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 440292
SDG # : 2018-1294**

January 08, 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 19, 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>
440292001	CAPA-18-148934
440292002	CAPA-18-148936
440292003	CAWA-18-148911

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 08 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

Chain of Custody/Analysis Request

COC/Lab Request #: 2018-1294
Page 1 of 1

[illegible]

Special Instructions:

Relinquished by: <i>Fege</i>	Print Name: <i>MAT ENGEL</i>	Date/Time: <i>12-18-17 1:50</i>	Received by: <i>D. Allen</i>	Print Name: <i>A. Amers</i>	Date/Time: <i>12/18/17 9:50</i>
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>ESH</u>			SDG/AR/COC/Work Order: <u>440292</u>		
Received By: <u>AA</u>			Date Received: <u>12/19/17</u>		
Carrier and Tracking Number			Circle Applicable: <input checked="" type="checkbox"/> FedEx Express <input type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other		
			<u>5908 1783 3481-3°</u> <u>5908 1783 3492-3°</u> <u>5908 1783 3507-3°</u>		
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.		
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____		
COC/Samples marked or classified as radioactive?		<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?		<input checked="" 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"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: Wet Ice <input checked="" type="checkbox"/> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: <u>3°</u>
4	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: <u>LR2-17</u> Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	<input checked="" 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: <u>150780(2 vials) + 150781(1 vial) have headspace</u>
8	Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
13	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
Comments (Use Continuation Form if needed):					

PM (or PMA) review: Initials BL Date 12/20/17 Page 1 of 1

GL-CHL-SR-001 Rev 5

RIGIN ID:SAFA (505) 665-9966
EITH GREENE
OS ALAMOS NATL LAB.
A00 BLDG 1237 DPU 03
OS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 18DEC17
ACTWGT: 50.0 LB MAN
CAD: 0014176/CAFE2916
BILL SENDER

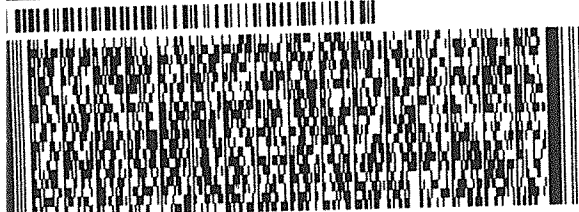
ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 18DEC17
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2916
BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: 21PD0ASRSW10CCVT00

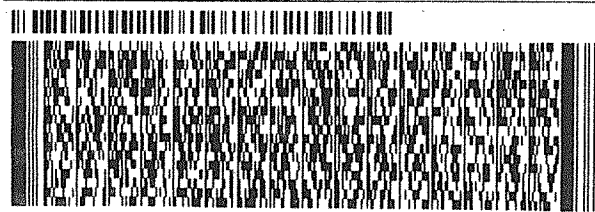


538C1/574C/329B

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: 21PD0ASRSW10CCVT00



538C1/574C/329B

2 of 2
MPS# 5908 1783 3492
0263
Mstr# 5908 1783 3481

TUE - 19 DEC 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 R112 06/15 8.3



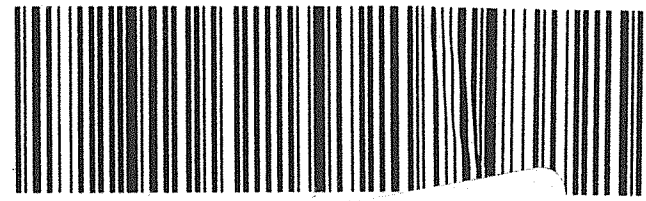
TRK# 5908 1783 3507
0201

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PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 R112 06/15 8.3

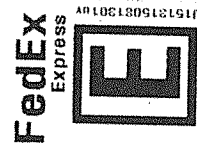
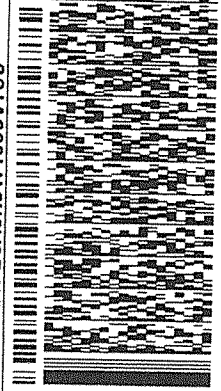


ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US
SHIP DATE: 18DEC17
ACTWGT: 36.0 LB MAN
CAD: 0014176/CAFE2916
BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: 21PD0ASRSW10CCVT00



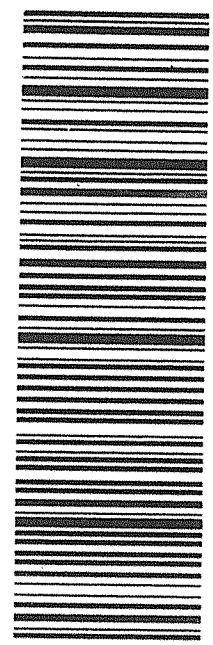
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PRIORITY OVERNIGHT

1 of 2
TRK# 5908 1783 3481
0201
MASTER

X7 RBWA

29407
SC-US CHS



Part # 156148V-434 R112 06/15 8.3

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 #: 2018-1294
Work Order #: 440292**

Method/Analysis Information

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

Analytical Method: SW-846:8260B

Analytical Batch Number: 1728901

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
440292001	CAPA-18-148934
440292002	CAPA-18-148936
1203945321	Method Blank (MB)
1203945322	Laboratory Control Sample (LCS)
1203945323	Laboratory Control Sample (LCS)
1203945324	440209006(CAMO-18-150383) Post Spike (PS)
1203945325	440209006(CAMO-18-150383) Post Spike (PS)
1203945326	440209006(CAMO-18-150383) Post Spike Duplicate (PSD)
1203945327	440209006(CAMO-18-150383) Post Spike Duplicate (PSD)

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

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

SOP Reference

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

Calibration Information

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

Initial Calibration

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

Continuing Calibration Verification Requirements

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

Quality Control (QC) Information

Blank (MB) Statement

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 spike recoveries met the acceptance limits.

QC Sample Designation

Sample 440209006 (CAMO-18-150383) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

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

Relative Percent Difference (RPD) Statement

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

Internal Standard (ISTD) Acceptance

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

Technical Information

Holding Time Specifications

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

Sample Preservation and Integrity

All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

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

Miscellaneous Information

Manual Integrations

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

TIC Comment

Tentatively identified compounds (TIC) may be requested for samples 440292001 (CAPA-18-148934) and 440292002 (CAPA-18-148936) 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: 2018-1294 GEL Work Order: 440292

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: Barbara Bailey

Date: 15 JAN 2018

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1294

Lab Sample ID: 440292001

Date Collected: 12/15/2017 09:42

Date Received: 12/19/2017 09:50

Matrix: W

Client ID: CAPA-18-148934

Batch ID: 1728901

Run Date: 12/27/2017 13:01

Prep Date: 12/27/2017 13:01

Data File: 122717V1\10308.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

SDG Number: 2018-1294

Lab Sample ID: 440292001

Date Collected: 12/15/2017 09:42

Date Received: 12/19/2017 09:50

Matrix: W

Client ID: CAPA-18-148934

Batch ID: 1728901

Run Date: 12/27/2017 13:01

Prep Date: 12/27/2017 13:01

Data File: 122717V1\10308.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
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: 2018-1294

Lab Sample ID: 440292001

Date Collected: 12/15/2017 09:42

Date Received: 12/19/2017 09:50

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1728901

Inst: VOA1.I

Dilution: 1

Run Date: 12/27/2017 13:01

Analyst: PXY1

Purge Vol: 5 mL

Prep Date: 12/27/2017 13:01

Data File: 122717V1\1O308.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	43.7	50.0	ug/L 87	(71%-134%)
Bromofluorobenzene	60.2	50.0	ug/L 120	(70%-131%)
Toluene-d8	41.1	50.0	ug/L 82	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	10.309	80.9	ug/L	0	J
	unknown siloxane	14.549	14.7	ug/L	0	J
	unknown	19.021	15.5	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1294

Lab Sample ID: 440292002

Date Collected: 12/15/2017 09:42

Date Received: 12/19/2017 09:50

Matrix: W

Client ID: CAPA-18-148936

Batch ID: 1728901

Run Date: 12/27/2017 13:30

Prep Date: 12/27/2017 13:30

Data File: 122717V1\10309.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

SDG Number: 2018-1294

Lab Sample ID: 440292002

Date Collected: 12/15/2017 09:42

Date Received: 12/19/2017 09:50

Matrix: W

Client ID: CAPA-18-148936

Batch ID: 1728901

Run Date: 12/27/2017 13:30

Prep Date: 12/27/2017 13:30

Data File: 122717V1\10309.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
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: 2018-1294

Lab Sample ID: 440292002

Date Collected: 12/15/2017 09:42

Date Received: 12/19/2017 09:50

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAPA-18-148936

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1728901

Inst: VOA1.I

Dilution: 1

Run Date: 12/27/2017 13:30

Analyst: PXY1

Purge Vol: 5 mL

Prep Date: 12/27/2017 13:30

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	43.8	50.0	ug/L 88	(71%-134%)
Bromofluorobenzene	60.3	50.0	ug/L 121	(70%-131%)
Toluene-d8	40.6	50.0	ug/L 81	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	7.638	81.8	ug/L	0	J
	unknown siloxane	14.549	8.94	ug/L	0	J

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2018-1294**Matrix Type: LIQUID**

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203945322	LCS for batch 1728901	88	84	109
1203945323	LCS for batch 1728901	88	84	114
1203945321	MB for batch 1728901	89	85	118
440292001	CAPA-18-148934	87	82	120
440292002	CAPA-18-148936	88	81	121
1203945324	CAMO-18-150383PS	88	83	109
1203945326	CAMO-18-150383PSD	83	82	108
1203945325	CAMO-18-150383PS	85	84	111
1203945327	CAMO-18-150383PSD	85	82	111

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: 2018-1294

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728901

Matrix: WATER

Lab Sample ID 1203945322

Instrument: VOA1.I

Analysis Date: 12/27/2017 10:37

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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	90.0	90	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1330	106	61-125
67-64-1	LCS Acetone	250	0.0	287	115	48-157
74-88-4	LCS Iodomethane	250	0.0	256	103	72-128
75-15-0	LCS Carbon disulfide	250	0.0	225	90	69-138
108-05-4	LCS Vinyl acetate	250	0.0	284	114	67-125
78-93-3	LCS 2-Butanone	250	0.0	267	107	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	221	88	66-124
591-78-6	LCS 2-Hexanone	250	0.0	280	112	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	64.8	130	40-160
74-87-3	LCS Chloromethane	50.0	0.0	52.3	105	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	54.5	109	65-137
74-83-9	LCS Bromomethane	50.0	0.0	63.6	127	63-137
75-00-3	LCS Chloroethane	50.0	0.0	55.3	111	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	64.8	130	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	56.7	113	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	50.7	101	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	47.3	95	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	47.0	94	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	52.4	105	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	52.2	104	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	53.0	106	75-123

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2018-1294

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728901

Matrix: WATER

Lab Sample ID 1203945322

Instrument: VOA1.I

Analysis Date: 12/27/2017 10:37

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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	52.7	105	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	54.7	109	76-125
67-66-3	LCS Chloroform	50.0	0.0	55.4	111	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	55.3	111	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	49.4	99	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	58.9	118	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	59.6	119	74-122
71-43-2	LCS Benzene	50.0	0.0	47.9	96	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	53.9	108	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	51.3	103	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	57.1	114	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	58.6	117	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	50.2	100	78-131
108-88-3	LCS Toluene	50.0	0.0	43.7	87	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	47.7	95	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	47.3	95	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	46.2	92	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	47.1	94	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	52.7	105	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	50.5	101	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	45.0	90	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	44.2	88	73-125

Volatile
Quality Control Summary
Spike Recovery Report

SDG Number: 2018-1294

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728901

Matrix: WATER

Lab Sample ID 1203945322

Instrument: VOA1.I

Analysis Date: 12/27/2017 10:37

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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	44.7	89	74-126
100-42-5	LCS Styrene	50.0	0.0	44.9	90	72-130
75-25-2	LCS Bromoform	50.0	0.0	51.7	103	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	41.0	82	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	44.2	88	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	50.2	100	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	44.9	90	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	40.4	81	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	42.6	85	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	43.1	86	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	42.2	84	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	42.1	84	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	42.5	85	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	41.4	83	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	42.6	85	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	43.6	87	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	44.7	89	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	41.9	84	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	49.9	100	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	49.8	100	72-136
91-20-3	LCS Naphthalene	50.0	0.0	51.0	102	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	52.1	104	70-130

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1294

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728901

Matrix: WATER

Lab Sample ID 1203945322

Instrument: VOA1.I

Analysis Date: 12/27/2017 10:37

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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	47.7	95	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	51.2	102	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	44.2	88	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	5420	108	63-138

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2018-1294

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1728901

Matrix: WATER

Lab Sample ID 1203945323

Instrument: VOA1.I

Analysis Date: 12/27/2017 11:35

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	260	104	60-140
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	292	117	61-148
107-05-1	LCS	Allyl chloride	250	0.0	267	107	59-125
107-13-1	LCS	Acrylonitrile	250	0.0	267	107	65-122
107-12-0	LCS	Propionitrile	250	0.0	255	102	64-124
126-98-7	LCS	Methacrylonitrile	250	0.0	268	107	64-126
80-62-6	LCS	Methyl methacrylate	250	0.0	262	105	69-127
97-63-2	LCS	Ethyl methacrylate	250	0.0	214	86	66-130
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2580	103	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

Page 1 of 8

SDG Number: 2018-1294

Sample Type: Post Spike

Client ID: CAMO-18-150383PS

Matrix: W

Lab Sample ID 1203945324

Instrument: VOA1.I

Analysis Date: 12/27/2017 18:46

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS m,p-Xylenes	100	0.00 U	88.2	88	59-132
75-05-8	PS Acetonitrile	1250	0.00 U	1210	96	56-131
67-64-1	PS Acetone	250	0.00 U	117	47	25-155
74-88-4	PS Iodomethane	250	0.00 U	256	103	66-133
75-15-0	PS Carbon disulfide	250	0.00 U	223	89	61-141
108-05-4	PS Vinyl acetate	250	0.00 U	264	106	48-133
78-93-3	PS 2-Butanone	250	0.00 U	149	60	25-143
108-10-1	PS 4-Methyl-2-pentanone	250	0.00 U	208	83	61-127
591-78-6	PS 2-Hexanone	250	0.00 U	190	76	33-138
75-71-8	PS Dichlorodifluoromethane	50.0	0.00 U	63.1	126	33-164
74-87-3	PS Chloromethane	50.0	0.00 U	53.2	106	53-139
75-01-4	PS Vinyl chloride	50.0	0.00 U	54.4	109	58-140
74-83-9	PS Bromomethane	50.0	0.00 U	62.7	125	59-146
75-00-3	PS Chloroethane	50.0	0.00 U	53.2	106	65-129
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	61.3	123	65-141
60-29-7	PS Ethyl ether	50.0	0.00 U	56.8	114	69-127
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	49.6	99	59-130
75-09-2	PS Methylene chloride	50.0	0.00 U	48.0	96	62-123
1634-04-4	PS tert-Butyl methyl ether	50.0	0.00 U	46.9	94	69-132
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	52.3	105	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	53.4	107	69-127

Volatile
Quality Control Summary
Spike Recovery Report

SDG Number: 2018-1294

Sample Type: Post Spike

Client ID: CAMO-18-150383PS

Matrix: W

Lab Sample ID 1203945324

Instrument: VOA1.I

Analysis Date: 12/27/2017 18:46

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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	50.2	100	66-137
74-97-5	PS Bromochloromethane	50.0	0.00 U	55.1	110	71-130
67-66-3	PS Chloroform	50.0	0.00 U	55.6	111	71-129
71-55-6	PS 1,1,1-Trichloroethane	50.0	0.00 U	53.5	107	69-139
563-58-6	PS 1,1-Dichloropropene	50.0	0.00 U	48.3	97	67-130
56-23-5	PS Carbon tetrachloride	50.0	0.00 U	56.7	113	66-143
107-06-2	PS 1,2-Dichloroethane	50.0	0.00 U	59.6	119	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	52.7	105	65-131
78-87-5	PS 1,2-Dichloropropane	50.0	0.00 U	51.4	103	67-127
74-95-3	PS Dibromomethane	50.0	0.00 U	57.1	114	72-129
75-27-4	PS Bromodichloromethane	50.0	0.00 U	58.9	118	70-138
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00 U	50.4	101	70-134
108-88-3	PS Toluene	50.0	0.00 U	42.6	85	60-126
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00 U	47.0	94	69-135
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00 U	47.9	96	66-125
142-28-9	PS 1,3-Dichloropropane	50.0	0.00 U	46.4	93	67-124
127-18-4	PS Tetrachloroethylene	50.0	0.00 U	46.0	92	60-130
124-48-1	PS Dibromochloromethane	50.0	0.00 U	53.9	108	68-143
106-93-4	PS 1,2-Dibromoethane	50.0	0.00 U	49.9	100	71-127
108-90-7	PS Chlorobenzene	50.0	0.00 U	44.7	89	64-124
100-41-4	PS Ethylbenzene	50.0	0.00 U	43.4	87	61-130

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 8

SDG Number: 2018-1294

Sample Type: Post Spike

Client ID: CAMO-18-150383PS

Matrix: W

Lab Sample ID 1203945324

Instrument: VOA1.I

Analysis Date: 12/27/2017 18:46

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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	45.1	90	62-131
100-42-5	PS Styrene	50.0	0.00 U	45.1	90	59-135
75-25-2	PS Bromoform	50.0	0.00 U	50.9	102	64-138
98-82-8	PS Isopropylbenzene	50.0	0.00 U	39.4	79	55-133
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	42.4	85	62-129
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	48.1	96	70-124
108-86-1	PS Bromobenzene	50.0	0.00 U	44.9	90	62-124
103-65-1	PS n-Propylbenzene	50.0	0.00 U	39.6	79	50-133
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	41.4	83	53-135
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	42.2	84	56-128
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	40.9	82	53-130
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	42.1	84	55-135
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	42.3	85	53-132
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	40.9	82	50-138
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	41.4	83	49-138
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	42.9	86	56-126
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	43.5	87	55-125
104-51-8	PS n-Butylbenzene	50.0	0.00 U	41.2	82	43-142
96-12-8	PS 1,2-Dibromo-3-chloropropane	50.0	0.00 U	44.9	90	62-141
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	48.8	98	40-147
91-20-3	PS Naphthalene	50.0	0.00 U	47.1	94	62-134
87-61-6	PS 1,2,3-Trichlorobenzene	50.0	0.00 U	47.2	94	52-135

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1294

Sample Type: Post Spike

Client ID: CAMO-18-150383PS

Matrix: W

Lab Sample ID 1203945324

Instrument: VOA1.I

Analysis Date: 12/27/2017 18:46

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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	46.6	93	50-133
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	51.5	103	71-133
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	44.3	89	60-125
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	4890	98	60-140

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1294

Sample Type: Post Spike Duplicate

Client ID: CAMO-18-150383PSD

Matrix: W

Lab Sample ID 1203945326

Instrument: VOA1.I

Analysis Date: 12/27/2017 19:14

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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 86.7	87	59-132	2	0-20
75-05-8	PSD Acetonitrile	1250	0.00	U 1110	89	56-131	8	0-20
67-64-1	PSD Acetone	250	0.00	U 110	44	25-155	6	0-20
74-88-4	PSD Iodomethane	250	0.00	U 248	99	66-133	3	0-20
75-15-0	PSD Carbon disulfide	250	0.00	U 216	86	61-141	3	0-20
108-05-4	PSD Vinyl acetate	250	0.00	U 250	100	48-133	6	0-20
78-93-3	PSD 2-Butanone	250	0.00	U 139	55	25-143	7	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00	U 200	80	61-127	4	0-20
591-78-6	PSD 2-Hexanone	250	0.00	U 179	72	33-138	6	0-20
75-71-8	PSD Dichlorodifluoromethane	50.0	0.00	U 58.5	117	33-164	8	0-20
74-87-3	PSD Chloromethane	50.0	0.00	U 51.9	104	53-139	2	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00	U 53.3	107	58-140	2	0-20
74-83-9	PSD Bromomethane	50.0	0.00	U 61.2	122	59-146	2	0-20
75-00-3	PSD Chloroethane	50.0	0.00	U 52.3	105	65-129	2	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00	U 57.8	116	65-141	6	0-20
60-29-7	PSD Ethyl ether	50.0	0.00	U 54.3	109	69-127	5	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00	U 47.5	95	59-130	4	0-20
75-09-2	PSD Methylene chloride	50.0	0.00	U 46.8	94	62-123	3	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.00	U 45.0	90	69-132	4	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00	U 50.5	101	65-127	4	0-20
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00	U 50.0	100	67-127	4	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00	U 51.5	103	69-127	4	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1294

Sample Type: Post Spike Duplicate

Client ID: CAMO-18-150383PSD

Matrix: W

Lab Sample ID 1203945326

Instrument: VOA1.I

Analysis Date: 12/27/2017 19:14

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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 48.1	96	66-137	4	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00	U 52.9	106	71-130	4	0-20
67-66-3	PSD Chloroform	50.0	0.00	U 52.9	106	71-129	5	0-20
71-55-6	PSD 1,1,1-Trichloroethane	50.0	0.00	U 51.5	103	69-139	4	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00	U 45.8	92	67-130	5	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00	U 54.3	109	66-143	4	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00	U 56.2	112	69-130	6	0-20
71-43-2	PSD Benzene	50.0	0.00	U 46.2	92	66-125	4	0-20
79-01-6	PSD Trichloroethylene	50.0	0.00	U 50.6	101	65-131	4	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00	U 49.5	99	67-127	4	0-20
74-95-3	PSD Dibromomethane	50.0	0.00	U 54.1	108	72-129	5	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00	U 55.9	112	70-138	5	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00	U 47.7	95	70-134	5	0-20
108-88-3	PSD Toluene	50.0	0.00	U 41.8	84	60-126	2	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00	U 45.2	90	69-135	4	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00	U 46.5	93	66-125	3	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00	U 44.8	90	67-124	4	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.00	U 45.7	91	60-130	1	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00	U 51.8	104	68-143	4	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00	U 48.2	96	71-127	4	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00	U 43.8	88	64-124	2	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00	U 42.8	86	61-130	1	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1294

Sample Type: Post Spike Duplicate

Client ID: CAMO-18-150383PSD

Matrix: W

Lab Sample ID 1203945326

Instrument: VOA1.I

Analysis Date: 12/27/2017 19:14

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
95-47-6	PSD o-Xylene	50.0	0.00	U 44.4	89	62-131	2	0-20
100-42-5	PSD Styrene	50.0	0.00	U 44.1	88	59-135	2	0-20
75-25-2	PSD Bromoform	50.0	0.00	U 49.4	99	64-138	3	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00	U 39.3	79	55-133	0	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00	U 41.5	83	62-129	2	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00	U 47.2	94	70-124	2	0-20
108-86-1	PSD Bromobenzene	50.0	0.00	U 43.7	87	62-124	3	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00	U 38.8	78	50-133	2	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00	U 40.6	81	53-135	2	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00	U 40.8	82	56-128	3	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00	U 40.5	81	53-130	1	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00	U 41.3	83	55-135	2	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00	U 41.1	82	53-132	3	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00	U 40.3	81	50-138	1	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00	U 40.5	81	49-138	2	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00	U 42.3	85	56-126	1	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00	U 42.5	85	55-125	2	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00	U 40.6	81	43-142	1	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00	U 42.7	85	62-141	5	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00	U 46.9	94	40-147	4	0-20
91-20-3	PSD Naphthalene	50.0	0.00	U 44.5	89	62-134	6	0-20
87-61-6	PSD 1,2,3-Trichlorobenzene	50.0	0.00	U 43.9	88	52-135	7	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1294

Sample Type: Post Spike Duplicate

Client ID: CAMO-18-150383PSD

Matrix: W

Lab Sample ID 1203945326

Instrument: VOA1.I

Analysis Date: 12/27/2017 19:14

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
120-82-1	PSD 1,2,4-Trichlorobenzene	50.0	0.00 U	44.3	89	50-133	5	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	50.2	100	71-133	2	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	43.2	86	60-125	3	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00 U	4470	89	60-140	9	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1294

Sample Type: Post Spike

Client ID: CAMO-18-150383PS

Matrix: W

Lab Sample ID 1203945325

Instrument: VOA1.I

Analysis Date: 12/27/2017 19:43

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

CAS No			Parmname		Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	PS	Acrolein			250	0.00	U 244	98	49-141
76-13-1	PS	Trichlorotrifluoroethane			250	0.00	U 256	103	57-149
107-05-1	PS	Allyl chloride			250	0.00	U 250	100	54-128
107-13-1	PS	Acrylonitrile			250	0.00	U 261	105	59-129
107-12-0	PS	Propionitrile			250	0.00	U 249	100	58-131
126-98-7	PS	Methacrylonitrile			250	0.00	U 262	105	59-134
80-62-6	PS	Methyl methacrylate			250	0.00	U 258	103	62-135
97-63-2	PS	Ethyl methacrylate			250	0.00	U 215	86	60-136
78-83-1	PS	Isobutyl alcohol			2500	0.00	U 2360	94	60-143
126-99-8	PS	2-Chloro-1,3-butadiene			50.0	0.00	U 48.4	97	63-146

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 2018-1294

Sample Type: Post Spike Duplicate

Client ID: CAMO-18-150383PSD

Matrix: W

Lab Sample ID 1203945327

Instrument: VOA1.I

Analysis Date: 12/27/2017 20:12

Dilution: 1

Analyst: PXY1

Purge Vol: 5 mL

Batch ID: 1728901

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	245	98	49-141	0	0-20
76-13-1	PSD	Trichlorotrifluoroethane	250	0.00	U	254	102	57-149	1	0-20
107-05-1	PSD	Allyl chloride	250	0.00	U	252	101	54-128	1	0-20
107-13-1	PSD	Acrylonitrile	250	0.00	U	265	106	59-129	1	0-20
107-12-0	PSD	Propionitrile	250	0.00	U	250	100	58-131	0	0-20
126-98-7	PSD	Methacrylonitrile	250	0.00	U	257	103	59-134	2	0-20
80-62-6	PSD	Methyl methacrylate	250	0.00	U	259	104	62-135	1	0-20
97-63-2	PSD	Ethyl methacrylate	250	0.00	U	209	84	60-136	3	0-20
78-83-1	PSD	Isobutyl alcohol	2500	0.00	U	2310	92	60-143	2	0-20
126-99-8	PSD	2-Chloro-1,3-butadiene	50.0	0.00	U	48.0	96	63-146	1	0-20

Method Blank Summary

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SDG Number:	2018-1294	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1728901	Instrument ID:	VOA1.I	Data File:	122717V1\10306A.D
Lab Sample ID:	1203945321	Prep Date:	12/27/2017 12:03	Analyzed:	12/27/17 12:03
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 1728901	1203945322	122717V1\10303A.D	12/27/17	1037
02 LCS for batch 1728901	1203945323	122717V1\10305A.D	12/27/17	1135
03 CAPA-18-148934	440292001	122717V1\10308.D	12/27/17	1301
04 CAPA-18-148936	440292002	122717V1\10309.D	12/27/17	1330
05 CAMO-18-150383PS	1203945324	122717V1\10320.D	12/27/17	1846
06 CAMO-18-150383PSD	1203945326	122717V1\10321.D	12/27/17	1914
07 CAMO-18-150383PS	1203945325	122717V1\10322.D	12/27/17	1943
08 CAMO-18-150383PSD	1203945327	122717V1\10323.D	12/27/17	2012

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2018-1294

Lab Sample ID: 1203945321

Client Sample: QC for batch 1728901

Client ID: MB for batch 1728901

Batch ID: 1728901

Run Date: 12/27/2017 12:03

Prep Date: 12/27/2017 12:03

Data File: 122717V1\10306A.D

Matrix: WATER

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: PXY1

Project: QC

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**

SDG Number: 2018-1294
Lab Sample ID: 1203945321
Client Sample: QC for batch 1728901
Client ID: MB for batch 1728901
Batch ID: 1728901
Run Date: 12/27/2017 12:03
Prep Date: 12/27/2017 12:03
Data File: 122717V1\10306A.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: 2018-1294

Lab Sample ID: 1203945321

Client Sample: QC for batch 1728901

Client ID: MB for batch 1728901

Batch ID: 1728901

Run Date: 12/27/2017 12:03

Prep Date: 12/27/2017 12:03

Data File: 122717V1\10306A.D

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Client: ARSL004

Method: SW-846:8260B

Inst: VOA1.I

Analyst: PXY1

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	44.5	50.0	ug/L 89	(71%-134%)
Bromofluorobenzene	58.9	50.0	ug/L 118	(70%-131%)
Toluene-d8	42.3	50.0	ug/L 85	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	11.595	105	ug/L	0	J
000100-44-7	Benzyl chloride	18.497	8.72	ug/L	91	NJ

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1294
Lab Sample ID: 1203945322
Client Sample: QC for batch 1728901
Client ID: LCS for batch 1728901
Batch ID: 1728901
Run Date: 12/27/2017 10:37
Prep Date: 12/27/2017 10:37
Data File: 122717V1\10303A.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		51.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.3	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		44.2	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		52.2	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		50.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		49.4	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		52.1	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		47.7	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		42.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		49.9	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		50.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		44.2	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		59.6	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		51.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		42.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		43.6	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		46.2	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		44.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		52.7	ug/L	0.300	1.00
78-93-3	2-Butanone		267	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		43.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		280	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		42.2	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		42.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		221	ug/L	1.50	5.00
67-64-1	Acetone		287	ug/L	1.50	10.0
75-05-8	Acetonitrile		1330	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		44.9	ug/L	0.300	1.00
74-97-5	Bromochloromethane		54.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		58.6	ug/L	0.300	1.00
75-25-2	Bromoform		51.7	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1294
Lab Sample ID: 1203945322
Client Sample: QC for batch 1728901
Client ID: LCS for batch 1728901
Batch ID: 1728901
Run Date: 12/27/2017 10:37
Prep Date: 12/27/2017 10:37
Data File: 122717V1\10303A.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		63.6	ug/L	0.300	1.00
75-15-0	Carbon disulfide		225	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		58.9	ug/L	0.300	1.00
108-90-7	Chlorobenzene		45.0	ug/L	0.300	1.00
75-00-3	Chloroethane		55.3	ug/L	0.300	1.00
67-66-3	Chloroform		55.4	ug/L	0.300	1.00
74-87-3	Chloromethane		52.3	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		57.1	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		64.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		56.7	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		44.2	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		49.8	ug/L	0.300	1.00
74-88-4	Iodomethane		256	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		41.0	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		47.3	ug/L	1.00	10.0
91-20-3	Naphthalene		51.0	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		44.9	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.1	ug/L	0.300	1.00
108-88-3	Toluene		43.7	ug/L	0.300	1.00
79-01-6	Trichloroethylene		53.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		64.8	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		284	ug/L	1.50	5.00
75-01-4	Vinyl chloride		54.5	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		53.0	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		50.2	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		90.0	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5420	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		41.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		40.4	ug/L	0.300	1.00
95-47-6	o-Xylene		44.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		41.4	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1294

Lab Sample ID: 1203945322

Client Sample: QC for batch 1728901

Client ID: LCS for batch 1728901

Batch ID: 1728901

Run Date: 12/27/2017 10:37

Prep Date: 12/27/2017 10:37

Data File: 122717V1\10303A.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		47.0	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		42.1	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		52.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.2	50.0	ug/L	88	(71%-134%)
Bromofluorobenzene	54.7	50.0	ug/L	109	(70%-131%)
Toluene-d8	41.8	50.0	ug/L	84	(74%-124%)

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1294
Lab Sample ID: 1203945323
Client Sample: QC for batch 1728901
Client ID: LCS for batch 1728901
Batch ID: 1728901
Run Date: 12/27/2017 11:35
Prep Date: 12/27/2017 11:35
Data File: 122717V1\10305A.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		260	ug/L	1.50	5.00
107-13-1	Acrylonitrile		267	ug/L	1.50	5.00
107-05-1	Allyl chloride		267	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: 2018-1294
Lab Sample ID: 1203945323
Client Sample: QC for batch 1728901
Client ID: LCS for batch 1728901
Batch ID: 1728901
Run Date: 12/27/2017 11:35
Prep Date: 12/27/2017 11:35
Data File: 122717V1\10305A.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		214	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		2580	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		268	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		262	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		255	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		292	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:	2018-1294	Matrix:	WATER
Lab Sample ID:	1203945323		
Client Sample:	QC for batch 1728901	Client:	ARSL004
Client ID:	LCS for batch 1728901	Method:	SW-846:8260B
Batch ID:	1728901	Inst:	VOA1.I
Run Date:	12/27/2017 11:35	Analyst:	PXY1
Prep Date:	12/27/2017 11:35		
Data File:	122717V1\10305A.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	43.9	50.0	ug/L 88	(71%-134%)
Bromofluorobenzene	57.0	50.0	ug/L 114	(70%-131%)
Toluene-d8	42.1	50.0	ug/L 84	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1294	Date Collected: 12/14/2017 07:50	Matrix: W
Lab Sample ID: 1203945324	Date Received: 12/16/2017 09:30	
Client Sample: QC for batch 1728901	Client: ARSL004	Project: QC
Client ID: CAMO-18-150383PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1728901	Inst: VOA1.I	Dilution: 1
Run Date: 12/27/2017 18:46	Analyst: PXY1	Purge Vol: 5 mL
Prep Date: 12/27/2017 18:46		
Data File: 122717V1\10320.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		51.5	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		53.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		42.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.9	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		49.6	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.3	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		47.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		48.1	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.6	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		42.3	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		44.9	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		44.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		59.6	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		51.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		41.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		42.9	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		46.4	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		43.5	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		50.2	ug/L	0.300	1.00
78-93-3	2-Butanone		149	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		42.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		190	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		40.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		41.4	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		208	ug/L	1.50	5.00
67-64-1	Acetone		117	ug/L	1.50	10.0
75-05-8	Acetonitrile		1210	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		44.9	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		58.9	ug/L	0.300	1.00
75-25-2	Bromoform		50.9	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1294	Date Collected: 12/14/2017 07:50	Matrix: W
Lab Sample ID: 1203945324	Date Received: 12/16/2017 09:30	
Client Sample: QC for batch 1728901	Client: ARSL004	Project: QC
Client ID: CAMO-18-150383PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1728901	Inst: VOA1.I	Dilution: 1
Run Date: 12/27/2017 18:46	Analyst: PXY1	Purge Vol: 5 mL
Prep Date: 12/27/2017 18:46		
Data File: 122717V1\10320.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		62.7	ug/L	0.300	1.00
75-15-0	Carbon disulfide		223	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		56.7	ug/L	0.300	1.00
108-90-7	Chlorobenzene		44.7	ug/L	0.300	1.00
75-00-3	Chloroethane		53.2	ug/L	0.300	1.00
67-66-3	Chloroform		55.6	ug/L	0.300	1.00
74-87-3	Chloromethane		53.2	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.9	ug/L	0.300	1.00
74-95-3	Dibromomethane		57.1	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		63.1	ug/L	0.300	1.00
60-29-7	Ethyl ether		56.8	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		43.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.8	ug/L	0.300	1.00
74-88-4	Iodomethane		256	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		39.4	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		48.0	ug/L	1.00	10.0
91-20-3	Naphthalene		47.1	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		45.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		46.0	ug/L	0.300	1.00
108-88-3	Toluene		42.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.7	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		61.3	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		264	ug/L	1.50	5.00
75-01-4	Vinyl chloride		54.4	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		53.4	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		50.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		88.2	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4890	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		41.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		39.6	ug/L	0.300	1.00
95-47-6	o-Xylene		45.1	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		40.9	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	2018-1294	Date Collected:	12/14/2017 07:50	Matrix:	W
Lab Sample ID:	1203945324	Date Received:	12/16/2017 09:30		
Client Sample:	QC for batch 1728901	Client:	ARSL004	Project:	QC
Client ID:	CAMO-18-150383PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1728901	Inst:	VOA1.I	Dilution:	1
Run Date:	12/27/2017 18:46	Analyst:	PXY1	Purge Vol:	5 mL
Prep Date:	12/27/2017 18:46				
Data File:	122717V1\10320.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		46.9	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		42.1	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		52.3	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.1	50.0	ug/L	88	(71%-134%)
Bromofluorobenzene	54.5	50.0	ug/L	109	(70%-131%)
Toluene-d8	41.4	50.0	ug/L	83	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1294
Lab Sample ID: 1203945325
Client Sample: QC for batch 1728901
Client ID: CAMO-18-150383PS
Batch ID: 1728901
Run Date: 12/27/2017 19:43
Prep Date: 12/27/2017 19:43
Data File: 122717V1\10322.D

Date Collected: 12/14/2017 07:50
Date Received: 12/16/2017 09:30
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		48.4	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		244	ug/L	1.50	5.00
107-13-1	Acrylonitrile		261	ug/L	1.50	5.00
107-05-1	Allyl chloride		250	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:	2018-1294	Date Collected:	12/14/2017 07:50	Matrix:	W
Lab Sample ID:	1203945325	Date Received:	12/16/2017 09:30		
Client Sample:	QC for batch 1728901	Client:	ARSL004	Project:	QC
Client ID:	CAMO-18-150383PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1728901	Inst:	VOA1.I	Dilution:	1
Run Date:	12/27/2017 19:43	Analyst:	PXY1	Purge Vol:	5 mL
Prep Date:	12/27/2017 19:43				
Data File:	122717V1\10322.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		215	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		2360	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		262	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		258	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		249	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		256	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:	2018-1294	Date Collected:	12/14/2017 07:50	Matrix:	W
Lab Sample ID:	1203945325	Date Received:	12/16/2017 09:30		
Client Sample:	QC for batch 1728901	Client:	ARSL004	Project:	QC
Client ID:	CAMO-18-150383PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1728901	Inst:	VOA1.I	Dilution:	1
Run Date:	12/27/2017 19:43	Analyst:	PXY1	Purge Vol:	5 mL
Prep Date:	12/27/2017 19:43				
Data File:	122717V1\10322.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	42.4	50.0	ug/L	85	(71%-134%)
Bromofluorobenzene	55.3	50.0	ug/L	111	(70%-131%)
Toluene-d8	41.9	50.0	ug/L	84	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1294	Date Collected: 12/14/2017 07:50	Matrix: W
Lab Sample ID: 1203945326	Date Received: 12/16/2017 09:30	
Client Sample: QC for batch 1728901	Client: ARSL004	Project: QC
Client ID: CAMO-18-150383PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1728901	Inst: VOA1.I	Dilution: 1
Run Date: 12/27/2017 19:14	Analyst: PXY1	Purge Vol: 5 mL
Prep Date: 12/27/2017 19:14		
Data File: 122717V1\10321.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		50.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		51.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		41.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.5	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		50.0	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		47.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		45.8	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		43.9	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		47.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.3	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		41.1	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		42.7	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		48.2	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		43.2	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		56.2	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		49.5	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		40.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		42.3	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		44.8	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		42.5	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		48.1	ug/L	0.300	1.00
78-93-3	2-Butanone		139	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		179	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		40.5	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		40.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		200	ug/L	1.50	5.00
67-64-1	Acetone		110	ug/L	1.50	10.0
75-05-8	Acetonitrile		1110	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		46.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		43.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		52.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		55.9	ug/L	0.300	1.00
75-25-2	Bromoform		49.4	ug/L	0.300	1.00

Volatile
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Sample Summary

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SDG Number: 2018-1294	Date Collected: 12/14/2017 07:50	Matrix: W
Lab Sample ID: 1203945326	Date Received: 12/16/2017 09:30	
Client Sample: QC for batch 1728901	Client: ARSL004	Project: QC
Client ID: CAMO-18-150383PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1728901	Inst: VOA1.I	Dilution: 1
Run Date: 12/27/2017 19:14	Analyst: PXY1	Purge Vol: 5 mL
Prep Date: 12/27/2017 19:14		
Data File: 122717V1\10321.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		61.2	ug/L	0.300	1.00
75-15-0	Carbon disulfide		216	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		54.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		43.8	ug/L	0.300	1.00
75-00-3	Chloroethane		52.3	ug/L	0.300	1.00
67-66-3	Chloroform		52.9	ug/L	0.300	1.00
74-87-3	Chloromethane		51.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		51.8	ug/L	0.300	1.00
74-95-3	Dibromomethane		54.1	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		58.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		54.3	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		42.8	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		46.9	ug/L	0.300	1.00
74-88-4	Iodomethane		248	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		39.3	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		46.8	ug/L	1.00	10.0
91-20-3	Naphthalene		44.5	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		44.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		45.7	ug/L	0.300	1.00
108-88-3	Toluene		41.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		50.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		57.8	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		250	ug/L	1.50	5.00
75-01-4	Vinyl chloride		53.3	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		51.5	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		47.7	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		86.7	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4470	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		40.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		38.8	ug/L	0.300	1.00
95-47-6	o-Xylene		44.4	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		40.3	ug/L	0.300	1.00

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Sample Summary

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SDG Number:	2018-1294	Date Collected:	12/14/2017 07:50	Matrix:	W
Lab Sample ID:	1203945326	Date Received:	12/16/2017 09:30		
Client Sample:	QC for batch 1728901	Client:	ARSL004	Project:	QC
Client ID:	CAMO-18-150383PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1728901	Inst:	VOA1.I	Dilution:	1
Run Date:	12/27/2017 19:14	Analyst:	PXY1	Purge Vol:	5 mL
Prep Date:	12/27/2017 19:14				
Data File:	122717V1\10321.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		45.0	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		41.3	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		45.2	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	41.5	50.0	ug/L	83	(71%-134%)
Bromofluorobenzene	53.9	50.0	ug/L	108	(70%-131%)
Toluene-d8	41.1	50.0	ug/L	82	(74%-124%)

Volatile
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Sample Summary

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SDG Number: 2018-1294
Lab Sample ID: 1203945327
Client Sample: QC for batch 1728901
Client ID: CAMO-18-150383PSD
Batch ID: 1728901
Run Date: 12/27/2017 20:12
Prep Date: 12/27/2017 20:12
Data File: 122717V1\10323.D

Date Collected: 12/14/2017 07:50
Date Received: 12/16/2017 09:30
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		48.0	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		245	ug/L	1.50	5.00
107-13-1	Acrylonitrile		265	ug/L	1.50	5.00
107-05-1	Allyl chloride		252	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: 2018-1294	Date Collected: 12/14/2017 07:50	Matrix: W
Lab Sample ID: 1203945327	Date Received: 12/16/2017 09:30	
Client Sample: QC for batch 1728901	Client: ARSL004	Project: QC
Client ID: CAMO-18-150383PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1728901	Inst: VOA1.I	Dilution: 1
Run Date: 12/27/2017 20:12	Analyst: PXY1	Purge Vol: 5 mL
Prep Date: 12/27/2017 20:12		
Data File: 122717V1\10323.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		209	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		2310	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		257	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		259	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		250	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		254	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

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Certificate of Analysis
Sample Summary**

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SDG Number:	2018-1294	Date Collected:	12/14/2017 07:50	Matrix:	W
Lab Sample ID:	1203945327	Date Received:	12/16/2017 09:30		
Client Sample:	QC for batch 1728901	Client:	ARSL004	Project:	QC
Client ID:	CAMO-18-150383PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1728901	Inst:	VOA1.I	Dilution:	1
Run Date:	12/27/2017 20:12	Analyst:	PXY1	Purge Vol:	5 mL
Prep Date:	12/27/2017 20:12				
Data File:	122717V1\10323.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	42.5	50.0	ug/L	85	(71%-134%)
Bromofluorobenzene	55.4	50.0	ug/L	111	(70%-131%)
Toluene-d8	41.1	50.0	ug/L	82	(74%-124%)

Explosives by LCMSMS Analysis

Case Narrative

**Explosives by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-1294
Work Order #: 440292**

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: 1727669

Prep Batch Number: 1727668

Sample Analysis

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

Sample ID	Client ID
440292001	CAPA-18-148934
440292003	CAWA-18-148911
1203942131	Method Blank (MB)
1203942132	Laboratory Control Sample (LCS)
1203942133	440292001(CAPA-18-148934) Matrix Spike (MS)
1203942134	440292001(CAPA-18-148934) 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 440292001 (CAPA-18-148934) 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: 2018-1294 GEL Work Order: 440292

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: 22 DEC 2017

Title: Group Leader

Sample Data Summary

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-18-148934

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 440292001

Sample Amount 910 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1221018.wiff

Date Analyzed: 21-DEC-17 19:40

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.0879	U	0.0879	0.275
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.0879	U	0.0879	0.275
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
13980-04-6	TNX	.0879	U	0.0879	0.275
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.0879	U	0.0879	0.275
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	.0879	U	0.0879	0.275
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.0879	U	0.0879	0.275
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
479-45-8	Tetryl	.0879	U	0.0879	0.549
<i>479-45-8</i>	<i>Tetryl</i>				
5755-27-1	MNX	.0879	U	0.0879	0.275
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	.0879	U	0.0879	0.275
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	.0879	U	0.0879	0.275
<i>80251-29-2</i>	<i>DNX</i>				
98-95-3	Nitrobenzene	.0879	U	0.0879	0.275
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.0879	U	0.0879	0.275
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	.0879	U	0.0879	0.275
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-18-148934

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 440292001

Sample Amount 910 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-65-0	m-Dinitrobenzene	.0879	U	0.0879	0.275
99-65-0	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0901	U	0.0901	0.275
88-72-2	<i>o-Nitrotoluene</i>				
78-11-5	PETN	.11	U	0.110	0.549
78-11-5	<i>PETN</i>				
99-99-0	p-Nitrotoluene	.165	U	0.165	0.549
99-99-0	<i>p-Nitrotoluene</i>				
3058-38-6	TATB	.33	U	0.330	1.10
3058-38-6	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	.33	U	0.330	1.10
618-87-1	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	.33	U	0.330	1.10
78-30-8	<i>tris(o-cresyl) phosphate</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	.549	U	0.549	2.75
59229-75-3	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	.549	U	0.549	2.75
6629-29-4	<i>2,4-Diamino-6-nitrotoluene</i>				
121-82-4	RDX	3.44		0.0879	0.275
121-82-4	<i>RDX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148911

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 440292003

Sample Amount 920 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1221022.wiff

Date Analyzed: 21-DEC-17 22:00

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.087	U	0.087	0.272
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.087	U	0.087	0.272
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	.087	U	0.087	0.272
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	.087	U	0.087	0.272
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.087	U	0.087	0.272
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	.087	U	0.087	0.272
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.087	U	0.087	0.272
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
479-45-8	Tetryl	.087	U	0.087	0.543
<i>479-45-8</i>	<i>Tetryl</i>				
5755-27-1	MNX	.087	U	0.087	0.272
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	.087	U	0.087	0.272
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	.087	U	0.087	0.272
<i>80251-29-2</i>	<i>DNX</i>				
98-95-3	Nitrobenzene	.087	U	0.087	0.272
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.087	U	0.087	0.272
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148911

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 440292003

Sample Amount 920 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-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	.087	U	0.087	0.272
99-35-4	1,3,5-Trinitrobenzene				
99-65-0	m-Dinitrobenzene	.087	U	0.087	0.272
99-65-0	m-Dinitrobenzene				
88-72-2	o-Nitrotoluene	.0891	U	0.0891	0.272
88-72-2	o-Nitrotoluene				
78-11-5	PETN	.109	U	0.109	0.543
78-11-5	PETN				
99-99-0	p-Nitrotoluene	.163	U	0.163	0.543
99-99-0	p-Nitrotoluene				
3058-38-6	TATB	.326	U	0.326	1.09
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	.326	U	0.326	1.09
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	.326	U	0.326	1.09
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	.543	U	0.543	2.72
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	.543	U	0.543	2.72
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):** 2018-1294**Lab Code:** GEL**HPLC Column:** Ultracarb Phenomenex 5u ODS (20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
440292001	CAPA-18-148934	89	55 - 115	
440292003	CAWA-18-148911	92	55 - 115	
1203942131	MB for batch 1727668	95	55 - 115	
1203942132	LCS for batch 1727668	94	55 - 115	
1203942133	CAPA-18-148934MS	87	55 - 115	
1203942134	CAPA-18-148934MSD	90	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) 2018-1294

Extract Batch Code: 1727668

Date Extracted: 20-DEC-17

GEL LCS ID: 1203942132

GEL LCSDUP ID: .

Analysis Date/Time: 21-DEC-17 19:05

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
PETN	5	4.55	91					57 - 126
RDX	5	4.53	91					64 - 117
TATB	3	2.01	67					47 - 135
TNX	.5	.438	88					51 - 110
Tetryl	5	4.92	98					55 - 122
m-Dinitrobenzene	5	4.92	98					74 - 117
m-Nitrotoluene	5	4.51	90					66 - 114
o-Nitrotoluene	5	3.91	78					64 - 115
p-Nitrotoluene	5	4.16	83					66 - 127
tris(o-cresyl) phosphate	5	3.46	69					43 - 104
1,3,5-Trinitrobenzene	5	4.73	95					70 - 110
2,4,6-Trinitrotoluene	5	5.07	101					69 - 113
2,4-Diamino-6-nitrotoluene	5	4.26	85					50 - 121
2,4-Dinitrotoluene	5	4.67	93					71 - 110
2,6-Diamino-4-nitrotoluene	5	4.79	96					53 - 127
2,6-Dinitrotoluene	5	4.36	87					72 - 105
2-Amino-4,6-dinitrotoluene	5	4.4	88					70 - 112
3,5-Dinitroaniline	5	4.62	92					70 - 121
4-Amino-2,6-dinitrotoluene	5	4.41	88					74 - 116
DNX	.5	.442	88					65 - 113
HMX	5	4.46	89					58 - 113
MXN	.5	.398	80					66 - 114
Nitrobenzene	5	4.66	93					64 - 115

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: CAPA-18-148934

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Extract Batch Code: 1727668

Date Extracted: 20-DEC-17

GEL Spike ID: 1203942133

GEL SpikeDup ID: 1203942134

Analysis Date/Time: 21-DEC-17 20:15

MSD Analysis Date/Time: 21-DEC-17 20:50

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
2,4,6-Trinitrotoluene	5.37634	0	5.14	96	5.46	100	6	30	66 - 112
2,4-Diamino-6-nitrotoluene	5.37634	0	3.67	68	4.37	80	17	30	50 - 121
2,4-Dinitrotoluene	5.37634	0	4.92	92	5.13	94	4	30	69 - 113
2,6-Diamino-4-nitrotoluene	5.37634	.286	4.53	79	5.28	92	15	30	53 - 127
2,6-Dinitrotoluene	5.37634	0	4.62	86	5.05	93	9	30	70 - 106
2-Amino-4,6-dinitrotoluene	5.37634	0	4.68	87	4.81	88	3	30	67 - 115
3,5-Dinitroaniline	5.37634	0	5.03	94	5.35	98	6	30	70 - 121
4-Amino-2,6-dinitrotoluene	5.37634	0	5.05	94	4.9	90	3	30	65 - 120
DNX	.53763	0	.587	109	.579	107	1	30	53 - 124
HMX	5.37634	0	4.78	89	5.17	95	8	30	44 - 128
MNX	.53763	0	.494	92	.572	105	15	30	60 - 121
Nitrobenzene	5.37634	0	4.53	84	4.12	76	9	30	62 - 116
PETN	5.37634	0	5.3	98	5.62	103	6	30	51 - 131
RDX	5.37634	3.44	8.87	101	9.83	117	10	30	57 - 125
TATB	3.22581	0	2.88	89	2.7	83	6	30	38 - 149
TNX	.53763	0	.546	102	.546	100	0	30	46 - 120
Tetryl	5.37634	0	5.52	103	5.32	98	4	30	50 - 126
m-Dinitrobenzene	5.37634	0	5.03	94	5.17	95	3	30	74 - 117
m-Nitrotoluene	5.37634	0	4.23	79	3.91	72	8	30	59 - 120
o-Nitrotoluene	5.37634	0	4.15	77	4.02	74	3	30	56 - 119
p-Nitrotoluene	5.37634	0	3.29	61	3.75	69	13	30	61 - 129
tris(o-cresyl) phosphate	5.37634	0	3.53	66	3.81	70	7	30	38 - 105
1,3,5-Trinitrobenzene	5.37634	0	4.74	88	4.67	86	1	30	67 - 111

#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 1727668

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 1203942131

Sample Amount 1000 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1221016.wiff

Date Analyzed: 21-DEC-17 18:30

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 1727668

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 1203942131

Sample Amount 1000 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-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 1727668

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 1203942132

Sample Amount 1000 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1221017.wiff

Date Analyzed: 21-DEC-17 19:05

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
5755-27-1	MNX	.398		0.080	0.250
<i>5755-27-1</i>	<i>MNX</i>				
13980-04-6	TNX	.438		0.080	0.250
<i>13980-04-6</i>	<i>TNX</i>				
80251-29-2	DNX	.442		0.080	0.250
<i>80251-29-2</i>	<i>DNX</i>				
3058-38-6	TATB	2.01		0.300	1.00
<i>3058-38-6</i>	<i>TATB</i>				
78-30-8	tris(o-cresyl) phosphate	3.46		0.300	1.00
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
88-72-2	o-Nitrotoluene	3.91		0.082	0.250
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
99-99-0	p-Nitrotoluene	4.16		0.150	0.500
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.26		0.500	2.50
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
606-20-2	2,6-Dinitrotoluene	4.36		0.080	0.250
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.4		0.080	0.250
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.41		0.080	0.250
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	4.46		0.080	0.250
<i>2691-41-0</i>	<i>HMX</i>				
99-08-1	m-Nitrotoluene	4.51		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: LCS for batch 1727668

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 1203942132

Sample Amount 1000 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	4.53		0.080	0.250
<i>121-82-4</i>	<i>RDX</i>				
78-11-5	PETN	4.55		0.100	0.500
<i>78-11-5</i>	<i>PETN</i>				
618-87-1	3,5-Dinitroaniline	4.62		0.300	1.00
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
98-95-3	Nitrobenzene	4.66		0.080	0.250
<i>98-95-3</i>	<i>Nitrobenzene</i>				
121-14-2	2,4-Dinitrotoluene	4.67		0.080	0.250
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	4.73		0.080	0.250
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.79		0.500	2.50
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
479-45-8	Tetryl	4.92		0.080	0.500
<i>479-45-8</i>	<i>Tetryl</i>				
99-65-0	m-Dinitrobenzene	4.92		0.080	0.250
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
118-96-7	2,4,6-Trinitrotoluene	5.07		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: CAPA-18-148934(440292001MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 1203942133

Sample Amount 930 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1221019.wiff

Date Analyzed: 21-DEC-17 20:15

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
5755-27-1	MNX	.494		0.086	0.269
<i>5755-27-1</i>	<i>MNX</i>				
13980-04-6	TNX	.546		0.086	0.269
<i>13980-04-6</i>	<i>TNX</i>				
80251-29-2	DNX	.587		0.086	0.269
<i>80251-29-2</i>	<i>DNX</i>				
3058-38-6	TATB	2.88		0.323	1.08
<i>3058-38-6</i>	<i>TATB</i>				
99-99-0	p-Nitrotoluene	3.29		0.161	0.538
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
78-30-8	tris(o-cresyl) phosphate	3.53		0.323	1.08
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	3.67		0.538	2.69
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
88-72-2	o-Nitrotoluene	4.15		0.0882	0.269
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
99-08-1	m-Nitrotoluene	4.23		0.086	0.269
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.53		0.538	2.69
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
98-95-3	Nitrobenzene	4.53		0.086	0.269
<i>98-95-3</i>	<i>Nitrobenzene</i>				
606-20-2	2,6-Dinitrotoluene	4.62		0.086	0.269
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.68		0.086	0.269
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-18-148934(440292001MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 1203942133

Sample Amount 930 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-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	4.74		0.086	0.269
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
2691-41-0	HMX	4.78		0.086	0.269
<i>2691-41-0</i>	<i>HMX</i>				
121-14-2	2,4-Dinitrotoluene	4.92		0.086	0.269
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
618-87-1	3,5-Dinitroaniline	5.03		0.323	1.08
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
99-65-0	m-Dinitrobenzene	5.03		0.086	0.269
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.05		0.086	0.269
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
118-96-7	2,4,6-Trinitrotoluene	5.14		0.086	0.269
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
78-11-5	PETN	5.3		0.108	0.538
<i>78-11-5</i>	<i>PETN</i>				
479-45-8	Tetryl	5.52		0.086	0.538
<i>479-45-8</i>	<i>Tetryl</i>				
121-82-4	RDX	8.87		0.086	0.269
<i>121-82-4</i>	<i>RDX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-18-148934(440292001MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 1203942134

Sample Amount 920 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1221020.wiff

Date Analyzed: 21-DEC-17 20:50

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
13980-04-6	TNX	.546		0.087	0.272
<i>13980-04-6</i>	<i>TNX</i>				
5755-27-1	MNX	.572		0.087	0.272
<i>5755-27-1</i>	<i>MNX</i>				
80251-29-2	DNX	.579		0.087	0.272
<i>80251-29-2</i>	<i>DNX</i>				
3058-38-6	TATB	2.7		0.326	1.09
<i>3058-38-6</i>	<i>TATB</i>				
99-99-0	p-Nitrotoluene	3.75		0.163	0.543
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
78-30-8	tris(o-cresyl) phosphate	3.81		0.326	1.09
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
99-08-1	m-Nitrotoluene	3.91		0.087	0.272
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
88-72-2	o-Nitrotoluene	4.02		0.0891	0.272
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
98-95-3	Nitrobenzene	4.12		0.087	0.272
<i>98-95-3</i>	<i>Nitrobenzene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.37		0.543	2.72
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	4.67		0.087	0.272
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.81		0.087	0.272
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.9		0.087	0.272
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-18-148934(440292001MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-1294

Matrix: WATER

GEL Sample ID: 1203942134

Sample Amount 920 mL

Date Received: 19-DEC-17

Moisture: .

Extraction Batch ID: 1727668

Extraction Type Sol Exchange

Date Extracted: 20-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
606-20-2	2,6-Dinitrotoluene	5.05		0.087	0.272
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	5.13		0.087	0.272
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
2691-41-0	HMX	5.17		0.087	0.272
<i>2691-41-0</i>	<i>HMX</i>				
99-65-0	m-Dinitrobenzene	5.17		0.087	0.272
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	5.28		0.543	2.72
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
479-45-8	Tetryl	5.32		0.087	0.543
<i>479-45-8</i>	<i>Tetryl</i>				
618-87-1	3,5-Dinitroaniline	5.35		0.326	1.09
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
118-96-7	2,4,6-Trinitrotoluene	5.46		0.087	0.272
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
78-11-5	PETN	5.62		0.109	0.543
<i>78-11-5</i>	<i>PETN</i>				
121-82-4	RDX	9.83		0.087	0.272
<i>121-82-4</i>	<i>RDX</i>				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2018-1294Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 21-DEC-17 09:43GEL Data File: EXP1221001.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
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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2018-1294Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 21-DEC-17 10:18GEL Data File: EXP1221002.wiffInstrument ID: LCMSMS7Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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
PETN	0	0
RDX	0	0
Tetryl	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1294

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 21-DEC-17 14:59

GEL Data File: EXP1221010.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
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): 2018-1294

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 21-DEC-17 17:19

GEL Data File: EXP1221014.wiff

Instrument ID: LCMSMS7

Column: 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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1294

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 21-DEC-17 21:25

GEL Data File: EXP1221021.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
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): 2018-1294

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 21-DEC-17 23:11

GEL Data File: EXP1221024.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	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
2-Amino-4,6-dinitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1294

Lab Code: GEL

Lab Sample ID: XIBLK06

Analysis Date: 22-DEC-17 00:21

GEL Data File: EXP1221026.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
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