

The order of this data package is as follows:

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

Comments:

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

LANL SMO Los Alamos NM		Chain of Custody/Analysis Request															COC/Lab Request #: 2018-1761 Page 1 of 1												
Client Contact:		Lab Agreement #:			Site Name: Los Alamos National Laboratory																								
		Project Number:			<div>MSGP-Hg</div> <div>WSP-8260B-VOA</div> <div>WSP-8270C-SVOA</div> <div>WSP-8330B-NMED HEXMOD</div> <div>WSP-All Metals</div> <div>WSP-CN(T)</div> <div>WSP-EES-Br</div> <div>WSP-EES-Tracers</div> <div>WSP-GENINORG+PerChlorate</div> <div>WSP-GrossA/B</div> <div>WSP-LL-H-3</div> <div>WSP-N15/O18-NO3</div> <div>WSP-NH3+NO3/NO2+PO4</div> <div>WSP-RAD</div> <div>WSP-TKN+TOC</div>																		Rad Screening Info:						
		Analysis Turnaround Time:																					Lab Reporting Limit Type:						
		24 Hour - <input type="checkbox"/> Other - <input checked="" type="checkbox"/>																					Method Detection Limit						
		7 Days - <input type="checkbox"/>																											
		14 Days - <input type="checkbox"/>																											
		21 Days - <input type="checkbox"/>																											
		28 Days - <input type="checkbox"/>																											
Field Sample ID	Sample Date	Sample Time	Sample Matrix																										
CAWA-18-39	Feb 16 2018	11:01	W					1					1			2	1												
CAWA-18-121	Feb 16 2018	11:01	W		2																								
CAWA-18-151445	Feb 16 2018	11:01	W		2	2																							
CAWA-18-40	Feb 16 2018	11:01	W	1	2	2	3		1				1	1			1	1											
CAWA-18-41	Feb 16 2018	11:01	W							1	2																		
Special Instructions:																													
Relinquished by: Katrina Tow				Print Name: Katrina Tow				Date/Time: 2/16/18 1300				Received by: Renee Ostiff				Print Name: Renee Ostiff				Date/Time: 2/16/18 1300									
Relinquished by:				Print Name:				Date/Time:				Received by:				Print Name:				Date/Time:									
Relinquished by:				Print Name:				Date/Time:				Received by:				Print Name:				Date/Time:									

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11669

EVENT NAME: Water/CdV (TA-16 260, Feb Cr Monthly)
MY18 Q2

SAMPLE ID: CAWA-18-101

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	2/16/18	ok	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):	939		MEDIA:	W	↓
PRS ID:	NA		SAMPLE TECH CODE:	GSP	DC
LOCATION ID:	CDV-16-4ip S1		FIELD PREP:	UF	ok
LOCATION TYPE:	WON		FIELD QC TYPE:	FTB	↓
TOP DEPTH:	WAT		SAMPLE USAGE:	QC	↓
BOTTOM DEPTH:	NA	✓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B- VOA	40 ML SEPTUM AMBER GLASS	21 TV 2-15-18	HCL	y	NA

SAMPLE COMMENTS: none

LOCATION COMMENTS: none

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): K. Tow

RELINQUISHED BY (Printed Name) Maurice Shendo (Signature) <i>Maurice Shendo</i>	Date/Time 2/16/18 1300	RECEIVED BY MATH ENGBERT (Printed Name) (Signature) <i>M. Engbert</i>	Date/Time 2-16-18 1300
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11669

EVENT NAME: Water/CdV (TA-16 260, Feb Cr Monthly)
MY18 Q2

SAMPLE ID: CAWA-18-42

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
Date Collected (MM/DD/YYYY):	2/16/18	ok	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):	939		MEDIA:	W	
PRS ID:	NA		SAMPLE TECH CODE:	GSP	
LOCATION ID:	CDV-16-4ip S1		FIELD PREP:	F	
LOCATION TYPE:	mon		FIELD QC TYPE:	REG	
TOP DEPTH:	NA		SAMPLE USAGE:	INV	
BOTTOM DEPTH:	NA	✓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	NA
	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE		
	WSP-N15/O18-NO3	40 mL Glass	2	ICE		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: none

LOCATION COMMENTS: none

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): K. Tao & W. Sanchez

RELINQUISHED BY (Printed Name) Maurice Shando (Signature) <i>Maurice Shando</i>	Date/Time 2/16/18 1300	RECEIVED BY (Printed Name) MARI ENGELBERT (Signature) <i>Mari Engelbert</i>	Date/Time 2-16-18 1300
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11669

EVENT NAME: Water/CdV (TA-16 260, Feb Cr Monthly)
MY18 Q2

SAMPLE ID: CAWA-18-43

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
Date Collected (MM/DD/YYYY):	2/16/18	ok	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):	939		MEDIA:	ok	
PRS ID:	NA		SAMPLE TECH CODE:	GSP	
LOCATION ID:	CDV-16-4ip S1		FIELD PREP:	UF	
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:	NA		SAMPLE USAGE:	INV	
BOTTOM DEPTH:	NA		EXCAVATED:		YES / NO / (NA)

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	500 ML POLY	1	HNO3	y	NA
	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL		
	WSP-8270C-SVOA	1 LITER AMBER GLASS	2	ICE		
	WSP-8330B-NMED HEXMOD	1 LITER AMBER GLASS	3	ICE		
	WSP-CN(T)	250 ML POLY	1	NAOH		
	WSP-GrossA/B	1 LITER POLY	1	HNO3		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11669

EVENT NAME: Water/CdV (TA-16 260, Feb Cr Monthly)
MY18 Q2

SAMPLE ID: CAWA-18-43

WORK ORDER:

SAMPLE COMMENTS: ~~generator Running at 50%~~ ^{ms 2/16/18}
noneLOCATION COMMENTS:
none

FIELD PARAMETERS:

Sample Time	<u>939</u> HH:MM	Discharge Rate	<u>8.82</u> gpm	Dissolved Oxygen	<u>7.18</u> mg/L
Groundwater Elevation	<u>6646.98'</u> ms1	Oxidation-Reduction Potential	<u>206.1</u> mV	Period Purge Volume	<u>3</u> cu's
pH	<u>7.08</u> sV	Purge Volume	<u>264.6</u> gallons	Specific Conductance	<u>121.9</u> μ S/cm
Temperature	<u>10.8</u> °C	Total Volume Pumped	<u>423.36</u> gallons	Turbidity	<u>1.1</u> NTU

COLLECTED BY (PRINT): K. Tao & W. Sanchez

RELINQUISHED BY (Printed Name) <u>Mauricio Shendo</u> (Signature) <u>[Signature]</u>	Date/Time <u>2/16/18</u> <u>1300</u>	RECEIVED BY <u>MATT ENGLERT</u> (Printed Name) <u>[Signature]</u> (Signature)	Date/Time <u>2-16-18</u> <u>1300</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 02/02/2018

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11669

EVENT NAME: Water/CdV (TA-16 260, Feb Cr Monthly)
MY18 Q2

SAMPLE ID: CAWA-18-88

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
Date Collected (MM/DD/YYYY):	2/16/18	ok	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):	939		MEDIA:	w	DI
PRS ID:	NA		SAMPLE TECH CODE:	GSP	DC
LOCATION ID:	CDV-16-4ip S1		FIELD PREP:	UF	ok
LOCATION TYPE:	mon		FIELD QC TYPE:	FB	
TOP DEPTH:	NA		SAMPLE USAGE:	QC	
BOTTOM DEPTH:	NA	✓	EXCAVATED:		YES / NO / <u>NA</u>

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA ↓	WSP-8260B- VOA	40 ML SEPTUM AMBER GLASS	2	HCL	y	NA ↓
↓	WSP-8270C- SVOA	1 LITER AMBER GLASS	2	ICE	f	↓

SAMPLE COMMENTS: none

LOCATION COMMENTS: none

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): K. Tow

RELINQUISHED BY (Printed Name) <u>Maurice Sheneb</u> (Signature) <u>[Signature]</u>	Date/Time <u>2/16/18</u> <u>1300</u>	RECEIVED BY <u>MATT ENGLERT</u> (Printed Name) (Signature) <u>[Signature]</u>	Date/Time <u>2-16-1300</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

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

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

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

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

TEST – AK		YES	NO
The shippers documented knowledge of the sample positively identifies appropriate labeling.			<input checked="" type="checkbox"/>
Documented Field Team Member Statement		YES	NO
The sample is tentatively identified as DOT Hazard Class 7 (Radioactive). The shipment is labeled <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) <u>Tanner Barham</u>	<u>2-16-2018</u>
(Signature) <u>[Signature]</u>	<u>1350</u>

Hazard Assessment Reviewed By:	Date/Time
(Printed Name) <u>Renee Onstott</u>	<u>2/16/18</u>
(Signature) <u>[Signature]</u>	<u>1350</u>

Sampling Plan ID/Name: cdv-16-4ip S1 11669
cdv-16-2irCOC: 2018-1772

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


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

TEST – Field Screen	YES	NO
The sample has field screening measurements of alpha activity and beta activity?		<input checked="" type="checkbox"/>
Sample Activity (dpm/100cm ²)	YES	NO
Shipment Activity (dpm*g/100cm ²)		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)	YES	NO
Shipment Activity (pCi)		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		<input checked="" type="checkbox"/>
• Pu-238 ≥ 27 pCi/g AND Pu-238 ≥ 270,000 pCi Total		<input checked="" type="checkbox"/>
• Pu-239/240 ≥ 27 pCi/g AND Pu-239/240 ≥ 270,000 pCi Total		<input checked="" type="checkbox"/>
• Th-228 ≥ 27 pCi/g AND Th-228 ≥ 270,000 pCi Total		<input checked="" type="checkbox"/>
• U-234 ≥ 270 pCi/g AND U-234 ≥ 1,600,000,000 pCi Total		<input checked="" type="checkbox"/>
• U-238 ≥ 270 pCi/g AND U-238 ≥ unlimited		<input checked="" type="checkbox"/>
• H-3 ≥ 27,000,000 pCi/g AND H-3 ≥ 27,000,000,000 pCi Total		<input checked="" type="checkbox"/>
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
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	2/16/18
(Signature) 	1300

cdv-16-4ip S1
cdv-16-2ir

Hazard Assessment Reviewed By:	Date/Time
(Printed Name) Renee Onstott	2/16/18
(Signature) 	1300

ER-SOP-10094, R1, Attachment

Sampling Plan ID/Name:

11669 CDU-16-611937, CDU-16-611712 PKD 1410001 Sep

COC: 2018-1772

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


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

TEST – Field Screen				YES	NO
The sample has field screening measurements of alpha activity and beta activity?					<input checked="" type="checkbox"/>
Sample Activity (dpm/100cm ²)	Shipment Activity (dpm*g/100cm ²)	Sampled Location		YES	NO
Alpha detectable	AND Alpha ≥ 160,000	AT TA-1 and adjacent hillsides, TA-21, Acid Canyon, MDA C at TA-50, Area G at TA-54, TA-48, or TA-49			<input checked="" type="checkbox"/>
Alpha ≥ 125	AND Alpha ≥ 1,250,000	AT other locations			<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
• 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		<input checked="" type="checkbox"/>
• 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
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) Daniel J. Frank	2/16/18
(Signature) 	1500

Hazard Assessment Reviewed By:	Date/Time
(Printed Name) Ramee Onstott	2/16/18
(Signature) 	1500

ER-SOP-10094, R1, Attachment

DATA VALIDATION REPORT

Chain Of Custody No. 2018-1772

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
444396	EPA:120.1	6	2			
444396	EPA:150.1	6	2			
444396	EPA:160.1	6	2			
444396	EPA:170.0	12	4	6	2	
444396	EPA:245.2	12	4			
444396	EPA:300.0	6	2			
444396	EPA:310.1	6	2			
444396	EPA:335.4	6	2			
444396	EPA:350.1	6	2			
444396	EPA:351.2	6	2			
444396	EPA:353.2	6	2			
444396	EPA:365.4	6	2			
444396	EPA:900	6	2			
444396	EPA:901.1	6	2			
444396	EPA:905.0	6	2			
444396	HASL-300:AM-241	6	2			
444396	HASL-300:ISOPU	6	2			
444396	HASL-300:ISOU	6	2			
444396	SM:A2340B	6	2			
444396	SW-846:6010C	6	2			
444396	SW-846:6020	6	2			
444396	SW-846:6850	6	2			
444396	SW-846:8260B	6	2	6	2	
444396	SW-846:8270D	6	2		2	
444396	SW-846:8330B	6	2			
444396	SW-846:9060	6	2			

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

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
444396	EPA:120.1	1742248	1742248	6	2									1			1				
444396	EPA:150.1	1741049	1741049	6	2									1			1				
444396	EPA:160.1	1741245	1741245	6	2				1					1			1				
444396	EPA:170.0	NA	NA	12	4	6	2														
444396	EPA:245.2	1741433	1741432	12	4				1	1				1			1				
444396	EPA:300.0	1741253	1741253	6	2				1					1			1				
444396	EPA:310.1	1741047	1741047	6	2					2				1			2				
444396	EPA:335.4	1740518	1740517	2	1				1	1				1			1				
444396	EPA:335.4	1741329	1741327	4	1				1	1				1			1				
444396	EPA:350.1	1741254	1741252	6	2				1	2				1			2				
444396	EPA:351.2	1742074	1742073	6	2				1	2				1			2				
444396	EPA:353.2	1742109	1742109	6	2				1					1			1				
444396	EPA:365.4	1742097	1742096	6	2				1	1				1			1				
444396	EPA:900	1742280	1742280	6	2				1	1	1			1			1				
444396	EPA:901.1	1741316	1741316	6	2				1					1			1				
444396	EPA:905.0	1741102	1741102	6	2				1	1				1			1				
444396	HASL-300:AM-241	1741073	1741073	6	2				1					1			1				
444396	HASL-300:ISOPU	1741075	1741075	6	2				1					1			1				
444396	HASL-300:ISOU	1741076	1741076	6	2				1					1			1				
444396	SM:A2340B	1747180	1747180	6	2																
444396	SW-846:6010C	1741029	1741028	6	2				1	1				1			1				
444396	SW-846:6020	1741031	1741030	6	2				1	1				1			1				
444396	SW-846:6850	1742510	1742509	6	2				1	1	1			1							
444396	SW-846:8260B	1742738	1742738	6	2	6	2		2					4							
444396	SW-846:8270D	1741116	1741115	6	2		2		1	1	1			1							
444396	SW-846:8270D	1742249	1742247	2	1				1	1	1			1							
444396	SW-846:8330B	1741753	1741752	6	2				1	1	1			1							
444396	SW-846:9060	1741062	1741062	6	2				1					1			1				

2. Distribution Of Analytes In EDD.

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DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-18-1	1203978902	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-18-122	444396026	FD	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-18-124	444396009	FD	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-18-21	444396022	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-18-27	444396001	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-18-29	444396029	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-18-35	444396005	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-18-39	444396012	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-18-42	444396017	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1203978901	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-18-1	1203976495	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAWA-18-122	444396026	FD	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAWA-18-124	444396009	FD	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAWA-18-21	444396022	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAWA-18-27	444396001	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAWA-18-29	444396029	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAWA-18-35	444396005	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAWA-18-39	444396012	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAWA-18-42	444396017	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1203976494	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-18-21	1203976825	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAWA-18-122	444396026	FD	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAWA-18-124	444396009	FD	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAWA-18-21	444396022	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAWA-18-27	444396001	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAWA-18-29	444396029	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAWA-18-35	444396005	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAWA-18-39	444396012	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAWA-18-42	444396017	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1203976823	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1203976822	MB	1	0	0	0
EPA:170.0	VOC	CAWA-18-101	444396021	FTB	1	0	0	0
EPA:170.0	VOC	CAWA-18-102	444396025	FTB	1	0	0	0
EPA:170.0	VOC	CAWA-18-105	444396032	FTB	1	0	0	0
EPA:170.0	VOC	CAWA-18-107	444396008	FTB	1	0	0	0
EPA:170.0	VOC	CAWA-18-121	444396015	FTB	1	0	0	0
EPA:170.0	VOC	CAWA-18-122	444396026	FD	1	0	0	0
EPA:170.0	VOC	CAWA-18-124	444396009	FD	1	0	0	0
EPA:170.0	VOC	CAWA-18-125	444396027	FD	1	0	0	0

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DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:170.0	VOC	CAWA-18-127	444396010	FD	1	0	0	0
EPA:170.0	VOC	CAWA-18-151445	444396016	FB	1	0	0	0
EPA:170.0	VOC	CAWA-18-21	444396022	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-22	444396023	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-27	444396001	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-28	444396002	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-29	444396029	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-30	444396030	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-35	444396005	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-36	444396006	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-39	444396012	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-40	444396013	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-42	444396017	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-43	444396018	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-88	444396020	FB	1	0	0	0
EPA:170.0	VOC	CAWA-18-95	444396004	FTB	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-122	444396026	FD	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-124	444396009	FD	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-125	444396027	FD	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-127	444396010	FD	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-21	444396022	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-22	444396023	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-27	1203977174	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-27	1203977176	MS	0	0	1	0
EPA:245.2	INORGANIC	CAWA-18-27	444396001	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-28	444396002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-29	444396029	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-30	444396030	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-35	444396005	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-36	444396006	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-39	444396012	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-40	444396013	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-42	444396017	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-18-43	444396018	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1203977173	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1203977172	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAWA-18-122	444396026	FD	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAWA-18-124	444396009	FD	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAWA-18-21	444396022	REG	4	0	0	0

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DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:300.0	GENERAL CHEMISTRY	CAWA-18-27	1203976839	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAWA-18-27	444396001	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAWA-18-29	444396029	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAWA-18-35	444396005	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAWA-18-39	444396012	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAWA-18-42	444396017	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1203976838	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1203976837	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-18-1	1203976486	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-18-1	1203976488	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-122	444396026	FD	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-124	444396009	FD	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-21	444396022	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-27	444396001	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-29	1203976487	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-29	1203976489	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-29	444396029	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-35	444396005	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-39	444396012	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAWA-18-42	444396017	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1203976485	LCS	0	0	1	0
EPA:335.4	INORGANIC	CAWA-18-125	444396027	FD	1	0	0	0
EPA:335.4	INORGANIC	CAWA-18-127	444396010	FD	1	0	0	0
EPA:335.4	INORGANIC	CAWA-18-22	444396023	REG	1	0	0	0
EPA:335.4	INORGANIC	CAWA-18-28	1203975197	DUP	1	0	0	0
EPA:335.4	INORGANIC	CAWA-18-28	1203975198	MS	0	0	1	0
EPA:335.4	INORGANIC	CAWA-18-28	444396002	REG	1	0	0	0
EPA:335.4	INORGANIC	CAWA-18-30	444396030	REG	1	0	0	0
EPA:335.4	INORGANIC	CAWA-18-36	444396006	REG	1	0	0	0
EPA:335.4	INORGANIC	CAWA-18-40	1203976959	DUP	1	0	0	0
EPA:335.4	INORGANIC	CAWA-18-40	1203976961	MS	0	0	1	0
EPA:335.4	INORGANIC	CAWA-18-40	444396013	REG	1	0	0	0
EPA:335.4	INORGANIC	CAWA-18-43	444396018	REG	1	0	0	0
EPA:335.4	INORGANIC	LCS	1203975196	LCS	0	0	1	0
EPA:335.4	INORGANIC	LCS	1203976958	LCS	0	0	1	0
EPA:335.4	INORGANIC	MB	1203975195	MB	1	0	0	0
EPA:335.4	INORGANIC	MB	1203976957	MB	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-18-1	1203976843	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-18-1	1203976844	MS	0	0	1	0

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DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-122	444396026	FD	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-124	444396009	FD	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-21	444396022	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-27	1203976851	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-27	1203976852	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-27	444396001	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-29	444396029	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-35	444396005	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-39	444396012	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAWA-18-42	444396017	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1203976842	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1203976841	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-125	444396027	FD	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-127	444396010	FD	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-22	444396023	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-28	1203978466	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-28	1203978467	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-28	444396002	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-30	444396030	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-36	1203978468	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-36	1203978469	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-36	444396006	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-40	444396013	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-18-43	444396018	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1203978465	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1203978464	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAWA-18-122	444396026	FD	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAWA-18-124	444396009	FD	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAWA-18-21	444396022	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAWA-18-27	1203978569	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAWA-18-27	444396001	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAWA-18-29	444396029	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAWA-18-35	444396005	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAWA-18-39	444396012	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAWA-18-42	444396017	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1203978567	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1203978566	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-122	444396026	FD	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-124	444396009	FD	1	0	0	0

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DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-21	444396022	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-27	1203978531	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-27	1203978532	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-27	444396001	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-29	444396029	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-35	444396005	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-39	444396012	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAWA-18-42	444396017	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1203978530	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1203978529	MB	1	0	0	0
EPA:900	RAD	CAWA-18-125	444396027	FD	2	0	0	0
EPA:900	RAD	CAWA-18-127	444396010	FD	2	0	0	0
EPA:900	RAD	CAWA-18-22	444396023	REG	2	0	0	0
EPA:900	RAD	CAWA-18-28	444396002	REG	2	0	0	0
EPA:900	RAD	CAWA-18-30	444396030	REG	2	0	0	0
EPA:900	RAD	CAWA-18-36	444396006	REG	2	0	0	0
EPA:900	RAD	CAWA-18-40	1203978997	DUP	2	0	0	0
EPA:900	RAD	CAWA-18-40	1203978998	MS	0	0	2	0
EPA:900	RAD	CAWA-18-40	1203978999	MSD	0	0	2	0
EPA:900	RAD	CAWA-18-40	444396013	REG	2	0	0	0
EPA:900	RAD	CAWA-18-43	444396018	REG	2	0	0	0
EPA:900	RAD	LCS	1203979000	LCS	0	0	2	0
EPA:900	RAD	MB	1203978996	MB	2	0	0	0
EPA:901.1	RAD	CAWA-18-125	444396027	FD	5	0	0	0
EPA:901.1	RAD	CAWA-18-127	444396010	FD	5	0	0	0
EPA:901.1	RAD	CAWA-18-22	444396023	REG	5	0	0	0
EPA:901.1	RAD	CAWA-18-28	1203976943	DUP	5	0	0	0
EPA:901.1	RAD	CAWA-18-28	444396002	REG	5	0	0	0
EPA:901.1	RAD	CAWA-18-30	444396030	REG	5	0	0	0
EPA:901.1	RAD	CAWA-18-36	444396006	REG	5	0	0	0
EPA:901.1	RAD	CAWA-18-40	444396013	REG	5	0	0	0
EPA:901.1	RAD	CAWA-18-43	444396018	REG	5	0	0	0
EPA:901.1	RAD	LCS	1203976944	LCS	0	0	3	0
EPA:901.1	RAD	MB	1203976942	MB	5	0	0	0
EPA:905.0	RAD	CAWA-18-125	444396027	FD	1	0	0	0
EPA:905.0	RAD	CAWA-18-127	444396010	FD	1	0	0	0
EPA:905.0	RAD	CAWA-18-22	444396023	REG	1	0	0	0
EPA:905.0	RAD	CAWA-18-28	1203976610	DUP	1	0	0	0
EPA:905.0	RAD	CAWA-18-28	1203976611	MS	0	0	1	0

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DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:905.0	RAD	CAWA-18-28	444396002	REG	1	0	0	0
EPA:905.0	RAD	CAWA-18-30	444396030	REG	1	0	0	0
EPA:905.0	RAD	CAWA-18-36	444396006	REG	1	0	0	0
EPA:905.0	RAD	CAWA-18-40	444396013	REG	1	0	0	0
EPA:905.0	RAD	CAWA-18-43	444396018	REG	1	0	0	0
EPA:905.0	RAD	LCS	1203976612	LCS	0	0	1	0
EPA:905.0	RAD	MB	1203976609	MB	1	0	0	0
HASL-300:AM-241	RAD	CAWA-18-125	444396027	FD	1	0	0	0
HASL-300:AM-241	RAD	CAWA-18-127	444396010	FD	1	0	0	0
HASL-300:AM-241	RAD	CAWA-18-22	444396023	REG	1	0	0	0
HASL-300:AM-241	RAD	CAWA-18-28	1203976541	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAWA-18-28	444396002	REG	1	0	0	0
HASL-300:AM-241	RAD	CAWA-18-30	444396030	REG	1	0	0	0
HASL-300:AM-241	RAD	CAWA-18-36	444396006	REG	1	0	0	0
HASL-300:AM-241	RAD	CAWA-18-40	444396013	REG	1	0	0	0
HASL-300:AM-241	RAD	CAWA-18-43	444396018	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1203976542	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1203976540	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAWA-18-125	444396027	FD	2	0	0	0
HASL-300:ISOPU	RAD	CAWA-18-127	444396010	FD	2	0	0	0
HASL-300:ISOPU	RAD	CAWA-18-22	444396023	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAWA-18-28	1203976548	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAWA-18-28	444396002	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAWA-18-30	444396030	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAWA-18-36	444396006	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAWA-18-40	444396013	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAWA-18-43	444396018	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1203976549	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1203976547	MB	2	0	0	0
HASL-300:ISOU	RAD	CAWA-18-125	444396027	FD	3	0	0	0
HASL-300:ISOU	RAD	CAWA-18-127	444396010	FD	3	0	0	0
HASL-300:ISOU	RAD	CAWA-18-22	444396023	REG	3	0	0	0
HASL-300:ISOU	RAD	CAWA-18-28	1203976551	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAWA-18-28	444396002	REG	3	0	0	0
HASL-300:ISOU	RAD	CAWA-18-30	444396030	REG	3	0	0	0
HASL-300:ISOU	RAD	CAWA-18-36	444396006	REG	3	0	0	0
HASL-300:ISOU	RAD	CAWA-18-40	444396013	REG	3	0	0	0
HASL-300:ISOU	RAD	CAWA-18-43	444396018	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1203976552	LCS	0	0	1	0

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DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
HASL-300:ISOU	RAD	MB	1203976550	MB	3	0	0	0
SM:A2340B	INORGANIC	CAWA-18-122	444396026	FD	1	0	0	0
SM:A2340B	INORGANIC	CAWA-18-124	444396009	FD	1	0	0	0
SM:A2340B	INORGANIC	CAWA-18-21	444396022	REG	1	0	0	0
SM:A2340B	INORGANIC	CAWA-18-27	444396001	REG	1	0	0	0
SM:A2340B	INORGANIC	CAWA-18-29	444396029	REG	1	0	0	0
SM:A2340B	INORGANIC	CAWA-18-35	444396005	REG	1	0	0	0
SM:A2340B	INORGANIC	CAWA-18-39	444396012	REG	1	0	0	0
SM:A2340B	INORGANIC	CAWA-18-42	444396017	REG	1	0	0	0
SW-846:6010C	INORGANIC	CAWA-18-122	444396026	FD	17	0	0	0
SW-846:6010C	INORGANIC	CAWA-18-124	444396009	FD	17	0	0	0
SW-846:6010C	INORGANIC	CAWA-18-21	444396022	REG	17	0	0	0
SW-846:6010C	INORGANIC	CAWA-18-27	1203976440	DUP	17	0	0	0
SW-846:6010C	INORGANIC	CAWA-18-27	1203976441	MS	0	0	17	0
SW-846:6010C	INORGANIC	CAWA-18-27	444396001	REG	17	0	0	0
SW-846:6010C	INORGANIC	CAWA-18-29	444396029	REG	17	0	0	0
SW-846:6010C	INORGANIC	CAWA-18-35	444396005	REG	17	0	0	0
SW-846:6010C	INORGANIC	CAWA-18-39	444396012	REG	17	0	0	0
SW-846:6010C	INORGANIC	CAWA-18-42	444396017	REG	17	0	0	0
SW-846:6010C	INORGANIC	LCS	1203976439	LCS	0	0	17	0
SW-846:6010C	INORGANIC	MB	1203976438	MB	17	0	0	0
SW-846:6020	INORGANIC	CAWA-18-122	444396026	FD	11	0	0	0
SW-846:6020	INORGANIC	CAWA-18-124	444396009	FD	11	0	0	0
SW-846:6020	INORGANIC	CAWA-18-21	444396022	REG	11	0	0	0
SW-846:6020	INORGANIC	CAWA-18-27	1203976445	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAWA-18-27	1203976446	MS	0	0	11	0
SW-846:6020	INORGANIC	CAWA-18-27	444396001	REG	11	0	0	0
SW-846:6020	INORGANIC	CAWA-18-29	444396029	REG	11	0	0	0
SW-846:6020	INORGANIC	CAWA-18-35	444396005	REG	11	0	0	0
SW-846:6020	INORGANIC	CAWA-18-39	444396012	REG	11	0	0	0
SW-846:6020	INORGANIC	CAWA-18-42	444396017	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1203976444	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1203976443	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-122	444396026	FD	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-124	444396009	FD	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-21	444396022	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-27	1203979481	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-27	1203979482	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-27	444396001	REG	1	0	0	0

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DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-29	444396029	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-35	444396005	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-39	444396012	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAWA-18-42	444396017	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1203979480	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1203979479	MB	1	0	0	0
SW-846:8260B	VOC	CAWA-18-101	444396021	FTB	80	3	0	0
SW-846:8260B	VOC	CAWA-18-102	444396025	FTB	80	3	0	0
SW-846:8260B	VOC	CAWA-18-105	444396032	FTB	80	3	0	0
SW-846:8260B	VOC	CAWA-18-107	444396008	FTB	80	3	0	0
SW-846:8260B	VOC	CAWA-18-121	444396015	FTB	80	3	0	0
SW-846:8260B	VOC	CAWA-18-125	444396027	FD	80	3	0	0
SW-846:8260B	VOC	CAWA-18-127	444396010	FD	80	3	0	0
SW-846:8260B	VOC	CAWA-18-151445	444396016	FB	80	3	0	0
SW-846:8260B	VOC	CAWA-18-22	444396023	REG	80	3	0	0
SW-846:8260B	VOC	CAWA-18-28	444396002	REG	80	3	0	0
SW-846:8260B	VOC	CAWA-18-30	444396030	REG	80	3	0	0
SW-846:8260B	VOC	CAWA-18-36	444396006	REG	80	3	0	0
SW-846:8260B	VOC	CAWA-18-40	444396013	REG	80	3	0	0
SW-846:8260B	VOC	CAWA-18-43	444396018	REG	80	3	0	0
SW-846:8260B	VOC	CAWA-18-88	444396020	FB	80	3	0	0
SW-846:8260B	VOC	CAWA-18-95	444396004	FTB	80	3	0	0
SW-846:8260B	VOC	LCS	1203980069	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203980070	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1203981230	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203982548	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203980067	MB	80	3	0	0
SW-846:8260B	VOC	MB	1203981229	MB	80	3	0	0
SW-846:8270D	SVOC	CAWA-18-125	444396027	FD	160	12	0	0
SW-846:8270D	SVOC	CAWA-18-127	444396010	FD	80	6	0	0
SW-846:8270D	SVOC	CAWA-18-151445	444396016	FB	80	6	0	0
SW-846:8270D	SVOC	CAWA-18-22	444396023	REG	160	12	0	0
SW-846:8270D	SVOC	CAWA-18-28	1203976630	MS	0	6	76	0
SW-846:8270D	SVOC	CAWA-18-28	1203976631	MSD	0	6	76	0
SW-846:8270D	SVOC	CAWA-18-28	444396002	REG	80	6	0	0
SW-846:8270D	SVOC	CAWA-18-30	444396030	REG	80	6	0	0
SW-846:8270D	SVOC	CAWA-18-36	444396006	REG	80	6	0	0
SW-846:8270D	SVOC	CAWA-18-40	444396013	REG	160	12	0	0
SW-846:8270D	SVOC	CAWA-18-43	444396018	REG	80	6	0	0

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DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
SW-846:8270D	SVOC	CAWA-18-56	1203978894	MS	0	6	76	0
SW-846:8270D	SVOC	CAWA-18-56	1203978895	MSD	0	6	76	0
SW-846:8270D	SVOC	CAWA-18-88	444396020	FB	80	6	0	0
SW-846:8270D	SVOC	LCS	1203976629	LCS	0	6	76	0
SW-846:8270D	SVOC	LCS	1203978893	LCS	0	6	76	0
SW-846:8270D	SVOC	MB	1203976628	MB	80	6	0	0
SW-846:8270D	SVOC	MB	1203978892	MB	80	6	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-125	444396028	FD	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-127	444396011	FD	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-22	444396024	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-28	1203977815	MS	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-28	1203977816	MSD	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-28	444396003	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-30	444396031	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-36	444396007	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-40	444396014	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-43	444396019	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	LCS	1203977814	LCS	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	MB	1203977813	MB	23	1	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-18-125	444396027	FD	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-18-127	444396010	FD	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-18-22	444396023	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-18-28	444396002	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-18-30	444396030	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-18-36	444396006	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-18-40	1203976536	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-18-40	444396013	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-18-43	444396018	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1203976533	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1203976532	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

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DATA VALIDATION REPORT

Field Sample ID	Lab Sample ID	Analytical Method	Sample Date	Extraction Date	Analysis Date	Extraction Hold Time	Max Extract Hold Time	Reject Above	Exceeds Limit	Analysis Hold Time	Max Analysis Hold Time	Reject Above	Exceeds Limit
CAWA-18-125	444396027	SW-846:8270D	02-16-2018	02-27-2018	02-27-2018	11	7	15	X	0	40	81	
CAWA-18-22	444396023	SW-846:8270D	02-16-2018	02-27-2018	02-27-2018	11	7	15	X	0	40	81	
CAWA-18-40	444396013	SW-846:8270D	02-16-2018	02-27-2018	02-27-2018	11	7	15	X	0	40	81	

5. Any contaminants in blanks?

Blank FS ID	Blank Lab Sample	Blank Type	Analytical Method	Sample	Parameter Name	Blank Lab Result	Lab Qualifier	Blank Lab Units	Blank Lab Detection Limit
MB	1203976822	METHOD BLANK	EPA:160.1	W	Total Dissolved Solids	5.71	J	mg/L	14.3
CAWA-18-95	444396004	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	
CAWA-18-107	444396008	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	
CAWA-18-121	444396015	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	
CAWA-18-88	444396020	FIELD BLANK	EPA:170.0	W	Temperature	2		Deg C	
CAWA-18-101	444396021	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	
CAWA-18-102	444396025	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	
CAWA-18-105	444396032	TRIP BLANK	EPA:170.0	W	Temperature	2		Deg C	

No.

6. Any surrogate recoveries outside the control limits?

Field Sample ID	Lab Sample ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Spike Recovery	Upper Limit	Lower Limit	Rejection Limit
CAWA-18-125	444396027	SW-846:8270D	Tribromophenol[2,4,6-]	1741116	02-23-2018	22	124	32	10
CAWA-18-22	444396023	SW-846:8270D	Phenol-d5	1741116	02-23-2018	14	91	15	10

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Field Sample ID	Lab Sample ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Spike Recovery	Upper Limit	Lower Limit	Rejection Limit
CAWA-18-22	444396023	SW-846:8270D	Tribromophenol[2,4,6-]	1741116	02-23-2018	14	124	32	10
CAWA-18-30	444396030	SW-846:8270D	Fluorobiphenyl[2-]	1741116	02-23-2018	31	112	32	10
CAWA-18-30	444396030	SW-846:8270D	Phenol-d5	1741116	02-23-2018	14	91	15	10
CAWA-18-30	444396030	SW-846:8270D	Tribromophenol[2,4,6-]	1741116	02-23-2018	8	124	32	10
CAWA-18-40	444396013	SW-846:8270D	Tribromophenol[2,4,6-]	1741116	02-23-2018	20	124	32	10

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

Field Sample ID	MS Lab Sample ID	MSD Lab Sample ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS Spike Recovery	MSD Spike Recovery	MS Upper Limit	MS Lower Limit	MS Reject Limit	RPD	RPD Limit
CAWA-18-27	1203979481	1203979482	SW-846:6850	Perchlorate	1742509	02-28-2018	W	59	100	125	75	10	14	30

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

LCS Lab Sample	LCSD Lab	Analytical Method	Parameter Name	Lab Lot ID	Analysis	Sample Matrix	LCS Spike Recovery	LCSD Spike Recovery	Upper Limit	Lower Limit	Upper Rejection Limit	Lower Rejection Limit	RPD	RPD Limit
1203976629		SW-846:8270D	Benzo(g,h,i)perylene	1741115	02-23-2018	W	133		131	33		10		
1203976629		SW-846:8270D	Dibenz(a,h)anthracene	1741115	02-23-2018	W	131		129	38		10		
1203976629		SW-846:8270D	Indeno(1,2,3-cd)pyrene	1741115	02-23-2018	W	129		125	34		10		

9. Any Field Duplicate RPDs outside the desired limits?

No.

DATA VALIDATION REPORT

10. Any Lab Duplicate RPDs outside the desired limits?

Field Sample ID	Lab Sample ID	LD Lab Sample ID	Analytical Method	Parameter Name	Sample Matrix	Lab Result	LD Lab Result	Lab Units	Detect Flag	LD Detect Flag	RPD	RPD Limit
CAWA-18-28	444396002	1203976551	HASL-300:ISOU	Uranium-238	W	0.265	0.198	pCi/L	Y	Y	28.9	20

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

13. Display Flagged Data.

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Acenaphthene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Acenaphthene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Acenaphthylene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Acenaphthylene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N	-0.00505	pCi/L	-0.00505	pCi/L	0.0426	0.00944	W	02/16/2018		1741073	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Aniline	U	UJ	SV3a	N	4.42	ug/L	4.42	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Aniline	U	UJ	SV9	N	4.47	ug/L	4.47	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Anthracene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Anthracene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Atrazine	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Atrazine	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Azobenzene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Azobenzene	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Benzidine	U	UJ	SV3a	N	4.11	ug/L	4.11	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Benzidine	U	UJ	SV9	N	4.15	ug/L	4.15	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Benzo(a)anthracene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Benzo(a)anthracene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Benzo(a)pyrene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y

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DATA VALIDATION REPORT

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Paramter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Benzo(a)pyrene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Benzo(b)fluoranthene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Benzo(b)fluoranthene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Benzo(g,h,i)perylene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Benzo(g,h,i)perylene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Benzo(k)fluoranthene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Benzo(k)fluoranthene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Benzoic Acid	U	UJ	SV3a	N	6.32	ug/L	6.32	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Benzoic Acid	U	UJ	SV9	N	6.38	ug/L	6.38	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Benzyl Alcohol	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Benzyl Alcohol	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Bis(2-chloroethoxy)methane	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Bis(2-chloroethoxy)methane	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Bis(2-chloroethyl)ether	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Bis(2-chloroethyl)ether	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Bis(2-ethylhexyl)phthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Bis(2-ethylhexyl)phthalate	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Bromophenyl-phenylether[4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Bromophenyl-phenylether[4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Butylbenzylphthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Butylbenzylphthalate	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N	0.87	pCi/L	0.87	pCi/L	2.99	0.824	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Chloro-3-methylphenol[4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Chloro-3-methylphenol[4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Chloroaniline[4-]	U	UJ	SV3a	N	3.47	ug/L	3.47	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Chloroaniline[4-]	U	UJ	SV9	N	3.51	ug/L	3.51	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Chloronaphthalene[2-]	U	UJ	SV3a	N	0.432	ug/L	0.432	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Chloronaphthalene[2-]	U	UJ	SV9	N	0.436	ug/L	0.436	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Chlorophenol[2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Chlorophenol[2-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Chlorophenyl-phenyl[4-] Ether	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y

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CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Chlorophenyl-phenyl[4-] Ether	UJ	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Chrysene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Chrysene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N	0.0588	pCi/L	0.0588	pCi/L	2.90	0.750	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Di-n-butylphthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Di-n-butylphthalate	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Di-n-octylphthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Di-n-octylphthalate	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dibenz(a,h)anthracene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dibenz(a,h)anthracene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dibenzofuran	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dibenzofuran	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dichlorobenzene[1,2-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,3-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dichlorobenzene[1,3-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dichlorobenzene[1,4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dichlorobenzidine[3,3'-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dichlorobenzidine[3,3'-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dichlorophenol[2,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dichlorophenol[2,4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Diethylphthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Diethylphthalate	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dimethyl Phthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dimethyl Phthalate	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dimethylphenol[2,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dimethylphenol[2,4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dinitro-2-methylphenol[4,6-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dinitro-2-methylphenol[4,6-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dinitrophenol[2,4-]	U	UJ	SV3a	N	5.26	ug/L	5.26	ug/L			W	02/16/2018		1741116	VAL	Y

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CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dinitrophenol[2,4-]	U	UJ	SV9	N	5.32	ug/L	5.32	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dinitrotoluene[2,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dinitrotoluene[2,4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dinitrotoluene[2,6-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dinitrotoluene[2,6-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dinoseb	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dinoseb	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Dioxane[1,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Dioxane[1,4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Diphenylamine	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Diphenylamine	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Fluoranthene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Fluoranthene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Fluorene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Fluorene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N	0.357	pCi/L	0.357	pCi/L	2.50	0.651	W	02/16/2018		1742280	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Hexachlorobenzene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Hexachlorobenzene	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Hexachlorobutadiene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Hexachlorobutadiene	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Hexachlorocyclopentadiene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Hexachlorocyclopentadiene	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Hexachloroethane	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Hexachloroethane	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Indeno(1,2,3-cd)pyrene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Indeno(1,2,3-cd)pyrene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Isophorone	U	UJ	SV3a	N	3.68	ug/L	3.68	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Isophorone	U	UJ	SV9	N	3.72	ug/L	3.72	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Methylnaphthalene[1-]	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Methylnaphthalene[1-]	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Methylnaphthalene[2-]	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y

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DATA VALIDATION REPORT

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Methylnaphthalene[2-]	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Methylphenol[2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Methylphenol[2-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Methylphenol[3-,4-]	U	UJ	SV3a	N	3.89	ug/L	3.89	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Methylphenol[3-,4-]	U	UJ	SV9	N	3.94	ug/L	3.94	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Naphthalene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Naphthalene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N	-1.98	pCi/L	-1.98	pCi/L	5.32	1.53	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitroaniline[2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitroaniline[2-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitroaniline[3-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitroaniline[3-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitroaniline[4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitroaniline[4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitrobenzene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitrobenzene	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitrophenol[2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitrophenol[2-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitrophenol[4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitrophenol[4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitroso-di-n-butylamine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitroso-di-n-butylamine[N-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitroso-di-n-propylamine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitroso-di-n-propylamine[N-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitrosodiethylamine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitrosodiethylamine[N-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitrosodimethylamine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitrosodimethylamine[N-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Nitrosopyrrolidine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Nitrosopyrrolidine[N-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Oxybis(1-chloropropane)[2,2'-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y

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Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Oxybis(1-chloropropane)[2,2'-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Pentachlorobenzene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Pentachlorobenzene	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Pentachlorophenol	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Pentachlorophenol	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Phenanthrene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Phenanthrene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Phenol	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Phenol	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N	0.0263	pCi/L	0.0263	pCi/L	0.0653	0.0113	W	02/16/2018		1741075	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N	0.00752	pCi/L	0.00752	pCi/L	0.0526	0.0106	W	02/16/2018		1741075	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N	14.3	pCi/L	14.3	pCi/L	24.3	20.2	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Pyrene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Pyrene	U	UJ	SV9	N	0.319	ug/L	0.319	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Pyridine	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Pyridine	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N	0.236	pCi/L	0.236	pCi/L	2.68	0.719	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N	0.0764	pCi/L	0.0764	pCi/L	0.479	0.136	W	02/16/2018		1741102	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Tetrachlorobenzene[1,2,4,5]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Tetrachlorobenzene[1,2,4,5]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Tetrachlorophenol[2,3,4,6-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Tetrachlorophenol[2,3,4,6-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Trichlorobenzene[1,2,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Trichlorobenzene[1,2,4-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Trichlorophenol[2,4,5-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Trichlorophenol[2,4,5-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	SVOC	SW-846:8270D	Trichlorophenol[2,4,6-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	RE	SVOC	SW-846:8270D	Trichlorophenol[2,4,6-]	U	UJ	SV9	N	3.19	ug/L	3.19	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	HASL-300:ISOU	Uranium-234	U	U	R5	N	0.271	pCi/L	0.271	pCi/L	0.328	0.0485	W	02/16/2018		1741076	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N	0.0994	pCi/L	0.0994	pCi/L	0.184	0.0376	W	02/16/2018		1741076	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-125	FD	INIT	RAD	HASL-300:ISOU	Uranium-238	U	U	R5	N	0.105	pCi/L	0.105	pCi/L	0.167	0.032	W	02/16/2018		1741076	VAL	Y

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DATA VALIDATION REPORT

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N	-0.00823	pCi/L	-0.00823	pCi/L	0.0464	0.0091	W	02/16/2018		1741073	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N	-0.146	pCi/L	-0.146	pCi/L	3.04	0.855	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N	0.441	pCi/L	0.441	pCi/L	2.94	0.710	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N	0.117	pCi/L	0.117	pCi/L	2.34	0.551	W	02/16/2018		1742280	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N	0.783	pCi/L	0.783	pCi/L	6.09	1.88	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N	0.00317	pCi/L	0.00317	pCi/L	0.0552	0.0131	W	02/16/2018		1741075	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N	0.0349	pCi/L	0.0349	pCi/L	0.0444	0.0152	W	02/16/2018		1741075	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N	-22.5	pCi/L	-22.5	pCi/L	35.9	11.1	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N	1.17	pCi/L	1.17	pCi/L	2.92	0.911	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N	-0.122	pCi/L	-0.122	pCi/L	0.481	0.122	W	02/16/2018		1741102	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-127	FD	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N	0.125	pCi/L	0.125	pCi/L	0.201	0.0399	W	02/16/2018		1741076	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Acenaphthene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Acenaphthene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Acenaphthylene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Acenaphthylene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N	0.00753	pCi/L	0.00753	pCi/L	0.0424	0.00753	W	02/16/2018		1741073	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Aniline	U	UJ	SV3a	N	4.38	ug/L	4.38	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Aniline	U	UJ	SV9	N	4.29	ug/L	4.29	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Anthracene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Anthracene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Atrazine	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Atrazine	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Azobenzene	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Azobenzene	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Benzidine	U	UJ	SV3a	N	4.06	ug/L	4.06	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Benzidine	U	UJ	SV9	N	3.98	ug/L	3.98	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Benzo(a)anthracene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Benzo(a)anthracene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Benzo(a)pyrene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Benzo(a)pyrene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Benzo(b)fluoranthene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y

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Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Paramter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Benzo(b)fluoranthene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Benzo(g,h,i)perylene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Benzo(g,h,i)perylene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Benzo(k)fluoranthene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Benzo(k)fluoranthene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Benzoic Acid	U	UJ	SV3a	N	6.25	ug/L	6.25	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Benzoic Acid	U	UJ	SV9	N	6.12	ug/L	6.12	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Benzyl Alcohol	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Benzyl Alcohol	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Bis(2-chloroethoxy)methane	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Bis(2-chloroethoxy)methane	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Bis(2-chloroethyl)ether	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Bis(2-chloroethyl)ether	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Bis(2-ethylhexyl)phthalate	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Bis(2-ethylhexyl)phthalate	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Bromophenyl-phenylether[4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Bromophenyl-phenylether[4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Butylbenzylphthalate	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Butylbenzylphthalate	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N	-0.922	pCi/L	-0.922	pCi/L	2.82	0.979	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Chloro-3-methylphenol[4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Chloro-3-methylphenol[4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Chloroaniline[4-]	U	UJ	SV3a	N	3.44	ug/L	3.44	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Chloroaniline[4-]	U	UJ	SV9	N	3.37	ug/L	3.37	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Chloronaphthalene[2-]	U	UJ	SV3a	N	0.427	ug/L	0.427	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Chloronaphthalene[2-]	U	UJ	SV9	N	0.418	ug/L	0.418	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Chlorophenol[2-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Chlorophenol[2-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Chlorophenyl-phenyl[4-] Ether	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Chlorophenyl-phenyl[4-] Ether	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Chrysene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y

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CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Chrysene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N	-0.19	pCi/L	-0.19	pCi/L	2.78	0.770	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Di-n-butylphthalate	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Di-n-butylphthalate	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Di-n-octylphthalate	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Di-n-octylphthalate	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dibenz(a,h)anthracene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dibenz(a,h)anthracene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dibenzofuran	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dibenzofuran	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,2-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dichlorobenzene[1,2-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,3-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dichlorobenzene[1,3-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dichlorobenzene[1,4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzidine[3,3'-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dichlorobenzidine[3,3'-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dichlorophenol[2,4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dichlorophenol[2,4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Diethylphthalate	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Diethylphthalate	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dimethyl Phthalate	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dimethyl Phthalate	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dimethylphenol[2,4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dimethylphenol[2,4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dinitro-2-methylphenol[4,6-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dinitro-2-methylphenol[4,6-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dinitrophenol[2,4-]	U	UJ	SV3a	N	5.21	ug/L	5.21	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dinitrophenol[2,4-]	U	UJ	SV9	N	5.10	ug/L	5.10	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dinitrotoluene[2,4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y

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DATA VALIDATION REPORT

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Paramter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dinitrotoluene[2,4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dinitrotoluene[2,6-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dinitrotoluene[2,6-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dinoseb	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dinoseb	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Dioxane[1,4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Dioxane[1,4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Diphenylamine	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Diphenylamine	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Fluoranthene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Fluoranthene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Fluorene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Fluorene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N	1.7	pCi/L	1.7	pCi/L	2.60	0.865	W	02/16/2018	1742280	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Hexachlorobenzene	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Hexachlorobenzene	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Hexachlorobutadiene	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Hexachlorobutadiene	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Hexachlorocyclopentadiene	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Hexachlorocyclopentadiene	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Hexachloroethane	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Hexachloroethane	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Indeno(1,2,3-cd)pyrene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Indeno(1,2,3-cd)pyrene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Isophorone	U	UJ	SV3a	N	3.65	ug/L	3.65	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Isophorone	U	UJ	SV9	N	3.57	ug/L	3.57	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Methylnaphthalene[1-]	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Methylnaphthalene[1-]	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Methylnaphthalene[2-]	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018	1741116	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Methylnaphthalene[2-]	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018	1742249	VAL	Y	
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Methylphenol[2-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018	1741116	VAL	Y	

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CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Methylphenol[2-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Methylphenol[3-,4-]	U	UJ	SV3a	N	3.85	ug/L	3.85	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Methylphenol[3-,4-]	U	UJ	SV9	N	3.78	ug/L	3.78	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Naphthalene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Naphthalene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N	1.4	pCi/L	1.4	pCi/L	5.78	1.59	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitroaniline[2-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitroaniline[2-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitroaniline[3-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitroaniline[3-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitroaniline[4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitroaniline[4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitrobenzene	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitrobenzene	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitrophenol[2-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitrophenol[2-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitrophenol[4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitrophenol[4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitroso-di-n-butylamine[N-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitroso-di-n-butylamine[N-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitroso-di-n-propylamine[N-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitroso-di-n-propylamine[N-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitrosodiethylamine[N-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitrosodiethylamine[N-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitrosodimethylamine[N-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitrosodimethylamine[N-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Nitrosopyrrolidine[N-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Nitrosopyrrolidine[N-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Oxybis(1-chloropropane)[2,2'-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Oxybis(1-chloropropane)[2,2'-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Pentachlorobenzene	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y

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CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Pentachlorobenzene	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Pentachlorophenol	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Pentachlorophenol	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Phenanthrene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Phenanthrene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Phenol	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Phenol	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N	0.0317	pCi/L	0.0317	pCi/L	0.0689	0.0168	W	02/16/2018		1741075	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N	0.00397	pCi/L	0.00397	pCi/L	0.0555	0.0143	W	02/16/2018		1741075	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5a	N	41.9	pCi/L	41.9	pCi/L	23.3	16.0	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Pyrene	U	UJ	SV3a	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Pyrene	U	UJ	SV9	N	0.306	ug/L	0.306	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Pyridine	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Pyridine	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N	1.15	pCi/L	1.15	pCi/L	3.30	0.836	W	02/16/2018		1741316	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N	-0.203	pCi/L	-0.203	pCi/L	0.484	0.108	W	02/16/2018		1741102	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Tetrachlorobenzene[1,2,4,5]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Tetrachlorobenzene[1,2,4,5]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Tetrachlorophenol[2,3,4,6-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Tetrachlorophenol[2,3,4,6-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Trichlorobenzene[1,2,4-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Trichlorobenzene[1,2,4-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Trichlorophenol[2,4,5-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Trichlorophenol[2,4,5-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	SVOC	SW-846:8270D	Trichlorophenol[2,4,6-]	U	UJ	SV3a	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	RE	SVOC	SW-846:8270D	Trichlorophenol[2,4,6-]	U	UJ	SV9	N	3.06	ug/L	3.06	ug/L			W	02/16/2018		1742249	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	HASL-300:ISOU	Uranium-234	U	U	R5	N	0.19	pCi/L	0.19	pCi/L	0.327	0.0435	W	02/16/2018		1741076	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N	0.0844	pCi/L	0.0844	pCi/L	0.184	0.0322	W	02/16/2018		1741076	VAL	Y
CDV-16-611923	2018-1772	CAWA-18-22	REG	INIT	RAD	HASL-300:ISOU	Uranium-238	U	U	R5	N	0.0843	pCi/L	0.0843	pCi/L	0.167	0.0301	W	02/16/2018		1741076	VAL	Y
16-61439	2018-1772	CAWA-18-27	REG	INIT	LCMS/MS PERCHLORAT	SW-846:6850	Perchlorate		J-	I6a	Y	0.401	ug/L	0.401	ug/L			W	02/16/2018		1742510	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N	0.0413	pCi/L	0.0413	pCi/L	0.0997	0.0177	W	02/16/2018		1741073	VAL	Y

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Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N	-0.579	pCi/L	-0.579	pCi/L	3.11	1.02	W	02/16/2018		1741316	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N	0.764	pCi/L	0.764	pCi/L	3.31	0.801	W	02/16/2018		1741316	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N	-3.02	pCi/L	-3.02	pCi/L	5.93	1.88	W	02/16/2018		1741316	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N	0.0421	pCi/L	0.0421	pCi/L	0.0732	0.0179	W	02/16/2018		1741075	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N	0.0421	pCi/L	0.0421	pCi/L	0.0589	0.0188	W	02/16/2018		1741075	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N	-9.36	pCi/L	-9.36	pCi/L	35.8	11.0	W	02/16/2018		1741316	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N	0.039	pCi/L	0.039	pCi/L	2.64	0.664	W	02/16/2018		1741316	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N	-0.0622	pCi/L	-0.0622	pCi/L	0.484	0.129	W	02/16/2018		1741102	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N	0.0995	pCi/L	0.0995	pCi/L	0.264	0.0478	W	02/16/2018		1741076	VAL	Y
16-61439	2018-1772	CAWA-18-28	REG	INIT	RAD	HASL-300:ISOU	Uranium-238		U	R10	Y	0.265	pCi/L	0.265	pCi/L	0.239	0.0585	W	02/16/2018		1741076	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Acenaphthene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Acenaphthylene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N	0.00000000181	pCi/L	0.00000000181	pCi/L	0.046	0.0086	W	02/16/2018		1741073	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Aniline	U	R	SV3	N	4.38	ug/L	4.38	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Anthracene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Atrazine	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Azobenzene	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Benzidine	U	R	SV3	N	4.06	ug/L	4.06	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Benzo(a)anthracene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Benzo(a)pyrene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Benzo(b)fluoranthene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Benzo(g,h,i)perylene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Benzo(k)fluoranthene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Benzoic Acid	U	R	SV3	N	6.25	ug/L	6.25	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Benzyl Alcohol	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Bis(2-chloroethoxy)methane	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Bis(2-chloroethyl)ether	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Bis(2-ethylhexyl)phthalate	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Bromophenyl-phenylether[4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Butylbenzylphthalate	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N	-0.378	pCi/L	-0.378	pCi/L	3.29	0.947	W	02/16/2018		1741316	VAL	Y

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CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Chloro-3-methylphenol[4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Chloroaniline[4-]	U	R	SV3	N	3.44	ug/L	3.44	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Chloronaphthalene[2-]	U	R	SV3	N	0.427	ug/L	0.427	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Chlorophenol[2-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Chlorophenyl-phenyl[4-] Ether	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Chrysene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N	-0.0964	pCi/L	-0.0964	pCi/L	3.05	0.801	W	02/16/2018		1741316	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Di-n-butylphthalate	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Di-n-octylphthalate	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dibenz(a,h)anthracene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dibenzofuran	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,2-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,3-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzidene[3,3'-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dichlorophenol[2,4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Diethylphthalate	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dimethyl Phthalate	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dimethylphenol[2,4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dinitro-2-methylphenol[4,6-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dinitrophenol[2,4-]	U	R	SV3	N	5.21	ug/L	5.21	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dinitrotoluene[2,4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dinitrotoluene[2,6-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dinoseb	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Dioxane[1,4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Diphenylamine	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Fluoranthene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Fluorene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N	1.68	pCi/L	1.68	pCi/L	2.20	0.757	W	02/16/2018		1742280	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Hexachlorobenzene	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Hexachlorobutadiene	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y

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CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Hexachlorocyclopentadiene	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Hexachloroethane	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Indeno(1,2,3-cd)pyrene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Isophorone	U	R	SV3	N	3.65	ug/L	3.65	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Methylnaphthalene[1-]	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Methylnaphthalene[2-]	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Methylphenol[2-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Methylphenol[3-,4-]	U	R	SV3	N	3.85	ug/L	3.85	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Naphthalene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N	-0.498	pCi/L	-0.498	pCi/L	6.21	1.73	W	02/16/2018		1741316	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitroaniline[2-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitroaniline[3-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitroaniline[4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitrobenzene	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitrophenol[2-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitrophenol[4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitroso-di-n-butylamine[N-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitroso-di-n-propylamine[N-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitrosodiethylamine[N-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitrosodimethylamine[N-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Nitrosopyrrolidine[N-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Oxybis(1-chloropropane)[2,2'-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Pentachlorobenzene	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Pentachlorophenol	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Phenanthrene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Phenol	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N	0.0184	pCi/L	0.0184	pCi/L	0.0457	0.00948	W	02/16/2018		1741075	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N	0.0131	pCi/L	0.0131	pCi/L	0.0368	0.00789	W	02/16/2018		1741075	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N	7.51	pCi/L	7.51	pCi/L	28.6	14.7	W	02/16/2018		1741316	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Pyrene	U	R	SV3	N	0.313	ug/L	0.313	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Pyridine	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y

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Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N	-0.272	pCi/L	-0.272	pCi/L	3.16	0.851	W	02/16/2018		1741316	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N	0.0713	pCi/L	0.0713	pCi/L	0.488	0.138	W	02/16/2018		1741102	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Tetrachlorobenzene[1,2,4,5]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Tetrachlorophenol[2,3,4,6-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Trichlorobenzene[1,2,4-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Trichlorophenol[2,4,5-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	SVOC	SW-846:8270D	Trichlorophenol[2,4,6-]	U	R	SV3	N	3.13	ug/L	3.13	ug/L			W	02/16/2018		1741116	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	HASL-300:ISOU	Uranium-234	U	U	R5	N	0.193	pCi/L	0.193	pCi/L	0.339	0.0453	W	02/16/2018		1741076	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N	0.0617	pCi/L	0.0617	pCi/L	0.191	0.0305	W	02/16/2018		1741076	VAL	Y
CDV-16-611937	2018-1772	CAWA-18-30	REG	INIT	RAD	HASL-300:ISOU	Uranium-238	U	U	R5	N	0.0457	pCi/L	0.0457	pCi/L	0.173	0.025	W	02/16/2018		1741076	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N	0.0192	pCi/L	0.0192	pCi/L	0.0463	0.0106	W	02/16/2018		1741073	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N	0.148	pCi/L	0.148	pCi/L	3.09	0.871	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N	1.66	pCi/L	1.66	pCi/L	2.94	0.834	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N	1.06	pCi/L	1.06	pCi/L	2.35	0.704	W	02/16/2018		1742280	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N	-0.761	pCi/L	-0.761	pCi/L	5.76	1.62	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N	-0.0285	pCi/L	-0.0285	pCi/L	0.0551	0.0177	W	02/16/2018		1741075	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N	-0.00317	pCi/L	-0.00317	pCi/L	0.0444	0.0171	W	02/16/2018		1741075	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N	-13.1	pCi/L	-13.1	pCi/L	37.5	12.3	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N	-0.247	pCi/L	-0.247	pCi/L	3.17	0.869	W	02/16/2018		1741316	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N	0.133	pCi/L	0.133	pCi/L	0.479	0.137	W	02/16/2018		1741102	VAL	Y
CdV-16-1(i)	2018-1772	CAWA-18-36	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N	0.0855	pCi/L	0.0855	pCi/L	0.211	0.0352	W	02/16/2018		1741076	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Acenaphthene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Acenaphthene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Acenaphthylene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Acenaphthylene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N	-0.00532	pCi/L	-0.00532	pCi/L	0.045	0.00922	W	02/16/2018		1741073	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Aniline	U	UJ	SV3a	N	4.42	ug/L	4.42	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Aniline	U	UJ	SV9	N	4.20	ug/L	4.20	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Anthracene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Anthracene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Atrazine	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y

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CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Atrazine	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Azobenzene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Azobenzene	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Benzidine	U	UJ	SV3a	N	4.11	ug/L	4.11	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Benzidine	U	UJ	SV9	N	3.90	ug/L	3.90	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Benzo(a)anthracene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Benzo(a)anthracene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Benzo(a)pyrene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Benzo(a)pyrene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Benzo(b)fluoranthene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Benzo(b)fluoranthene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Benzo(g,h,i)perylene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Benzo(g,h,i)perylene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Benzo(k)fluoranthene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Benzo(k)fluoranthene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Benzoic Acid	U	UJ	SV3a	N	6.32	ug/L	6.32	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Benzoic Acid	U	UJ	SV9	N	6.00	ug/L	6.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Benzyl Alcohol	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Benzyl Alcohol	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Bis(2-chloroethoxy)methane	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Bis(2-chloroethoxy)methane	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Bis(2-chloroethyl)ether	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Bis(2-chloroethyl)ether	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Bis(2-ethylhexyl)phthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Bis(2-ethylhexyl)phthalate	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Bromophenyl-phenylether[4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Bromophenyl-phenylether[4-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Butylbenzylphthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Butylbenzylphthalate	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N	-0.888	pCi/L	-0.888	pCi/L	4.59	1.48	W	02/16/2018		1741316	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Chloro-3-methylphenol[4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y

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DATA VALIDATION REPORT

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Paramter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Chloro-3-methylphenol[4-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Chloroaniline[4-]	U	UJ	SV3a	N	3.47	ug/L	3.47	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Chloroaniline[4-]	U	UJ	SV9	N	3.30	ug/L	3.30	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Chloronaphthalene[2-]	U	UJ	SV3a	N	0.432	ug/L	0.432	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Chloronaphthalene[2-]	U	UJ	SV9	N	0.410	ug/L	0.410	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Chlorophenol[2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Chlorophenol[2-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Chlorophenyl-phenyl[4-] Ether	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Chlorophenyl-phenyl[4-] Ether	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Chrysene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Chrysene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N	0.923	pCi/L	0.923	pCi/L	5.77	1.41	W	02/16/2018		1741316	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Di-n-butylphthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Di-n-butylphthalate	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Di-n-octylphthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Di-n-octylphthalate	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dibenz(a,h)anthracene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dibenz(a,h)anthracene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dibenzofuran	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dibenzofuran	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dichlorobenzene[1,2-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,3-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dichlorobenzene[1,3-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzene[1,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dichlorobenzene[1,4-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dichlorobenzidine[3,3'-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dichlorobenzidine[3,3'-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dichlorophenol[2,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dichlorophenol[2,4-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Diethylphtalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y

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CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Diethylphthalate	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dimethyl Phthalate	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dimethyl Phthalate	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dimethylphenol[2,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dimethylphenol[2,4-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dinitro-2-methylphenol[4,6-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dinitro-2-methylphenol[4,6-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dinitrophenol[2,4-]	U	UJ	SV3a	N	5.26	ug/L	5.26	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dinitrophenol[2,4-]	U	UJ	SV9	N	5.00	ug/L	5.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dinitrotoluene[2,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dinitrotoluene[2,4-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dinitrotoluene[2,6-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dinitrotoluene[2,6-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dinoseb	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dinoseb	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Dioxane[1,4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Dioxane[1,4-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Diphenylamine	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Diphenylamine	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Fluoranthene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Fluoranthene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Fluorene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Fluorene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N	1.66	pCi/L	1.66	pCi/L	2.24	0.765	W	02/16/2018		1742280	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N	1.06	pCi/L	1.06	pCi/L	2.67	0.798	W	02/16/2018		1742280	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Hexachlorobenzene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Hexachlorobenzene	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Hexachlorobutadiene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Hexachlorobutadiene	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Hexachlorocyclopentadiene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Hexachlorocyclopentadiene	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y

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CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Hexachloroethane	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Hexachloroethane	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Indeno(1,2,3-cd)pyrene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Indeno(1,2,3-cd)pyrene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Isophorone	U	UJ	SV3a	N	3.68	ug/L	3.68	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Isophorone	U	UJ	SV9	N	3.50	ug/L	3.50	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Methylnaphthalene[1-]	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Methylnaphthalene[1-]	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Methylnaphthalene[2-]	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Methylnaphthalene[2-]	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Methylphenol[2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Methylphenol[2-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Methylphenol[3-,4-]	U	UJ	SV3a	N	3.89	ug/L	3.89	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Methylphenol[3-,4-]	U	UJ	SV9	N	3.70	ug/L	3.70	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Naphthalene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Naphthalene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N	-0.423	pCi/L	-0.423	pCi/L	8.77	2.63	W	02/16/2018		1741316	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitroaniline[2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitroaniline[2-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitroaniline[3-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitroaniline[3-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitroaniline[4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitroaniline[4-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitrobenzene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitrobenzene	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitrophenol[2-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitrophenol[2-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitrophenol[4-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitrophenol[4-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitroso-di-n-butylamine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitroso-di-n-butylamine[N-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y

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DATA VALIDATION REPORT

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Paramter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitroso-di-n-propylamine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitroso-di-n-propylamine[N-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitrosodiethylamine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitrosodiethylamine[N-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitrosodimethylamine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitrosodimethylamine[N-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Nitrosopyrrolidine[N-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Nitrosopyrrolidine[N-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Oxybis(1-chloropropane)[2,2'-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Oxybis(1-chloropropane)[2,2'-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Pentachlorobenzene	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Pentachlorobenzene	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Pentachlorophenol	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Pentachlorophenol	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Phenanthrene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Phenanthrene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Phenol	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Phenol	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N	0.012	pCi/L	0.012	pCi/L	0.0523	0.00852	W	02/16/2018		1741075	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N	-0.0271	pCi/L	-0.0271	pCi/L	0.0421	0.0138	W	02/16/2018		1741075	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N	11.9	pCi/L	11.9	pCi/L	38.9	24.7	W	02/16/2018		1741316	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Pyrene	U	UJ	SV3a	N	0.316	ug/L	0.316	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Pyrene	U	UJ	SV9	N	0.300	ug/L	0.300	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Pyridine	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Pyridine	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N	-0.141	pCi/L	-0.141	pCi/L	5.59	1.46	W	02/16/2018		1741316	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N	-0.106	pCi/L	-0.106	pCi/L	0.485	0.130	W	02/16/2018		1741102	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Tetrachlorobenzene[1,2,4,5]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Tetrachlorobenzene[1,2,4,5]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Tetrachlorophenol[2,3,4,6-]	U	UJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Tetrachlorophenol[2,3,4,6-]	U	UJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y

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DATA VALIDATION REPORT

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Trichlorobenzene[1,2,4-	U	JJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Trichlorobenzene[1,2,4-	U	JJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Trichlorophenol[2,4,5-]	U	JJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Trichlorophenol[2,4,5-]	U	JJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	SVOC	SW-846:8270D	Trichlorophenol[2,4,6-]	U	JJ	SV3a	N	3.16	ug/L	3.16	ug/L			W	02/16/2018		1741116	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	RE	SVOC	SW-846:8270D	Trichlorophenol[2,4,6-]	U	JJ	SV9	N	3.00	ug/L	3.00	ug/L			W	02/16/2018		1742249	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	HASL-300:ISOU	Uranium-234	U	J	R5	N	0.244	pCi/L	0.244	pCi/L	0.331	0.054	W	02/16/2018		1741076	VAL	Y
CdV-16-2(i)r	2018-1772	CAWA-18-40	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	J	R5	N	0.106	pCi/L	0.106	pCi/L	0.186	0.0356	W	02/16/2018		1741076	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	J	R5	N	0.012	pCi/L	0.012	pCi/L	0.0507	0.00949	W	02/16/2018		1741073	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	EPA:901.1	Cesium-137	U	J	R5	N	0.907	pCi/L	0.907	pCi/L	4.45	1.20	W	02/16/2018		1741316	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	J	R5	N	-0.652	pCi/L	-0.652	pCi/L	4.80	1.60	W	02/16/2018		1741316	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	EPA:900	Gross alpha	U	J	R5	N	1.62	pCi/L	1.62	pCi/L	2.72	0.862	W	02/16/2018		1742280	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	EPA:900	Gross beta	U	J	R5	N	0.501	pCi/L	0.501	pCi/L	2.88	0.835	W	02/16/2018		1742280	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	J	R5	N	0.989	pCi/L	0.989	pCi/L	8.06	2.29	W	02/16/2018		1741316	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	J	R5	N	0.00305	pCi/L	0.00305	pCi/L	0.053	0.00806	W	02/16/2018		1741075	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	J	R5	N	0.0122	pCi/L	0.0122	pCi/L	0.0426	0.00862	W	02/16/2018		1741075	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	EPA:901.1	Potassium-40	U	J	R5	N	-5.64	pCi/L	-5.64	pCi/L	58.3	15.7	W	02/16/2018		1741316	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	EPA:901.1	Sodium-22	U	J	R5	N	-0.448	pCi/L	-0.448	pCi/L	4.45	1.24	W	02/16/2018		1741316	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	EPA:905.0	Strontium-90	U	J	R5	N	-0.236	pCi/L	-0.236	pCi/L	0.479	0.113	W	02/16/2018		1741102	VAL	Y
CDV-16-4ip S1	2018-1772	CAWA-18-43	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	J	R5	N	0.0695	pCi/L	0.0695	pCi/L	0.184	0.0311	W	02/16/2018		1741076	VAL	Y

Reason Code

Description

I6a	The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualify the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R10	Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits.
R5	Analyte is not detected because the amount reported is less than the MDC.
R5a	The analyte should be regarded as rejected because spectral interferences prevent positive identification of the analytes.

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DATA VALIDATION REPORT

Reason Code

Description

SV3

The surrogate is <10%R. Follow the external laboratory limits located within the associated data package.

SV3a

The surrogate is < the Lower Acceptance Level (LAL) but >=10%R. Follow the external laboratory limits located within the associated data package.

SV9

The holding time was >1 and <=2 times the applicable holding time requirement.

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
CAWA-18-101	CDV-16-4ip S1	FTB	EPA:170.0	0	1
CAWA-18-101	CDV-16-4ip S1	FTB	SW-846:8260B	0	80
CAWA-18-102	CDV-16-611923	FTB	EPA:170.0	0	1
CAWA-18-102	CDV-16-611923	FTB	SW-846:8260B	0	80
CAWA-18-105	CDV-16-611937	FTB	EPA:170.0	0	1
CAWA-18-105	CDV-16-611937	FTB	SW-846:8260B	0	80
CAWA-18-107	CdV-16-1(i)	FTB	EPA:170.0	0	1
CAWA-18-107	CdV-16-1(i)	FTB	SW-846:8260B	0	80
CAWA-18-121	CdV-16-2(i)r	FTB	EPA:170.0	0	1
CAWA-18-121	CdV-16-2(i)r	FTB	SW-846:8260B	0	80
CAWA-18-122	CDV-16-611923	FD	EPA:120.1	0	1
CAWA-18-122	CDV-16-611923	FD	EPA:150.1	0	1
CAWA-18-122	CDV-16-611923	FD	EPA:160.1	0	1
CAWA-18-122	CDV-16-611923	FD	EPA:170.0	0	1
CAWA-18-122	CDV-16-611923	FD	EPA:245.2	0	1
CAWA-18-122	CDV-16-611923	FD	EPA:300.0	0	4
CAWA-18-122	CDV-16-611923	FD	EPA:310.1	0	2
CAWA-18-122	CDV-16-611923	FD	EPA:350.1	0	1
CAWA-18-122	CDV-16-611923	FD	EPA:353.2	0	1
CAWA-18-122	CDV-16-611923	FD	EPA:365.4	0	1
CAWA-18-122	CDV-16-611923	FD	SM:A2340B	0	1
CAWA-18-122	CDV-16-611923	FD	SW-846:6010C	0	17
CAWA-18-122	CDV-16-611923	FD	SW-846:6020	0	11
CAWA-18-122	CDV-16-611923	FD	SW-846:6850	0	1
CAWA-18-124	CdV-16-1(i)	FD	EPA:120.1	0	1
CAWA-18-124	CdV-16-1(i)	FD	EPA:150.1	0	1

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DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAWA-18-124	CdV-16-1(i)	FD	EPA:160.1	0	1
CAWA-18-124	CdV-16-1(i)	FD	EPA:170.0	0	1
CAWA-18-124	CdV-16-1(i)	FD	EPA:245.2	0	1
CAWA-18-124	CdV-16-1(i)	FD	EPA:300.0	0	4
CAWA-18-124	CdV-16-1(i)	FD	EPA:310.1	0	2
CAWA-18-124	CdV-16-1(i)	FD	EPA:350.1	0	1
CAWA-18-124	CdV-16-1(i)	FD	EPA:353.2	0	1
CAWA-18-124	CdV-16-1(i)	FD	EPA:365.4	0	1
CAWA-18-124	CdV-16-1(i)	FD	SM:A2340B	0	1
CAWA-18-124	CdV-16-1(i)	FD	SW-846:6010C	0	17
CAWA-18-124	CdV-16-1(i)	FD	SW-846:6020	0	11
CAWA-18-124	CdV-16-1(i)	FD	SW-846:6850	0	1
CAWA-18-125	CDV-16-611923	FD	EPA:170.0	0	1
CAWA-18-125	CDV-16-611923	FD	EPA:245.2	0	1
CAWA-18-125	CDV-16-611923	FD	EPA:335.4	0	1
CAWA-18-125	CDV-16-611923	FD	EPA:351.2	0	1
CAWA-18-125	CDV-16-611923	FD	EPA:900	0	2
CAWA-18-125	CDV-16-611923	FD	EPA:901.1	0	5
CAWA-18-125	CDV-16-611923	FD	EPA:905.0	0	1
CAWA-18-125	CDV-16-611923	FD	HASL-300:AM-241	0	1
CAWA-18-125	CDV-16-611923	FD	HASL-300:ISOPU	0	2
CAWA-18-125	CDV-16-611923	FD	HASL-300:ISOU	0	3
CAWA-18-125	CDV-16-611923	FD	SW-846:8260B	0	80
CAWA-18-125	CDV-16-611923	FD	SW-846:8270D	0	160
CAWA-18-125	CDV-16-611923	FD	SW-846:8330B	0	23
CAWA-18-125	CDV-16-611923	FD	SW-846:9060	0	1
CAWA-18-127	CdV-16-1(i)	FD	EPA:170.0	0	1
CAWA-18-127	CdV-16-1(i)	FD	EPA:245.2	0	1
CAWA-18-127	CdV-16-1(i)	FD	EPA:335.4	0	1
CAWA-18-127	CdV-16-1(i)	FD	EPA:351.2	0	1
CAWA-18-127	CdV-16-1(i)	FD	EPA:900	0	2
CAWA-18-127	CdV-16-1(i)	FD	EPA:901.1	0	5
CAWA-18-127	CdV-16-1(i)	FD	EPA:905.0	0	1
CAWA-18-127	CdV-16-1(i)	FD	HASL-300:AM-241	0	1
CAWA-18-127	CdV-16-1(i)	FD	HASL-300:ISOPU	0	2
CAWA-18-127	CdV-16-1(i)	FD	HASL-300:ISOU	0	3

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DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAWA-18-127	CdV-16-1(i)	FD	SW-846:8260B	0	80
CAWA-18-127	CdV-16-1(i)	FD	SW-846:8270D	0	80
CAWA-18-127	CdV-16-1(i)	FD	SW-846:8330B	0	23
CAWA-18-127	CdV-16-1(i)	FD	SW-846:9060	0	1
CAWA-18-151445	CdV-16-2(i)r	FB	EPA:170.0	0	1
CAWA-18-151445	CdV-16-2(i)r	FB	SW-846:8260B	0	80
CAWA-18-151445	CdV-16-2(i)r	FB	SW-846:8270D	0	80
CAWA-18-21	CDV-16-611923	REG	EPA:120.1	0	1
CAWA-18-21	CDV-16-611923	REG	EPA:150.1	0	1
CAWA-18-21	CDV-16-611923	REG	EPA:160.1	0	1
CAWA-18-21	CDV-16-611923	REG	EPA:170.0	0	1
CAWA-18-21	CDV-16-611923	REG	EPA:245.2	0	1
CAWA-18-21	CDV-16-611923	REG	EPA:300.0	0	4
CAWA-18-21	CDV-16-611923	REG	EPA:310.1	0	2
CAWA-18-21	CDV-16-611923	REG	EPA:350.1	0	1
CAWA-18-21	CDV-16-611923	REG	EPA:353.2	0	1
CAWA-18-21	CDV-16-611923	REG	EPA:365.4	0	1
CAWA-18-21	CDV-16-611923	REG	SM:A2340B	0	1
CAWA-18-21	CDV-16-611923	REG	SW-846:6010C	0	17
CAWA-18-21	CDV-16-611923	REG	SW-846:6020	0	11
CAWA-18-21	CDV-16-611923	REG	SW-846:6850	0	1
CAWA-18-22	CDV-16-611923	REG	EPA:170.0	0	1
CAWA-18-22	CDV-16-611923	REG	EPA:245.2	0	1
CAWA-18-22	CDV-16-611923	REG	EPA:335.4	0	1
CAWA-18-22	CDV-16-611923	REG	EPA:351.2	0	1
CAWA-18-22	CDV-16-611923	REG	EPA:900	0	2
CAWA-18-22	CDV-16-611923	REG	EPA:901.1	0	5
CAWA-18-22	CDV-16-611923	REG	EPA:905.0	0	1
CAWA-18-22	CDV-16-611923	REG	HASL-300:AM-241	0	1
CAWA-18-22	CDV-16-611923	REG	HASL-300:ISOPU	0	2
CAWA-18-22	CDV-16-611923	REG	HASL-300:ISOU	0	3
CAWA-18-22	CDV-16-611923	REG	SW-846:8260B	0	80
CAWA-18-22	CDV-16-611923	REG	SW-846:8270D	0	160
CAWA-18-22	CDV-16-611923	REG	SW-846:8330B	0	23
CAWA-18-22	CDV-16-611923	REG	SW-846:9060	0	1
CAWA-18-27	16-61439	REG	EPA:120.1	0	1

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DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAWA-18-27	16-61439	REG	EPA:150.1	0	1
CAWA-18-27	16-61439	REG	EPA:160.1	0	1
CAWA-18-27	16-61439	REG	EPA:170.0	0	1
CAWA-18-27	16-61439	REG	EPA:245.2	0	1
CAWA-18-27	16-61439	REG	EPA:300.0	0	4
CAWA-18-27	16-61439	REG	EPA:310.1	0	2
CAWA-18-27	16-61439	REG	EPA:350.1	0	1
CAWA-18-27	16-61439	REG	EPA:353.2	0	1
CAWA-18-27	16-61439	REG	EPA:365.4	0	1
CAWA-18-27	16-61439	REG	SM:A2340B	0	1
CAWA-18-27	16-61439	REG	SW-846:6010C	0	17
CAWA-18-27	16-61439	REG	SW-846:6020	0	11
CAWA-18-27	16-61439	REG	SW-846:6850	0	1
CAWA-18-28	16-61439	REG	EPA:170.0	0	1
CAWA-18-28	16-61439	REG	EPA:245.2	0	1
CAWA-18-28	16-61439	REG	EPA:335.4	0	1
CAWA-18-28	16-61439	REG	EPA:351.2	0	1
CAWA-18-28	16-61439	REG	EPA:900	0	2
CAWA-18-28	16-61439	REG	EPA:901.1	0	5
CAWA-18-28	16-61439	REG	EPA:905.0	0	1
CAWA-18-28	16-61439	REG	HASL-300:AM-241	0	1
CAWA-18-28	16-61439	REG	HASL-300:ISOPU	0	2
CAWA-18-28	16-61439	REG	HASL-300:ISOU	0	3
CAWA-18-28	16-61439	REG	SW-846:8260B	0	80
CAWA-18-28	16-61439	REG	SW-846:8270D	0	80
CAWA-18-28	16-61439	REG	SW-846:8330B	0	23
CAWA-18-28	16-61439	REG	SW-846:9060	0	1
CAWA-18-29	CDV-16-611937	REG	EPA:120.1	0	1
CAWA-18-29	CDV-16-611937	REG	EPA:150.1	0	1
CAWA-18-29	CDV-16-611937	REG	EPA:160.1	0	1
CAWA-18-29	CDV-16-611937	REG	EPA:170.0	0	1
CAWA-18-29	CDV-16-611937	REG	EPA:245.2	0	1
CAWA-18-29	CDV-16-611937	REG	EPA:300.0	0	4
CAWA-18-29	CDV-16-611937	REG	EPA:310.1	0	2
CAWA-18-29	CDV-16-611937	REG	EPA:350.1	0	1
CAWA-18-29	CDV-16-611937	REG	EPA:353.2	0	1

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DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAWA-18-29	CDV-16-611937	REG	EPA:365.4	0	1
CAWA-18-29	CDV-16-611937	REG	SM:A2340B	0	1
CAWA-18-29	CDV-16-611937	REG	SW-846:6010C	0	17
CAWA-18-29	CDV-16-611937	REG	SW-846:6020	0	11
CAWA-18-29	CDV-16-611937	REG	SW-846:6850	0	1
CAWA-18-30	CDV-16-611937	REG	EPA:170.0	0	1
CAWA-18-30	CDV-16-611937	REG	EPA:245.2	0	1
CAWA-18-30	CDV-16-611937	REG	EPA:335.4	0	1
CAWA-18-30	CDV-16-611937	REG	EPA:351.2	0	1
CAWA-18-30	CDV-16-611937	REG	EPA:900	0	2
CAWA-18-30	CDV-16-611937	REG	EPA:901.1	0	5
CAWA-18-30	CDV-16-611937	REG	EPA:905.0	0	1
CAWA-18-30	CDV-16-611937	REG	HASL-300:AM-241	0	1
CAWA-18-30	CDV-16-611937	REG	HASL-300:ISOPU	0	2
CAWA-18-30	CDV-16-611937	REG	HASL-300:ISOU	0	3
CAWA-18-30	CDV-16-611937	REG	SW-846:8260B	0	80
CAWA-18-30	CDV-16-611937	REG	SW-846:8270D	0	80
CAWA-18-30	CDV-16-611937	REG	SW-846:8330B	0	23
CAWA-18-30	CDV-16-611937	REG	SW-846:9060	0	1
CAWA-18-35	CdV-16-1(i)	REG	EPA:120.1	0	1
CAWA-18-35	CdV-16-1(i)	REG	EPA:150.1	0	1
CAWA-18-35	CdV-16-1(i)	REG	EPA:160.1	0	1
CAWA-18-35	CdV-16-1(i)	REG	EPA:170.0	0	1
CAWA-18-35	CdV-16-1(i)	REG	EPA:245.2	0	1
CAWA-18-35	CdV-16-1(i)	REG	EPA:300.0	0	4
CAWA-18-35	CdV-16-1(i)	REG	EPA:310.1	0	2
CAWA-18-35	CdV-16-1(i)	REG	EPA:350.1	0	1
CAWA-18-35	CdV-16-1(i)	REG	EPA:353.2	0	1
CAWA-18-35	CdV-16-1(i)	REG	EPA:365.4	0	1
CAWA-18-35	CdV-16-1(i)	REG	SM:A2340B	0	1
CAWA-18-35	CdV-16-1(i)	REG	SW-846:6010C	0	17
CAWA-18-35	CdV-16-1(i)	REG	SW-846:6020	0	11
CAWA-18-35	CdV-16-1(i)	REG	SW-846:6850	0	1
CAWA-18-36	CdV-16-1(i)	REG	EPA:170.0	0	1
CAWA-18-36	CdV-16-1(i)	REG	EPA:245.2	0	1
CAWA-18-36	CdV-16-1(i)	REG	EPA:335.4	0	1

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DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAWA-18-36	CdV-16-1(i)	REG	EPA:351.2	0	1
CAWA-18-36	CdV-16-1(i)	REG	EPA:900	0	2
CAWA-18-36	CdV-16-1(i)	REG	EPA:901.1	0	5
CAWA-18-36	CdV-16-1(i)	REG	EPA:905.0	0	1
CAWA-18-36	CdV-16-1(i)	REG	HASL-300:AM-241	0	1
CAWA-18-36	CdV-16-1(i)	REG	HASL-300:ISOPU	0	2
CAWA-18-36	CdV-16-1(i)	REG	HASL-300:ISOU	0	3
CAWA-18-36	CdV-16-1(i)	REG	SW-846:8260B	0	80
CAWA-18-36	CdV-16-1(i)	REG	SW-846:8270D	0	80
CAWA-18-36	CdV-16-1(i)	REG	SW-846:8330B	0	23
CAWA-18-36	CdV-16-1(i)	REG	SW-846:9060	0	1
CAWA-18-39	CdV-16-2(i)r	REG	EPA:120.1	0	1
CAWA-18-39	CdV-16-2(i)r	REG	EPA:150.1	0	1
CAWA-18-39	CdV-16-2(i)r	REG	EPA:160.1	0	1
CAWA-18-39	CdV-16-2(i)r	REG	EPA:170.0	0	1
CAWA-18-39	CdV-16-2(i)r	REG	EPA:245.2	0	1
CAWA-18-39	CdV-16-2(i)r	REG	EPA:300.0	0	4
CAWA-18-39	CdV-16-2(i)r	REG	EPA:310.1	0	2
CAWA-18-39	CdV-16-2(i)r	REG	EPA:350.1	0	1
CAWA-18-39	CdV-16-2(i)r	REG	EPA:353.2	0	1
CAWA-18-39	CdV-16-2(i)r	REG	EPA:365.4	0	1
CAWA-18-39	CdV-16-2(i)r	REG	SM:A2340B	0	1
CAWA-18-39	CdV-16-2(i)r	REG	SW-846:6010C	0	17
CAWA-18-39	CdV-16-2(i)r	REG	SW-846:6020	0	11
CAWA-18-39	CdV-16-2(i)r	REG	SW-846:6850	0	1
CAWA-18-40	CdV-16-2(i)r	REG	EPA:170.0	0	1
CAWA-18-40	CdV-16-2(i)r	REG	EPA:245.2	0	1
CAWA-18-40	CdV-16-2(i)r	REG	EPA:335.4	0	1
CAWA-18-40	CdV-16-2(i)r	REG	EPA:351.2	0	1
CAWA-18-40	CdV-16-2(i)r	REG	EPA:900	0	2
CAWA-18-40	CdV-16-2(i)r	REG	EPA:901.1	0	5
CAWA-18-40	CdV-16-2(i)r	REG	EPA:905.0	0	1
CAWA-18-40	CdV-16-2(i)r	REG	HASL-300:AM-241	0	1
CAWA-18-40	CdV-16-2(i)r	REG	HASL-300:ISOPU	0	2
CAWA-18-40	CdV-16-2(i)r	REG	HASL-300:ISOU	0	3
CAWA-18-40	CdV-16-2(i)r	REG	SW-846:8260B	0	80

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DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAWA-18-40	CdV-16-2(i)r	REG	SW-846:8270D	0	160
CAWA-18-40	CdV-16-2(i)r	REG	SW-846:8330B	0	23
CAWA-18-40	CdV-16-2(i)r	REG	SW-846:9060	0	1
CAWA-18-42	CDV-16-4ip S1	REG	EPA:120.1	0	1
CAWA-18-42	CDV-16-4ip S1	REG	EPA:150.1	0	1
CAWA-18-42	CDV-16-4ip S1	REG	EPA:160.1	0	1
CAWA-18-42	CDV-16-4ip S1	REG	EPA:170.0	0	1
CAWA-18-42	CDV-16-4ip S1	REG	EPA:245.2	0	1
CAWA-18-42	CDV-16-4ip S1	REG	EPA:300.0	0	4
CAWA-18-42	CDV-16-4ip S1	REG	EPA:310.1	0	2
CAWA-18-42	CDV-16-4ip S1	REG	EPA:350.1	0	1
CAWA-18-42	CDV-16-4ip S1	REG	EPA:353.2	0	1
CAWA-18-42	CDV-16-4ip S1	REG	EPA:365.4	0	1
CAWA-18-42	CDV-16-4ip S1	REG	SM:A2340B	0	1
CAWA-18-42	CDV-16-4ip S1	REG	SW-846:6010C	0	17
CAWA-18-42	CDV-16-4ip S1	REG	SW-846:6020	0	11
CAWA-18-42	CDV-16-4ip S1	REG	SW-846:6850	0	1
CAWA-18-43	CDV-16-4ip S1	REG	EPA:170.0	0	1
CAWA-18-43	CDV-16-4ip S1	REG	EPA:245.2	0	1
CAWA-18-43	CDV-16-4ip S1	REG	EPA:335.4	0	1
CAWA-18-43	CDV-16-4ip S1	REG	EPA:351.2	0	1
CAWA-18-43	CDV-16-4ip S1	REG	EPA:900	0	2
CAWA-18-43	CDV-16-4ip S1	REG	EPA:901.1	0	5
CAWA-18-43	CDV-16-4ip S1	REG	EPA:905.0	0	1
CAWA-18-43	CDV-16-4ip S1	REG	HASL-300:AM-241	0	1
CAWA-18-43	CDV-16-4ip S1	REG	HASL-300:ISOPU	0	2
CAWA-18-43	CDV-16-4ip S1	REG	HASL-300:ISOU	0	3
CAWA-18-43	CDV-16-4ip S1	REG	SW-846:8260B	0	80
CAWA-18-43	CDV-16-4ip S1	REG	SW-846:8270D	0	80
CAWA-18-43	CDV-16-4ip S1	REG	SW-846:8330B	0	23
CAWA-18-43	CDV-16-4ip S1	REG	SW-846:9060	0	1
CAWA-18-88	CDV-16-4ip S1	FB	EPA:170.0	0	1
CAWA-18-88	CDV-16-4ip S1	FB	SW-846:8260B	0	80
CAWA-18-88	CDV-16-4ip S1	FB	SW-846:8270D	0	80
CAWA-18-95	16-61439	FTB	EPA:170.0	0	1
CAWA-18-95	16-61439	FTB	SW-846:8260B	0	80

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March 15, 2018

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


Re: LANL- WQH Water Samples
Work Order: 444396
SDG: 2018-1772

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 21, 2018, and analyzed for Explosives by LCMSMS, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,


Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-1772
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 444396
SDG: 2018-1772

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 444396
SDG # : 2018-1772**

March 15, 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 February 21, 2018 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>
444396001	CAWA-18-27
444396002	CAWA-18-28
444396003	CAWA-18-28
444396004	CAWA-18-95
444396005	CAWA-18-35
444396006	CAWA-18-36
444396007	CAWA-18-36
444396008	CAWA-18-107
444396009	CAWA-18-124
444396010	CAWA-18-127
444396011	CAWA-18-127
444396012	CAWA-18-39
444396013	CAWA-18-40
444396014	CAWA-18-40
444396015	CAWA-18-121
444396016	CAWA-18-151445
444396017	CAWA-18-42
444396018	CAWA-18-43
444396019	CAWA-18-43
444396020	CAWA-18-88
444396021	CAWA-18-101
444396022	CAWA-18-21
444396023	CAWA-18-22
444396024	CAWA-18-22

444396025	CAWA-18-102
444396026	CAWA-18-122
444396027	CAWA-18-125
444396028	CAWA-18-125
444396029	CAWA-18-29
444396030	CAWA-18-30
444396031	CAWA-18-30
444396032	CAWA-18-105


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, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

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.


Brielle Luthman for
Valerie Davis
Project Manager

List of current GEL Certifications as of 15 March 2018

State	Certification
Alaska	17-018
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 Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-18-13
Utah NELAP	SC000122017-25
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

444396

General Engineering Charleston SC		Chain of Custody/Analysis Request										COC/Lab Request #: 2018-1772-1 Page 1 of 2							
Client Contact:		Lab Agreement #:		Site Name: Los Alamos National Laboratory															
Project Number: ADEP		Analysis Turnaround Time:		Sample Date		Sample Time		Sample Matrix		Rad Screening Info:									
24 Hour - <input type="checkbox"/> Other - <input type="checkbox"/>		7 Days - <input type="checkbox"/>		14 Days - <input type="checkbox"/>		21 Days - <input type="checkbox"/>		28 Days - <input checked="" type="checkbox"/>		Lab Reporting Limit Type: Method Detection Limit									
Field Sample ID	Sample Date	Sample Time	Sample Matrix	MSGP-Hg	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8330B-NMED HEXMOD	WSP-All Metals	WSP-CN(T)	WSP-GENINORGP+Perchlorate	WSP-GrossA/B	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC					
CAWA-18-27	Feb 16 2018	11:30	W		1	2	2	3	1	1	1	1							
CAWA-18-28	Feb 16 2018	11:30	W		1	2	2	3	1	1	1	1	1	1					
CAWA-18-95	Feb 16 2018	11:30	W		21														
CAWA-18-35	Feb 16 2018	12:15	W					1	1	1	1	1							
CAWA-18-36	Feb 16 2018	12:15	W		1	2	2	3	1	1	1	1	1	1					
CAWA-18-107	Feb 16 2018	12:15	W		21														
CAWA-18-124	Feb 16 2018	12:15	W					1	1	1	1	1							
CAWA-18-127	Feb 16 2018	12:15	W		1	2	2	3	1	1	1	1	1	1					
CAWA-18-39	Feb 16 2018	11:01	W					1	1	1	1	1							
CAWA-18-40	Feb 16 2018	11:01	W		1	2	2	3	1	1	1	1	1	1					
CAWA-18-121	Feb 16 2018	11:01	W		21														
CAWA-18-151445	Feb 16 2018	11:01	W		2	2													
CAWA-18-42	Feb 16 2018	09:39	W					1	1	1	1	1							
CAWA-18-43	Feb 16 2018	9:39	W		1	2	2	3	1	1	1	1	1	1					
CAWA-18-88	Feb 16 2018	9:39	W		2	2													
CAWA-18-101	Feb 16 2018	9:39	W		21														
CAWA-18-21	Feb 16 2018	10:03	W					1	1	1	1	1							

Special Instructions:			
Relinquished by:	Print Name: Melissa Marks	Date/Time: 2/20/18 3:00	Received by: [Signature]
Relinquished by:	Print Name:	Date/Time:	Received by:
Relinquished by:	Print Name:	Date/Time:	Received by:

Relinquished by:		Print Name:		Date/Time:	
[Signature]		Zoe Worsham		2/21/18 9:20	
[Signature]		[Signature]		[Signature]	
[Signature]		[Signature]		[Signature]	



SAMPLE RECEIPT & REVIEW FORM

Client: <u>ESHL</u>		SDG/AR/COC/Work Order: <u>4443916</u>	
Received By: <u>ZKW</u>		Date Received: <u>2/21/18</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 5290-3°C</u> <u>5908 1783 5267-3°C</u> <u>5908 1783 5304-2°C</u> <u>5908 1783 5254-2°C</u> <u>5908 1783 5289-2°C</u> <u>5908 1783 5234-10°C (rchem)</u> <u>5908 1783 5278-2°C</u> <u>5908 1783 5223-10°C (rchem)</u> <u>5908 1783 5212-4°C</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
Shipped as a DOT Hazardous?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> <u>CPM</u> mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
Is package, COC, and/or Samples marked HAZ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. <input checked="" type="checkbox"/> PCB's <input type="checkbox"/> Flammable <input type="checkbox"/> Foreign Soil <input type="checkbox"/> RCRA <input type="checkbox"/> Asbestos <input type="checkbox"/> Beryllium <input type="checkbox"/> Other:	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Wet ice <u>Ice Packs</u> Dry ice <u>None</u> Other: _____ *all temperatures are recorded in Celsius TEMP: <u>Above</u>
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>IR3-16</u> Secondary Temperature Device Serial # (If Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) <u>one SVOA cont. for -18-127 rec'd broken</u>
6 Samples requiring chemical preservation at proper pH?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Sample ID's and Containers Affected: <u>WST samples not preserved</u> If Preservation added, Lot#: _____
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes ___ No <u>✓</u> (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ___ No ___ N/A ___ (If unknown, select No) VOA vials free of headspace? Yes <u>✓</u> No ___ N/A ___ Sample ID's and containers affected: _____
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected: _____
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected: _____
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <u>We rec'd one bag for -151672 and one for -151673</u>
12 Are sample containers identifiable as GEL provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials TMC Date 2/22/18 Page 1 of 1

Subject: Samples received at GEL 2/21/18 2018-1772
From: Taylor Cannon <taylor.cannon@gel.com>
Date: 2/21/2018 4:35 PM
To: npatel@lanl.gov, "team.davis" <team.davis@gel.com>

Nita,

One container for sample ID CAWA-18-127 was received broken. We have enough remaining sample to run the test.

Thank you,

Taylor

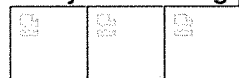
--

Taylor Cannon
Project Manager Assistant



2040 Savage Road, Charleston, SC 29407 | PO Box 30712, Charleston, SC 29417
Office Main: 843.556.8171 ext. 4708 | Fax: 843.766.1178
E-Mail: taylor.cannon@gel.com | Website: www.gel.com

Analytical Testing | Environmental | Engineering | Surveying



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: 20FEB18
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2916

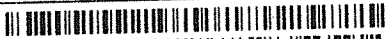
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TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0ASRGW04BAGWEO



FedEx
Express



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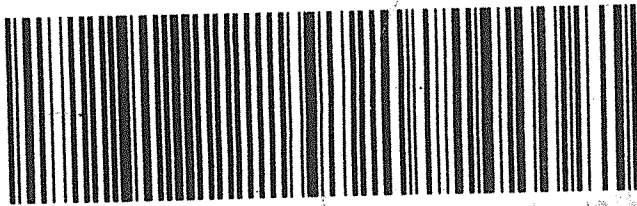
1 of 2
TRK# 5908 1783 5256
0201
MASTER

X7 RBWA

29407

SC-US CHS

WED - 21 FEB 10:30A
PRIORITY OVERNIGHT



Part # 156148V-434 RIT2 EXP 02/18 ***

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: 20FEB18
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2916

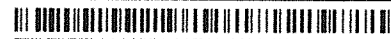
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TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0ASRGW04BAGWEO



FedEx
Express



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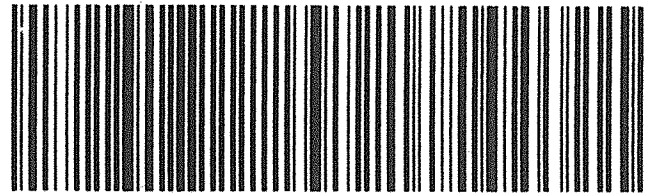
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MASTER

X7 RBWA

29407

SC-US CHS

WED - 21 FEB 10:30A
PRIORITY OVERNIGHT



Part # 156148V-434 RIT2 EXP 02/18 ***

SHIP DATE: 20FEB18
ACTWGT: 54.0 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

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0ASRGW04BAGWEO



FedEx
Express



J151315081301uy

WED - 21 FEB 10:30
PRIORITY OVERNIGHT

2 of 2
MPS# 5908 1783 5289
0263

Mstr# 5908 1783 5278

X7 RBWA

2940
SC-US CH



Part # 156148V-434 RIT2 EXP 02/18 ***

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

SHIP DATE: 20FEB18
ACTWGT: 33.0 LB MAN
CAD: 0014176/CAFE2916

LOS ALAMOS, NM 87545
UNITED STATES US

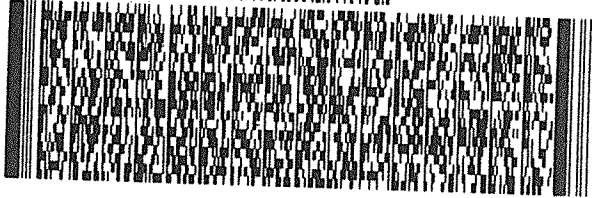
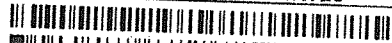
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TO **VALERIE DAVIS**
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 656-8171

REF: 21PD0ASRGW04BAGWEO



FedEx
Express



JT513150813011V

2 of 2

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0263

Mstr# 5908 1783 5290

0201

X7 RBWA

29407

SC-US CHS

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PRIORITY OVERNIGHT



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

SHIP DATE: 20FEB18
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2916

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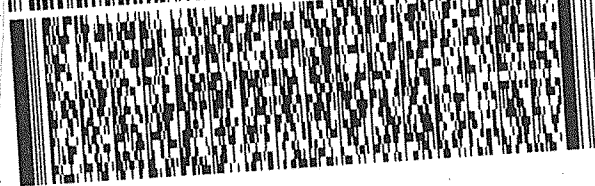
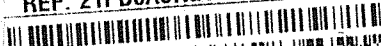
LOS ALAMOS, NM 87545
UNITED STATES US

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 656-8171

REF: 21PD0ASRGW04BAGWEO



FedEx
Express



JT513150813011V

1 of 2

TRK# 5908 1783 5290
0201

MASTER

X7 RBWA

29407

SC-US CHS

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PRIORITY OVERNIGHT

Part # 156148V-434 RIT2 EXP 02/18



SHIP DATE: 20FEB18
ACTWGT: 55.0 LB MAN
CAD: 0014176/CAFE2916

BILL SENDER

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

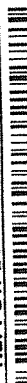
LOS ALAMOS, NM 87545
UNITED STATES US

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

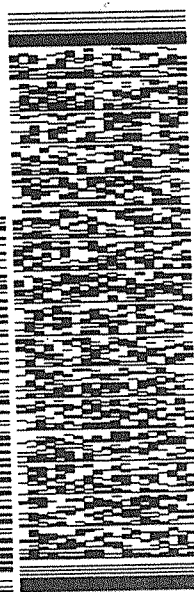
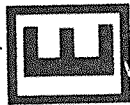
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(843) 656-8171

REF: 21PD0ASRGW04BAGWEO



FedEx
Express



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PRIORITY OVERNIGHT

2 of 2

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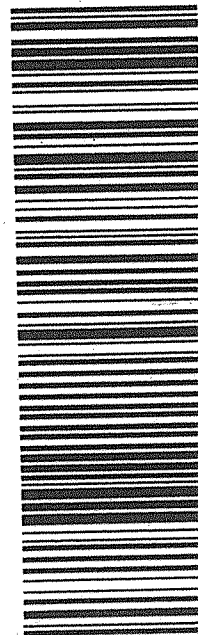
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0201

X7 RBWA

29407

SC-US CHS



Part # 156148V-434 RIT2 EXP 02/18

257

5

10:30

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: 20FEB18
ACTWGT: 59.0 LB MAN
CAD: 0014176/CAFE2916

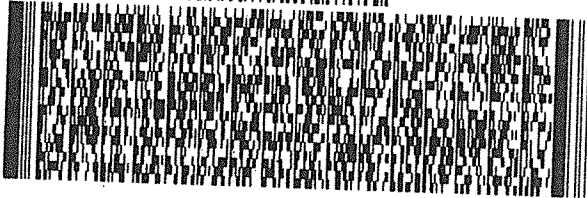
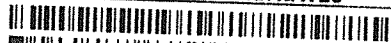
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TO **VALERIE DAVIS**
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0ASRGW04BAGWED



FedEx
Express



J151315061301 uv

2 of 2

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Mstr# 5908 1783 5212

0201

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PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS



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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20FEB18
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2916

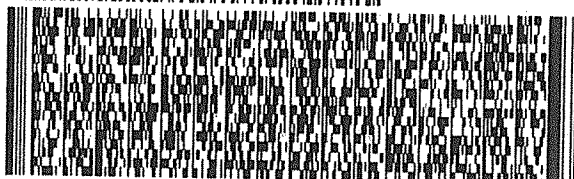
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TO **VALERIE DAVIS**
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0ASRGW04BAGWED



FedEx
Express



J151315061301 uv

1 of 2

TRK# 5908 1783 5212

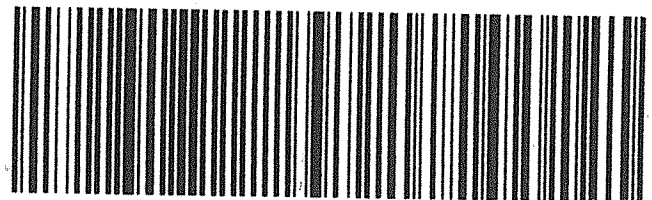
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MASTER

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PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS



SHIP DATE: 20FEB18
ACTWGT: 43.0 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

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

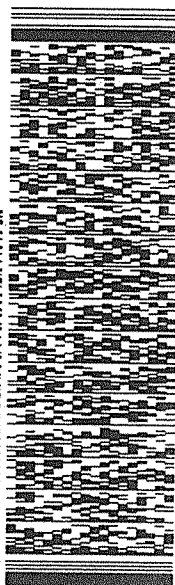
CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0ASRGW04BAGWED



FedEx
Express



WED - 21 FEB 10:30A
PRIORITY OVERNIGHT

1 of 2

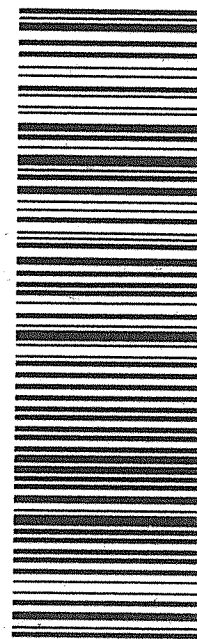
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MASTER

X7 RBWA

29407
SC-US CHS



Part # 156148V-434 R172 EXP 02/18 ***

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 #: 2018-1772
Work Order #: 444396**

Method/Analysis Information

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

Analytical Method: SW-846:8260B

Analytical Batch
Number: 1742738

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
444396002	CAWA-18-28
444396004	CAWA-18-95
444396006	CAWA-18-36
444396008	CAWA-18-107
444396010	CAWA-18-127
444396013	CAWA-18-40
444396015	CAWA-18-121
444396016	CAWA-18-151445
444396018	CAWA-18-43
444396020	CAWA-18-88
444396021	CAWA-18-101
444396023	CAWA-18-22
444396025	CAWA-18-102
444396027	CAWA-18-125
444396030	CAWA-18-30
444396032	CAWA-18-105
1203980067	Method Blank (MB)
1203980069	Laboratory Control Sample (LCS)
1203980070	Laboratory Control Sample (LCS)
1203980075	444396018(CAWA-18-43) Post Spike (PS)
1203980076	444396018(CAWA-18-43) Post Spike (PS)
1203980079	444396018(CAWA-18-43) Post Spike Duplicate (PSD)
1203980080	444396018(CAWA-18-43) Post Spike Duplicate (PSD)
1203981229	Method Blank (MB)
1203981230	Laboratory Control Sample (LCS)
1203982548	Laboratory Control Sample (LCS)

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

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

SOP Reference

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

Calibration Information

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

Initial Calibration

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

Continuing Calibration Verification Requirements

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

Quality Control (QC) Information

Blank (MB) Statement

The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

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

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 444396018 (CAWA-18-43) 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 444396002 (CAWA-18-28), 444396004 (CAWA-18-95), 444396006 (CAWA-18-36), 444396008 (CAWA-18-107), 444396010 (CAWA-18-127), 444396013 (CAWA-18-40), 444396015 (CAWA-18-121), 444396016 (CAWA-18-151445), 444396018 (CAWA-18-43), 444396020 (CAWA-18-88), 444396021 (CAWA-18-101), 444396023 (CAWA-18-22), 444396025 (CAWA-18-102), 444396027 (CAWA-18-125), 444396030 (CAWA-18-30) and 444396032 (CAWA-18-105) 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
VOA9.I	Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-1772 GEL Work Order: 444396

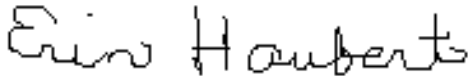
The Qualifiers in this report are defined as follows:

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

Review/Validation

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

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

Signature: 

Name: Erin Haubert

Date: 19 MAR 2018

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396002

Date Collected: 02/16/2018 11:30

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-28

Batch ID: 1742738

Run Date: 02/28/2018 06:47

Prep Date: 02/28/2018 06:47

Data File: 022718V9\9H243.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396002

Date Collected: 02/16/2018 11:30

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-28

Batch ID: 1742738

Run Date: 02/28/2018 06:47

Prep Date: 02/28/2018 06:47

Data File: 022718V9\9H243.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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

Page 3 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396002

Date Collected: 02/16/2018 11:30

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-28

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 06:47

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 06:47

Column: DB-624

Data File: 022718V9\9H243.D

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.1	50.0	ug/L 98	(71%-134%)
Bromofluorobenzene	48.6	50.0	ug/L 97	(70%-131%)
Toluene-d8	48.9	50.0	ug/L 98	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.652	12.5	ug/L	0	J
	unknown siloxane	16.62	5.39	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396004

Date Collected: 02/16/2018 11:30

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-95

Batch ID: 1742738

Run Date: 02/28/2018 03:33

Prep Date: 02/28/2018 03:33

Data File: 022718V9\9H236.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396004

Date Collected: 02/16/2018 11:30

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-95

Batch ID: 1742738

Run Date: 02/28/2018 03:33

Prep Date: 02/28/2018 03:33

Data File: 022718V9\9H236.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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**

Page 3 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396004

Date Collected: 02/16/2018 11:30

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 03:33

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 03:33

Data File: 022718V9\9H236.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	49.6	50.0	ug/L 99	(71%-134%)
Bromofluorobenzene	48.6	50.0	ug/L 97	(70%-131%)
Toluene-d8	49.5	50.0	ug/L 99	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	21	ug/L	0	J
	unknown siloxane	16.62	5.65	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396006

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-36

Batch ID: 1742738

Run Date: 02/28/2018 07:14

Prep Date: 02/28/2018 07:14

Data File: 022718V9\9H244.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396006

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-36

Batch ID: 1742738

Run Date: 02/28/2018 07:14

Prep Date: 02/28/2018 07:14

Data File: 022718V9\9H244.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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	J	0.940	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: 2018-1772

Lab Sample ID: 444396006

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-36

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 07:14

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 07:14

Data File: 022718V9\9H244.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		1.17	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	50.8	50.0	ug/L 102	(71%-134%)
Bromofluorobenzene	48.2	50.0	ug/L 96	(70%-131%)
Toluene-d8	51.0	50.0	ug/L 102	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	15.8	ug/L	0	J
	unknown siloxane	16.62	6.09	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396008

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-107

Batch ID: 1742738

Run Date: 02/28/2018 04:01

Prep Date: 02/28/2018 04:01

Data File: 022718V9\9H237.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Column: DB-624

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

Volatile
Certificate of Analysis
Sample Summary

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396008

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-107

Batch ID: 1742738

Run Date: 02/28/2018 04:01

Prep Date: 02/28/2018 04:01

Data File: 022718V9\9H237.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396008

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-107

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 04:01

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 04:01

Column: DB-624

Data File: 022718V9\9H237.D

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.4	50.0	ug/L 99	(71%-134%)
Bromofluorobenzene	50.5	50.0	ug/L 101	(70%-131%)
Toluene-d8	50.4	50.0	ug/L 101	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	21.6	ug/L	0	J
	unknown siloxane	16.62	6.3	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396010

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 07:42

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 07:42

Data File: 022718V9\9H245.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	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: 2018-1772

Lab Sample ID: 444396010

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 07:42

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 07:42

Data File: 022718V9\9H245.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	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		1.01	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: 2018-1772

Lab Sample ID: 444396010

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 07:42

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 07:42

Data File: 022718V9\9H245.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		1.18	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	51.6	50.0	ug/L 103	(71%-134%)
Bromofluorobenzene	51.1	50.0	ug/L 102	(70%-131%)
Toluene-d8	50.7	50.0	ug/L 101	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	16.9	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396013

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-40

Batch ID: 1742738

Run Date: 02/28/2018 08:10

Prep Date: 02/28/2018 08:10

Data File: 022718V9\9H246.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Column: DB-624

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

Volatile
Certificate of Analysis
Sample Summary

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396013

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 08:10

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 08:10

Data File: 022718V9\9H246.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	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	J	0.580	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	J	0.320	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: 2018-1772

Lab Sample ID: 444396013

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Client ID: CAWA-18-40

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 08:10

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 08:10

Data File: 022718V9\9H246.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	J	0.460	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	50.7	50.0	ug/L 101	(71%-134%)
Bromofluorobenzene	49.8	50.0	ug/L 100	(70%-131%)
Toluene-d8	49.5	50.0	ug/L 99	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	10.8	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396015

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 04:28

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 04:28

Data File: 022718V9\9H238.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	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: 2018-1772

Lab Sample ID: 444396015

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 04:28

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 04:28

Data File: 022718V9\9H238.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	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: 2018-1772

Lab Sample ID: 444396015

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 04:28

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 04:28

Data File: 022718V9\9H238.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	49.2	50.0	ug/L 98	(71%-134%)
Bromofluorobenzene	49.3	50.0	ug/L 99	(70%-131%)
Toluene-d8	49.6	50.0	ug/L 99	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	17.9	ug/L	0	J
	unknown siloxane	16.62	5.93	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396016

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-151445

Batch ID: 1742738

Run Date: 02/28/2018 08:38

Prep Date: 02/28/2018 08:38

Data File: 022718V9\9H247.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Column: DB-624

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

Volatile
Certificate of Analysis
Sample Summary

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396016

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 08:38

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 08:38

Data File: 022718V9\9H247.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	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**

Page 3 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396016

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-151445

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 08:38

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 08:38

Column: DB-624

Data File: 022718V9\9H247.D

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	53.3	50.0	ug/L 107	(71%-134%)
Bromofluorobenzene	50.4	50.0	ug/L 101	(70%-131%)
Toluene-d8	51.2	50.0	ug/L 102	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	12.2	ug/L	0	J
	unknown siloxane	16.62	5.75	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396018

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-43

Batch ID: 1742738

Run Date: 02/28/2018 09:05

Prep Date: 02/28/2018 09:05

Data File: 022718V9\9H248.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396018

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-43

Batch ID: 1742738

Run Date: 02/28/2018 09:05

Prep Date: 02/28/2018 09:05

Data File: 022718V9\9H248.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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	J	0.920	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	J	0.620	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: 2018-1772

Lab Sample ID: 444396018

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-43

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 09:05

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 09:05

Column: DB-624

Data File: 022718V9\9H248.D

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	J	0.540	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	51.2	50.0	ug/L 102	(71%-134%)
Bromofluorobenzene	50.7	50.0	ug/L 101	(70%-131%)
Toluene-d8	50.3	50.0	ug/L 101	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	20.3	ug/L	0	J
	unknown siloxane	16.62	7.93	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396020

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-88

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 09:34

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 09:34

Data File: 022718V9\9H249.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	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: 2018-1772

Lab Sample ID: 444396020

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-88

Batch ID: 1742738

Run Date: 02/28/2018 09:34

Prep Date: 02/28/2018 09:34

Data File: 022718V9\9H249.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396020

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-88

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 09:34

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 09:34

Column: DB-624

Data File: 022718V9\9H249.D

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	50.6	50.0	ug/L 101	(71%-134%)
Bromofluorobenzene	49.6	50.0	ug/L 99	(70%-131%)
Toluene-d8	50.0	50.0	ug/L 100	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	7.54	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396021

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 04:56

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 04:56

Data File: 022718V9\9H239.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	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: 2018-1772

Lab Sample ID: 444396021

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-101

Batch ID: 1742738

Run Date: 02/28/2018 04:56

Prep Date: 02/28/2018 04:56

Data File: 022718V9\9H239.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396021

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 04:56

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 04:56

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	50.6	50.0	ug/L 101	(71%-134%)
Bromofluorobenzene	49.4	50.0	ug/L 99	(70%-131%)
Toluene-d8	49.5	50.0	ug/L 99	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	16.2	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396023

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-22

Batch ID: 1742738

Run Date: 02/28/2018 10:02

Prep Date: 02/28/2018 10:02

Data File: 022718V9\9H250.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396023

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-22

Batch ID: 1742738

Run Date: 02/28/2018 10:02

Prep Date: 02/28/2018 10:02

Data File: 022718V9\9H250.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396023

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-22

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 10:02

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 10:02

Column: DB-624

Data File: 022718V9\9H250.D

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	51.1	50.0	ug/L 102	(71%-134%)
Bromofluorobenzene	49.8	50.0	ug/L 100	(70%-131%)
Toluene-d8	50.3	50.0	ug/L 101	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	11.6	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1772

Lab Sample ID: 444396025

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-102

Batch ID: 1742738

Run Date: 02/28/2018 05:24

Prep Date: 02/28/2018 05:24

Data File: 022718V9\9H240.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396025

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-102

Batch ID: 1742738

Run Date: 02/28/2018 05:24

Prep Date: 02/28/2018 05:24

Data File: 022718V9\9H240.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396025

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-102

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 05:24

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 05:24

Column: DB-624

Data File: 022718V9\9H240.D

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	50.7	50.0	ug/L 101	(71%-134%)
Bromofluorobenzene	50.3	50.0	ug/L 101	(70%-131%)
Toluene-d8	50.6	50.0	ug/L 101	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	14.2	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396027

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-125

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 10:30

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 10:30

Data File: 022718V9\9H251.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	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: 2018-1772

Lab Sample ID: 444396027

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-125

Batch ID: 1742738

Run Date: 02/28/2018 10:30

Prep Date: 02/28/2018 10:30

Data File: 022718V9\9H251.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396027

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-125

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 10:30

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 10:30

Column: DB-624

Data File: 022718V9\9H251.D

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	52.1	50.0	ug/L 104	(71%-134%)
Bromofluorobenzene	52.0	50.0	ug/L 104	(70%-131%)
Toluene-d8	51.2	50.0	ug/L 102	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	18.4	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396030

Date Collected: 02/16/2018 13:24

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-30

Batch ID: 1742738

Run Date: 02/28/2018 10:58

Prep Date: 02/28/2018 10:58

Data File: 022718V9\9H252.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396030

Date Collected: 02/16/2018 13:24

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-30

Batch ID: 1742738

Run Date: 02/28/2018 10:58

Prep Date: 02/28/2018 10:58

Data File: 022718V9\9H252.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396030

Date Collected: 02/16/2018 13:24

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 10:58

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 10:58

Column: DB-624

Data File: 022718V9\9H252.D

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	52.7	50.0	ug/L 105	(71%-134%)
Bromofluorobenzene	52.1	50.0	ug/L 104	(70%-131%)
Toluene-d8	51.2	50.0	ug/L 102	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.651	14.8	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396032

Date Collected: 02/16/2018 13:24

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 05:51

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 05:51

Data File: 022718V9\9H241.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	0.300	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	0.300	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	0.300	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	0.300	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	0.300	ug/L	0.300	1.00
78-93-3	2-Butanone	U	1.50	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	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: 2018-1772

Lab Sample ID: 444396032

Date Collected: 02/16/2018 13:24

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-105

Batch ID: 1742738

Run Date: 02/28/2018 05:51

Prep Date: 02/28/2018 05:51

Data File: 022718V9\9H241.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

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: 2018-1772

Lab Sample ID: 444396032

Date Collected: 02/16/2018 13:24

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1742738

Inst: VOA9.I

Dilution: 1

Run Date: 02/28/2018 05:51

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 02/28/2018 05:51

Data File: 022718V9\9H241.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	49.9	50.0	ug/L 100	(71%-134%)
Bromofluorobenzene	48.6	50.0	ug/L 97	(70%-131%)
Toluene-d8	49.1	50.0	ug/L 98	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	12.292	7.94	ug/L	0	J
	unknown siloxane	14.652	24.4	ug/L	0	J
	unknown siloxane	16.62	5.76	ug/L	0	J

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 2

SDG Number: 2018-1772**Matrix Type: LIQUID**

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203980069	LCS for batch 1742738	97	99	101
1203980070	LCS for batch 1742738	94	99	97
1203980067	MB for batch 1742738	97	98	98
444396004	CAWA-18-95	99	99	97
444396008	CAWA-18-107	99	101	101
444396015	CAWA-18-121	98	99	99
444396021	CAWA-18-101	101	99	99
444396025	CAWA-18-102	101	101	101
444396032	CAWA-18-105	100	98	97
444396002	CAWA-18-28	98	98	97
444396006	CAWA-18-36	102	102	96
444396010	CAWA-18-127	103	101	102
444396013	CAWA-18-40	101	99	100
444396016	CAWA-18-151445	107	102	101
444396018	CAWA-18-43	102	101	101
444396020	CAWA-18-88	101	100	99
444396023	CAWA-18-22	102	101	100
444396027	CAWA-18-125	104	102	104
444396030	CAWA-18-30	105	102	104
1203981230	LCS for batch 1742738	97	98	101
1203982548	LCS for batch 1742738	94	99	94
1203981229	MB for batch 1742738	97	100	101
1203980075	CAWA-18-43PS	95	100	99
1203980079	CAWA-18-43PSD	95	99	97

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

SDG Number: 2018-1772
Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203980076	CAWA-18-43PS	96	101	98
1203980080	CAWA-18-43PSD	96	100	97

Surrogate

DCED4 = 1,2-Dichloroethane-d4
TOL = Toluene-d8
BFB = Bromofluorobenzene

Acceptance Limits

(71%-134%)
(74%-124%)
(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: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203980069

Instrument: VOA9.I

Analysis Date: 02/28/2018 00:15

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	96.4	96	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1050	84	61-125
67-64-1	LCS Acetone	250	0.0	169	68	48-157
74-88-4	LCS Iodomethane	250	0.0	216	86	72-128
75-15-0	LCS Carbon disulfide	250	0.0	208	83	69-138
108-05-4	LCS Vinyl acetate	250	0.0	230	92	67-125
78-93-3	LCS 2-Butanone	250	0.0	200	80	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	228	91	66-124
591-78-6	LCS 2-Hexanone	250	0.0	205	82	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	46.7	93	40-160
74-87-3	LCS Chloromethane	50.0	0.0	47.8	96	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	47.6	95	65-137
74-83-9	LCS Bromomethane	50.0	0.0	46.7	93	63-137
75-00-3	LCS Chloroethane	50.0	0.0	47.2	94	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	47.1	94	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	48.6	97	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	44.0	88	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	43.6	87	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	46.5	93	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	45.5	91	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	46.3	93	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	46.1	92	75-123

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203980069

Instrument: VOA9.I

Analysis Date: 02/28/2018 00:15

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	45.0	90	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	47.6	95	76-125
67-66-3	LCS Chloroform	50.0	0.0	45.9	92	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	46.2	92	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	43.8	88	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	47.4	95	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	45.6	91	74-122
71-43-2	LCS Benzene	50.0	0.0	45.1	90	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	46.6	93	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	46.1	92	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	47.2	94	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	50.6	101	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	49.4	99	78-131
108-88-3	LCS Toluene	50.0	0.0	45.6	91	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	50.9	102	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	48.0	96	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	46.0	92	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	48.5	97	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	50.1	100	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	46.6	93	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	45.7	91	73-125

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203980069

Instrument: VOA9.I

Analysis Date: 02/28/2018 00:15

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	LCS o-Xylene	50.0	0.0	47.7	95	74-126
100-42-5	LCS Styrene	50.0	0.0	50.1	100	72-130
75-25-2	LCS Bromoform	50.0	0.0	59.7	119	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	48.4	97	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	50.6	101	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	50.6	101	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	48.3	97	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	47.0	94	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	49.0	98	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	48.7	97	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	47.0	94	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	49.6	99	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	48.1	96	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	48.3	97	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	48.7	97	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	46.5	93	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	46.4	93	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	45.8	92	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	47.7	95	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	49.9	100	72-136
91-20-3	LCS Naphthalene	50.0	0.0	52.3	105	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	50.2	100	70-130

Volatile

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Quality Control Summary
Spike Recovery Report

SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203980069

Instrument: VOA9.I

Analysis Date: 02/28/2018 00:15

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	48.6	97	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	50.8	102	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	47.2	94	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	4750	95	63-138

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203980070

Instrument: VOA9.I

Analysis Date: 02/28/2018 01:12

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	225	90	60-140
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	224	89	61-148
107-05-1	LCS	Allyl chloride	250	0.0	218	87	59-125
107-13-1	LCS	Acrylonitrile	250	0.0	231	92	65-122
107-12-0	LCS	Propionitrile	250	0.0	221	88	64-124
126-98-7	LCS	Methacrylonitrile	250	0.0	226	90	64-126
80-62-6	LCS	Methyl methacrylate	250	0.0	232	93	69-127
97-63-2	LCS	Ethyl methacrylate	250	0.0	225	90	66-130
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2240	90	65-135
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	46.8	94	66-147

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Post Spike

Client ID: CAWA-18-43PS

Matrix: W

Lab Sample ID 1203980075

Instrument: VOA9.I

Analysis Date: 03/02/2018 19:15

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	104	104	59-132
75-05-8	PS Acetonitrile	1250	0.00 U	1170	94	56-131
67-64-1	PS Acetone	250	0.00 U	160	64	25-155
74-88-4	PS Iodomethane	250	0.00 U	245	98	66-133
75-15-0	PS Carbon disulfide	250	0.00 U	244	98	61-141
108-05-4	PS Vinyl acetate	250	0.00 U	211	84	48-133
78-93-3	PS 2-Butanone	250	0.00 U	206	83	25-143
108-10-1	PS 4-Methyl-2-pentanone	250	0.00 U	239	96	61-127
591-78-6	PS 2-Hexanone	250	0.00 U	211	85	33-138
1634-04-4	PS tert-Butyl methyl ether	50.0	0.540 J	51.1	101	69-132
79-01-6	PS Trichloroethylene	50.0	0.620 J	51.3	101	65-131
127-18-4	PS Tetrachloroethylene	50.0	0.920 J	51.7	102	60-130
75-71-8	PS Dichlorodifluoromethane	50.0	0.00 U	35.7	71	33-164
74-87-3	PS Chloromethane	50.0	0.00 U	47.1	94	53-139
75-01-4	PS Vinyl chloride	50.0	0.00 U	50.5	101	58-140
74-83-9	PS Bromomethane	50.0	0.00 U	43.4	87	59-146
75-00-3	PS Chloroethane	50.0	0.00 U	44.0	88	65-129
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	44.2	88	65-141
60-29-7	PS Ethyl ether	50.0	0.00 U	45.5	91	69-127
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	50.1	100	59-130
75-09-2	PS Methylene chloride	50.0	0.00 U	47.1	94	62-123
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	50.7	101	65-127

Volatile
Quality Control Summary
Spike Recovery Report

SDG Number: 2018-1772

Sample Type: Post Spike

Client ID: CAWA-18-43PS

Matrix: W

Lab Sample ID 1203980075

Instrument: VOA9.I

Analysis Date: 03/02/2018 19:15

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-34-3	PS 1,1-Dichloroethane	50.0	0.00 U	50.3	101	67-127
156-59-2	PS cis-1,2-Dichloroethylene	50.0	0.00 U	50.3	101	69-127
594-20-7	PS 2,2-Dichloropropane	50.0	0.00 U	51.1	102	66-137
74-97-5	PS Bromochloromethane	50.0	0.00 U	51.8	104	71-130
67-66-3	PS Chloroform	50.0	0.00 U	49.8	100	71-129
71-55-6	PS 1,1,1-Trichloroethane	50.0	0.00 U	51.1	102	69-139
563-58-6	PS 1,1-Dichloropropene	50.0	0.00 U	48.9	98	67-130
56-23-5	PS Carbon tetrachloride	50.0	0.00 U	53.1	106	66-143
107-06-2	PS 1,2-Dichloroethane	50.0	0.00 U	48.8	98	69-130
71-43-2	PS Benzene	50.0	0.00 U	49.0	98	66-125
78-87-5	PS 1,2-Dichloropropane	50.0	0.00 U	49.1	98	67-127
74-95-3	PS Dibromomethane	50.0	0.00 U	50.7	101	72-129
75-27-4	PS Bromodichloromethane	50.0	0.00 U	53.5	107	70-138
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00 U	52.9	106	70-134
108-88-3	PS Toluene	50.0	0.00 U	48.8	98	60-126
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00 U	54.8	110	69-135
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00 U	51.0	102	66-125
142-28-9	PS 1,3-Dichloropropane	50.0	0.00 U	48.7	97	67-124
124-48-1	PS Dibromochloromethane	50.0	0.00 U	51.5	103	68-143
106-93-4	PS 1,2-Dibromoethane	50.0	0.00 U	52.8	106	71-127
108-90-7	PS Chlorobenzene	50.0	0.00 U	49.2	98	64-124
100-41-4	PS Ethylbenzene	50.0	0.00 U	48.9	98	61-130

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 8

SDG Number: 2018-1772

Sample Type: Post Spike

Client ID: CAWA-18-43PS

Matrix: W

Lab Sample ID 1203980075

Instrument: VOA9.I

Analysis Date: 03/02/2018 19:15

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	50.7	101	62-131
100-42-5	PS Styrene	50.0	0.00 U	52.6	105	59-135
75-25-2	PS Bromoform	50.0	0.00 U	61.5	123	64-138
98-82-8	PS Isopropylbenzene	50.0	0.00 U	51.2	102	55-133
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	52.2	104	62-129
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	52.8	106	70-124
108-86-1	PS Bromobenzene	50.0	0.00 U	50.4	101	62-124
103-65-1	PS n-Propylbenzene	50.0	0.00 U	49.5	99	50-133
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	51.9	104	53-135
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	51.1	102	56-128
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	49.1	98	53-130
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	53.3	107	55-135
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	50.4	101	53-132
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	51.9	104	50-138
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	51.9	104	49-138
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	48.9	98	56-126
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	49.2	98	55-125
104-51-8	PS n-Butylbenzene	50.0	0.00 U	49.8	100	43-142
96-12-8	PS 1,2-Dibromo-3-chloropropane	50.0	0.00 U	50.4	101	62-141
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	54.6	109	40-147
91-20-3	PS Naphthalene	50.0	0.00 U	55.5	111	62-134
87-61-6	PS 1,2,3-Trichlorobenzene	50.0	0.00 U	53.9	108	52-135

Volatile

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Quality Control Summary
Spike Recovery Report

SDG Number: 2018-1772

Sample Type: Post Spike

Client ID: CAWA-18-43PS

Matrix: W

Lab Sample ID 1203980075

Instrument: VOA9.I

Analysis Date: 03/02/2018 19:15

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	53.6	107	50-133
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	54.6	109	71-133
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	49.3	99	60-125
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5130	103	60-140

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Post Spike Duplicate

Client ID: CAWA-18-43PSD

Matrix: W

Lab Sample ID 1203980079

Instrument: VOA9.I

Analysis Date: 03/02/2018 19:43

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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 111	111	59-132	7	0-20
75-05-8	PSD Acetonitrile	1250	0.00	U 1290	103	56-131	9	0-20
67-64-1	PSD Acetone	250	0.00	U 178	71	25-155	11	0-20
74-88-4	PSD Iodomethane	250	0.00	U 264	106	66-133	7	0-20
75-15-0	PSD Carbon disulfide	250	0.00	U 261	104	61-141	7	0-20
108-05-4	PSD Vinyl acetate	250	0.00	U 223	89	48-133	6	0-20
78-93-3	PSD 2-Butanone	250	0.00	U 229	92	25-143	11	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00	U 265	106	61-127	10	0-20
591-78-6	PSD 2-Hexanone	250	0.00	U 235	94	33-138	11	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.540	J 55.6	110	69-132	9	0-20
79-01-6	PSD Trichloroethylene	50.0	0.620	J 55.2	109	65-131	7	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.920	J 55.4	109	60-130	7	0-20
75-71-8	PSD Dichlorodifluoromethane	50.0	0.00	U 37.2	74	33-164	4	0-20
74-87-3	PSD Chloromethane	50.0	0.00	U 49.5	99	53-139	5	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00	U 51.5	103	58-140	2	0-20
74-83-9	PSD Bromomethane	50.0	0.00	U 45.5	91	59-146	5	0-20
75-00-3	PSD Chloroethane	50.0	0.00	U 46.4	93	65-129	5	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00	U 47.0	94	65-141	6	0-20
60-29-7	PSD Ethyl ether	50.0	0.00	U 48.5	97	69-127	6	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00	U 54.1	108	59-130	8	0-20
75-09-2	PSD Methylene chloride	50.0	0.00	U 50.9	102	62-123	8	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00	U 54.2	108	65-127	7	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Post Spike Duplicate

Client ID: CAWA-18-43PSD

Matrix: W

Lab Sample ID 1203980079

Instrument: VOA9.I

Analysis Date: 03/02/2018 19:43

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00	U 54.3	109	67-127	8	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00	U 53.7	107	69-127	6	0-20
594-20-7	PSD 2,2-Dichloropropane	50.0	0.00	U 54.9	110	66-137	7	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00	U 55.8	112	71-130	8	0-20
67-66-3	PSD Chloroform	50.0	0.00	U 53.2	106	71-129	7	0-20
71-55-6	PSD 1,1,1-Trichloroethane	50.0	0.00	U 55.0	110	69-139	7	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00	U 52.5	105	67-130	7	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00	U 56.8	114	66-143	7	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00	U 52.0	104	69-130	6	0-20
71-43-2	PSD Benzene	50.0	0.00	U 52.6	105	66-125	7	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00	U 53.0	106	67-127	8	0-20
74-95-3	PSD Dibromomethane	50.0	0.00	U 55.2	110	72-129	8	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00	U 58.3	117	70-138	9	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00	U 58.1	116	70-134	9	0-20
108-88-3	PSD Toluene	50.0	0.00	U 51.9	104	60-126	6	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00	U 59.2	118	69-135	8	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00	U 54.4	109	66-125	6	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00	U 52.3	105	67-124	7	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00	U 55.8	112	68-143	8	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00	U 57.8	116	71-127	9	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00	U 53.1	106	64-124	7	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00	U 52.3	105	61-130	7	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Post Spike Duplicate

Client ID: CAWA-18-43PSD

Matrix: W

Lab Sample ID 1203980079

Instrument: VOA9.I

Analysis Date: 03/02/2018 19:43

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	54.6	109	62-131	7	0-20
100-42-5	PSD Styrene	50.0	0.00 U	57.0	114	59-135	8	0-20
75-25-2	PSD Bromoform	50.0	0.00 U	67.1	134	64-138	9	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00 U	52.9	106	55-133	3	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00 U	55.5	111	62-129	6	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00 U	56.4	113	70-124	7	0-20
108-86-1	PSD Bromobenzene	50.0	0.00 U	52.9	106	62-124	5	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00 U	51.5	103	50-133	4	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00 U	53.9	108	53-135	4	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00 U	53.7	107	56-128	5	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00 U	51.5	103	53-130	5	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00 U	56.0	112	55-135	5	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00 U	52.8	106	53-132	5	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00 U	53.4	107	50-138	3	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00 U	54.0	108	49-138	4	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00 U	51.2	102	56-126	5	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00 U	51.6	103	55-125	5	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00 U	51.7	103	43-142	4	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00 U	56.0	112	62-141	10	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00 U	57.9	116	40-147	6	0-20
91-20-3	PSD Naphthalene	50.0	0.00 U	59.4	119	62-134	7	0-20
87-61-6	PSD 1,2,3-Trichlorobenzene	50.0	0.00 U	57.2	114	52-135	6	0-20

Volatile

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Quality Control Summary
Spike Recovery Report

SDG Number: 2018-1772

Sample Type: Post Spike Duplicate

Client ID: CAWA-18-43PSD

Matrix: W

Lab Sample ID 1203980079

Instrument: VOA9.I

Analysis Date: 03/02/2018 19:43

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	56.0	112	50-133	4	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	58.1	116	71-133	6	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	51.5	103	60-125	4	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00 U	6020	120	60-140	16	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 2018-1772

Sample Type: Post Spike

Client ID: CAWA-18-43PS

Matrix: W

Lab Sample ID 1203980076

Instrument: VOA9.I

Analysis Date: 03/02/2018 20:12

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	253	101	49-141
76-13-1	PS Trichlorotrifluoroethane	250	0.00 U	235	94	57-149
107-05-1	PS Allyl chloride	250	0.00 U	223	89	54-128
107-13-1	PS Acrylonitrile	250	0.00 U	252	101	59-129
107-12-0	PS Propionitrile	250	0.00 U	248	99	58-131
126-98-7	PS Methacrylonitrile	250	0.00 U	241	96	59-134
80-62-6	PS Methyl methacrylate	250	0.00 U	244	98	62-135
97-63-2	PS Ethyl methacrylate	250	0.00 U	227	91	60-136
78-83-1	PS Isobutyl alcohol	2500	0.00 U	2580	103	60-143
126-99-8	PS 2-Chloro-1,3-butadiene	50.0	0.00 U	49.0	98	63-146

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 2018-1772

Sample Type: Post Spike Duplicate

Client ID: CAWA-18-43PSD

Matrix: W

Lab Sample ID 1203980080

Instrument: VOA9.I

Analysis Date: 03/02/2018 20:40

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	260	104	49-141	3	0-20
76-13-1	PSD	Trichlorotrifluoroethane	250	0.00	U	237	95	57-149	1	0-20
107-05-1	PSD	Allyl chloride	250	0.00	U	228	91	54-128	2	0-20
107-13-1	PSD	Acrylonitrile	250	0.00	U	253	101	59-129	0	0-20
107-12-0	PSD	Propionitrile	250	0.00	U	250	100	58-131	1	0-20
126-98-7	PSD	Methacrylonitrile	250	0.00	U	244	98	59-134	1	0-20
80-62-6	PSD	Methyl methacrylate	250	0.00	U	251	100	62-135	3	0-20
97-63-2	PSD	Ethyl methacrylate	250	0.00	U	232	93	60-136	2	0-20
78-83-1	PSD	Isobutyl alcohol	2500	0.00	U	2610	105	60-143	1	0-20
126-99-8	PSD	2-Chloro-1,3-butadiene	50.0	0.00	U	50.0	100	63-146	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203981230

Instrument: VOA9.I

Analysis Date: 03/02/2018 11:03

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	108	108	71-127
75-05-8	LCS Acetonitrile	1250	0.0	1210	97	61-125
67-64-1	LCS Acetone	250	0.0	300	120	48-157
74-88-4	LCS Iodomethane	250	0.0	250	100	72-128
75-15-0	LCS Carbon disulfide	250	0.0	254	102	69-138
108-05-4	LCS Vinyl acetate	250	0.0	234	93	67-125
78-93-3	LCS 2-Butanone	250	0.0	281	113	55-138
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	257	103	66-124
591-78-6	LCS 2-Hexanone	250	0.0	287	115	56-140
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	40.3	81	40-160
74-87-3	LCS Chloromethane	50.0	0.0	50.3	101	58-135
75-01-4	LCS Vinyl chloride	50.0	0.0	52.3	105	65-137
74-83-9	LCS Bromomethane	50.0	0.0	45.6	91	63-137
75-00-3	LCS Chloroethane	50.0	0.0	46.7	93	69-129
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	46.9	94	69-138
60-29-7	LCS Ethyl ether	50.0	0.0	47.9	96	72-125
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	53.3	107	66-126
75-09-2	LCS Methylene chloride	50.0	0.0	48.6	97	68-119
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	52.3	105	76-128
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	53.2	106	71-124
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	52.5	105	73-123
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	52.4	105	75-123

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203981230

Instrument: VOA9.I

Analysis Date: 03/02/2018 11:03

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	55.0	110	72-138
74-97-5	LCS Bromochloromethane	50.0	0.0	51.7	103	76-125
67-66-3	LCS Chloroform	50.0	0.0	51.1	102	76-123
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	53.3	107	74-136
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	51.5	103	72-129
56-23-5	LCS Carbon tetrachloride	50.0	0.0	55.7	111	72-140
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	50.8	102	74-122
71-43-2	LCS Benzene	50.0	0.0	51.1	102	72-121
79-01-6	LCS Trichloroethylene	50.0	0.0	53.3	107	74-125
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	51.6	103	73-121
74-95-3	LCS Dibromomethane	50.0	0.0	52.4	105	78-123
75-27-4	LCS Bromodichloromethane	50.0	0.0	56.1	112	77-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	56.6	113	78-131
108-88-3	LCS Toluene	50.0	0.0	50.5	101	71-121
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	57.1	114	78-131
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	51.9	104	74-118
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	50.1	100	74-118
127-18-4	LCS Tetrachloroethylene	50.0	0.0	51.8	104	69-129
124-48-1	LCS Dibromochloromethane	50.0	0.0	52.5	105	76-137
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	54.0	108	78-122
108-90-7	LCS Chlorobenzene	50.0	0.0	51.1	102	74-120
100-41-4	LCS Ethylbenzene	50.0	0.0	50.8	102	73-125

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203981230

Instrument: VOA9.I

Analysis Date: 03/02/2018 11:03

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	52.2	104	74-126
100-42-5	LCS Styrene	50.0	0.0	54.4	109	72-130
75-25-2	LCS Bromoform	50.0	0.0	63.9	128	72-136
98-82-8	LCS Isopropylbenzene	50.0	0.0	52.8	106	70-130
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	54.4	109	70-126
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	54.4	109	74-122
108-86-1	LCS Bromobenzene	50.0	0.0	52.2	104	74-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	51.8	104	67-128
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	53.5	107	70-129
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	53.4	107	71-124
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	51.4	103	69-125
98-06-6	LCS tert-Butylbenzene	50.0	0.0	54.5	109	72-130
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	52.6	105	70-126
135-98-8	LCS sec-Butylbenzene	50.0	0.0	52.7	105	70-131
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	53.3	107	71-131
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	50.4	101	72-121
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	50.8	102	71-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	51.2	102	68-134
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	52.5	105	68-141
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	53.9	108	72-136
91-20-3	LCS Naphthalene	50.0	0.0	56.1	112	72-132
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	54.8	110	70-130

Volatile

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Quality Control Summary
Spike Recovery Report

SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203981230

Instrument: VOA9.I

Analysis Date: 03/02/2018 11:03

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	53.9	108	71-129
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	54.5	109	79-127
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	50.1	100	74-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	5530	111	63-138

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742738

Matrix: GROUND WATER

Lab Sample ID 1203982548

Instrument: VOA9.I

Analysis Date: 03/02/2018 12:29

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1742738

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	239	96	60-140
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	232	93	61-148
107-05-1	LCS	Allyl chloride	250	0.0	227	91	59-125
107-13-1	LCS	Acrylonitrile	250	0.0	242	97	65-122
107-12-0	LCS	Propionitrile	250	0.0	237	95	64-124
126-98-7	LCS	Methacrylonitrile	250	0.0	237	95	64-126
80-62-6	LCS	Methyl methacrylate	250	0.0	239	96	69-127
97-63-2	LCS	Ethyl methacrylate	250	0.0	227	91	66-130
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2460	99	65-135
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	49.8	100	66-147

Method Blank Summary

Page 1 of 1

SDG Number:	2018-1772	Client:	ARSL004	Matrix:	GROUND WATER
Client ID:	MB for batch 1742738	Instrument ID:	VOA9.I	Data File:	022718V9\9H232B.D
Lab Sample ID:	1203980067	Prep Date:	02/28/2018 01:40	Analyzed:	02/28/18 01:40
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 1742738	1203980069	022718V9\9H229L.D	02/28/18	0015
02 LCS for batch 1742738	1203980070	022718V9\9H231L.D	02/28/18	0112
03 CAWA-18-95	444396004	022718V9\9H236.D	02/28/18	0333
04 CAWA-18-107	444396008	022718V9\9H237.D	02/28/18	0401
05 CAWA-18-121	444396015	022718V9\9H238.D	02/28/18	0428
06 CAWA-18-101	444396021	022718V9\9H239.D	02/28/18	0456
07 CAWA-18-102	444396025	022718V9\9H240.D	02/28/18	0524
08 CAWA-18-105	444396032	022718V9\9H241.D	02/28/18	0551
09 CAWA-18-28	444396002	022718V9\9H243.D	02/28/18	0647
10 CAWA-18-36	444396006	022718V9\9H244.D	02/28/18	0714
11 CAWA-18-127	444396010	022718V9\9H245.D	02/28/18	0742
12 CAWA-18-40	444396013	022718V9\9H246.D	02/28/18	0810
13 CAWA-18-151445	444396016	022718V9\9H247.D	02/28/18	0838
14 CAWA-18-43	444396018	022718V9\9H248.D	02/28/18	0905
15 CAWA-18-88	444396020	022718V9\9H249.D	02/28/18	0934
16 CAWA-18-22	444396023	022718V9\9H250.D	02/28/18	1002
17 CAWA-18-125	444396027	022718V9\9H251.D	02/28/18	1030
18 CAWA-18-30	444396030	022718V9\9H252.D	02/28/18	1058

Method Blank Summary

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SDG Number: 2018-1772

Client: ARSL004

Matrix: GROUND WATER

Client ID: MB for batch 1742738

Instrument ID: VOA9.I

Data File: 030218V9\9H509B1.D

Lab Sample ID: 1203981229

Prep Date: 03/02/2018 13:26

Analyzed: 03/02/18 13:26

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
20 LCS for batch 1742738	1203981230	030218V9\9H504L1.D	03/02/18	1103
21 LCS for batch 1742738	1203982548	030218V9\9H507L1.D	03/02/18	1229
22 CAWA-18-43PS	1203980075	030218V9\9H521.D	03/02/18	1915
23 CAWA-18-43PSD	1203980079	030218V9\9H522.D	03/02/18	1943
24 CAWA-18-43PS	1203980076	030218V9\9H523.D	03/02/18	2012
25 CAWA-18-43PSD	1203980080	030218V9\9H524.D	03/02/18	2040

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2018-1772

Lab Sample ID: 1203980067

Client Sample: QC for batch 1742738

Client ID: MB for batch 1742738

Batch ID: 1742738

Run Date: 02/28/2018 01:40

Prep Date: 02/28/2018 01:40

Data File: 022718V9\9H232B.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: GROUND WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1772

Lab Sample ID: 1203980067

Client Sample: QC for batch 1742738

Client ID: MB for batch 1742738

Batch ID: 1742738

Run Date: 02/28/2018 01:40

Prep Date: 02/28/2018 01:40

Data File: 022718V9\9H232B.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: GROUND 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: 2018-1772	Matrix: GROUND WATER
Lab Sample ID: 1203980067	
Client Sample: QC for batch 1742738	Client: ARSL004
Client ID: MB for batch 1742738	Method: SW-846:8260B
Batch ID: 1742738	Project: QC
Run Date: 02/28/2018 01:40	SOP Ref: GL-OA-E-038
Prep Date: 02/28/2018 01:40	Dilution: 1
Data File: 022718V9\9H232B.D	Purge Vol: 5 mL
	Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.5	50.0	ug/L 97	(71%-134%)
Bromofluorobenzene	49.0	50.0	ug/L 98	(70%-131%)
Toluene-d8	48.9	50.0	ug/L 98	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1772
Lab Sample ID: 1203980069
Client Sample: QC for batch 1742738
Client ID: LCS for batch 1742738
Batch ID: 1742738
Run Date: 02/28/2018 00:15
Prep Date: 02/28/2018 00:15
Data File: 022718V9\9H229L.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: GROUND 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		50.8	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		46.2	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		50.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.0	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		46.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		44.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		43.8	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		50.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.6	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		48.6	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		48.1	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		47.7	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		50.1	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.2	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.6	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.1	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		49.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.5	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		46.4	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		45.0	ug/L	0.300	1.00
78-93-3	2-Butanone		200	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		48.7	ug/L	0.300	1.00
591-78-6	2-Hexanone		205	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		47.0	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		48.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		228	ug/L	1.50	5.00
67-64-1	Acetone		169	ug/L	1.50	10.0
75-05-8	Acetonitrile		1050	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		45.1	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.3	ug/L	0.300	1.00
74-97-5	Bromochloromethane		47.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		50.6	ug/L	0.300	1.00
75-25-2	Bromoform		59.7	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1772
Lab Sample ID: 1203980069
Client Sample: QC for batch 1742738
Client ID: LCS for batch 1742738
Batch ID: 1742738
Run Date: 02/28/2018 00:15
Prep Date: 02/28/2018 00:15
Data File: 022718V9\9H229L.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: GROUND 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		46.7	ug/L	0.300	1.00
75-15-0	Carbon disulfide		208	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		47.4	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.6	ug/L	0.300	1.00
75-00-3	Chloroethane		47.2	ug/L	0.300	1.00
67-66-3	Chloroform		45.9	ug/L	0.300	1.00
74-87-3	Chloromethane		47.8	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		48.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		47.2	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		46.7	ug/L	0.300	1.00
60-29-7	Ethyl ether		48.6	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		45.7	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		49.9	ug/L	0.300	1.00
74-88-4	Iodomethane		216	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		48.4	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		43.6	ug/L	1.00	10.0
91-20-3	Naphthalene		52.3	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		50.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		46.0	ug/L	0.300	1.00
108-88-3	Toluene		45.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene		46.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		47.1	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		230	ug/L	1.50	5.00
75-01-4	Vinyl chloride		47.6	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		46.1	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		49.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		96.4	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4750	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		45.8	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		47.0	ug/L	0.300	1.00
95-47-6	o-Xylene		47.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		48.3	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

Page 3 of 3

SDG Number:	2018-1772	Matrix:	GROUND WATER
Lab Sample ID:	1203980069		
Client Sample:	QC for batch 1742738	Project:	QC
Client ID:	LCS for batch 1742738	SOP Ref:	GL-OA-E-038
Batch ID:	1742738	Dilution:	1
Run Date:	02/28/2018 00:15	Purge Vol:	5 mL
Prep Date:	02/28/2018 00:15		
Data File:	022718V9\9H229L.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		46.5	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.6	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		45.5	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.9	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.3	50.0	ug/L	97	(71%-134%)
Bromofluorobenzene	50.7	50.0	ug/L	101	(70%-131%)
Toluene-d8	49.5	50.0	ug/L	99	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1772
Lab Sample ID: 1203980070
Client Sample: QC for batch 1742738
Client ID: LCS for batch 1742738
Batch ID: 1742738
Run Date: 02/28/2018 01:12
Prep Date: 02/28/2018 01:12
Data File: 022718V9\9H231L.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: GROUND 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		46.8	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		225	ug/L	1.50	5.00
107-13-1	Acrylonitrile		231	ug/L	1.50	5.00
107-05-1	Allyl chloride		218	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: 2018-1772
Lab Sample ID: 1203980070
Client Sample: QC for batch 1742738
Client ID: LCS for batch 1742738
Batch ID: 1742738
Run Date: 02/28/2018 01:12
Prep Date: 02/28/2018 01:12
Data File: 022718V9\9H231L.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: GROUND 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		225	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		2240	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		226	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		232	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		221	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		224	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:	2018-1772	Matrix:	GROUND WATER
Lab Sample ID:	1203980070		
Client Sample:	QC for batch 1742738	Project:	QC
Client ID:	LCS for batch 1742738	SOP Ref:	GL-OA-E-038
Batch ID:	1742738	Dilution:	1
Run Date:	02/28/2018 01:12	Purge Vol:	5 mL
Prep Date:	02/28/2018 01:12		
Data File:	022718V9\9H231L.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	47.2	50.0	ug/L	94	(71%-134%)
Bromofluorobenzene	48.5	50.0	ug/L	97	(70%-131%)
Toluene-d8	49.7	50.0	ug/L	99	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 3

SDG Number: 2018-1772
Lab Sample ID: 1203980075
Client Sample: QC for batch 1742738
Client ID: CAWA-18-43PS
Batch ID: 1742738
Run Date: 03/02/2018 19:15
Prep Date: 03/02/2018 19:15
Data File: 030218V9\9H521.D

Date Collected: 02/16/2018 09:39
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

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		54.6	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		51.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		52.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.0	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		50.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		50.1	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.9	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		53.9	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		52.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		53.6	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		50.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		50.4	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		52.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		48.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		49.1	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.9	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.9	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		48.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		49.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		51.1	ug/L	0.300	1.00
78-93-3	2-Butanone		206	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		51.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		211	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		49.1	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		51.9	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		239	ug/L	1.50	5.00
67-64-1	Acetone		160	ug/L	1.50	10.0
75-05-8	Acetonitrile		1170	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		49.0	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		51.8	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.5	ug/L	0.300	1.00
75-25-2	Bromoform		61.5	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1772	Date Collected: 02/16/2018 09:39	Matrix: W
Lab Sample ID: 1203980075	Date Received: 02/21/2018 09:20	
Client Sample: QC for batch 1742738	Client: ARSL004	Project: QC
Client ID: CAWA-18-43PS	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1742738	Inst: VOA9.I	Dilution: 1
Run Date: 03/02/2018 19:15	Analyst: RXY1	Purge Vol: 5 mL
Prep Date: 03/02/2018 19:15		
Data File: 030218V9\9H521.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		43.4	ug/L	0.300	1.00
75-15-0	Carbon disulfide		244	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		53.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.2	ug/L	0.300	1.00
75-00-3	Chloroethane		44.0	ug/L	0.300	1.00
67-66-3	Chloroform		49.8	ug/L	0.300	1.00
74-87-3	Chloromethane		47.1	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		51.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		50.7	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		35.7	ug/L	0.300	1.00
60-29-7	Ethyl ether		45.5	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		48.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		54.6	ug/L	0.300	1.00
74-88-4	Iodomethane		245	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		51.2	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		47.1	ug/L	1.00	10.0
91-20-3	Naphthalene		55.5	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		52.6	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.7	ug/L	0.300	1.00
108-88-3	Toluene		48.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.3	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		44.2	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		211	ug/L	1.50	5.00
75-01-4	Vinyl chloride		50.5	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		50.3	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		52.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		104	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5130	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		49.8	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		49.5	ug/L	0.300	1.00
95-47-6	o-Xylene		50.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		51.9	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number:	2018-1772	Date Collected:	02/16/2018 09:39	Matrix:	W
Lab Sample ID:	1203980075	Date Received:	02/21/2018 09:20		
Client Sample:	QC for batch 1742738	Client:	ARSL004	Project:	QC
Client ID:	CAWA-18-43PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1742738	Inst:	VOA9.I	Dilution:	1
Run Date:	03/02/2018 19:15	Analyst:	RXY1	Purge Vol:	5 mL
Prep Date:	03/02/2018 19:15				
Data File:	030218V9\9H521.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		51.1	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		53.3	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.7	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		54.8	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.5	50.0	ug/L	95	(71%-134%)
Bromofluorobenzene	49.7	50.0	ug/L	99	(70%-131%)
Toluene-d8	50.0	50.0	ug/L	100	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1772
Lab Sample ID: 1203980076
Client Sample: QC for batch 1742738
Client ID: CAWA-18-43PS
Batch ID: 1742738
Run Date: 03/02/2018 20:12
Prep Date: 03/02/2018 20:12
Data File: 030218V9\9H523.D

Date Collected: 02/16/2018 09:39
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

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		49.0	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		253	ug/L	1.50	5.00
107-13-1	Acrylonitrile		252	ug/L	1.50	5.00
107-05-1	Allyl chloride		223	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: 2018-1772
Lab Sample ID: 1203980076
Client Sample: QC for batch 1742738
Client ID: CAWA-18-43PS
Batch ID: 1742738
Run Date: 03/02/2018 20:12
Prep Date: 03/02/2018 20:12
Data File: 030218V9\9H523.D

Date Collected: 02/16/2018 09:39
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: W

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

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	1.50	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
75-00-3	Chloroethane	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	0.300	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	0.300	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		227	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		241	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		244	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		248	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		235	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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SDG Number:	2018-1772	Date Collected:	02/16/2018 09:39	Matrix:	W
Lab Sample ID:	1203980076	Date Received:	02/21/2018 09:20		
Client Sample:	QC for batch 1742738	Client:	ARSL004	Project:	QC
Client ID:	CAWA-18-43PS	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1742738	Inst:	VOA9.I	Dilution:	1
Run Date:	03/02/2018 20:12	Analyst:	RXY1	Purge Vol:	5 mL
Prep Date:	03/02/2018 20:12				
Data File:	030218V9\9H523.D	Column:	DB-624		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.2	50.0	ug/L	96	(71%-134%)
Bromofluorobenzene	49.1	50.0	ug/L	98	(70%-131%)
Toluene-d8	50.4	50.0	ug/L	101	(74%-124%)

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Sample Summary

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SDG Number: 2018-1772
Lab Sample ID: 1203980079
Client Sample: QC for batch 1742738
Client ID: CAWA-18-43PSD
Batch ID: 1742738
Run Date: 03/02/2018 19:43
Prep Date: 03/02/2018 19:43
Data File: 030218V9\9H522.D

Date Collected: 02/16/2018 09:39
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

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		58.1	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		55.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		54.4	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		54.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		54.1	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		52.5	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		57.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		56.4	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		56.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		52.8	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		56.0	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		57.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		51.5	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		52.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		53.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		53.9	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		51.2	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		52.3	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		51.6	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		54.9	ug/L	0.300	1.00
78-93-3	2-Butanone		229	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		53.7	ug/L	0.300	1.00
591-78-6	2-Hexanone		235	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		51.5	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		54.0	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		265	ug/L	1.50	5.00
67-64-1	Acetone		178	ug/L	1.50	10.0
75-05-8	Acetonitrile		1290	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		52.6	ug/L	0.300	1.00
108-86-1	Bromobenzene		52.9	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.8	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		58.3	ug/L	0.300	1.00
75-25-2	Bromoform		67.1	ug/L	0.300	1.00

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SDG Number: 2018-1772	Date Collected: 02/16/2018 09:39	Matrix: W
Lab Sample ID: 1203980079	Date Received: 02/21/2018 09:20	
Client Sample: QC for batch 1742738	Client: ARSL004	Project: QC
Client ID: CAWA-18-43PSD	Method: SW-846:8260B	SOP Ref: GL-OA-E-038
Batch ID: 1742738	Inst: VOA9.I	Dilution: 1
Run Date: 03/02/2018 19:43	Analyst: RXY1	Purge Vol: 5 mL
Prep Date: 03/02/2018 19:43		
Data File: 030218V9\9H522.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		45.5	ug/L	0.300	1.00
75-15-0	Carbon disulfide		261	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		56.8	ug/L	0.300	1.00
108-90-7	Chlorobenzene		53.1	ug/L	0.300	1.00
75-00-3	Chloroethane		46.4	ug/L	0.300	1.00
67-66-3	Chloroform		53.2	ug/L	0.300	1.00
74-87-3	Chloromethane		49.5	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.8	ug/L	0.300	1.00
74-95-3	Dibromomethane		55.2	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		37.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		48.5	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		52.3	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		57.9	ug/L	0.300	1.00
74-88-4	Iodomethane		264	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		52.9	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	1.50	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	1.50	ug/L	1.50	5.00
75-09-2	Methylene chloride		50.9	ug/L	1.00	10.0
91-20-3	Naphthalene		59.4	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		57.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		55.4	ug/L	0.300	1.00
108-88-3	Toluene		51.9	ug/L	0.300	1.00
79-01-6	Trichloroethylene		55.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		47.0	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		223	ug/L	1.50	5.00
75-01-4	Vinyl chloride		51.5	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		53.7	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		58.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		111	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		6020	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		51.7	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		51.5	ug/L	0.300	1.00
95-47-6	o-Xylene		54.6	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		53.4	ug/L	0.300	1.00

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SDG Number:	2018-1772	Date Collected:	02/16/2018 09:39	Matrix:	W
Lab Sample ID:	1203980079	Date Received:	02/21/2018 09:20		
Client Sample:	QC for batch 1742738	Client:	ARSL004	Project:	QC
Client ID:	CAWA-18-43PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1742738	Inst:	VOA9.I	Dilution:	1
Run Date:	03/02/2018 19:43	Analyst:	RXY1	Purge Vol:	5 mL
Prep Date:	03/02/2018 19:43				
Data File:	030218V9\9H522.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		55.6	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		56.0	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		54.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		59.2	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.4	50.0	ug/L	95	(71%-134%)
Bromofluorobenzene	48.6	50.0	ug/L	97	(70%-131%)
Toluene-d8	49.6	50.0	ug/L	99	(74%-124%)

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SDG Number: 2018-1772
Lab Sample ID: 1203980080
Client Sample: QC for batch 1742738
Client ID: CAWA-18-43PSD
Batch ID: 1742738
Run Date: 03/02/2018 20:40
Prep Date: 03/02/2018 20:40
Data File: 030218V9\9H524.D

Date Collected: 02/16/2018 09:39
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

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		50.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	0.300	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	1.50	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	0.300	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	0.300	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	1.50	ug/L	1.50	5.00
67-64-1	Acetone	U	1.50	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	8.00	ug/L	8.00	25.0
107-02-8	Acrolein		260	ug/L	1.50	5.00
107-13-1	Acrylonitrile		253	ug/L	1.50	5.00
107-05-1	Allyl chloride		228	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

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SDG Number: 2018-1772
Lab Sample ID: 1203980080
Client Sample: QC for batch 1742738
Client ID: CAWA-18-43PSD
Batch ID: 1742738
Run Date: 03/02/2018 20:40
Prep Date: 03/02/2018 20:40
Data File: 030218V9\9H524.D

Date Collected: 02/16/2018 09:39
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: W

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

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	1.50	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
75-00-3	Chloroethane	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	0.300	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	0.300	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		232	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		2610	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		244	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		251	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
107-12-0	Propionitrile		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		237	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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SDG Number:	2018-1772	Date Collected:	02/16/2018 09:39	Matrix:	W
Lab Sample ID:	1203980080	Date Received:	02/21/2018 09:20		
Client Sample:	QC for batch 1742738	Client:	ARSL004	Project:	QC
Client ID:	CAWA-18-43PSD	Method:	SW-846:8260B	SOP Ref:	GL-OA-E-038
Batch ID:	1742738	Inst:	VOA9.I	Dilution:	1
Run Date:	03/02/2018 20:40	Analyst:	RXY1	Purge Vol:	5 mL
Prep Date:	03/02/2018 20:40				
Data File:	030218V9\9H524.D	Column:	DB-624		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.2	50.0	ug/L	96	(71%-134%)
Bromofluorobenzene	48.6	50.0	ug/L	97	(70%-131%)
Toluene-d8	49.8	50.0	ug/L	100	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2018-1772

Lab Sample ID: 1203981229

Client Sample: QC for batch 1742738

Client ID: MB for batch 1742738

Batch ID: 1742738

Run Date: 03/02/2018 13:26

Prep Date: 03/02/2018 13:26

Data File: 030218V9\9H509B1.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: GROUND WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1772
Lab Sample ID: 1203981229
Client Sample: QC for batch 1742738
Client ID: MB for batch 1742738
Batch ID: 1742738
Run Date: 03/02/2018 13:26
Prep Date: 03/02/2018 13:26
Data File: 030218V9\9H509B1.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: GROUND 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: 2018-1772	Matrix: GROUND WATER
Lab Sample ID: 1203981229	
Client Sample: QC for batch 1742738	Client: ARSL004
Client ID: MB for batch 1742738	Method: SW-846:8260B
Batch ID: 1742738	Inst: VOA9.I
Run Date: 03/02/2018 13:26	Analyst: RXY1
Prep Date: 03/02/2018 13:26	Purge Vol: 5 mL
Data File: 030218V9\9H509B1.D	Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.6	50.0	ug/L 97	(71%-134%)
Bromofluorobenzene	50.3	50.0	ug/L 101	(70%-131%)
Toluene-d8	50.1	50.0	ug/L 100	(74%-124%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2018-1772

Lab Sample ID: 1203981230

Client Sample: QC for batch 1742738

Client ID: LCS for batch 1742738

Batch ID: 1742738

Run Date: 03/02/2018 11:03

Prep Date: 03/02/2018 11:03

Data File: 030218V9\9H504L1.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: GROUND 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		54.5	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		53.3	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		54.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.9	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		52.5	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		53.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		51.5	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		54.8	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		54.4	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		53.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		52.6	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		52.5	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		54.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		50.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		50.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		51.6	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		53.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		50.4	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		50.1	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		50.8	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		55.0	ug/L	0.300	1.00
78-93-3	2-Butanone		281	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		53.4	ug/L	0.300	1.00
591-78-6	2-Hexanone		287	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		51.4	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		53.3	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		257	ug/L	1.50	5.00
67-64-1	Acetone		300	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		51.1	ug/L	0.300	1.00
108-86-1	Bromobenzene		52.2	ug/L	0.300	1.00
74-97-5	Bromochloromethane		51.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		56.1	ug/L	0.300	1.00
75-25-2	Bromoform		63.9	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1772
Lab Sample ID: 1203981230
Client Sample: QC for batch 1742738
Client ID: LCS for batch 1742738
Batch ID: 1742738
Run Date: 03/02/2018 11:03
Prep Date: 03/02/2018 11:03
Data File: 030218V9\9H504L1.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: GROUND 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		45.6	ug/L	0.300	1.00
75-15-0	Carbon disulfide		254	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		55.7	ug/L	0.300	1.00
108-90-7	Chlorobenzene		51.1	ug/L	0.300	1.00
75-00-3	Chloroethane		46.7	ug/L	0.300	1.00
67-66-3	Chloroform		51.1	ug/L	0.300	1.00
74-87-3	Chloromethane		50.3	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		52.4	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		40.3	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.9	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	1.50	ug/L	1.50	5.00
100-41-4	Ethylbenzene		50.8	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		53.9	ug/L	0.300	1.00
74-88-4	Iodomethane		250	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	15.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		52.8	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		48.6	ug/L	1.00	10.0
91-20-3	Naphthalene		56.1	ug/L	0.300	1.00
107-12-0	Propionitrile	U	1.50	ug/L	1.50	5.00
100-42-5	Styrene		54.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.8	ug/L	0.300	1.00
108-88-3	Toluene		50.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		53.3	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		46.9	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	2.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		234	ug/L	1.50	5.00
75-01-4	Vinyl chloride		52.3	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		52.4	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		56.6	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		108	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5530	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		51.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		51.8	ug/L	0.300	1.00
95-47-6	o-Xylene		52.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		52.7	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2018-1772	Matrix:	GROUND WATER
Lab Sample ID:	1203981230		
Client Sample:	QC for batch 1742738	Client:	ARSL004
Client ID:	LCS for batch 1742738	Method:	SW-846:8260B
Batch ID:	1742738	Inst:	VOA9.I
Run Date:	03/02/2018 11:03	Analyst:	RXY1
Prep Date:	03/02/2018 11:03		
Data File:	030218V9\9H504L1.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		52.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		54.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		53.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		57.1	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.7	50.0	ug/L	97	(71%-134%)
Bromofluorobenzene	50.6	50.0	ug/L	101	(70%-131%)
Toluene-d8	49.0	50.0	ug/L	98	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2018-1772
Lab Sample ID: 1203982548
Client Sample: QC for batch 1742738
Client ID: LCS for batch 1742738
Batch ID: 1742738
Run Date: 03/02/2018 12:29
Prep Date: 03/02/2018 12:29
Data File: 030218V9\9H507L1.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: GROUND 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		49.8	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		239	ug/L	1.50	5.00
107-13-1	Acrylonitrile		242	ug/L	1.50	5.00
107-05-1	Allyl chloride		227	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: 2018-1772
Lab Sample ID: 1203982548
Client Sample: QC for batch 1742738
Client ID: LCS for batch 1742738
Batch ID: 1742738
Run Date: 03/02/2018 12:29
Prep Date: 03/02/2018 12:29
Data File: 030218V9\9H507L1.D

Client: ARSL004
Method: SW-846:8260B
Inst: VOA9.I
Analyst: RXY1

Column: DB-624

Matrix: GROUND 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		227	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		2460	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	0.300	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		237	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		239	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		237	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		232	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

Page 3 of 3

SDG Number:	2018-1772	Matrix:	GROUND WATER
Lab Sample ID:	1203982548		
Client Sample:	QC for batch 1742738	Project:	QC
Client ID:	LCS for batch 1742738	SOP Ref:	GL-OA-E-038
Batch ID:	1742738	Dilution:	1
Run Date:	03/02/2018 12:29	Purge Vol:	5 mL
Prep Date:	03/02/2018 12:29		
Data File:	030218V9\9H507L1.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	47.1	50.0	ug/L 94	(71%-134%)
Bromofluorobenzene	47.1	50.0	ug/L 94	(70%-131%)
Toluene-d8	49.5	50.0	ug/L 99	(74%-124%)

Semi-Volatile Analysis

Case Narrative

**GC/MS Semivolatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-1772
Work Order #: 444396**

Method/Analysis Information

Procedure:	Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry
Analytical Method:	SW846 3510C/8270D
Prep Method:	SW846 3510C
Analytical Batch Number:	1741116
Prep Batch Number:	1741115

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3510C/8270D:

Sample ID	Client ID
444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40
444396016	CAWA-18-151445
444396018	CAWA-18-43
444396020	CAWA-18-88
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30
1203976628	Method Blank (MB)
1203976629	Laboratory Control Sample (LCS)
1203976630	444396002(CAWA-18-28) Matrix Spike (MS)
1203976631	444396002(CAWA-18-28) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

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-009 REV# 40.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements

All Calibration Verification Standards (CCV) did not meet the acceptance criteria as outlined in Method 8270D for samples 444396002 (CAWA-18-28), 444396006 (CAWA-18-36), 444396010 (CAWA-18-127), 444396013 (CAWA-18-40), 444396016 (CAWA-18-151445), 444396018 (CAWA-18-43), 444396020 (CAWA-18-88), 444396023 (CAWA-18-22), 444396027 (CAWA-18-125) and 444396030 (CAWA-18-30) and the associated QC. However, the method allows for a designated number of outliers dependent on the requested analyte list. This SDG satisfied the 8270D outlier acceptance criteria. If required, a CRDL was analyzed after the CCVs to demonstrate that there is adequate sensitivity to detect the failed compounds at the applicable lower quantitation limit.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries

Sample (See Below) did not meet surrogate recovery acceptance criteria. The surrogate failure was confirmed by re-extraction and analysis. The original extraction results have been reported.

Sample	Analyte	Value
444396030 (CAWA-18-30)	2, 4, 6-Tribromophenol	8* (32%-124%)
	2-Fluorobiphenyl	31* (32%-112%)
	Phenol-d5	14* (15%-91%)

Samples (See Below) did not meet surrogate recovery acceptance criteria. The samples were re-extracted outside holding and passed acceptance criteria. Both sets of data results have been reported. This batch included the original data.

Sample	Analyte	Value
444396013 (CAWA-18-40)	2, 4, 6-Tribromophenol	20* (32%-124%)

444396023 (CAWA-18-22)	2, 4, 6-Tribromophenol	14* (32%-124%)
	Phenol-d5	14* (15%-91%)
444396027 (CAWA-18-125)	2, 4, 6-Tribromophenol	22* (32%-124%)

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS and/or LCSD (See Below) did not meet spike recovery acceptance criteria. Since the target analytes were not detected in the associated samples above the reporting limits, the positive bias had no adverse impact on the data.

Sample	Analyte	Value
1203976629 (LCS)	Benzo(ghi)perylene	133* (33%-131%)
	Dibenzo(a, h)anthracene	131* (38%-129%)
	Indeno(1, 2, 3-cd)pyrene	129* (34%-125%)

QC Sample Designation

Sample 444396002 (CAWA-18-28) was selected for analysis as the matrix spike and matrix spike duplicate.

Spike Recovery Statement

The MS and MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD values between the MS and MSD met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications

All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that 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.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions

The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis

Samples 444396013 (CAWA-18-40), 444396023 (CAWA-18-22), 444396027 (CAWA-18-125) and 444396030 (CAWA-18-30) were scheduled for re-extraction due to surrogate failure and/or batch QC failure.

Miscellaneous Information:

Manual Integrations

Manual integrations were not required on samples in this batch in this SDG for detected target analytes or surrogates.

TIC Comment

Tentatively identified compounds (TIC) were requested for samples 444396002 (CAWA-18-28), 444396006 (CAWA-18-36), 444396010 (CAWA-18-127), 444396013 (CAWA-18-40), 444396016 (CAWA-18-151445), 444396018 (CAWA-18-43), 444396020 (CAWA-18-88), 444396023 (CAWA-18-22), 444396027 (CAWA-18-125) and 444396030 (CAWA-18-30) in this SDG in this batch.

Additional Comments

Additional comments were not required for the SDG associated samples in this batch.

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Method/Analysis Information

Procedure:	Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry
Analytical Method:	SW846 3510C/8270D
Prep Method:	SW846 3510C
Analytical Batch Number:	1742249

Prep Batch Number: 1742247

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3510C/8270D:

Sample ID	Client ID
444396013	CAWA-18-40
444396023	CAWA-18-22
444396027	CAWA-18-125
1203978892	Method Blank (MB)
1203978893	Laboratory Control Sample (LCS)
1203978894	444566012(CAWA-18-56) Matrix Spike (MS)
1203978895	444566012(CAWA-18-56) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

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-009 REV# 40.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements

All Calibration Verification Standards (CCV) did not meet the acceptance criteria as outlined in Method 8270D for samples 444396013 (CAWA-18-40), 444396023 (CAWA-18-22), 444396027 (CAWA-18-125) and 444396030 (CAWA-18-30) and the associated QC. However, the method allows for a designated number of outliers dependent on the requested analyte list. This SDG satisfied the 8270D outlier acceptance criteria. If required, a CRDL was analyzed after the CCVs to demonstrate that there is adequate sensitivity to detect the failed compounds at the applicable lower quantitation limit.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries

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

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 444566012 (CAWA-18-56) was selected for analysis as the matrix spike and matrix spike duplicate.

Spike Recovery Statement

The MS and MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD values between the MS and MSD met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications

Samples (See Below) were re-extracted out of holding due to QC failures. The failures did not confirm, so both sets of results are reported and have been qualified accordingly.

Sample	Value
444396013 (CAWA-18-40)	Received 21-FEB-18, within holding, prepped 27-FEB-18, out of holding 23-FEB-18
444396023 (CAWA-18-22)	Received 21-FEB-18, within holding, prepped 27-FEB-18, out of holding 23-FEB-18
444396027 (CAWA-18-125)	Received 21-FEB-18, within holding, prepped 27-FEB-18, out of holding 23-FEB-18

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions

The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Manual Integrations

Manual integrations were not required on samples in this batch in this SDG for detected target analytes or surrogates.

TIC Comment

Tentatively identified compounds (TIC) were requested for samples 444396013 (CAWA-18-40), 444396023 (CAWA-18-22) and 444396027 (CAWA-18-125) in this SDG in this batch.

Additional Comments

Additional comments were not required for the SDG associated samples in this batch.

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

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: 2018-1772 GEL Work Order: 444396

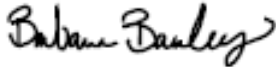
The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- E Concentration of the target analyte exceeds the instrument calibration range
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- h Preparation or preservation holding time was exceeded
- 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: 16 MAR 2018

Title: Data Validator

Sample Data Summary

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396002

Date Collected: 02/16/2018 11:30

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 16:01

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s022318.s\3b2307.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.00	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	3.00	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	3.00	ug/L	3.00	10.0
122-66-7	Azobenzene	U	3.00	ug/L	3.00	10.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.00	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	3.00	ug/L	3.00	10.0
123-91-1	1,4-Dioxane	U	3.00	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.00	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	3.00	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	3.00	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	3.00	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	3.00	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	U	5.00	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	0.410	ug/L	0.410	1.00
95-57-8	2-Chlorophenol	U	3.00	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.00	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
88-75-5	2-Nitrophenol	U	3.00	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	3.00	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether	U	3.00	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol	U	3.00	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.30	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether	U	3.00	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	3.00	ug/L	3.00	10.0
83-32-9	Acenaphthene	U	0.300	ug/L	0.300	1.00
208-96-8	Acenaphthylene	U	0.300	ug/L	0.300	1.00
62-53-3	Aniline	U	4.20	ug/L	4.20	10.0
120-12-7	Anthracene	U	0.300	ug/L	0.300	1.00
1912-24-9	Atrazine	U	3.00	ug/L	3.00	10.0
92-87-5	Benzidine	U	3.90	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene	U	0.300	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	0.300	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	U	0.300	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	0.300	ug/L	0.300	1.00

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396002

Date Collected: 02/16/2018 11:30

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/23/2018 16:01

Aliquot: 1000 mL

Final Volume: 1 mL

Prep Date: 02/23/2018 08:05

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.300	ug/L	0.300	1.00
65-85-0	Benzoic acid	U	6.00	ug/L	6.00	20.0
100-51-6	Benzyl alcohol	U	3.00	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate	U	3.00	ug/L	3.00	10.0
218-01-9	Chrysene	U	0.300	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	3.00	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate	U	3.00	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene	U	0.300	ug/L	0.300	1.00
132-64-9	Dibenzofuran	U	3.00	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	3.00	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	3.00	ug/L	3.00	10.0
88-85-7	Dinoseb	U	3.00	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	3.00	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	0.300	ug/L	0.300	1.00
86-73-7	Fluorene	U	0.300	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	U	3.00	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	3.00	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	U	3.00	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	3.00	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.300	ug/L	0.300	1.00
78-59-1	Isophorone	U	3.50	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.00	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
621-64-7	N-Nitrosodi-n-propylamine	U	3.00	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.00	ug/L	3.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
98-95-3	Nitrobenzene	U	3.00	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	3.00	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	0.300	ug/L	0.300	1.00
108-95-2	Phenol	U	3.00	ug/L	3.00	10.0
129-00-0	Pyrene	U	0.300	ug/L	0.300	1.00
110-86-1	Pyridine	U	3.00	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.00	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	3.00	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	3.00	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.00	ug/L	3.00	1.00

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396002

Date Collected: 02/16/2018 11:30

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Client ID: CAWA-18-28

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 16:01

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2307.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.70	ug/L	3.70	10.0
99-09-2	3-Nitroaniline	U	3.00	ug/L	3.00	10.0
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.00	ug/L	3.00	10.0
88-74-4	2-Nitroaniline	U	3.00	ug/L	3.00	10.0
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.00	ug/L	3.00	10.0
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	80.8	100	ug/L	81	(32%-124%)
2-Fluorobiphenyl	24.1	50.0	ug/L	48	(32%-112%)
2-Fluorophenol	34.4	100	ug/L	34	(15%-88%)
Nitrobenzene-d5	26.8	50.0	ug/L	54	(36%-115%)
Phenol-d5	22.0	100	ug/L	22	(15%-91%)
p-Terphenyl-d14	49.7	50.0	ug/L	99	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.098	4.09	ug/L	0	J

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396006

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 17:30

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 980 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2310.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.06	ug/L	3.06	10.2
120-82-1	1,2,4-Trichlorobenzene	U	3.06	ug/L	3.06	10.2
95-50-1	1,2-Dichlorobenzene	U	3.06	ug/L	3.06	10.2
122-66-7	Azobenzene	U	3.06	ug/L	3.06	10.2
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.06	ug/L	3.06	10.2
106-46-7	1,4-Dichlorobenzene	U	3.06	ug/L	3.06	10.2
123-91-1	1,4-Dioxane	U	3.06	ug/L	3.06	10.2
90-12-0	1-Methylnaphthalene	U	0.306	ug/L	0.306	1.02
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.06	ug/L	3.06	10.2
95-95-4	2,4,5-Trichlorophenol	U	3.06	ug/L	3.06	10.2
88-06-2	2,4,6-Trichlorophenol	U	3.06	ug/L	3.06	10.2
120-83-2	2,4-Dichlorophenol	U	3.06	ug/L	3.06	10.2
105-67-9	2,4-Dimethylphenol	U	3.06	ug/L	3.06	10.2
51-28-5	2,4-Dinitrophenol	U	5.10	ug/L	5.10	20.4
121-14-2	2,4-Dinitrotoluene	U	3.06	ug/L	3.06	10.2
606-20-2	2,6-Dinitrotoluene	U	3.06	ug/L	3.06	10.2
91-58-7	2-Chloronaphthalene	U	0.418	ug/L	0.418	1.02
95-57-8	2-Chlorophenol	U	3.06	ug/L	3.06	10.2
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.06	ug/L	3.06	10.2
91-57-6	2-Methylnaphthalene	U	0.306	ug/L	0.306	1.02
88-75-5	2-Nitrophenol	U	3.06	ug/L	3.06	10.2
91-94-1	3,3'-Dichlorobenzidine	U	3.06	ug/L	3.06	10.2
101-55-3	4-Bromophenylphenylether	U	3.06	ug/L	3.06	10.2
59-50-7	Parachlorometa cresol	U	3.06	ug/L	3.06	10.2
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.37	ug/L	3.37	10.2
7005-72-3	4-Chlorophenylphenylether	U	3.06	ug/L	3.06	10.2
100-02-7	4-Nitrophenol	U	3.06	ug/L	3.06	10.2
83-32-9	Acenaphthene	U	0.306	ug/L	0.306	1.02
208-96-8	Acenaphthylene	U	0.306	ug/L	0.306	1.02
62-53-3	Aniline	U	4.29	ug/L	4.29	10.2
120-12-7	Anthracene	U	0.306	ug/L	0.306	1.02
1912-24-9	Atrazine	U	3.06	ug/L	3.06	10.2
92-87-5	Benzidine	U	3.98	ug/L	3.98	10.2
56-55-3	Benzo(a)anthracene	U	0.306	ug/L	0.306	1.02
50-32-8	Benzo(a)pyrene	U	0.306	ug/L	0.306	1.02
205-99-2	Benzo(b)fluoranthene	U	0.306	ug/L	0.306	1.02
191-24-2	Benzo(ghi)perylene	U	0.306	ug/L	0.306	1.02

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396006

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1741116

Inst: MSD3.I

Dilution: 1

Run Date: 02/23/2018 17:30

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 980 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2310.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.306	ug/L	0.306	1.02
65-85-0	Benzoic acid	U	6.12	ug/L	6.12	20.4
100-51-6	Benzyl alcohol	U	3.06	ug/L	3.06	10.2
85-68-7	Butylbenzylphthalate	U	3.06	ug/L	3.06	10.2
218-01-9	Chrysene	U	0.306	ug/L	0.306	1.02
84-74-2	Di-n-butylphthalate	U	3.06	ug/L	3.06	10.2
117-84-0	Di-n-octylphthalate	U	3.06	ug/L	3.06	10.2
53-70-3	Dibenzo(a,h)anthracene	U	0.306	ug/L	0.306	1.02
132-64-9	Dibenzofuran	U	3.06	ug/L	3.06	10.2
84-66-2	Diethylphthalate	U	3.06	ug/L	3.06	10.2
131-11-3	Dimethylphthalate	U	3.06	ug/L	3.06	10.2
88-85-7	Dinoseb	U	3.06	ug/L	3.06	10.2
122-39-4	Diphenylamine	U	3.06	ug/L	3.06	10.2
206-44-0	Fluoranthene	U	0.306	ug/L	0.306	1.02
86-73-7	Fluorene	U	0.306	ug/L	0.306	1.02
118-74-1	Hexachlorobenzene	U	3.06	ug/L	3.06	10.2
87-68-3	Hexachlorobutadiene	U	3.06	ug/L	3.06	10.2
77-47-4	Hexachlorocyclopentadiene	U	3.06	ug/L	3.06	10.2
67-72-1	Hexachloroethane	U	3.06	ug/L	3.06	10.2
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.306	ug/L	0.306	1.02
78-59-1	Isophorone	U	3.57	ug/L	3.57	10.2
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.06	ug/L	3.06	10.2
924-16-3	N-Nitrosodi-n-butylamine	U	3.06	ug/L	3.06	10.2
55-18-5	N-Nitrosodiethylamine	U	3.06	ug/L	3.06	10.2
621-64-7	N-Nitrosodi-n-propylamine	U	3.06	ug/L	3.06	10.2
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.06	ug/L	3.06	10.2
91-20-3	Naphthalene	U	0.306	ug/L	0.306	1.02
98-95-3	Nitrobenzene	U	3.06	ug/L	3.06	10.2
608-93-5	Pentachlorobenzene	U	3.06	ug/L	3.06	10.2
87-86-5	Pentachlorophenol	U	3.06	ug/L	3.06	10.2
85-01-8	Phenanthrene	U	0.306	ug/L	0.306	1.02
108-95-2	Phenol	U	3.06	ug/L	3.06	10.2
129-00-0	Pyrene	U	0.306	ug/L	0.306	1.02
110-86-1	Pyridine	U	3.06	ug/L	3.06	10.2
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.06	ug/L	3.06	10.2
111-91-1	bis(2-Chloroethoxy)methane	U	3.06	ug/L	3.06	10.2
111-44-4	bis(2-Chloroethyl) ether	U	3.06	ug/L	3.06	10.2
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.06	ug/L	3.06	1.02

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396006

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Client ID: CAWA-18-36

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 17:30

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 980 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2310.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.78	ug/L	3.78	10.2
99-09-2	3-Nitroaniline	U	3.06	ug/L	3.06	10.2
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.06	ug/L	3.06	10.2
88-74-4	2-Nitroaniline	U	3.06	ug/L	3.06	10.2
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.06	ug/L	3.06	10.2
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	40.0	102	ug/L 39	(32%-124%)
2-Fluorobiphenyl	23.0	51.0	ug/L 45	(32%-112%)
2-Fluorophenol	28.0	102	ug/L 27	(15%-88%)
Nitrobenzene-d5	24.4	51.0	ug/L 48	(36%-115%)
Phenol-d5	18.4	102	ug/L 18	(15%-91%)
p-Terphenyl-d14	37.9	51.0	ug/L 74	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396010

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 17:59

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 960 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2311.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.13	ug/L	3.13	10.4
120-82-1	1,2,4-Trichlorobenzene	U	3.13	ug/L	3.13	10.4
95-50-1	1,2-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
122-66-7	Azobenzene	U	3.13	ug/L	3.13	10.4
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
106-46-7	1,4-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
123-91-1	1,4-Dioxane	U	3.13	ug/L	3.13	10.4
90-12-0	1-Methylnaphthalene	U	0.313	ug/L	0.313	1.04
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.13	ug/L	3.13	10.4
95-95-4	2,4,5-Trichlorophenol	U	3.13	ug/L	3.13	10.4
88-06-2	2,4,6-Trichlorophenol	U	3.13	ug/L	3.13	10.4
120-83-2	2,4-Dichlorophenol	U	3.13	ug/L	3.13	10.4
105-67-9	2,4-Dimethylphenol	U	3.13	ug/L	3.13	10.4
51-28-5	2,4-Dinitrophenol	U	5.21	ug/L	5.21	20.8
121-14-2	2,4-Dinitrotoluene	U	3.13	ug/L	3.13	10.4
606-20-2	2,6-Dinitrotoluene	U	3.13	ug/L	3.13	10.4
91-58-7	2-Chloronaphthalene	U	0.427	ug/L	0.427	1.04
95-57-8	2-Chlorophenol	U	3.13	ug/L	3.13	10.4
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.13	ug/L	3.13	10.4
91-57-6	2-Methylnaphthalene	U	0.313	ug/L	0.313	1.04
88-75-5	2-Nitrophenol	U	3.13	ug/L	3.13	10.4
91-94-1	3,3'-Dichlorobenzidine	U	3.13	ug/L	3.13	10.4
101-55-3	4-Bromophenylphenylether	U	3.13	ug/L	3.13	10.4
59-50-7	Parachlorometa cresol	U	3.13	ug/L	3.13	10.4
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.44	ug/L	3.44	10.4
7005-72-3	4-Chlorophenylphenylether	U	3.13	ug/L	3.13	10.4
100-02-7	4-Nitrophenol	U	3.13	ug/L	3.13	10.4
83-32-9	Acenaphthene	U	0.313	ug/L	0.313	1.04
208-96-8	Acenaphthylene	U	0.313	ug/L	0.313	1.04
62-53-3	Aniline	U	4.38	ug/L	4.38	10.4
120-12-7	Anthracene	U	0.313	ug/L	0.313	1.04
1912-24-9	Atrazine	U	3.13	ug/L	3.13	10.4
92-87-5	Benzidine	U	4.06	ug/L	4.06	10.4
56-55-3	Benzo(a)anthracene	U	0.313	ug/L	0.313	1.04
50-32-8	Benzo(a)pyrene	U	0.313	ug/L	0.313	1.04
205-99-2	Benzo(b)fluoranthene	U	0.313	ug/L	0.313	1.04
191-24-2	Benzo(ghi)perylene	U	0.313	ug/L	0.313	1.04

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396010

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/23/2018 17:59

Aliquot: 960 mL

Final Volume: 1 mL

Prep Date: 02/23/2018 08:05

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.313	ug/L	0.313	1.04
65-85-0	Benzoic acid	U	6.25	ug/L	6.25	20.8
100-51-6	Benzyl alcohol	U	3.13	ug/L	3.13	10.4
85-68-7	Butylbenzylphthalate	U	3.13	ug/L	3.13	10.4
218-01-9	Chrysene	U	0.313	ug/L	0.313	1.04
84-74-2	Di-n-butylphthalate	U	3.13	ug/L	3.13	10.4
117-84-0	Di-n-octylphthalate	U	3.13	ug/L	3.13	10.4
53-70-3	Dibenzo(a,h)anthracene	U	0.313	ug/L	0.313	1.04
132-64-9	Dibenzofuran	U	3.13	ug/L	3.13	10.4
84-66-2	Diethylphthalate	U	3.13	ug/L	3.13	10.4
131-11-3	Dimethylphthalate	U	3.13	ug/L	3.13	10.4
88-85-7	Dinoseb	U	3.13	ug/L	3.13	10.4
122-39-4	Diphenylamine	U	3.13	ug/L	3.13	10.4
206-44-0	Fluoranthene	U	0.313	ug/L	0.313	1.04
86-73-7	Fluorene	U	0.313	ug/L	0.313	1.04
118-74-1	Hexachlorobenzene	U	3.13	ug/L	3.13	10.4
87-68-3	Hexachlorobutadiene	U	3.13	ug/L	3.13	10.4
77-47-4	Hexachlorocyclopentadiene	U	3.13	ug/L	3.13	10.4
67-72-1	Hexachloroethane	U	3.13	ug/L	3.13	10.4
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.313	ug/L	0.313	1.04
78-59-1	Isophorone	U	3.65	ug/L	3.65	10.4
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.13	ug/L	3.13	10.4
924-16-3	N-Nitrosodi-n-butylamine	U	3.13	ug/L	3.13	10.4
55-18-5	N-Nitrosodiethylamine	U	3.13	ug/L	3.13	10.4
621-64-7	N-Nitrosodi-n-propylamine	U	3.13	ug/L	3.13	10.4
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.13	ug/L	3.13	10.4
91-20-3	Naphthalene	U	0.313	ug/L	0.313	1.04
98-95-3	Nitrobenzene	U	3.13	ug/L	3.13	10.4
608-93-5	Pentachlorobenzene	U	3.13	ug/L	3.13	10.4
87-86-5	Pentachlorophenol	U	3.13	ug/L	3.13	10.4
85-01-8	Phenanthrene	U	0.313	ug/L	0.313	1.04
108-95-2	Phenol	U	3.13	ug/L	3.13	10.4
129-00-0	Pyrene	U	0.313	ug/L	0.313	1.04
110-86-1	Pyridine	U	3.13	ug/L	3.13	10.4
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.13	ug/L	3.13	10.4
111-91-1	bis(2-Chloroethoxy)methane	U	3.13	ug/L	3.13	10.4
111-44-4	bis(2-Chloroethyl) ether	U	3.13	ug/L	3.13	10.4
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.13	ug/L	3.13	1.04

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396010

Date Collected: 02/16/2018 12:15

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1741116

Inst: MSD3.I

Dilution: 1

Run Date: 02/23/2018 17:59

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 960 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2311.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.85	ug/L	3.85	10.4
99-09-2	3-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.13	ug/L	3.13	10.4
88-74-4	2-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	45.1	104	ug/L	43	(32%-124%)
2-Fluorobiphenyl	20.9	52.1	ug/L	40	(32%-112%)
2-Fluorophenol	27.9	104	ug/L	27	(15%-88%)
Nitrobenzene-d5	23.6	52.1	ug/L	45	(36%-115%)
Phenol-d5	18.5	104	ug/L	18	(15%-91%)
p-Terphenyl-d14	38.3	52.1	ug/L	74	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396013

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 18:29

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 950 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2312.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.16	ug/L	3.16	10.5
120-82-1	1,2,4-Trichlorobenzene	U	3.16	ug/L	3.16	10.5
95-50-1	1,2-Dichlorobenzene	U	3.16	ug/L	3.16	10.5
122-66-7	Azobenzene	U	3.16	ug/L	3.16	10.5
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.16	ug/L	3.16	10.5
106-46-7	1,4-Dichlorobenzene	U	3.16	ug/L	3.16	10.5
123-91-1	1,4-Dioxane	U	3.16	ug/L	3.16	10.5
90-12-0	1-Methylnaphthalene	U	0.316	ug/L	0.316	1.05
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.16	ug/L	3.16	10.5
95-95-4	2,4,5-Trichlorophenol	U	3.16	ug/L	3.16	10.5
88-06-2	2,4,6-Trichlorophenol	U	3.16	ug/L	3.16	10.5
120-83-2	2,4-Dichlorophenol	U	3.16	ug/L	3.16	10.5
105-67-9	2,4-Dimethylphenol	U	3.16	ug/L	3.16	10.5
51-28-5	2,4-Dinitrophenol	U	5.26	ug/L	5.26	21.1
121-14-2	2,4-Dinitrotoluene	U	3.16	ug/L	3.16	10.5
606-20-2	2,6-Dinitrotoluene	U	3.16	ug/L	3.16	10.5
91-58-7	2-Chloronaphthalene	U	0.432	ug/L	0.432	1.05
95-57-8	2-Chlorophenol	U	3.16	ug/L	3.16	10.5
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.16	ug/L	3.16	10.5
91-57-6	2-Methylnaphthalene	U	0.316	ug/L	0.316	1.05
88-75-5	2-Nitrophenol	U	3.16	ug/L	3.16	10.5
91-94-1	3,3'-Dichlorobenzidine	U	3.16	ug/L	3.16	10.5
101-55-3	4-Bromophenylphenylether	U	3.16	ug/L	3.16	10.5
59-50-7	Parachlorometa cresol	U	3.16	ug/L	3.16	10.5
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.47	ug/L	3.47	10.5
7005-72-3	4-Chlorophenylphenylether	U	3.16	ug/L	3.16	10.5
100-02-7	4-Nitrophenol	U	3.16	ug/L	3.16	10.5
83-32-9	Acenaphthene	U	0.316	ug/L	0.316	1.05
208-96-8	Acenaphthylene	U	0.316	ug/L	0.316	1.05
62-53-3	Aniline	U	4.42	ug/L	4.42	10.5
120-12-7	Anthracene	U	0.316	ug/L	0.316	1.05
1912-24-9	Atrazine	U	3.16	ug/L	3.16	10.5
92-87-5	Benzidine	U	4.11	ug/L	4.11	10.5
56-55-3	Benzo(a)anthracene	U	0.316	ug/L	0.316	1.05
50-32-8	Benzo(a)pyrene	U	0.316	ug/L	0.316	1.05
205-99-2	Benzo(b)fluoranthene	U	0.316	ug/L	0.316	1.05
191-24-2	Benzo(ghi)perylene	U	0.316	ug/L	0.316	1.05

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396013

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Client ID: CAWA-18-40

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 18:29

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 950 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2312.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.316	ug/L	0.316	1.05
65-85-0	Benzoic acid	U	6.32	ug/L	6.32	21.1
100-51-6	Benzyl alcohol	U	3.16	ug/L	3.16	10.5
85-68-7	Butylbenzylphthalate	U	3.16	ug/L	3.16	10.5
218-01-9	Chrysene	U	0.316	ug/L	0.316	1.05
84-74-2	Di-n-butylphthalate	U	3.16	ug/L	3.16	10.5
117-84-0	Di-n-octylphthalate	U	3.16	ug/L	3.16	10.5
53-70-3	Dibenzo(a,h)anthracene	U	0.316	ug/L	0.316	1.05
132-64-9	Dibenzofuran	U	3.16	ug/L	3.16	10.5
84-66-2	Diethylphthalate	U	3.16	ug/L	3.16	10.5
131-11-3	Dimethylphthalate	U	3.16	ug/L	3.16	10.5
88-85-7	Dinoseb	U	3.16	ug/L	3.16	10.5
122-39-4	Diphenylamine	U	3.16	ug/L	3.16	10.5
206-44-0	Fluoranthene	U	0.316	ug/L	0.316	1.05
86-73-7	Fluorene	U	0.316	ug/L	0.316	1.05
118-74-1	Hexachlorobenzene	U	3.16	ug/L	3.16	10.5
87-68-3	Hexachlorobutadiene	U	3.16	ug/L	3.16	10.5
77-47-4	Hexachlorocyclopentadiene	U	3.16	ug/L	3.16	10.5
67-72-1	Hexachloroethane	U	3.16	ug/L	3.16	10.5
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.316	ug/L	0.316	1.05
78-59-1	Isophorone	U	3.68	ug/L	3.68	10.5
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.16	ug/L	3.16	10.5
924-16-3	N-Nitrosodi-n-butylamine	U	3.16	ug/L	3.16	10.5
55-18-5	N-Nitrosodiethylamine	U	3.16	ug/L	3.16	10.5
621-64-7	N-Nitrosodi-n-propylamine	U	3.16	ug/L	3.16	10.5
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.16	ug/L	3.16	10.5
91-20-3	Naphthalene	U	0.316	ug/L	0.316	1.05
98-95-3	Nitrobenzene	U	3.16	ug/L	3.16	10.5
608-93-5	Pentachlorobenzene	U	3.16	ug/L	3.16	10.5
87-86-5	Pentachlorophenol	U	3.16	ug/L	3.16	10.5
85-01-8	Phenanthrene	U	0.316	ug/L	0.316	1.05
108-95-2	Phenol	U	3.16	ug/L	3.16	10.5
129-00-0	Pyrene	U	0.316	ug/L	0.316	1.05
110-86-1	Pyridine	U	3.16	ug/L	3.16	10.5
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.16	ug/L	3.16	10.5
111-91-1	bis(2-Chloroethoxy)methane	U	3.16	ug/L	3.16	10.5
111-44-4	bis(2-Chloroethyl) ether	U	3.16	ug/L	3.16	10.5
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.16	ug/L	3.16	1.05

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396013

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Client ID: CAWA-18-40

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 18:29

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 950 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2312.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.89	ug/L	3.89	10.5
99-09-2	3-Nitroaniline	U	3.16	ug/L	3.16	10.5
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.16	ug/L	3.16	10.5
88-74-4	2-Nitroaniline	U	3.16	ug/L	3.16	10.5
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.16	ug/L	3.16	10.5
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	21.3	105	ug/L	20	*	(32%-124%)
2-Fluorobiphenyl	24.8	52.6	ug/L	47		(32%-112%)
2-Fluorophenol	22.7	105	ug/L	22		(15%-88%)
Nitrobenzene-d5	28.7	52.6	ug/L	55		(36%-115%)
Phenol-d5	16.6	105	ug/L	16		(15%-91%)
p-Terphenyl-d14	36.4	52.6	ug/L	69		(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.093	4.48	ug/L	0	J
000079-01-6	Trichloroethylene	2.371	4.54	ug/L	98	NJ

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396013

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1742249

Run Date: 02/27/2018 19:05

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/27/2018 08:00

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s022718.s\3b2715.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	Uh	3.00	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	Uh	3.00	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	Uh	3.00	ug/L	3.00	10.0
122-66-7	Azobenzene	Uh	3.00	ug/L	3.00	10.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	Uh	3.00	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	Uh	3.00	ug/L	3.00	10.0
123-91-1	1,4-Dioxane	Uh	3.00	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	Uh	0.300	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol	Uh	3.00	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	Uh	3.00	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	Uh	3.00	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	Uh	3.00	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	Uh	3.00	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	Uh	5.00	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	Uh	3.00	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	Uh	3.00	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	Uh	0.410	ug/L	0.410	1.00
95-57-8	2-Chlorophenol	Uh	3.00	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	Uh	3.00	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	Uh	0.300	ug/L	0.300	1.00
88-75-5	2-Nitrophenol	Uh	3.00	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	Uh	3.00	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether	Uh	3.00	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol	Uh	3.00	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	Uh	3.30	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether	Uh	3.00	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	Uh	3.00	ug/L	3.00	10.0
83-32-9	Acenaphthene	Uh	0.300	ug/L	0.300	1.00
208-96-8	Acenaphthylene	Uh	0.300	ug/L	0.300	1.00
62-53-3	Aniline	Uh	4.20	ug/L	4.20	10.0
120-12-7	Anthracene	Uh	0.300	ug/L	0.300	1.00
1912-24-9	Atrazine	Uh	3.00	ug/L	3.00	10.0
92-87-5	Benzidine	Uh	3.90	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene	Uh	0.300	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	Uh	0.300	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	Uh	0.300	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	Uh	0.300	ug/L	0.300	1.00

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396013

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1742249

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/27/2018 19:05

Prep Date: 02/27/2018 08:00

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s022718.s\3b2715.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	Uh	0.300	ug/L	0.300	1.00
65-85-0	Benzoic acid	Uh	6.00	ug/L	6.00	20.0
100-51-6	Benzyl alcohol	Uh	3.00	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate	Uh	3.00	ug/L	3.00	10.0
218-01-9	Chrysene	Uh	0.300	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	Uh	3.00	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate	Uh	3.00	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene	Uh	0.300	ug/L	0.300	1.00
132-64-9	Dibenzofuran	Uh	3.00	ug/L	3.00	10.0
84-66-2	Diethylphthalate	Uh	3.00	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	Uh	3.00	ug/L	3.00	10.0
88-85-7	Dinoseb	Uh	3.00	ug/L	3.00	10.0
122-39-4	Diphenylamine	Uh	3.00	ug/L	3.00	10.0
206-44-0	Fluoranthene	Uh	0.300	ug/L	0.300	1.00
86-73-7	Fluorene	Uh	0.300	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	Uh	3.00	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	Uh	3.00	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	Uh	3.00	ug/L	3.00	10.0
67-72-1	Hexachloroethane	Uh	3.00	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene	Uh	0.300	ug/L	0.300	1.00
78-59-1	Isophorone	Uh	3.50	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	Uh	3.00	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	Uh	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	Uh	3.00	ug/L	3.00	10.0
621-64-7	N-Nitrosodi-n-propylamine	Uh	3.00	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	Uh	3.00	ug/L	3.00	10.0
91-20-3	Naphthalene	Uh	0.300	ug/L	0.300	1.00
98-95-3	Nitrobenzene	Uh	3.00	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	Uh	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	Uh	3.00	ug/L	3.00	10.0
85-01-8	Phenanthrene	Uh	0.300	ug/L	0.300	1.00
108-95-2	Phenol	Uh	3.00	ug/L	3.00	10.0
129-00-0	Pyrene	Uh	0.300	ug/L	0.300	1.00
110-86-1	Pyridine	Uh	3.00	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether	Uh	3.00	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	Uh	3.00	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	Uh	3.00	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	Uh	3.00	ug/L	3.00	1.00

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2018-1772
Lab Sample ID: 444396013

Client ID: CAWA-18-40RE
Batch ID: 1742249
Run Date: 02/27/2018 19:05
Prep Date: 02/27/2018 08:00
Data File: s022718.s\s3b2715.D

Date Collected: 02/16/2018 11:01
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 1000 mL
Column: DB-5ms

Matrix: W

Project: ESHL00114
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	Uh	3.70	ug/L	3.70	10.0
99-09-2	3-Nitroaniline	Uh	3.00	ug/L	3.00	10.0
95-48-7	<i>m</i> -Nitroaniline o-Cresol	Uh	3.00	ug/L	3.00	10.0
88-74-4	2-Nitroaniline	Uh	3.00	ug/L	3.00	10.0
100-01-6	<i>o</i> -Nitroaniline 4-Nitroaniline <i>p</i> -Nitroaniline	Uh	3.00	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	49.6	100	ug/L	50	(32%-124%)
2-Fluorobiphenyl	30.7	50.0	ug/L	61	(32%-112%)
2-Fluorophenol	39.6	100	ug/L	40	(15%-88%)
Nitrobenzene-d5	33.6	50.0	ug/L	67	(36%-115%)
Phenol-d5	26.1	100	ug/L	26	(15%-91%)
p-Terphenyl-d14	30.5	50.0	ug/L	61	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000079-01-6	Trichloroethylene	2.328	4.35	ug/L	99	NJ

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396016

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 18:58

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 920 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2313.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.26	ug/L	3.26	10.9
120-82-1	1,2,4-Trichlorobenzene	U	3.26	ug/L	3.26	10.9
95-50-1	1,2-Dichlorobenzene	U	3.26	ug/L	3.26	10.9
122-66-7	Azobenzene	U	3.26	ug/L	3.26	10.9
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.26	ug/L	3.26	10.9
106-46-7	1,4-Dichlorobenzene	U	3.26	ug/L	3.26	10.9
123-91-1	1,4-Dioxane	U	3.26	ug/L	3.26	10.9
90-12-0	1-Methylnaphthalene	U	0.326	ug/L	0.326	1.09
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.26	ug/L	3.26	10.9
95-95-4	2,4,5-Trichlorophenol	U	3.26	ug/L	3.26	10.9
88-06-2	2,4,6-Trichlorophenol	U	3.26	ug/L	3.26	10.9
120-83-2	2,4-Dichlorophenol	U	3.26	ug/L	3.26	10.9
105-67-9	2,4-Dimethylphenol	U	3.26	ug/L	3.26	10.9
51-28-5	2,4-Dinitrophenol	U	5.43	ug/L	5.43	21.7
121-14-2	2,4-Dinitrotoluene	U	3.26	ug/L	3.26	10.9
606-20-2	2,6-Dinitrotoluene	U	3.26	ug/L	3.26	10.9
91-58-7	2-Chloronaphthalene	U	0.446	ug/L	0.446	1.09
95-57-8	2-Chlorophenol	U	3.26	ug/L	3.26	10.9
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.26	ug/L	3.26	10.9
91-57-6	2-Methylnaphthalene	U	0.326	ug/L	0.326	1.09
88-75-5	2-Nitrophenol	U	3.26	ug/L	3.26	10.9
91-94-1	3,3'-Dichlorobenzidine	U	3.26	ug/L	3.26	10.9
101-55-3	4-Bromophenylphenylether	U	3.26	ug/L	3.26	10.9
59-50-7	Parachlorometa cresol	U	3.26	ug/L	3.26	10.9
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.59	ug/L	3.59	10.9
7005-72-3	4-Chlorophenylphenylether	U	3.26	ug/L	3.26	10.9
100-02-7	4-Nitrophenol	U	3.26	ug/L	3.26	10.9
83-32-9	Acenaphthene	U	0.326	ug/L	0.326	1.09
208-96-8	Acenaphthylene	U	0.326	ug/L	0.326	1.09
62-53-3	Aniline	U	4.57	ug/L	4.57	10.9
120-12-7	Anthracene	U	0.326	ug/L	0.326	1.09
1912-24-9	Atrazine	U	3.26	ug/L	3.26	10.9
92-87-5	Benzidine	U	4.24	ug/L	4.24	10.9
56-55-3	Benzo(a)anthracene	U	0.326	ug/L	0.326	1.09
50-32-8	Benzo(a)pyrene	U	0.326	ug/L	0.326	1.09
205-99-2	Benzo(b)fluoranthene	U	0.326	ug/L	0.326	1.09
191-24-2	Benzo(ghi)perylene	U	0.326	ug/L	0.326	1.09

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396016

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1741116

Inst: MSD3.I

Dilution: 1

Run Date: 02/23/2018 18:58

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 920 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2313.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.326	ug/L	0.326	1.09
65-85-0	Benzoic acid	U	6.52	ug/L	6.52	21.7
100-51-6	Benzyl alcohol	U	3.26	ug/L	3.26	10.9
85-68-7	Butylbenzylphthalate	U	3.26	ug/L	3.26	10.9
218-01-9	Chrysene	U	0.326	ug/L	0.326	1.09
84-74-2	Di-n-butylphthalate	U	3.26	ug/L	3.26	10.9
117-84-0	Di-n-octylphthalate	U	3.26	ug/L	3.26	10.9
53-70-3	Dibenzo(a,h)anthracene	U	0.326	ug/L	0.326	1.09
132-64-9	Dibenzofuran	U	3.26	ug/L	3.26	10.9
84-66-2	Diethylphthalate	U	3.26	ug/L	3.26	10.9
131-11-3	Dimethylphthalate	U	3.26	ug/L	3.26	10.9
88-85-7	Dinoseb	U	3.26	ug/L	3.26	10.9
122-39-4	Diphenylamine	U	3.26	ug/L	3.26	10.9
206-44-0	Fluoranthene	U	0.326	ug/L	0.326	1.09
86-73-7	Fluorene	U	0.326	ug/L	0.326	1.09
118-74-1	Hexachlorobenzene	U	3.26	ug/L	3.26	10.9
87-68-3	Hexachlorobutadiene	U	3.26	ug/L	3.26	10.9
77-47-4	Hexachlorocyclopentadiene	U	3.26	ug/L	3.26	10.9
67-72-1	Hexachloroethane	U	3.26	ug/L	3.26	10.9
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.326	ug/L	0.326	1.09
78-59-1	Isophorone	U	3.80	ug/L	3.80	10.9
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.26	ug/L	3.26	10.9
924-16-3	N-Nitrosodi-n-butylamine	U	3.26	ug/L	3.26	10.9
55-18-5	N-Nitrosodiethylamine	U	3.26	ug/L	3.26	10.9
621-64-7	N-Nitrosodi-n-propylamine	U	3.26	ug/L	3.26	10.9
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.26	ug/L	3.26	10.9
91-20-3	Naphthalene	U	0.326	ug/L	0.326	1.09
98-95-3	Nitrobenzene	U	3.26	ug/L	3.26	10.9
608-93-5	Pentachlorobenzene	U	3.26	ug/L	3.26	10.9
87-86-5	Pentachlorophenol	U	3.26	ug/L	3.26	10.9
85-01-8	Phenanthrene	U	0.326	ug/L	0.326	1.09
108-95-2	Phenol	U	3.26	ug/L	3.26	10.9
129-00-0	Pyrene	U	0.326	ug/L	0.326	1.09
110-86-1	Pyridine	U	3.26	ug/L	3.26	10.9
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.26	ug/L	3.26	10.9
111-91-1	bis(2-Chloroethoxy)methane	U	3.26	ug/L	3.26	10.9
111-44-4	bis(2-Chloroethyl) ether	U	3.26	ug/L	3.26	10.9
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.26	ug/L	3.26	1.09

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396016

Date Collected: 02/16/2018 11:01

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1741116

Inst: MSD3.I

Dilution: 1

Run Date: 02/23/2018 18:58

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 920 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2313.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	4.02	ug/L	4.02	10.9
99-09-2	3-Nitroaniline	U	3.26	ug/L	3.26	10.9
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.26	ug/L	3.26	10.9
88-74-4	2-Nitroaniline	U	3.26	ug/L	3.26	10.9
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.26	ug/L	3.26	10.9
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	64.3	109	ug/L 59	(32%-124%)
2-Fluorobiphenyl	29.2	54.3	ug/L 54	(32%-112%)
2-Fluorophenol	41.0	109	ug/L 38	(15%-88%)
Nitrobenzene-d5	32.0	54.3	ug/L 59	(36%-115%)
Phenol-d5	27.0	109	ug/L 25	(15%-91%)
p-Terphenyl-d14	46.8	54.3	ug/L 86	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396018

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 19:28

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 960 mL

Final Volume: 1 mL

Data File: s022318.s\3b2314.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.13	ug/L	3.13	10.4
120-82-1	1,2,4-Trichlorobenzene	U	3.13	ug/L	3.13	10.4
95-50-1	1,2-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
122-66-7	Azobenzene	U	3.13	ug/L	3.13	10.4
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
106-46-7	1,4-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
123-91-1	1,4-Dioxane	U	3.13	ug/L	3.13	10.4
90-12-0	1-Methylnaphthalene	U	0.313	ug/L	0.313	1.04
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.13	ug/L	3.13	10.4
95-95-4	2,4,5-Trichlorophenol	U	3.13	ug/L	3.13	10.4
88-06-2	2,4,6-Trichlorophenol	U	3.13	ug/L	3.13	10.4
120-83-2	2,4-Dichlorophenol	U	3.13	ug/L	3.13	10.4
105-67-9	2,4-Dimethylphenol	U	3.13	ug/L	3.13	10.4
51-28-5	2,4-Dinitrophenol	U	5.21	ug/L	5.21	20.8
121-14-2	2,4-Dinitrotoluene	U	3.13	ug/L	3.13	10.4
606-20-2	2,6-Dinitrotoluene	U	3.13	ug/L	3.13	10.4
91-58-7	2-Chloronaphthalene	U	0.427	ug/L	0.427	1.04
95-57-8	2-Chlorophenol	U	3.13	ug/L	3.13	10.4
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.13	ug/L	3.13	10.4
91-57-6	2-Methylnaphthalene	U	0.313	ug/L	0.313	1.04
88-75-5	2-Nitrophenol	U	3.13	ug/L	3.13	10.4
91-94-1	3,3'-Dichlorobenzidine	U	3.13	ug/L	3.13	10.4
101-55-3	4-Bromophenylphenylether	U	3.13	ug/L	3.13	10.4
59-50-7	Parachlorometa cresol	U	3.13	ug/L	3.13	10.4
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.44	ug/L	3.44	10.4
7005-72-3	4-Chlorophenylphenylether	U	3.13	ug/L	3.13	10.4
100-02-7	4-Nitrophenol	U	3.13	ug/L	3.13	10.4
83-32-9	Acenaphthene	U	0.313	ug/L	0.313	1.04
208-96-8	Acenaphthylene	U	0.313	ug/L	0.313	1.04
62-53-3	Aniline	U	4.38	ug/L	4.38	10.4
120-12-7	Anthracene	U	0.313	ug/L	0.313	1.04
1912-24-9	Atrazine	U	3.13	ug/L	3.13	10.4
92-87-5	Benzidine	U	4.06	ug/L	4.06	10.4
56-55-3	Benzo(a)anthracene	U	0.313	ug/L	0.313	1.04
50-32-8	Benzo(a)pyrene	U	0.313	ug/L	0.313	1.04
205-99-2	Benzo(b)fluoranthene	U	0.313	ug/L	0.313	1.04
191-24-2	Benzo(ghi)perylene	U	0.313	ug/L	0.313	1.04

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396018

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/23/2018 19:28

Aliquot: 960 mL

Final Volume: 1 mL

Prep Date: 02/23/2018 08:05

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.313	ug/L	0.313	1.04
65-85-0	Benzoic acid	U	6.25	ug/L	6.25	20.8
100-51-6	Benzyl alcohol	U	3.13	ug/L	3.13	10.4
85-68-7	Butylbenzylphthalate	U	3.13	ug/L	3.13	10.4
218-01-9	Chrysene	U	0.313	ug/L	0.313	1.04
84-74-2	Di-n-butylphthalate	U	3.13	ug/L	3.13	10.4
117-84-0	Di-n-octylphthalate	U	3.13	ug/L	3.13	10.4
53-70-3	Dibenzo(a,h)anthracene	U	0.313	ug/L	0.313	1.04
132-64-9	Dibenzofuran	U	3.13	ug/L	3.13	10.4
84-66-2	Diethylphthalate	U	3.13	ug/L	3.13	10.4
131-11-3	Dimethylphthalate	U	3.13	ug/L	3.13	10.4
88-85-7	Dinoseb	U	3.13	ug/L	3.13	10.4
122-39-4	Diphenylamine	U	3.13	ug/L	3.13	10.4
206-44-0	Fluoranthene	U	0.313	ug/L	0.313	1.04
86-73-7	Fluorene	U	0.313	ug/L	0.313	1.04
118-74-1	Hexachlorobenzene	U	3.13	ug/L	3.13	10.4
87-68-3	Hexachlorobutadiene	U	3.13	ug/L	3.13	10.4
77-47-4	Hexachlorocyclopentadiene	U	3.13	ug/L	3.13	10.4
67-72-1	Hexachloroethane	U	3.13	ug/L	3.13	10.4
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.313	ug/L	0.313	1.04
78-59-1	Isophorone	U	3.65	ug/L	3.65	10.4
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.13	ug/L	3.13	10.4
924-16-3	N-Nitrosodi-n-butylamine	U	3.13	ug/L	3.13	10.4
55-18-5	N-Nitrosodiethylamine	U	3.13	ug/L	3.13	10.4
621-64-7	N-Nitrosodi-n-propylamine	U	3.13	ug/L	3.13	10.4
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.13	ug/L	3.13	10.4
91-20-3	Naphthalene	U	0.313	ug/L	0.313	1.04
98-95-3	Nitrobenzene	U	3.13	ug/L	3.13	10.4
608-93-5	Pentachlorobenzene	U	3.13	ug/L	3.13	10.4
87-86-5	Pentachlorophenol	U	3.13	ug/L	3.13	10.4
85-01-8	Phenanthrene	U	0.313	ug/L	0.313	1.04
108-95-2	Phenol	U	3.13	ug/L	3.13	10.4
129-00-0	Pyrene	U	0.313	ug/L	0.313	1.04
110-86-1	Pyridine	U	3.13	ug/L	3.13	10.4
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.13	ug/L	3.13	10.4
111-91-1	bis(2-Chloroethoxy)methane	U	3.13	ug/L	3.13	10.4
111-44-4	bis(2-Chloroethyl) ether	U	3.13	ug/L	3.13	10.4
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.13	ug/L	3.13	1.04

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396018

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Client ID: CAWA-18-43

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1741116

Inst: MSD3.I

Dilution: 1

Run Date: 02/23/2018 19:28

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 960 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2314.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.85	ug/L	3.85	10.4
99-09-2	3-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.13	ug/L	3.13	10.4
88-74-4	2-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	54.0	104	ug/L	52	(32%-124%)
2-Fluorobiphenyl	25.8	52.1	ug/L	50	(32%-112%)
2-Fluorophenol	35.1	104	ug/L	34	(15%-88%)
Nitrobenzene-d5	28.8	52.1	ug/L	55	(36%-115%)
Phenol-d5	22.1	104	ug/L	21	(15%-91%)
p-Terphenyl-d14	39.6	52.1	ug/L	76	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396020

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/23/2018 19:57

Aliquot: 930 mL

Final Volume: 1 mL

Prep Date: 02/23/2018 08:05

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.23	ug/L	3.23	10.8
120-82-1	1,2,4-Trichlorobenzene	U	3.23	ug/L	3.23	10.8
95-50-1	1,2-Dichlorobenzene	U	3.23	ug/L	3.23	10.8
122-66-7	Azobenzene	U	3.23	ug/L	3.23	10.8
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.23	ug/L	3.23	10.8
106-46-7	1,4-Dichlorobenzene	U	3.23	ug/L	3.23	10.8
123-91-1	1,4-Dioxane	U	3.23	ug/L	3.23	10.8
90-12-0	1-Methylnaphthalene	U	0.323	ug/L	0.323	1.08
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.23	ug/L	3.23	10.8
95-95-4	2,4,5-Trichlorophenol	U	3.23	ug/L	3.23	10.8
88-06-2	2,4,6-Trichlorophenol	U	3.23	ug/L	3.23	10.8
120-83-2	2,4-Dichlorophenol	U	3.23	ug/L	3.23	10.8
105-67-9	2,4-Dimethylphenol	U	3.23	ug/L	3.23	10.8
51-28-5	2,4-Dinitrophenol	U	5.38	ug/L	5.38	21.5
121-14-2	2,4-Dinitrotoluene	U	3.23	ug/L	3.23	10.8
606-20-2	2,6-Dinitrotoluene	U	3.23	ug/L	3.23	10.8
91-58-7	2-Chloronaphthalene	U	0.441	ug/L	0.441	1.08
95-57-8	2-Chlorophenol	U	3.23	ug/L	3.23	10.8
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.23	ug/L	3.23	10.8
91-57-6	2-Methylnaphthalene	U	0.323	ug/L	0.323	1.08
88-75-5	2-Nitrophenol	U	3.23	ug/L	3.23	10.8
91-94-1	3,3'-Dichlorobenzidine	U	3.23	ug/L	3.23	10.8
101-55-3	4-Bromophenylphenylether	U	3.23	ug/L	3.23	10.8
59-50-7	Parachlorometa cresol	U	3.23	ug/L	3.23	10.8
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.55	ug/L	3.55	10.8
7005-72-3	4-Chlorophenylphenylether	U	3.23	ug/L	3.23	10.8
100-02-7	4-Nitrophenol	U	3.23	ug/L	3.23	10.8
83-32-9	Acenaphthene	U	0.323	ug/L	0.323	1.08
208-96-8	Acenaphthylene	U	0.323	ug/L	0.323	1.08
62-53-3	Aniline	U	4.52	ug/L	4.52	10.8
120-12-7	Anthracene	U	0.323	ug/L	0.323	1.08
1912-24-9	Atrazine	U	3.23	ug/L	3.23	10.8
92-87-5	Benzidine	U	4.19	ug/L	4.19	10.8
56-55-3	Benzo(a)anthracene	U	0.323	ug/L	0.323	1.08
50-32-8	Benzo(a)pyrene	U	0.323	ug/L	0.323	1.08
205-99-2	Benzo(b)fluoranthene	U	0.323	ug/L	0.323	1.08
191-24-2	Benzo(ghi)perylene	U	0.323	ug/L	0.323	1.08

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396020

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-88

Batch ID: 1741116

Run Date: 02/23/2018 19:57

Prep Date: 02/23/2018 08:05

Data File: s022318.s\s3b2315.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD3.I

Analyst: JLD1

Aliquot: 930 mL

Column: DB-5ms

Project: ESHL00114

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.323	ug/L	0.323	1.08
65-85-0	Benzoic acid	U	6.45	ug/L	6.45	21.5
100-51-6	Benzyl alcohol	U	3.23	ug/L	3.23	10.8
85-68-7	Butylbenzylphthalate	U	3.23	ug/L	3.23	10.8
218-01-9	Chrysene	U	0.323	ug/L	0.323	1.08
84-74-2	Di-n-butylphthalate	U	3.23	ug/L	3.23	10.8
117-84-0	Di-n-octylphthalate	U	3.23	ug/L	3.23	10.8
53-70-3	Dibenzo(a,h)anthracene	U	0.323	ug/L	0.323	1.08
132-64-9	Dibenzofuran	U	3.23	ug/L	3.23	10.8
84-66-2	Diethylphthalate	U	3.23	ug/L	3.23	10.8
131-11-3	Dimethylphthalate	U	3.23	ug/L	3.23	10.8
88-85-7	Dinoseb	U	3.23	ug/L	3.23	10.8
122-39-4	Diphenylamine	U	3.23	ug/L	3.23	10.8
206-44-0	Fluoranthene	U	0.323	ug/L	0.323	1.08
86-73-7	Fluorene	U	0.323	ug/L	0.323	1.08
118-74-1	Hexachlorobenzene	U	3.23	ug/L	3.23	10.8
87-68-3	Hexachlorobutadiene	U	3.23	ug/L	3.23	10.8
77-47-4	Hexachlorocyclopentadiene	U	3.23	ug/L	3.23	10.8
67-72-1	Hexachloroethane	U	3.23	ug/L	3.23	10.8
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.323	ug/L	0.323	1.08
78-59-1	Isophorone	U	3.76	ug/L	3.76	10.8
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.23	ug/L	3.23	10.8
924-16-3	N-Nitrosodi-n-butylamine	U	3.23	ug/L	3.23	10.8
55-18-5	N-Nitrosodiethylamine	U	3.23	ug/L	3.23	10.8
621-64-7	N-Nitrosodi-n-propylamine	U	3.23	ug/L	3.23	10.8
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.23	ug/L	3.23	10.8
91-20-3	Naphthalene	U	0.323	ug/L	0.323	1.08
98-95-3	Nitrobenzene	U	3.23	ug/L	3.23	10.8
608-93-5	Pentachlorobenzene	U	3.23	ug/L	3.23	10.8
87-86-5	Pentachlorophenol	U	3.23	ug/L	3.23	10.8
85-01-8	Phenanthrene	U	0.323	ug/L	0.323	1.08
108-95-2	Phenol	U	3.23	ug/L	3.23	10.8
129-00-0	Pyrene	U	0.323	ug/L	0.323	1.08
110-86-1	Pyridine	U	3.23	ug/L	3.23	10.8
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.23	ug/L	3.23	10.8
111-91-1	bis(2-Chloroethoxy)methane	U	3.23	ug/L	3.23	10.8
111-44-4	bis(2-Chloroethyl) ether	U	3.23	ug/L	3.23	10.8
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.23	ug/L	3.23	1.08

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396020

Date Collected: 02/16/2018 09:39

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Client ID: CAWA-18-88

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 19:57

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 930 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2315.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.98	ug/L	3.98	10.8
99-09-2	3-Nitroaniline	U	3.23	ug/L	3.23	10.8
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.23	ug/L	3.23	10.8
88-74-4	2-Nitroaniline	U	3.23	ug/L	3.23	10.8
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.23	ug/L	3.23	10.8
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	59.8	108	ug/L	56	(32%-124%)
2-Fluorobiphenyl	27.7	53.8	ug/L	52	(32%-112%)
2-Fluorophenol	39.8	108	ug/L	37	(15%-88%)
Nitrobenzene-d5	31.6	53.8	ug/L	59	(36%-115%)
Phenol-d5	25.9	108	ug/L	24	(15%-91%)
p-Terphenyl-d14	39.8	53.8	ug/L	74	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396023

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1741116

Inst: MSD3.I

Dilution: 1

Run Date: 02/23/2018 20:26

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 960 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2316.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.13	ug/L	3.13	10.4
120-82-1	1,2,4-Trichlorobenzene	U	3.13	ug/L	3.13	10.4
95-50-1	1,2-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
122-66-7	Azobenzene	U	3.13	ug/L	3.13	10.4
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
106-46-7	1,4-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
123-91-1	1,4-Dioxane	U	3.13	ug/L	3.13	10.4
90-12-0	1-Methylnaphthalene	U	0.313	ug/L	0.313	1.04
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.13	ug/L	3.13	10.4
95-95-4	2,4,5-Trichlorophenol	U	3.13	ug/L	3.13	10.4
88-06-2	2,4,6-Trichlorophenol	U	3.13	ug/L	3.13	10.4
120-83-2	2,4-Dichlorophenol	U	3.13	ug/L	3.13	10.4
105-67-9	2,4-Dimethylphenol	U	3.13	ug/L	3.13	10.4
51-28-5	2,4-Dinitrophenol	U	5.21	ug/L	5.21	20.8
121-14-2	2,4-Dinitrotoluene	U	3.13	ug/L	3.13	10.4
606-20-2	2,6-Dinitrotoluene	U	3.13	ug/L	3.13	10.4
91-58-7	2-Chloronaphthalene	U	0.427	ug/L	0.427	1.04
95-57-8	2-Chlorophenol	U	3.13	ug/L	3.13	10.4
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.13	ug/L	3.13	10.4
91-57-6	2-Methylnaphthalene	U	0.313	ug/L	0.313	1.04
88-75-5	2-Nitrophenol	U	3.13	ug/L	3.13	10.4
91-94-1	3,3'-Dichlorobenzidine	U	3.13	ug/L	3.13	10.4
101-55-3	4-Bromophenylphenylether	U	3.13	ug/L	3.13	10.4
59-50-7	Parachlorometa cresol	U	3.13	ug/L	3.13	10.4
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.44	ug/L	3.44	10.4
7005-72-3	4-Chlorophenylphenylether	U	3.13	ug/L	3.13	10.4
100-02-7	4-Nitrophenol	U	3.13	ug/L	3.13	10.4
83-32-9	Acenaphthene	U	0.313	ug/L	0.313	1.04
208-96-8	Acenaphthylene	U	0.313	ug/L	0.313	1.04
62-53-3	Aniline	U	4.38	ug/L	4.38	10.4
120-12-7	Anthracene	U	0.313	ug/L	0.313	1.04
1912-24-9	Atrazine	U	3.13	ug/L	3.13	10.4
92-87-5	Benzidine	U	4.06	ug/L	4.06	10.4
56-55-3	Benzo(a)anthracene	U	0.313	ug/L	0.313	1.04
50-32-8	Benzo(a)pyrene	U	0.313	ug/L	0.313	1.04
205-99-2	Benzo(b)fluoranthene	U	0.313	ug/L	0.313	1.04
191-24-2	Benzo(ghi)perylene	U	0.313	ug/L	0.313	1.04

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396023

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-22

Batch ID: 1741116

Run Date: 02/23/2018 20:26

Prep Date: 02/23/2018 08:05

Data File: s022318.s\s3b2316.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD3.I

Analyst: JLD1

Aliquot: 960 mL

Column: DB-5ms

Project: ESHL00114

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.313	ug/L	0.313	1.04
65-85-0	Benzoic acid	U	6.25	ug/L	6.25	20.8
100-51-6	Benzyl alcohol	U	3.13	ug/L	3.13	10.4
85-68-7	Butylbenzylphthalate	U	3.13	ug/L	3.13	10.4
218-01-9	Chrysene	U	0.313	ug/L	0.313	1.04
84-74-2	Di-n-butylphthalate	U	3.13	ug/L	3.13	10.4
117-84-0	Di-n-octylphthalate	U	3.13	ug/L	3.13	10.4
53-70-3	Dibenzo(a,h)anthracene	U	0.313	ug/L	0.313	1.04
132-64-9	Dibenzofuran	U	3.13	ug/L	3.13	10.4
84-66-2	Diethylphthalate	U	3.13	ug/L	3.13	10.4
131-11-3	Dimethylphthalate	U	3.13	ug/L	3.13	10.4
88-85-7	Dinoseb	U	3.13	ug/L	3.13	10.4
122-39-4	Diphenylamine	U	3.13	ug/L	3.13	10.4
206-44-0	Fluoranthene	U	0.313	ug/L	0.313	1.04
86-73-7	Fluorene	U	0.313	ug/L	0.313	1.04
118-74-1	Hexachlorobenzene	U	3.13	ug/L	3.13	10.4
87-68-3	Hexachlorobutadiene	U	3.13	ug/L	3.13	10.4
77-47-4	Hexachlorocyclopentadiene	U	3.13	ug/L	3.13	10.4
67-72-1	Hexachloroethane	U	3.13	ug/L	3.13	10.4
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.313	ug/L	0.313	1.04
78-59-1	Isophorone	U	3.65	ug/L	3.65	10.4
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.13	ug/L	3.13	10.4
924-16-3	N-Nitrosodi-n-butylamine	U	3.13	ug/L	3.13	10.4
55-18-5	N-Nitrosodiethylamine	U	3.13	ug/L	3.13	10.4
621-64-7	N-Nitrosodi-n-propylamine	U	3.13	ug/L	3.13	10.4
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.13	ug/L	3.13	10.4
91-20-3	Naphthalene	U	0.313	ug/L	0.313	1.04
98-95-3	Nitrobenzene	U	3.13	ug/L	3.13	10.4
608-93-5	Pentachlorobenzene	U	3.13	ug/L	3.13	10.4
87-86-5	Pentachlorophenol	U	3.13	ug/L	3.13	10.4
85-01-8	Phenanthrene	U	0.313	ug/L	0.313	1.04
108-95-2	Phenol	U	3.13	ug/L	3.13	10.4
129-00-0	Pyrene	U	0.313	ug/L	0.313	1.04
110-86-1	Pyridine	U	3.13	ug/L	3.13	10.4
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.13	ug/L	3.13	10.4
111-91-1	bis(2-Chloroethoxy)methane	U	3.13	ug/L	3.13	10.4
111-44-4	bis(2-Chloroethyl) ether	U	3.13	ug/L	3.13	10.4
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.13	ug/L	3.13	1.04

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396023

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Client ID: CAWA-18-22

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 20:26

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 960 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2316.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.85	ug/L	3.85	10.4
99-09-2	3-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.13	ug/L	3.13	10.4
88-74-4	2-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	14.8	104	ug/L	14	*	(32%-124%)
2-Fluorobiphenyl	20.2	52.1	ug/L	39		(32%-112%)
2-Fluorophenol	19.8	104	ug/L	19		(15%-88%)
Nitrobenzene-d5	22.0	52.1	ug/L	42		(36%-115%)
Phenol-d5	14.6	104	ug/L	14	*	(15%-91%)
p-Terphenyl-d14	34.9	52.1	ug/L	67		(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396023

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1742249

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/27/2018 19:35

Prep Date: 02/27/2018 08:00

Aliquot: 980 mL

Final Volume: 1 mL

Data File: s022718.s\3b2716.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	Uh	3.06	ug/L	3.06	10.2
120-82-1	1,2,4-Trichlorobenzene	Uh	3.06	ug/L	3.06	10.2
95-50-1	1,2-Dichlorobenzene	Uh	3.06	ug/L	3.06	10.2
122-66-7	Azobenzene	Uh	3.06	ug/L	3.06	10.2
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	Uh	3.06	ug/L	3.06	10.2
106-46-7	1,4-Dichlorobenzene	Uh	3.06	ug/L	3.06	10.2
123-91-1	1,4-Dioxane	Uh	3.06	ug/L	3.06	10.2
90-12-0	1-Methylnaphthalene	Uh	0.306	ug/L	0.306	1.02
58-90-2	2,3,4,6-Tetrachlorophenol	Uh	3.06	ug/L	3.06	10.2
95-95-4	2,4,5-Trichlorophenol	Uh	3.06	ug/L	3.06	10.2
88-06-2	2,4,6-Trichlorophenol	Uh	3.06	ug/L	3.06	10.2
120-83-2	2,4-Dichlorophenol	Uh	3.06	ug/L	3.06	10.2
105-67-9	2,4-Dimethylphenol	Uh	3.06	ug/L	3.06	10.2
51-28-5	2,4-Dinitrophenol	Uh	5.10	ug/L	5.10	20.4
121-14-2	2,4-Dinitrotoluene	Uh	3.06	ug/L	3.06	10.2
606-20-2	2,6-Dinitrotoluene	Uh	3.06	ug/L	3.06	10.2
91-58-7	2-Chloronaphthalene	Uh	0.418	ug/L	0.418	1.02
95-57-8	2-Chlorophenol	Uh	3.06	ug/L	3.06	10.2
534-52-1	2-Methyl-4,6-dinitrophenol	Uh	3.06	ug/L	3.06	10.2
91-57-6	2-Methylnaphthalene	Uh	0.306	ug/L	0.306	1.02
88-75-5	2-Nitrophenol	Uh	3.06	ug/L	3.06	10.2
91-94-1	3,3'-Dichlorobenzidine	Uh	3.06	ug/L	3.06	10.2
101-55-3	4-Bromophenylphenylether	Uh	3.06	ug/L	3.06	10.2
59-50-7	Parachlorometa cresol	Uh	3.06	ug/L	3.06	10.2
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	Uh	3.37	ug/L	3.37	10.2
7005-72-3	4-Chlorophenylphenylether	Uh	3.06	ug/L	3.06	10.2
100-02-7	4-Nitrophenol	Uh	3.06	ug/L	3.06	10.2
83-32-9	Acenaphthene	Uh	0.306	ug/L	0.306	1.02
208-96-8	Acenaphthylene	Uh	0.306	ug/L	0.306	1.02
62-53-3	Aniline	Uh	4.29	ug/L	4.29	10.2
120-12-7	Anthracene	Uh	0.306	ug/L	0.306	1.02
1912-24-9	Atrazine	Uh	3.06	ug/L	3.06	10.2
92-87-5	Benzidine	Uh	3.98	ug/L	3.98	10.2
56-55-3	Benzo(a)anthracene	Uh	0.306	ug/L	0.306	1.02
50-32-8	Benzo(a)pyrene	Uh	0.306	ug/L	0.306	1.02
205-99-2	Benzo(b)fluoranthene	Uh	0.306	ug/L	0.306	1.02
191-24-2	Benzo(ghi)perylene	Uh	0.306	ug/L	0.306	1.02

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396023

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1742249

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/27/2018 19:35

Prep Date: 02/27/2018 08:00

Aliquot: 980 mL

Final Volume: 1 mL

Data File: s022718.s\s3b2716.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	Uh	0.306	ug/L	0.306	1.02
65-85-0	Benzoic acid	Uh	6.12	ug/L	6.12	20.4
100-51-6	Benzyl alcohol	Uh	3.06	ug/L	3.06	10.2
85-68-7	Butylbenzylphthalate	Uh	3.06	ug/L	3.06	10.2
218-01-9	Chrysene	Uh	0.306	ug/L	0.306	1.02
84-74-2	Di-n-butylphthalate	Uh	3.06	ug/L	3.06	10.2
117-84-0	Di-n-octylphthalate	Uh	3.06	ug/L	3.06	10.2
53-70-3	Dibenzo(a,h)anthracene	Uh	0.306	ug/L	0.306	1.02
132-64-9	Dibenzofuran	Uh	3.06	ug/L	3.06	10.2
84-66-2	Diethylphthalate	Uh	3.06	ug/L	3.06	10.2
131-11-3	Dimethylphthalate	Uh	3.06	ug/L	3.06	10.2
88-85-7	Dinoseb	Uh	3.06	ug/L	3.06	10.2
122-39-4	Diphenylamine	Uh	3.06	ug/L	3.06	10.2
206-44-0	Fluoranthene	Uh	0.306	ug/L	0.306	1.02
86-73-7	Fluorene	Uh	0.306	ug/L	0.306	1.02
118-74-1	Hexachlorobenzene	Uh	3.06	ug/L	3.06	10.2
87-68-3	Hexachlorobutadiene	Uh	3.06	ug/L	3.06	10.2
77-47-4	Hexachlorocyclopentadiene	Uh	3.06	ug/L	3.06	10.2
67-72-1	Hexachloroethane	Uh	3.06	ug/L	3.06	10.2
193-39-5	Indeno(1,2,3-cd)pyrene	Uh	0.306	ug/L	0.306	1.02
78-59-1	Isophorone	Uh	3.57	ug/L	3.57	10.2
62-75-9	N-Methyl-N-nitrosomethylamine	Uh	3.06	ug/L	3.06	10.2
924-16-3	N-Nitrosodi-n-butylamine	Uh	3.06	ug/L	3.06	10.2
55-18-5	N-Nitrosodiethylamine	Uh	3.06	ug/L	3.06	10.2
621-64-7	N-Nitrosodi-n-propylamine	Uh	3.06	ug/L	3.06	10.2
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	Uh	3.06	ug/L	3.06	10.2
91-20-3	Naphthalene	Uh	0.306	ug/L	0.306	1.02
98-95-3	Nitrobenzene	Uh	3.06	ug/L	3.06	10.2
608-93-5	Pentachlorobenzene	Uh	3.06	ug/L	3.06	10.2
87-86-5	Pentachlorophenol	Uh	3.06	ug/L	3.06	10.2
85-01-8	Phenanthrene	Uh	0.306	ug/L	0.306	1.02
108-95-2	Phenol	Uh	3.06	ug/L	3.06	10.2
129-00-0	Pyrene	Uh	0.306	ug/L	0.306	1.02
110-86-1	Pyridine	Uh	3.06	ug/L	3.06	10.2
108-60-1	bis(2-Chloro-1-methylethyl)ether	Uh	3.06	ug/L	3.06	10.2
111-91-1	bis(2-Chloroethoxy)methane	Uh	3.06	ug/L	3.06	10.2
111-44-4	bis(2-Chloroethyl) ether	Uh	3.06	ug/L	3.06	10.2
117-81-7	bis(2-Ethylhexyl)phthalate	Uh	3.06	ug/L	3.06	1.02

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396023

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1742249

Inst: MSD3.I

Dilution: 1

Run Date: 02/27/2018 19:35

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/27/2018 08:00

Aliquot: 980 mL

Final Volume: 1 mL

Data File: s022718.s\s3b2716.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	Uh	3.78	ug/L	3.78	10.2
99-09-2	3-Nitroaniline	Uh	3.06	ug/L	3.06	10.2
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	Uh	3.06	ug/L	3.06	10.2
88-74-4	2-Nitroaniline	Uh	3.06	ug/L	3.06	10.2
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	Uh	3.06	ug/L	3.06	10.2
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	49.8	102	ug/L	49	(32%-124%)
2-Fluorobiphenyl	26.1	51.0	ug/L	51	(32%-112%)
2-Fluorophenol	36.9	102	ug/L	36	(15%-88%)
Nitrobenzene-d5	28.4	51.0	ug/L	56	(36%-115%)
Phenol-d5	23.2	102	ug/L	23	(15%-91%)
p-Terphenyl-d14	30.6	51.0	ug/L	60	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396027

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 20:56

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 950 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2317.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.16	ug/L	3.16	10.5
120-82-1	1,2,4-Trichlorobenzene	U	3.16	ug/L	3.16	10.5
95-50-1	1,2-Dichlorobenzene	U	3.16	ug/L	3.16	10.5
122-66-7	Azobenzene	U	3.16	ug/L	3.16	10.5
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.16	ug/L	3.16	10.5
106-46-7	1,4-Dichlorobenzene	U	3.16	ug/L	3.16	10.5
123-91-1	1,4-Dioxane	U	3.16	ug/L	3.16	10.5
90-12-0	1-Methylnaphthalene	U	0.316	ug/L	0.316	1.05
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.16	ug/L	3.16	10.5
95-95-4	2,4,5-Trichlorophenol	U	3.16	ug/L	3.16	10.5
88-06-2	2,4,6-Trichlorophenol	U	3.16	ug/L	3.16	10.5
120-83-2	2,4-Dichlorophenol	U	3.16	ug/L	3.16	10.5
105-67-9	2,4-Dimethylphenol	U	3.16	ug/L	3.16	10.5
51-28-5	2,4-Dinitrophenol	U	5.26	ug/L	5.26	21.1
121-14-2	2,4-Dinitrotoluene	U	3.16	ug/L	3.16	10.5
606-20-2	2,6-Dinitrotoluene	U	3.16	ug/L	3.16	10.5
91-58-7	2-Chloronaphthalene	U	0.432	ug/L	0.432	1.05
95-57-8	2-Chlorophenol	U	3.16	ug/L	3.16	10.5
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.16	ug/L	3.16	10.5
91-57-6	2-Methylnaphthalene	U	0.316	ug/L	0.316	1.05
88-75-5	2-Nitrophenol	U	3.16	ug/L	3.16	10.5
91-94-1	3,3'-Dichlorobenzidine	U	3.16	ug/L	3.16	10.5
101-55-3	4-Bromophenylphenylether	U	3.16	ug/L	3.16	10.5
59-50-7	Parachlorometa cresol	U	3.16	ug/L	3.16	10.5
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.47	ug/L	3.47	10.5
7005-72-3	4-Chlorophenylphenylether	U	3.16	ug/L	3.16	10.5
100-02-7	4-Nitrophenol	U	3.16	ug/L	3.16	10.5
83-32-9	Acenaphthene	U	0.316	ug/L	0.316	1.05
208-96-8	Acenaphthylene	U	0.316	ug/L	0.316	1.05
62-53-3	Aniline	U	4.42	ug/L	4.42	10.5
120-12-7	Anthracene	U	0.316	ug/L	0.316	1.05
1912-24-9	Atrazine	U	3.16	ug/L	3.16	10.5
92-87-5	Benzidine	U	4.11	ug/L	4.11	10.5
56-55-3	Benzo(a)anthracene	U	0.316	ug/L	0.316	1.05
50-32-8	Benzo(a)pyrene	U	0.316	ug/L	0.316	1.05
205-99-2	Benzo(b)fluoranthene	U	0.316	ug/L	0.316	1.05
191-24-2	Benzo(ghi)perylene	U	0.316	ug/L	0.316	1.05

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396027

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/23/2018 20:56

Prep Date: 02/23/2018 08:05

Aliquot: 950 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2317.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.316	ug/L	0.316	1.05
65-85-0	Benzoic acid	U	6.32	ug/L	6.32	21.1
100-51-6	Benzyl alcohol	U	3.16	ug/L	3.16	10.5
85-68-7	Butylbenzylphthalate	U	3.16	ug/L	3.16	10.5
218-01-9	Chrysene	U	0.316	ug/L	0.316	1.05
84-74-2	Di-n-butylphthalate	U	3.16	ug/L	3.16	10.5
117-84-0	Di-n-octylphthalate	U	3.16	ug/L	3.16	10.5
53-70-3	Dibenzo(a,h)anthracene	U	0.316	ug/L	0.316	1.05
132-64-9	Dibenzofuran	U	3.16	ug/L	3.16	10.5
84-66-2	Diethylphthalate	U	3.16	ug/L	3.16	10.5
131-11-3	Dimethylphthalate	U	3.16	ug/L	3.16	10.5
88-85-7	Dinoseb	U	3.16	ug/L	3.16	10.5
122-39-4	Diphenylamine	U	3.16	ug/L	3.16	10.5
206-44-0	Fluoranthene	U	0.316	ug/L	0.316	1.05
86-73-7	Fluorene	U	0.316	ug/L	0.316	1.05
118-74-1	Hexachlorobenzene	U	3.16	ug/L	3.16	10.5
87-68-3	Hexachlorobutadiene	U	3.16	ug/L	3.16	10.5
77-47-4	Hexachlorocyclopentadiene	U	3.16	ug/L	3.16	10.5
67-72-1	Hexachloroethane	U	3.16	ug/L	3.16	10.5
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.316	ug/L	0.316	1.05
78-59-1	Isophorone	U	3.68	ug/L	3.68	10.5
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.16	ug/L	3.16	10.5
924-16-3	N-Nitrosodi-n-butylamine	U	3.16	ug/L	3.16	10.5
55-18-5	N-Nitrosodiethylamine	U	3.16	ug/L	3.16	10.5
621-64-7	N-Nitrosodi-n-propylamine	U	3.16	ug/L	3.16	10.5
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.16	ug/L	3.16	10.5
91-20-3	Naphthalene	U	0.316	ug/L	0.316	1.05
98-95-3	Nitrobenzene	U	3.16	ug/L	3.16	10.5
608-93-5	Pentachlorobenzene	U	3.16	ug/L	3.16	10.5
87-86-5	Pentachlorophenol	U	3.16	ug/L	3.16	10.5
85-01-8	Phenanthrene	U	0.316	ug/L	0.316	1.05
108-95-2	Phenol	U	3.16	ug/L	3.16	10.5
129-00-0	Pyrene	U	0.316	ug/L	0.316	1.05
110-86-1	Pyridine	U	3.16	ug/L	3.16	10.5
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.16	ug/L	3.16	10.5
111-91-1	bis(2-Chloroethoxy)methane	U	3.16	ug/L	3.16	10.5
111-44-4	bis(2-Chloroethyl) ether	U	3.16	ug/L	3.16	10.5
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.16	ug/L	3.16	1.05

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396027

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1741116

Inst: MSD3.I

Dilution: 1

Run Date: 02/23/2018 20:56

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 950 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2317.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.89	ug/L	3.89	10.5
99-09-2	3-Nitroaniline	U	3.16	ug/L	3.16	10.5
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.16	ug/L	3.16	10.5
88-74-4	2-Nitroaniline	U	3.16	ug/L	3.16	10.5
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.16	ug/L	3.16	10.5
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	23.3	105	ug/L	22	*	(32%-124%)
2-Fluorobiphenyl	24.1	52.6	ug/L	46		(32%-112%)
2-Fluorophenol	24.0	105	ug/L	23		(15%-88%)
Nitrobenzene-d5	25.6	52.6	ug/L	49		(36%-115%)
Phenol-d5	17.1	105	ug/L	16		(15%-91%)
p-Terphenyl-d14	36.1	52.6	ug/L	69		(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396027

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1742249

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/27/2018 20:04

Aliquot: 940 mL

Final Volume: 1 mL

Prep Date: 02/27/2018 08:00

Column: DB-5ms

Data File: s022718.s\3b2717.D

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	Uh	3.19	ug/L	3.19	10.6
120-82-1	1,2,4-Trichlorobenzene	Uh	3.19	ug/L	3.19	10.6
95-50-1	1,2-Dichlorobenzene	Uh	3.19	ug/L	3.19	10.6
122-66-7	Azobenzene	Uh	3.19	ug/L	3.19	10.6
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	Uh	3.19	ug/L	3.19	10.6
106-46-7	1,4-Dichlorobenzene	Uh	3.19	ug/L	3.19	10.6
123-91-1	1,4-Dioxane	Uh	3.19	ug/L	3.19	10.6
90-12-0	1-Methylnaphthalene	Uh	0.319	ug/L	0.319	1.06
58-90-2	2,3,4,6-Tetrachlorophenol	Uh	3.19	ug/L	3.19	10.6
95-95-4	2,4,5-Trichlorophenol	Uh	3.19	ug/L	3.19	10.6
88-06-2	2,4,6-Trichlorophenol	Uh	3.19	ug/L	3.19	10.6
120-83-2	2,4-Dichlorophenol	Uh	3.19	ug/L	3.19	10.6
105-67-9	2,4-Dimethylphenol	Uh	3.19	ug/L	3.19	10.6
51-28-5	2,4-Dinitrophenol	Uh	5.32	ug/L	5.32	21.3
121-14-2	2,4-Dinitrotoluene	Uh	3.19	ug/L	3.19	10.6
606-20-2	2,6-Dinitrotoluene	Uh	3.19	ug/L	3.19	10.6
91-58-7	2-Chloronaphthalene	Uh	0.436	ug/L	0.436	1.06
95-57-8	2-Chlorophenol	Uh	3.19	ug/L	3.19	10.6
534-52-1	2-Methyl-4,6-dinitrophenol	Uh	3.19	ug/L	3.19	10.6
91-57-6	2-Methylnaphthalene	Uh	0.319	ug/L	0.319	1.06
88-75-5	2-Nitrophenol	Uh	3.19	ug/L	3.19	10.6
91-94-1	3,3'-Dichlorobenzidine	Uh	3.19	ug/L	3.19	10.6
101-55-3	4-Bromophenylphenylether	Uh	3.19	ug/L	3.19	10.6
59-50-7	Parachlorometa cresol	Uh	3.19	ug/L	3.19	10.6
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	Uh	3.51	ug/L	3.51	10.6
7005-72-3	4-Chlorophenylphenylether	Uh	3.19	ug/L	3.19	10.6
100-02-7	4-Nitrophenol	Uh	3.19	ug/L	3.19	10.6
83-32-9	Acenaphthene	Uh	0.319	ug/L	0.319	1.06
208-96-8	Acenaphthylene	Uh	0.319	ug/L	0.319	1.06
62-53-3	Aniline	Uh	4.47	ug/L	4.47	10.6
120-12-7	Anthracene	Uh	0.319	ug/L	0.319	1.06
1912-24-9	Atrazine	Uh	3.19	ug/L	3.19	10.6
92-87-5	Benzidine	Uh	4.15	ug/L	4.15	10.6
56-55-3	Benzo(a)anthracene	Uh	0.319	ug/L	0.319	1.06
50-32-8	Benzo(a)pyrene	Uh	0.319	ug/L	0.319	1.06
205-99-2	Benzo(b)fluoranthene	Uh	0.319	ug/L	0.319	1.06
191-24-2	Benzo(ghi)perylene	Uh	0.319	ug/L	0.319	1.06

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396027

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1742249

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/27/2018 20:04

Prep Date: 02/27/2018 08:00

Aliquot: 940 mL

Final Volume: 1 mL

Data File: s022718.s\s3b2717.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	Uh	0.319	ug/L	0.319	1.06
65-85-0	Benzoic acid	Uh	6.38	ug/L	6.38	21.3
100-51-6	Benzyl alcohol	Uh	3.19	ug/L	3.19	10.6
85-68-7	Butylbenzylphthalate	Uh	3.19	ug/L	3.19	10.6
218-01-9	Chrysene	Uh	0.319	ug/L	0.319	1.06
84-74-2	Di-n-butylphthalate	Uh	3.19	ug/L	3.19	10.6
117-84-0	Di-n-octylphthalate	Uh	3.19	ug/L	3.19	10.6
53-70-3	Dibenzo(a,h)anthracene	Uh	0.319	ug/L	0.319	1.06
132-64-9	Dibenzofuran	Uh	3.19	ug/L	3.19	10.6
84-66-2	Diethylphthalate	Uh	3.19	ug/L	3.19	10.6
131-11-3	Dimethylphthalate	Uh	3.19	ug/L	3.19	10.6
88-85-7	Dinoseb	Uh	3.19	ug/L	3.19	10.6
122-39-4	Diphenylamine	Uh	3.19	ug/L	3.19	10.6
206-44-0	Fluoranthene	Uh	0.319	ug/L	0.319	1.06
86-73-7	Fluorene	Uh	0.319	ug/L	0.319	1.06
118-74-1	Hexachlorobenzene	Uh	3.19	ug/L	3.19	10.6
87-68-3	Hexachlorobutadiene	Uh	3.19	ug/L	3.19	10.6
77-47-4	Hexachlorocyclopentadiene	Uh	3.19	ug/L	3.19	10.6
67-72-1	Hexachloroethane	Uh	3.19	ug/L	3.19	10.6
193-39-5	Indeno(1,2,3-cd)pyrene	Uh	0.319	ug/L	0.319	1.06
78-59-1	Isophorone	Uh	3.72	ug/L	3.72	10.6
62-75-9	N-Methyl-N-nitrosomethylamine	Uh	3.19	ug/L	3.19	10.6
924-16-3	N-Nitrosodi-n-butylamine	Uh	3.19	ug/L	3.19	10.6
55-18-5	N-Nitrosodiethylamine	Uh	3.19	ug/L	3.19	10.6
621-64-7	N-Nitrosodi-n-propylamine	Uh	3.19	ug/L	3.19	10.6
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	Uh	3.19	ug/L	3.19	10.6
91-20-3	Naphthalene	Uh	0.319	ug/L	0.319	1.06
98-95-3	Nitrobenzene	Uh	3.19	ug/L	3.19	10.6
608-93-5	Pentachlorobenzene	Uh	3.19	ug/L	3.19	10.6
87-86-5	Pentachlorophenol	Uh	3.19	ug/L	3.19	10.6
85-01-8	Phenanthrene	Uh	0.319	ug/L	0.319	1.06
108-95-2	Phenol	Uh	3.19	ug/L	3.19	10.6
129-00-0	Pyrene	Uh	0.319	ug/L	0.319	1.06
110-86-1	Pyridine	Uh	3.19	ug/L	3.19	10.6
108-60-1	bis(2-Chloro-1-methylethyl)ether	Uh	3.19	ug/L	3.19	10.6
111-91-1	bis(2-Chloroethoxy)methane	Uh	3.19	ug/L	3.19	10.6
111-44-4	bis(2-Chloroethyl) ether	Uh	3.19	ug/L	3.19	10.6
117-81-7	bis(2-Ethylhexyl)phthalate	Uh	3.19	ug/L	3.19	1.06

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 444396027

Date Collected: 02/16/2018 10:03

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1742249

Run Date: 02/27/2018 20:04

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/27/2018 08:00

Aliquot: 940 mL

Final Volume: 1 mL

Data File: s022718.s\s3b2717.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	Uh	3.94	ug/L	3.94	10.6
99-09-2	3-Nitroaniline	Uh	3.19	ug/L	3.19	10.6
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	Uh	3.19	ug/L	3.19	10.6
88-74-4	2-Nitroaniline	Uh	3.19	ug/L	3.19	10.6
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	Uh	3.19	ug/L	3.19	10.6
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	55.3	106	ug/L	52	(32%-124%)
2-Fluorobiphenyl	28.2	53.2	ug/L	53	(32%-112%)
2-Fluorophenol	37.4	106	ug/L	35	(15%-88%)
Nitrobenzene-d5	31.5	53.2	ug/L	59	(36%-115%)
Phenol-d5	25.2	106	ug/L	24	(15%-91%)
p-Terphenyl-d14	33.4	53.2	ug/L	63	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396030

Date Collected: 02/16/2018 13:24

Date Received: 02/21/2018 09:20

Matrix: W

Client ID: CAWA-18-30

Batch ID: 1741116

Run Date: 02/23/2018 21:25

Prep Date: 02/23/2018 08:05

Data File: s022318.s\s3b2318.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD3.I

Analyst: JLD1

Aliquot: 960 mL

Column: DB-5ms

Project: ESHL00114

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.13	ug/L	3.13	10.4
120-82-1	1,2,4-Trichlorobenzene	U	3.13	ug/L	3.13	10.4
95-50-1	1,2-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
122-66-7	Azobenzene	U	3.13	ug/L	3.13	10.4
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
106-46-7	1,4-Dichlorobenzene	U	3.13	ug/L	3.13	10.4
123-91-1	1,4-Dioxane	U	3.13	ug/L	3.13	10.4
90-12-0	1-Methylnaphthalene	U	0.313	ug/L	0.313	1.04
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.13	ug/L	3.13	10.4
95-95-4	2,4,5-Trichlorophenol	U	3.13	ug/L	3.13	10.4
88-06-2	2,4,6-Trichlorophenol	U	3.13	ug/L	3.13	10.4
120-83-2	2,4-Dichlorophenol	U	3.13	ug/L	3.13	10.4
105-67-9	2,4-Dimethylphenol	U	3.13	ug/L	3.13	10.4
51-28-5	2,4-Dinitrophenol	U	5.21	ug/L	5.21	20.8
121-14-2	2,4-Dinitrotoluene	U	3.13	ug/L	3.13	10.4
606-20-2	2,6-Dinitrotoluene	U	3.13	ug/L	3.13	10.4
91-58-7	2-Chloronaphthalene	U	0.427	ug/L	0.427	1.04
95-57-8	2-Chlorophenol	U	3.13	ug/L	3.13	10.4
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.13	ug/L	3.13	10.4
91-57-6	2-Methylnaphthalene	U	0.313	ug/L	0.313	1.04
88-75-5	2-Nitrophenol	U	3.13	ug/L	3.13	10.4
91-94-1	3,3'-Dichlorobenzidine	U	3.13	ug/L	3.13	10.4
101-55-3	4-Bromophenylphenylether	U	3.13	ug/L	3.13	10.4
59-50-7	Parachlorometa cresol	U	3.13	ug/L	3.13	10.4
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.44	ug/L	3.44	10.4
7005-72-3	4-Chlorophenylphenylether	U	3.13	ug/L	3.13	10.4
100-02-7	4-Nitrophenol	U	3.13	ug/L	3.13	10.4
83-32-9	Acenaphthene	U	0.313	ug/L	0.313	1.04
208-96-8	Acenaphthylene	U	0.313	ug/L	0.313	1.04
62-53-3	Aniline	U	4.38	ug/L	4.38	10.4
120-12-7	Anthracene	U	0.313	ug/L	0.313	1.04
1912-24-9	Atrazine	U	3.13	ug/L	3.13	10.4
92-87-5	Benzidine	U	4.06	ug/L	4.06	10.4
56-55-3	Benzo(a)anthracene	U	0.313	ug/L	0.313	1.04
50-32-8	Benzo(a)pyrene	U	0.313	ug/L	0.313	1.04
205-99-2	Benzo(b)fluoranthene	U	0.313	ug/L	0.313	1.04
191-24-2	Benzo(ghi)perylene	U	0.313	ug/L	0.313	1.04

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396030

Date Collected: 02/16/2018 13:24

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Analyst: JLD1

Inj. Vol: 1 uL

Run Date: 02/23/2018 21:25

Aliquot: 960 mL

Final Volume: 1 mL

Prep Date: 02/23/2018 08:05

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.313	ug/L	0.313	1.04
65-85-0	Benzoic acid	U	6.25	ug/L	6.25	20.8
100-51-6	Benzyl alcohol	U	3.13	ug/L	3.13	10.4
85-68-7	Butylbenzylphthalate	U	0.313	ug/L	0.313	10.4
218-01-9	Chrysene	U	0.313	ug/L	0.313	1.04
84-74-2	Di-n-butylphthalate	U	0.313	ug/L	0.313	10.4
117-84-0	Di-n-octylphthalate	U	0.313	ug/L	0.313	10.4
53-70-3	Dibenzo(a,h)anthracene	U	0.313	ug/L	0.313	1.04
132-64-9	Dibenzofuran	U	3.13	ug/L	3.13	10.4
84-66-2	Diethylphthalate	U	0.313	ug/L	0.313	10.4
131-11-3	Dimethylphthalate	U	0.313	ug/L	0.313	10.4
88-85-7	Dinoseb	U	3.13	ug/L	3.13	10.4
122-39-4	Diphenylamine	U	3.13	ug/L	3.13	10.4
206-44-0	Fluoranthene	U	0.313	ug/L	0.313	1.04
86-73-7	Fluorene	U	0.313	ug/L	0.313	1.04
118-74-1	Hexachlorobenzene	U	3.13	ug/L	3.13	10.4
87-68-3	Hexachlorobutadiene	U	3.13	ug/L	3.13	10.4
77-47-4	Hexachlorocyclopentadiene	U	3.13	ug/L	3.13	10.4
67-72-1	Hexachloroethane	U	3.13	ug/L	3.13	10.4
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.313	ug/L	0.313	1.04
78-59-1	Isophorone	U	3.65	ug/L	3.65	10.4
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.13	ug/L	3.13	10.4
924-16-3	N-Nitrosodi-n-butylamine	U	3.13	ug/L	3.13	10.4
55-18-5	N-Nitrosodiethylamine	U	3.13	ug/L	3.13	10.4
621-64-7	N-Nitrosodi-n-propylamine	U	3.13	ug/L	3.13	10.4
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.13	ug/L	3.13	10.4
91-20-3	Naphthalene	U	0.313	ug/L	0.313	1.04
98-95-3	Nitrobenzene	U	3.13	ug/L	3.13	10.4
608-93-5	Pentachlorobenzene	U	3.13	ug/L	3.13	10.4
87-86-5	Pentachlorophenol	U	3.13	ug/L	3.13	10.4
85-01-8	Phenanthrene	U	0.313	ug/L	0.313	1.04
108-95-2	Phenol	U	3.13	ug/L	3.13	10.4
129-00-0	Pyrene	U	0.313	ug/L	0.313	1.04
110-86-1	Pyridine	U	3.13	ug/L	3.13	10.4
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.13	ug/L	3.13	10.4
111-91-1	bis(2-Chloroethoxy)methane	U	3.13	ug/L	3.13	10.4
111-44-4	bis(2-Chloroethyl) ether	U	3.13	ug/L	3.13	10.4
117-81-7	bis(2-Ethylhexyl)phthalate	U	0.313	ug/L	0.313	1.04

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2018-1772

Lab Sample ID: 444396030

Date Collected: 02/16/2018 13:24

Date Received: 02/21/2018 09:20

Matrix: W

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Client ID: CAWA-18-30

Inst: MSD3.I

Dilution: 1

Batch ID: 1741116

Run Date: 02/23/2018 21:25

Analyst: JLD1

Inj. Vol: 1 uL

Prep Date: 02/23/2018 08:05

Aliquot: 960 mL

Final Volume: 1 mL

Data File: s022318.s\s3b2318.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.85	ug/L	3.85	10.4
99-09-2	3-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.13	ug/L	3.13	10.4
88-74-4	2-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.13	ug/L	3.13	10.4
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	10.4	104	ug/L 8	* (32%-124%)
2-Fluorobiphenyl	15.9	52.1	ug/L 31	* (32%-112%)
2-Fluorophenol	19.1	104	ug/L 18	(15%-88%)
Nitrobenzene-d5	18.5	52.1	ug/L 36	(36%-115%)
Phenol-d5	14.5	104	ug/L 14	* (15%-91%)
p-Terphenyl-d14	25.1	52.1	ug/L 48	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

Quality Control Summary

Semi-Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2018-1772

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203976628	MB for batch 1741115	47	30	73	51	84	104
1203976629	LCS for batch 1741115	49	31	81	81	111	110
444396002	CAWA-18-28	34	22	54	48	81	99
1203976630	CAWA-18-28MS	48	40	59	60	89	87
1203976631	CAWA-18-28MSD	43	37	55	58	86	83
444396006	CAWA-18-36	27	18	48	45	39	74
444396010	CAWA-18-127	27	18	45	40	43	74
444396013	CAWA-18-40	22	16	55	47	20 *	69
444396016	CAWA-18-151445	38	25	59	54	59	86
444396018	CAWA-18-43	34	21	55	50	52	76
444396020	CAWA-18-88	37	24	59	52	56	74
444396023	CAWA-18-22	19	14 *	42	39	14 *	67
444396027	CAWA-18-125	23	16	49	46	22 *	69
444396030	CAWA-18-30	18	14 *	36	31 *	8 *	48
1203978892	MB for batch 1742247	35	21	59	59	41	61
1203978893	LCS for batch 1742247	55	44	75	68	75	65
444396013	CAWA-18-40RE	40	26	67	61	50	61
444396023	CAWA-18-22RE	36	23	56	51	49	60
444396027	CAWA-18-125RE	35	24	59	53	52	63
1203978894	CAWA-18-56MS	57	45	64	65	60	57
1203978895	CAWA-18-56MSD	55	43	67	62	64	58

Surrogate**Acceptance Limits**

2FP	= 2-Fluorophenol	(15%-88%)
PHL	= Phenol-d5	(15%-91%)
NBZ	= Nitrobenzene-d5	(36%-115%)
FBP	= 2-Fluorobiphenyl	(32%-112%)
TBP	= 2,4,6-Tribromophenol	(32%-124%)
TPH	= p-Terphenyl-d14	(36%-121%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1741115

Matrix: WATER

Lab Sample ID 1203976629

Instrument: MSD3.I

Analysis Date: 02/23/2018 15:32

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS N-Methyl-N-nitrosomethylamine	50.0	0.0	26.1	52	30-88
110-86-1	LCS Pyridine	50.0	0.0	30.9	62	27-89
62-53-3	LCS Aniline	50.0	0.0	44.5	89	49-112
108-95-2	LCS Phenol	50.0	0.0	15.4	31	16-82
111-44-4	LCS bis(2-Chloroethyl) ether	50.0	0.0	39.6	79	51-111
95-57-8	LCS 2-Chlorophenol	50.0	0.0	37.7	75	49-105
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	27.6	55	37-95
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	27.5	55	38-96
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	28.4	57	39-97
108-60-1	LCS bis(2-Chloro-1-methylethyl)ether	50.0	0.0	39.4	79	44-123
100-51-6	LCS Benzyl alcohol	50.0	0.0	36.9	74	44-102
95-48-7	LCS o-Cresol	50.0	0.0	34.1	68	41-101
65794-96-9	LCS m,p-Cresols	50.0	0.0	37.3	75	43-102
621-64-7	LCS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	50.0	0.0	44.9	90	54-115
67-72-1	LCS Hexachloroethane	50.0	0.0	26.1	52	36-96
98-95-3	LCS Nitrobenzene	50.0	0.0	38.9	78	53-115
78-59-1	LCS Isophorone	50.0	0.0	39.9	80	56-117
88-75-5	LCS 2-Nitrophenol	50.0	0.0	39.6	79	51-113
105-67-9	LCS 2,4-Dimethylphenol	50.0	0.0	37.2	74	51-104
111-91-1	LCS bis(2-Chloroethoxy)methane	50.0	0.0	41.9	84	55-114
120-83-2	LCS 2,4-Dichlorophenol	50.0	0.0	42.2	84	53-109
65-85-0	LCS Benzoic acid	100	0.0	29.5	29	21-74

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1741115

Matrix: WATER

Lab Sample ID 1203976629

Instrument: MSD3.I

Analysis Date: 02/23/2018 15:32

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS 4-Chloroaniline	50.0	0.0	59.9	120	65-136
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	28.7	57	35-98
59-50-7	LCS Parachlorometa cresol 4-Chloro-3-methylphenol	50.0	0.0	45.5	91	55-115
91-57-6	LCS 2-Methylnaphthalene	50.0	0.0	32.8	66	42-103
91-20-3	LCS Naphthalene	50.0	0.0	32.2	64	44-102
90-12-0	LCS 1-Methylnaphthalene	50.0	0.0	34.3	69	45-108
77-47-4	LCS Hexachlorocyclopentadiene	50.0	0.0	23.5	47	34-89
88-06-2	LCS 2,4,6-Trichlorophenol	50.0	0.0	43.2	86	55-120
95-95-4	LCS 2,4,5-Trichlorophenol	50.0	0.0	43.0	86	55-116
91-58-7	LCS 2-Chloronaphthalene	50.0	0.0	36.7	73	44-107
88-74-4	LCS 2-Nitroaniline o-Nitroaniline	50.0	0.0	52.1	104	53-121
99-09-2	LCS 3-Nitroaniline m-Nitroaniline	50.0	0.0	65.8	132	61-139
131-11-3	LCS Dimethylphthalate	50.0	0.0	52.4	105	60-122
606-20-2	LCS 2,6-Dinitrotoluene	50.0	0.0	47.3	95	59-122
121-14-2	LCS 2,4-Dinitrotoluene	50.0	0.0	49.5	99	57-124
208-96-8	LCS Acenaphthylene	50.0	0.0	42.1	84	50-113
83-32-9	LCS Acenaphthene	50.0	0.0	44.7	89	49-112
51-28-5	LCS 2,4-Dinitrophenol	50.0	0.0	50.7	101	34-122
132-64-9	LCS Dibenzofuran	50.0	0.0	45.6	91	50-111
58-90-2	LCS 2,3,4,6-Tetrachlorophenol	50.0	0.0	46.2	92	54-122
84-66-2	LCS Diethylphthalate	50.0	0.0	54.8	110	57-122
100-02-7	LCS 4-Nitrophenol	50.0	0.0	18.8	38	15-137

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1741115

Matrix: WATER

Lab Sample ID 1203976629

Instrument: MSD3.I

Analysis Date: 02/23/2018 15:32

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS Fluorene	50.0	0.0	47.4	95	52-114
7005-72-3	LCS 4-Chlorophenylphenylether	50.0	0.0	48.3	97	52-121
100-01-6	LCS 4-Nitroaniline	50.0	0.0	60.8	122	44-137
	<i>p</i> -Nitroaniline					
534-52-1	LCS 2-Methyl-4,6-dinitrophenol	50.0	0.0	48.4	97	45-124
122-39-4	LCS Diphenylamine	50.0	0.0	46.1	92	55-113
122-66-7	LCS Azobenzene	50.0	0.0	43.2	86	53-115
	<i>1,2-Diphenylhydrazine</i>					
101-55-3	LCS 4-Bromophenylphenylether	50.0	0.0	44.1	88	54-116
118-74-1	LCS Hexachlorobenzene	50.0	0.0	44.5	89	54-115
87-86-5	LCS Pentachlorophenol	50.0	0.0	54.0	108	41-116
85-01-8	LCS Phenanthrene	50.0	0.0	47.3	95	55-110
120-12-7	LCS Anthracene	50.0	0.0	47.7	95	56-112
84-74-2	LCS Di-n-butylphthalate	50.0	0.0	56.3	113	57-123
206-44-0	LCS Fluoranthene	50.0	0.0	52.7	105	54-118
129-00-0	LCS Pyrene	50.0	0.0	49.3	99	49-121
85-68-7	LCS Butylbenzylphthalate	50.0	0.0	50.7	101	52-125
117-81-7	LCS bis(2-Ethylhexyl)phthalate	50.0	0.0	53.6	107	52-125
56-55-3	LCS Benzo(a)anthracene	50.0	0.0	47.8	96	57-112
218-01-9	LCS Chrysene	50.0	0.0	48.1	96	58-117
117-84-0	LCS Di-n-octylphthalate	50.0	0.0	46.8	94	50-129
205-99-2	LCS Benzo(b)fluoranthene	50.0	0.0	44.8	90	41-118
207-08-9	LCS Benzo(k)fluoranthene	50.0	0.0	46.1	92	42-121
50-32-8	LCS Benzo(a)pyrene	50.0	0.0	48.0	96	40-118

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1741115

Matrix: WATER

Lab Sample ID 1203976629

Instrument: MSD3.I

Analysis Date: 02/23/2018 15:32

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS Indeno(1,2,3-cd)pyrene	50.0	0.0	64.4	129 *	34-125
53-70-3	LCS Dibenzo(a,h)anthracene	50.0	0.0	65.5	131 *	38-129
191-24-2	LCS Benzo(ghi)perylene	50.0	0.0	66.5	133 *	33-131
123-91-1	LCS 1,4-Dioxane	50.0	0.0	27.4	55	38-78
930-55-2	LCS N-Nitrosopyrrolidine	50.0	0.0	45.7	91	54-113
95-94-3	LCS 1,2,4,5-Tetrachlorobenzene	50.0	0.0	37.0	74	44-102
1912-24-9	LCS Atrazine	50.0	0.0	53.9	108	60-131
92-87-5	LCS Benzidine	100	0.0	133	133	20-144
91-94-1	LCS 3,3'-Dichlorobenzidine	50.0	0.0	53.2	106	43-127
120-82-1	LCS 1,2,4-Trichlorobenzene	50.0	0.0	30.2	60	39-99

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 8

SDG Number: 2018-1772

Sample Type: Matrix Spike

Client ID: CAWA-18-28MS

Matrix: W

Lab Sample ID 1203976630

Instrument: MSD3.I

Analysis Date: 02/23/2018 16:31

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS N-Methyl-N-nitrosomethylamine	116	0.00 U	56.9	49	25-106
110-86-1	MS Pyridine	116	0.00 U	61.2	53	24-93
62-53-3	MS Aniline	116	0.00 U	74.2	64	37-113
108-95-2	MS Phenol	116	0.00 U	45.5	39	23-82
111-44-4	MS bis(2-Chloroethyl) ether	116	0.00 U	68.0	58	39-114
95-57-8	MS 2-Chlorophenol	116	0.00 U	66.0	57	37-108
541-73-1	MS 1,3-Dichlorobenzene	116	0.00 U	52.5	45	27-97
106-46-7	MS 1,4-Dichlorobenzene	116	0.00 U	53.4	46	28-97
95-50-1	MS 1,2-Dichlorobenzene	116	0.00 U	54.6	47	28-99
108-60-1	MS bis(2-Chloro-1-methylethyl)ether	116	0.00 U	72.1	62	32-127
100-51-6	MS Benzyl alcohol	116	0.00 U	72.9	63	37-116
95-48-7	MS o-Cresol	116	0.00 U	68.2	59	34-109
65794-96-9	MS m,p-Cresols	116	0.00 U	81.4	70	36-120
621-64-7	MS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	116	0.00 U	80.3	69	42-118
67-72-1	MS Hexachloroethane	116	0.00 U	51.0	44	29-94
98-95-3	MS Nitrobenzene	116	0.00 U	68.4	59	38-123
78-59-1	MS Isophorone	116	0.00 U	72.0	62	43-120
88-75-5	MS 2-Nitrophenol	116	0.00 U	69.7	60	39-115
105-67-9	MS 2,4-Dimethylphenol	116	0.00 U	66.5	57	39-107
111-91-1	MS bis(2-Chloroethoxy)methane	116	0.00 U	72.8	63	42-118
120-83-2	MS 2,4-Dichlorophenol	116	0.00 U	75.7	65	40-111
65-85-0	MS Benzoic acid	233	0.00 U	126	54	17-95

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike

Client ID: CAWA-18-28MS

Matrix: W

Lab Sample ID 1203976630

Instrument: MSD3.I

Analysis Date: 02/23/2018 16:31

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS 4-Chloroaniline	116	0.00 U	103	88	44-138
87-68-3	MS Hexachlorobutadiene	116	0.00 U	54.5	47	26-98
59-50-7	MS Parachlorometa cresol 4-Chloro-3-methylphenol	116	0.00 U	90.8	78	41-122
91-57-6	MS 2-Methylnaphthalene	116	0.00 U	63.4	55	29-109
91-20-3	MS Naphthalene	116	0.00 U	61.6	53	31-108
90-12-0	MS 1-Methylnaphthalene	116	0.00 U	66.4	57	33-112
77-47-4	MS Hexachlorocyclopentadiene	116	0.00 U	43.0	37	26-79
88-06-2	MS 2,4,6-Trichlorophenol	116	0.00 U	79.2	68	39-124
95-95-4	MS 2,4,5-Trichlorophenol	116	0.00 U	81.8	70	42-120
91-58-7	MS 2-Chloronaphthalene	116	0.00 U	68.1	59	29-113
88-74-4	MS 2-Nitroaniline o-Nitroaniline	116	0.00 U	97.8	84	41-121
99-09-2	MS 3-Nitroaniline m-Nitroaniline	116	0.00 U	122	105	42-144
131-11-3	MS Dimethylphthalate	116	0.00 U	99.3	85	45-128
606-20-2	MS 2,6-Dinitrotoluene	116	0.00 U	90.2	78	46-124
121-14-2	MS 2,4-Dinitrotoluene	116	0.00 U	98.0	84	45-125
208-96-8	MS Acenaphthylene	116	0.00 U	80.1	69	35-120
83-32-9	MS Acenaphthene	116	0.00 U	84.0	72	35-117
51-28-5	MS 2,4-Dinitrophenol	116	0.00 U	108	93	27-122
132-64-9	MS Dibenzofuran	116	0.00 U	86.7	75	38-113
58-90-2	MS 2,3,4,6-Tetrachlorophenol	116	0.00 U	86.5	74	40-128
84-66-2	MS Diethylphthalate	116	0.00 U	106	91	43-127
100-02-7	MS 4-Nitrophenol	116	0.00 U	62.5	54	17-85

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike

Client ID: CAWA-18-28MS

Matrix: W

Lab Sample ID 1203976630

Instrument: MSD3.I

Analysis Date: 02/23/2018 16:31

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS Fluorene	116	0.00 U	89.8	77	39-117
7005-72-3	MS 4-Chlorophenylphenylether	116	0.00 U	92.1	79	39-121
100-01-6	MS 4-Nitroaniline	116	0.00 U	111	95	30-133
534-52-1	MS 2-Methyl-4,6-dinitrophenol	116	0.00 U	96.3	83	32-126
122-39-4	MS Diphenylamine	116	0.00 U	90.2	78	37-118
122-66-7	MS Azobenzene	116	0.00 U	86.1	74	38-120
101-55-3	MS 4-Bromophenylphenylether	116	0.00 U	85.6	74	39-121
118-74-1	MS Hexachlorobenzene	116	0.00 U	86.8	75	40-118
87-86-5	MS Pentachlorophenol	116	0.00 U	106	91	35-121
85-01-8	MS Phenanthrene	116	0.00 U	92.8	80	40-115
120-12-7	MS Anthracene	116	0.00 U	93.1	80	38-120
84-74-2	MS Di-n-butylphthalate	116	0.00 U	105	91	41-128
206-44-0	MS Fluoranthene	116	0.00 U	97.3	84	41-119
129-00-0	MS Pyrene	116	0.00 U	91.9	79	35-128
85-68-7	MS Butylbenzylphthalate	116	0.00 U	96.6	83	40-129
117-81-7	MS bis(2-Ethylhexyl)phthalate	116	0.00 U	97.3	84	38-131
56-55-3	MS Benzo(a)anthracene	116	0.00 U	93.6	81	39-120
218-01-9	MS Chrysene	116	0.00 U	97.0	83	41-124
117-84-0	MS Di-n-octylphthalate	116	0.00 U	98.7	85	37-134
205-99-2	MS Benzo(b)fluoranthene	116	0.00 U	84.8	73	31-122
207-08-9	MS Benzo(k)fluoranthene	116	0.00 U	85.9	74	33-123
50-32-8	MS Benzo(a)pyrene	116	0.00 U	94.3	81	32-118

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike

Client ID: CAWA-18-28MS

Matrix: W

Lab Sample ID 1203976630

Instrument: MSD3.I

Analysis Date: 02/23/2018 16:31

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS Indeno(1,2,3-cd)pyrene	116	0.00 U	126	108	27-121
53-70-3	MS Dibenzo(a,h)anthracene	116	0.00 U	121	104	30-125
191-24-2	MS Benzo(ghi)perylene	116	0.00 U	119	103	24-126
123-91-1	MS 1,4-Dioxane	116	0.00 U	58.2	50	24-110
930-55-2	MS N-Nitrosopyrrolidine	116	0.00 U	91.2	78	47-119
95-94-3	MS 1,2,4,5-Tetrachlorobenzene	116	0.00 U	67.3	58	32-101
1912-24-9	MS Atrazine	116	0.00 U	106	91	42-129
92-87-5	MS Benzidine	233	0.00 U	228	98	15-130
91-94-1	MS 3,3'-Dichlorobenzidine	116	0.00 U	117	100	34-124
120-82-1	MS 1,2,4-Trichlorobenzene	116	0.00 U	56.9	49	26-102

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike Duplicate

Client ID: CAWA-18-28MSD

Matrix: W

Lab Sample ID 1203976631

Instrument: MSD3.I

Analysis Date: 02/23/2018 17:00

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD N-Methyl-N-nitrosomethylamine	116	0.00	U	52.2	45	25-106	9	0-30
110-86-1	MSD Pyridine	116	0.00	U	57.8	50	24-93	6	0-30
62-53-3	MSD Aniline	116	0.00	U	70.9	61	37-113	5	0-30
108-95-2	MSD Phenol	116	0.00	U	42.6	37	23-82	6	0-30
111-44-4	MSD bis(2-Chloroethyl) ether	116	0.00	U	62.1	53	39-114	9	0-30
95-57-8	MSD 2-Chlorophenol	116	0.00	U	60.8	52	37-108	8	0-30
541-73-1	MSD 1,3-Dichlorobenzene	116	0.00	U	44.9	39	27-97	16	0-30
106-46-7	MSD 1,4-Dichlorobenzene	116	0.00	U	45.3	39	28-97	16	0-30
95-50-1	MSD 1,2-Dichlorobenzene	116	0.00	U	46.8	40	28-99	16	0-30
108-60-1	MSD bis(2-Chloro-1-methylethyl)ether	116	0.00	U	66.2	57	32-127	9	0-30
100-51-6	MSD Benzyl alcohol	116	0.00	U	70.0	60	37-116	4	0-30
95-48-7	MSD o-Cresol	116	0.00	U	64.4	55	34-109	6	0-30
65794-96-9	MSD m,p-Cresols	116	0.00	U	77.5	67	36-120	5	0-30
621-64-7	MSD N-Nitrosodi--n-propylamine N-Nitrosodipropylamine	116	0.00	U	77.9	67	42-118	3	0-30
67-72-1	MSD Hexachloroethane	116	0.00	U	42.3	36	29-94	19	0-30
98-95-3	MSD Nitrobenzene	116	0.00	U	63.6	55	38-123	7	0-30
78-59-1	MSD Isophorone	116	0.00	U	69.3	60	43-120	4	0-30
88-75-5	MSD 2-Nitrophenol	116	0.00	U	66.0	57	39-115	5	0-30
105-67-9	MSD 2,4-Dimethylphenol	116	0.00	U	63.0	54	39-107	5	0-30
111-91-1	MSD bis(2-Chloroethoxy)methane	116	0.00	U	69.6	60	42-118	5	0-30
120-83-2	MSD 2,4-Dichlorophenol	116	0.00	U	70.8	61	40-111	7	0-30
65-85-0	MSD Benzoic acid	233	0.00	U	129	55	17-95	2	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike Duplicate

Client ID: CAWA-18-28MSD

Matrix: W

Lab Sample ID 1203976631

Instrument: MSD3.I

Analysis Date: 02/23/2018 17:00

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD 4-Chloroaniline	116	0.00	U 99.3	85	44-138	3	0-30
87-68-3	MSD Hexachlorobutadiene	116	0.00	U 45.5	39	26-98	18	0-30
59-50-7	MSD Parachlorometa cresol 4-Chloro-3-methylphenol	116	0.00	U 86.5	74	41-122	5	0-30
91-57-6	MSD 2-Methylnaphthalene	116	0.00	U 57.3	49	29-109	10	0-30
91-20-3	MSD Naphthalene	116	0.00	U 54.4	47	31-108	12	0-30
90-12-0	MSD 1-Methylnaphthalene	116	0.00	U 60.7	52	33-112	9	0-30
77-47-4	MSD Hexachlorocyclopentadiene	116	0.00	U 34.9	30	26-79	21	0-30
88-06-2	MSD 2,4,6-Trichlorophenol	116	0.00	U 77.4	67	39-124	2	0-30
95-95-4	MSD 2,4,5-Trichlorophenol	116	0.00	U 80.0	69	42-120	2	0-30
91-58-7	MSD 2-Chloronaphthalene	116	0.00	U 63.6	55	29-113	7	0-30
88-74-4	MSD 2-Nitroaniline o-Nitroaniline	116	0.00	U 93.6	80	41-121	4	0-30
99-09-2	MSD 3-Nitroaniline m-Nitroaniline	116	0.00	U 117	101	42-144	5	0-30
131-11-3	MSD Dimethylphthalate	116	0.00	U 94.8	82	45-128	5	0-30
606-20-2	MSD 2,6-Dinitrotoluene	116	0.00	U 86.0	74	46-124	5	0-30
121-14-2	MSD 2,4-Dinitrotoluene	116	0.00	U 92.9	80	45-125	5	0-30
208-96-8	MSD Acenaphthylene	116	0.00	U 75.6	65	35-120	6	0-30
83-32-9	MSD Acenaphthene	116	0.00	U 79.6	68	35-117	5	0-30
51-28-5	MSD 2,4-Dinitrophenol	116	0.00	U 105	90	27-122	3	0-30
132-64-9	MSD Dibenzofuran	116	0.00	U 82.2	71	38-113	5	0-30
58-90-2	MSD 2,3,4,6-Tetrachlorophenol	116	0.00	U 84.7	73	40-128	2	0-30
84-66-2	MSD Diethylphthalate	116	0.00	U 101	87	43-127	5	0-30
100-02-7	MSD 4-Nitrophenol	116	0.00	U 59.9	51	17-85	4	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike Duplicate

Client ID: CAWA-18-28MSD

Matrix: W

Lab Sample ID 1203976631

Instrument: MSD3.I

Analysis Date: 02/23/2018 17:00

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD Fluorene	116	0.00 U	86.3	74	39-117	4	0-30
7005-72-3	MSD 4-Chlorophenylphenylether	116	0.00 U	87.3	75	39-121	5	0-30
100-01-6	MSD 4-Nitroaniline <i>p-Nitroaniline</i>	116	0.00 U	109	94	30-133	1	0-30
534-52-1	MSD 2-Methyl-4,6-dinitrophenol	116	0.00 U	90.8	78	32-126	6	0-30
122-39-4	MSD Diphenylamine	116	0.00 U	82.4	71	37-118	9	0-30
122-66-7	MSD Azobenzene <i>1,2-Diphenylhydrazine</i>	116	0.00 U	78.3	67	38-120	9	0-30
101-55-3	MSD 4-Bromophenylphenylether	116	0.00 U	78.5	67	39-121	9	0-30
118-74-1	MSD Hexachlorobenzene	116	0.00 U	83.0	71	40-118	4	0-30
87-86-5	MSD Pentachlorophenol	116	0.00 U	102	88	35-121	4	0-30
85-01-8	MSD Phenanthrene	116	0.00 U	88.2	76	40-115	5	0-30
120-12-7	MSD Anthracene	116	0.00 U	89.0	77	38-120	4	0-30
84-74-2	MSD Di-n-butylphthalate	116	0.00 U	107	92	41-128	1	0-30
206-44-0	MSD Fluoranthene	116	0.00 U	100	86	41-119	3	0-30
129-00-0	MSD Pyrene	116	0.00 U	89.8	77	35-128	2	0-30
85-68-7	MSD Butylbenzylphthalate	116	0.00 U	95.4	82	40-129	1	0-30
117-81-7	MSD bis(2-Ethylhexyl)phthalate	116	0.00 U	98.8	85	38-131	1	0-30
56-55-3	MSD Benzo(a)anthracene	116	0.00 U	90.0	77	39-120	4	0-30
218-01-9	MSD Chrysene	116	0.00 U	90.5	78	41-124	7	0-30
117-84-0	MSD Di-n-octylphthalate	116	0.00 U	90.7	78	37-134	8	0-30
205-99-2	MSD Benzo(b)fluoranthene	116	0.00 U	82.8	71	31-122	2	0-30
207-08-9	MSD Benzo(k)fluoranthene	116	0.00 U	83.6	72	33-123	3	0-30
50-32-8	MSD Benzo(a)pyrene	116	0.00 U	88.7	76	32-118	6	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike Duplicate

Client ID: CAWA-18-28MSD

Matrix: W

Lab Sample ID 1203976631

Instrument: MSD3.I

Analysis Date: 02/23/2018 17:00

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1741115

Inj. Vol: 1 uL

Batch ID: 1741116

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD Indeno(1,2,3-cd)pyrene	116	0.00 U	117	100	27-121	7	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	116	0.00 U	117	101	30-125	3	0-30
191-24-2	MSD Benzo(ghi)perylene	116	0.00 U	118	102	24-126	1	0-30
123-91-1	MSD 1,4-Dioxane	116	0.00 U	52.6	45	24-110	10	0-30
930-55-2	MSD N-Nitrosopyrrolidine	116	0.00 U	88.2	76	47-119	3	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	116	0.00 U	61.7	53	32-101	9	0-30
1912-24-9	MSD Atrazine	116	0.00 U	99.4	85	42-129	6	0-30
92-87-5	MSD Benzidine	233	0.00 U	216	93	15-130	5	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	116	0.00 U	103	89	34-124	13	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	116	0.00 U	48.8	42	26-102	15	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742247

Matrix: WATER

Lab Sample ID 1203978893

Instrument: MSD3.I

Analysis Date: 02/27/2018 18:36

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS N-Methyl-N-nitrosomethylamine	50.0	0.0	27.5	55	30-88
110-86-1	LCS Pyridine	50.0	0.0	31.4	63	27-89
62-53-3	LCS Aniline	50.0	0.0	39.9	80	49-112
108-95-2	LCS Phenol	50.0	0.0	21.4	43	16-82
111-44-4	LCS bis(2-Chloroethyl) ether	50.0	0.0	39.6	79	51-111
95-57-8	LCS 2-Chlorophenol	50.0	0.0	37.3	75	49-105
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	33.9	68	37-95
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	34.1	68	38-96
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	34.8	70	39-97
108-60-1	LCS bis(2-Chloro-1-methylethyl)ether	50.0	0.0	41.7	83	44-123
100-51-6	LCS Benzyl alcohol	50.0	0.0	35.2	70	44-102
95-48-7	LCS o-Cresol	50.0	0.0	34.1	68	41-101
65794-96-9	LCS m,p-Cresols	50.0	0.0	37.4	75	43-102
621-64-7	LCS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	50.0	0.0	43.6	87	54-115
67-72-1	LCS Hexachloroethane	50.0	0.0	33.3	67	36-96
98-95-3	LCS Nitrobenzene	50.0	0.0	37.0	74	53-115
78-59-1	LCS Isophorone	50.0	0.0	35.4	71	56-117
88-75-5	LCS 2-Nitrophenol	50.0	0.0	37.0	74	51-113
105-67-9	LCS 2,4-Dimethylphenol	50.0	0.0	32.4	65	51-104
111-91-1	LCS bis(2-Chloroethoxy)methane	50.0	0.0	37.7	75	55-114
120-83-2	LCS 2,4-Dichlorophenol	50.0	0.0	37.1	74	53-109
65-85-0	LCS Benzoic acid	100	0.0	40.5	40	21-74

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742247

Matrix: WATER

Lab Sample ID 1203978893

Instrument: MSD3.I

Analysis Date: 02/27/2018 18:36

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS 4-Chloroaniline	50.0	0.0	49.7	99	65-136
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	34.3	69	35-98
59-50-7	LCS Parachlorometa cresol 4-Chloro-3-methylphenol	50.0	0.0	36.1	72	55-115
91-57-6	LCS 2-Methylnaphthalene	50.0	0.0	32.6	65	42-103
91-20-3	LCS Naphthalene	50.0	0.0	34.2	68	44-102
90-12-0	LCS 1-Methylnaphthalene	50.0	0.0	33.8	68	45-108
77-47-4	LCS Hexachlorocyclopentadiene	50.0	0.0	27.8	56	34-89
88-06-2	LCS 2,4,6-Trichlorophenol	50.0	0.0	35.0	70	55-120
95-95-4	LCS 2,4,5-Trichlorophenol	50.0	0.0	33.7	67	55-116
91-58-7	LCS 2-Chloronaphthalene	50.0	0.0	34.1	68	44-107
88-74-4	LCS 2-Nitroaniline o-Nitroaniline	50.0	0.0	37.0	74	53-121
99-09-2	LCS 3-Nitroaniline m-Nitroaniline	50.0	0.0	42.6	85	61-139
131-11-3	LCS Dimethylphthalate	50.0	0.0	38.4	77	60-122
606-20-2	LCS 2,6-Dinitrotoluene	50.0	0.0	34.6	69	59-122
121-14-2	LCS 2,4-Dinitrotoluene	50.0	0.0	33.2	66	57-124
208-96-8	LCS Acenaphthylene	50.0	0.0	35.4	71	50-113
83-32-9	LCS Acenaphthene	50.0	0.0	38.4	77	49-112
51-28-5	LCS 2,4-Dinitrophenol	50.0	0.0	34.3	69	34-122
132-64-9	LCS Dibenzofuran	50.0	0.0	36.7	73	50-111
58-90-2	LCS 2,3,4,6-Tetrachlorophenol	50.0	0.0	32.0	64	54-122
84-66-2	LCS Diethylphthalate	50.0	0.0	38.9	78	57-122
100-02-7	LCS 4-Nitrophenol	50.0	0.0	17.6	35	15-137

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742247

Matrix: WATER

Lab Sample ID 1203978893

Instrument: MSD3.I

Analysis Date: 02/27/2018 18:36

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS Fluorene	50.0	0.0	36.7	73	52-114
7005-72-3	LCS 4-Chlorophenylphenylether	50.0	0.0	38.6	77	52-121
100-01-6	LCS 4-Nitroaniline	50.0	0.0	35.9	72	44-137
534-52-1	LCS 2-Methyl-4,6-dinitrophenol	50.0	0.0	34.6	69	45-124
122-39-4	LCS Diphenylamine	50.0	0.0	37.4	75	55-113
122-66-7	LCS Azobenzene	50.0	0.0	38.0	76	53-115
101-55-3	LCS 4-Bromophenylphenylether	50.0	0.0	38.1	76	54-116
118-74-1	LCS Hexachlorobenzene	50.0	0.0	37.3	75	54-115
87-86-5	LCS Pentachlorophenol	50.0	0.0	39.4	79	41-116
85-01-8	LCS Phenanthrene	50.0	0.0	36.9	74	55-110
120-12-7	LCS Anthracene	50.0	0.0	37.1	74	56-112
84-74-2	LCS Di-n-butylphthalate	50.0	0.0	42.7	85	57-123
206-44-0	LCS Fluoranthene	50.0	0.0	41.3	83	54-118
129-00-0	LCS Pyrene	50.0	0.0	28.2	56	49-121
85-68-7	LCS Butylbenzylphthalate	50.0	0.0	35.4	71	52-125
117-81-7	LCS bis(2-Ethylhexyl)phthalate	50.0	0.0	40.0	80	52-125
56-55-3	LCS Benzo(a)anthracene	50.0	0.0	36.2	72	57-112
218-01-9	LCS Chrysene	50.0	0.0	36.7	73	58-117
117-84-0	LCS Di-n-octylphthalate	50.0	0.0	39.1	78	50-129
205-99-2	LCS Benzo(b)fluoranthene	50.0	0.0	34.3	69	41-118
207-08-9	LCS Benzo(k)fluoranthene	50.0	0.0	35.6	71	42-121
50-32-8	LCS Benzo(a)pyrene	50.0	0.0	37.0	74	40-118

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1742247

Matrix: WATER

Lab Sample ID 1203978893

Instrument: MSD3.I

Analysis Date: 02/27/2018 18:36

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS Indeno(1,2,3-cd)pyrene	50.0	0.0	43.8	88	34-125
53-70-3	LCS Dibenzo(a,h)anthracene	50.0	0.0	45.3	91	38-129
191-24-2	LCS Benzo(ghi)perylene	50.0	0.0	44.4	89	33-131
123-91-1	LCS 1,4-Dioxane	50.0	0.0	27.6	55	38-78
930-55-2	LCS N-Nitrosopyrrolidine	50.0	0.0	40.9	82	54-113
95-94-3	LCS 1,2,4,5-Tetrachlorobenzene	50.0	0.0	37.0	74	44-102
1912-24-9	LCS Atrazine	50.0	0.0	32.4	65	60-131
92-87-5	LCS Benzidine	100	0.0	88.9	89	20-144
91-94-1	LCS 3,3'-Dichlorobenzidine	50.0	0.0	44.1	88	43-127
120-82-1	LCS 1,2,4-Trichlorobenzene	50.0	0.0	34.2	68	39-99

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 8

SDG Number: 2018-1772

Sample Type: Matrix Spike

Client ID: CAWA-18-56MS

Matrix: W

Lab Sample ID 1203978894

Instrument: MSD3.I

Analysis Date: 02/28/2018 00:30

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS N-Methyl-N-nitrosomethylamine	115	0.00 U	65.7	57	25-106
110-86-1	MS Pyridine	115	0.00 U	71.9	63	24-93
62-53-3	MS Aniline	115	0.00 U	78.6	68	37-113
108-95-2	MS Phenol	115	0.00 U	50.3	44	23-82
111-44-4	MS bis(2-Chloroethyl) ether	115	0.00 U	74.6	65	39-114
95-57-8	MS 2-Chlorophenol	115	0.00 U	72.1	63	37-108
541-73-1	MS 1,3-Dichlorobenzene	115	0.00 U	63.7	55	27-97
106-46-7	MS 1,4-Dichlorobenzene	115	0.00 U	62.7	55	28-97
95-50-1	MS 1,2-Dichlorobenzene	115	0.00 U	64.4	56	28-99
108-60-1	MS bis(2-Chloro-1-methylethyl)ether	115	0.00 U	78.0	68	32-127
100-51-6	MS Benzyl alcohol	115	0.00 U	70.7	61	37-116
95-48-7	MS o-Cresol	115	0.00 U	68.6	60	34-109
65794-96-9	MS m,p-Cresols	115	0.00 U	76.6	67	36-120
621-64-7	MS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	115	0.00 U	77.6	68	42-118
67-72-1	MS Hexachloroethane	115	0.00 U	60.4	53	29-94
98-95-3	MS Nitrobenzene	115	0.00 U	71.8	62	38-123
78-59-1	MS Isophorone	115	0.00 U	65.1	57	43-120
88-75-5	MS 2-Nitrophenol	115	0.00 U	70.3	61	39-115
105-67-9	MS 2,4-Dimethylphenol	115	0.00 U	59.1	51	39-107
111-91-1	MS bis(2-Chloroethoxy)methane	115	0.00 U	69.3	60	42-118
120-83-2	MS 2,4-Dichlorophenol	115	0.00 U	69.5	60	40-111
65-85-0	MS Benzoic acid	230	0.00 U	106	46	17-95

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike

Client ID: CAWA-18-56MS

Matrix: W

Lab Sample ID 1203978894

Instrument: MSD3.I

Analysis Date: 02/28/2018 00:30

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS 4-Chloroaniline	115	0.00 U	91.8	80	44-138
87-68-3	MS Hexachlorobutadiene	115	0.00 U	63.4	55	26-98
59-50-7	MS Parachlorometa cresol 4-Chloro-3-methylphenol	115	0.00 U	64.9	56	41-122
91-57-6	MS 2-Methylnaphthalene	115	0.00 U	61.2	53	29-109
91-20-3	MS Naphthalene	115	0.00 U	67.3	59	31-108
90-12-0	MS 1-Methylnaphthalene	115	0.00 U	63.8	56	33-112
77-47-4	MS Hexachlorocyclopentadiene	115	0.00 U	61.4	53	26-79
88-06-2	MS 2,4,6-Trichlorophenol	115	0.00 U	71.1	62	39-124
95-95-4	MS 2,4,5-Trichlorophenol	115	0.00 U	66.7	58	42-120
91-58-7	MS 2-Chloronaphthalene	115	0.00 U	71.1	62	29-113
88-74-4	MS 2-Nitroaniline o-Nitroaniline	115	0.00 U	72.4	63	41-121
99-09-2	MS 3-Nitroaniline m-Nitroaniline	115	0.00 U	81.1	71	42-144
131-11-3	MS Dimethylphthalate	115	0.00 U	70.5	61	45-128
606-20-2	MS 2,6-Dinitrotoluene	115	0.00 U	63.3	55	46-124
121-14-2	MS 2,4-Dinitrotoluene	115	0.00 U	61.2	53	45-125
208-96-8	MS Acenaphthylene	115	0.00 U	70.9	62	35-120
83-32-9	MS Acenaphthene	115	0.00 U	75.4	66	35-117
51-28-5	MS 2,4-Dinitrophenol	115	0.00 U	72.9	63	27-122
132-64-9	MS Dibenzofuran	115	0.00 U	70.9	62	38-113
58-90-2	MS 2,3,4,6-Tetrachlorophenol	115	0.00 U	60.7	53	40-128
84-66-2	MS Diethylphthalate	115	0.00 U	70.3	61	43-127
100-02-7	MS 4-Nitrophenol	115	0.00 U	46.5	40	17-85

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike

Client ID: CAWA-18-56MS

Matrix: W

Lab Sample ID 1203978894

Instrument: MSD3.I

Analysis Date: 02/28/2018 00:30

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS Fluorene	115	0.00 U	67.8	59	39-117
7005-72-3	MS 4-Chlorophenylphenylether	115	0.00 U	70.8	62	39-121
100-01-6	MS 4-Nitroaniline	115	0.00 U	71.4	62	30-133
534-52-1	MS 2-Methyl-4,6-dinitrophenol	115	0.00 U	69.3	60	32-126
122-39-4	MS Diphenylamine	115	0.00 U	70.7	61	37-118
122-66-7	MS Azobenzene	115	0.00 U	73.0	64	38-120
101-55-3	MS 4-Bromophenylphenylether	115	0.00 U	70.2	61	39-121
118-74-1	MS Hexachlorobenzene	115	0.00 U	70.2	61	40-118
87-86-5	MS Pentachlorophenol	115	0.00 U	79.0	69	35-121
85-01-8	MS Phenanthrene	115	0.00 U	70.0	61	40-115
120-12-7	MS Anthracene	115	0.00 U	69.6	61	38-120
84-74-2	MS Di-n-butylphthalate	115	0.00 U	83.9	73	41-128
206-44-0	MS Fluoranthene	115	0.00 U	79.8	69	41-119
129-00-0	MS Pyrene	115	0.00 U	56.2	49	35-128
85-68-7	MS Butylbenzylphthalate	115	0.00 U	69.9	61	40-129
117-81-7	MS bis(2-Ethylhexyl)phthalate	115	0.00 U	78.3	68	38-131
56-55-3	MS Benzo(a)anthracene	115	0.00 U	69.0	60	39-120
218-01-9	MS Chrysene	115	0.00 U	70.6	61	41-124
117-84-0	MS Di-n-octylphthalate	115	0.00 U	79.9	70	37-134
205-99-2	MS Benzo(b)fluoranthene	115	0.00 U	64.8	56	31-122
207-08-9	MS Benzo(k)fluoranthene	115	0.00 U	67.3	59	33-123
50-32-8	MS Benzo(a)pyrene	115	0.00 U	69.5	60	32-118

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike

Client ID: CAWA-18-56MS

Matrix: W

Lab Sample ID 1203978894

Instrument: MSD3.I

Analysis Date: 02/28/2018 00:30

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS Indeno(1,2,3-cd)pyrene	115	0.00 U	77.1	67	27-121
53-70-3	MS Dibenzo(a,h)anthracene	115	0.00 U	78.9	69	30-125
191-24-2	MS Benzo(ghi)perylene	115	0.00 U	77.8	68	24-126
123-91-1	MS 1,4-Dioxane	115	0.00 U	64.7	56	24-110
930-55-2	MS N-Nitrosopyrrolidine	115	0.00 U	75.7	66	47-119
95-94-3	MS 1,2,4,5-Tetrachlorobenzene	115	0.00 U	79.2	69	32-101
1912-24-9	MS Atrazine	115	0.00 U	76.1	66	42-129
92-87-5	MS Benzidine	230	0.00 U	222	96	15-130
91-94-1	MS 3,3'-Dichlorobenzidine	115	0.00 U	87.2	76	34-124
120-82-1	MS 1,2,4-Trichlorobenzene	115	0.00 U	65.1	57	26-102

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike Duplicate

Client ID: CAWA-18-56MSD

Matrix: W

Lab Sample ID 1203978895

Instrument: MSD3.I

Analysis Date: 02/28/2018 01:00

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD N-Methyl-N-nitrosomethylamine	115	0.00	U 62.8	55	25-106	4	0-30
110-86-1	MSD Pyridine	115	0.00	U 64.9	56	24-93	10	0-30
62-53-3	MSD Aniline	115	0.00	U 73.9	64	37-113	6	0-30
108-95-2	MSD Phenol	115	0.00	U 48.6	42	23-82	3	0-30
111-44-4	MSD bis(2-Chloroethyl) ether	115	0.00	U 77.8	68	39-114	4	0-30
95-57-8	MSD 2-Chlorophenol	115	0.00	U 74.3	65	37-108	3	0-30
541-73-1	MSD 1,3-Dichlorobenzene	115	0.00	U 63.4	55	27-97	0	0-30
106-46-7	MSD 1,4-Dichlorobenzene	115	0.00	U 63.9	56	28-97	2	0-30
95-50-1	MSD 1,2-Dichlorobenzene	115	0.00	U 65.8	57	28-99	2	0-30
108-60-1	MSD bis(2-Chloro-1-methylethyl)ether	115	0.00	U 81.8	71	32-127	5	0-30
100-51-6	MSD Benzyl alcohol	115	0.00	U 75.2	65	37-116	6	0-30
95-48-7	MSD o-Cresol	115	0.00	U 72.8	63	34-109	6	0-30
65794-96-9	MSD m,p-Cresols	115	0.00	U 83.0	72	36-120	8	0-30
621-64-7	MSD N-Nitrosodi--n-propylamine N-Nitrosodipropylamine	115	0.00	U 85.4	74	42-118	10	0-30
67-72-1	MSD Hexachloroethane	115	0.00	U 60.8	53	29-94	1	0-30
98-95-3	MSD Nitrobenzene	115	0.00	U 75.7	66	38-123	5	0-30
78-59-1	MSD Isophorone	115	0.00	U 69.9	61	43-120	7	0-30
88-75-5	MSD 2-Nitrophenol	115	0.00	U 75.4	66	39-115	7	0-30
105-67-9	MSD 2,4-Dimethylphenol	115	0.00	U 60.4	53	39-107	2	0-30
111-91-1	MSD bis(2-Chloroethoxy)methane	115	0.00	U 74.3	65	42-118	7	0-30
120-83-2	MSD 2,4-Dichlorophenol	115	0.00	U 75.2	65	40-111	8	0-30
65-85-0	MSD Benzoic acid	230	0.00	U 116	50	17-95	9	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike Duplicate

Client ID: CAWA-18-56MSD

Matrix: W

Lab Sample ID 1203978895

Instrument: MSD3.I

Analysis Date: 02/28/2018 01:00

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount	Sample		Spike		Acceptance	Acceptance	
		Added	Conc.		Conc.	Recovery	Limits	RPD	Limits
		ug/L	ug/L		ug/L	%		%	
106-47-8	MSD 4-Chloroaniline	115	0.00	U	90.5	79	44-138	1	0-30
87-68-3	MSD Hexachlorobutadiene	115	0.00	U	63.3	55	26-98	0	0-30
59-50-7	MSD Parachlorometa cresol 4-Chloro-3-methylphenol	115	0.00	U	76.0	66	41-122	16	0-30
91-57-6	MSD 2-Methylnaphthalene	115	0.00	U	68.3	59	29-109	11	0-30
91-20-3	MSD Naphthalene	115	0.00	U	70.7	61	31-108	5	0-30
90-12-0	MSD 1-Methylnaphthalene	115	0.00	U	70.4	61	33-112	10	0-30
77-47-4	MSD Hexachlorocyclopentadiene	115	0.00	U	54.7	48	26-79	12	0-30
88-06-2	MSD 2,4,6-Trichlorophenol	115	0.00	U	71.1	62	39-124	0	0-30
95-95-4	MSD 2,4,5-Trichlorophenol	115	0.00	U	69.3	60	42-120	4	0-30
91-58-7	MSD 2-Chloronaphthalene	115	0.00	U	69.7	61	29-113	2	0-30
88-74-4	MSD 2-Nitroaniline o-Nitroaniline	115	0.00	U	76.3	66	41-121	5	0-30
99-09-2	MSD 3-Nitroaniline m-Nitroaniline	115	0.00	U	82.4	72	42-144	2	0-30
131-11-3	MSD Dimethylphthalate	115	0.00	U	73.1	64	45-128	4	0-30
606-20-2	MSD 2,6-Dinitrotoluene	115	0.00	U	66.8	58	46-124	5	0-30
121-14-2	MSD 2,4-Dinitrotoluene	115	0.00	U	64.2	56	45-125	5	0-30
208-96-8	MSD Acenaphthylene	115	0.00	U	71.9	63	35-120	1	0-30
83-32-9	MSD Acenaphthene	115	0.00	U	75.5	66	35-117	0	0-30
51-28-5	MSD 2,4-Dinitrophenol	115	0.00	U	79.4	69	27-122	9	0-30
132-64-9	MSD Dibenzofuran	115	0.00	U	73.4	64	38-113	4	0-30
58-90-2	MSD 2,3,4,6-Tetrachlorophenol	115	0.00	U	64.0	56	40-128	5	0-30
84-66-2	MSD Diethylphthalate	115	0.00	U	72.6	63	43-127	3	0-30
100-02-7	MSD 4-Nitrophenol	115	0.00	U	45.5	40	17-85	2	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike Duplicate

Client ID: CAWA-18-56MSD

Matrix: W

Lab Sample ID 1203978895

Instrument: MSD3.I

Analysis Date: 02/28/2018 01:00

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD Fluorene	115	0.00	U 71.8	62	39-117	6	0-30
7005-72-3	MSD 4-Chlorophenylphenylether	115	0.00	U 74.8	65	39-121	6	0-30
100-01-6	MSD 4-Nitroaniline <i>p</i> -Nitroaniline	115	0.00	U 75.3	66	30-133	5	0-30
534-52-1	MSD 2-Methyl-4,6-dinitrophenol	115	0.00	U 73.5	64	32-126	6	0-30
122-39-4	MSD Diphenylamine	115	0.00	U 74.3	65	37-118	5	0-30
122-66-7	MSD Azobenzene <i>1,2-Diphenylhydrazine</i>	115	0.00	U 76.5	67	38-120	5	0-30
101-55-3	MSD 4-Bromophenylphenylether	115	0.00	U 72.7	63	39-121	4	0-30
118-74-1	MSD Hexachlorobenzene	115	0.00	U 72.2	63	40-118	3	0-30
87-86-5	MSD Pentachlorophenol	115	0.00	U 85.0	74	35-121	7	0-30
85-01-8	MSD Phenanthrene	115	0.00	U 72.9	63	40-115	4	0-30
120-12-7	MSD Anthracene	115	0.00	U 72.1	63	38-120	4	0-30
84-74-2	MSD Di-n-butylphthalate	115	0.00	U 84.8	74	41-128	1	0-30
206-44-0	MSD Fluoranthene	115	0.00	U 81.0	70	41-119	1	0-30
129-00-0	MSD Pyrene	115	0.00	U 57.7	50	35-128	3	0-30
85-68-7	MSD Butylbenzylphthalate	115	0.00	U 71.8	62	40-129	3	0-30
117-81-7	MSD bis(2-Ethylhexyl)phthalate	115	0.00	U 81.1	71	38-131	3	0-30
56-55-3	MSD Benzo(a)anthracene	115	0.00	U 71.9	63	39-120	4	0-30
218-01-9	MSD Chrysene	115	0.00	U 73.6	64	41-124	4	0-30
117-84-0	MSD Di-n-octylphthalate	115	0.00	U 83.7	73	37-134	5	0-30
205-99-2	MSD Benzo(b)fluoranthene	115	0.00	U 68.9	60	31-122	6	0-30
207-08-9	MSD Benzo(k)fluoranthene	115	0.00	U 70.4	61	33-123	5	0-30
50-32-8	MSD Benzo(a)pyrene	115	0.00	U 73.7	64	32-118	6	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2018-1772

Sample Type: Matrix Spike Duplicate

Client ID: CAWA-18-56MSD

Matrix: W

Lab Sample ID 1203978895

Instrument: MSD3.I

Analysis Date: 02/28/2018 01:00

Dilution: 1

Analyst: JLD1

Prep Batch ID: 1742247

Inj. Vol: 1 uL

Batch ID: 1742249

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD Indeno(1,2,3-cd)pyrene	115	0.00	U 76.3	66	27-121	1	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	115	0.00	U 77.7	68	30-125	1	0-30
191-24-2	MSD Benzo(ghi)perylene	115	0.00	U 74.5	65	24-126	4	0-30
123-91-1	MSD 1,4-Dioxane	115	0.00	U 60.6	53	24-110	6	0-30
930-55-2	MSD N-Nitrosopyrrolidine	115	0.00	U 84.6	74	47-119	11	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	115	0.00	U 74.8	65	32-101	6	0-30
1912-24-9	MSD Atrazine	115	0.00	U 76.7	67	42-129	1	0-30
92-87-5	MSD Benzidine	230	0.00	U 202	88	15-130	9	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	115	0.00	U 91.1	79	34-124	4	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	115	0.00	U 67.3	59	26-102	3	0-30

Method Blank Summary

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SDG Number:	2018-1772	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1741115	Instrument ID:	MSD3.I	Data File:	s022318.s\s3b2305.D
Lab Sample ID:	1203976628	Prep Date:	02/23/2018 08:05	Analyzed:	02/23/18 15:02
Column:	DB-5ms				

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 1741115	1203976629	s022318.s\s3b2306.D	02/23/18	1532
02 CAWA-18-28	444396002	s022318.s\s3b2307.D	02/23/18	1601
03 CAWA-18-28MS	1203976630	s022318.s\s3b2308.D	02/23/18	1631
04 CAWA-18-28MSD	1203976631	s022318.s\s3b2309.D	02/23/18	1700
05 CAWA-18-36	444396006	s022318.s\s3b2310.D	02/23/18	1730
06 CAWA-18-127	444396010	s022318.s\s3b2311.D	02/23/18	1759
07 CAWA-18-40	444396013	s022318.s\s3b2312.D	02/23/18	1829
08 CAWA-18-151445	444396016	s022318.s\s3b2313.D	02/23/18	1858
09 CAWA-18-43	444396018	s022318.s\s3b2314.D	02/23/18	1928
10 CAWA-18-88	444396020	s022318.s\s3b2315.D	02/23/18	1957
11 CAWA-18-22	444396023	s022318.s\s3b2316.D	02/23/18	2026
12 CAWA-18-125	444396027	s022318.s\s3b2317.D	02/23/18	2056
13 CAWA-18-30	444396030	s022318.s\s3b2318.D	02/23/18	2125

Method Blank Summary

Page 1 of 1

SDG Number:	2018-1772	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1742247	Instrument ID:	MSD3.I	Data File:	s022718.s\s3b2713.D
Lab Sample ID:	1203978892	Prep Date:	02/27/2018 08:00	Analyzed:	02/27/18 18:06
Column:	DB-5ms				

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 1742247	1203978893	s022718.s\s3b2714.D	02/27/18	1836
02 CAWA-18-40RE	444396013	s022718.s\s3b2715.D	02/27/18	1905
03 CAWA-18-22RE	444396023	s022718.s\s3b2716.D	02/27/18	1935
04 CAWA-18-125RE	444396027	s022718.s\s3b2717.D	02/27/18	2004
05 CAWA-18-56MS	1203978894	s022718.s\s3b2726.D	02/28/18	0030
06 CAWA-18-56MSD	1203978895	s022718.s\s3b2727.D	02/28/18	0100

Quality Control Data

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 1203976628

Client Sample: QC for batch 1741115

Client ID: MB for batch 1741115

Batch ID: 1741116

Run Date: 02/23/2018 15:02

Prep Date: 02/23/2018 08:05

Data File: s022318.s\3b2305.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD3.I

Analyst: JLD1

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.00	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	3.00	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	3.00	ug/L	3.00	10.0
122-66-7	Azobenzene	U	3.00	ug/L	3.00	10.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.00	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	3.00	ug/L	3.00	10.0
123-91-1	1,4-Dioxane	U	3.00	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.00	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	3.00	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	3.00	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	3.00	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	3.00	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	U	5.00	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	0.410	ug/L	0.410	1.00
95-57-8	2-Chlorophenol	U	3.00	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.00	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
88-75-5	2-Nitrophenol	U	3.00	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	3.00	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether	U	3.00	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol	U	3.00	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.30	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether	U	3.00	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	3.00	ug/L	3.00	10.0
83-32-9	Acenaphthene	U	0.300	ug/L	0.300	1.00
208-96-8	Acenaphthylene	U	0.300	ug/L	0.300	1.00
62-53-3	Aniline	U	4.20	ug/L	4.20	10.0
120-12-7	Anthracene	U	0.300	ug/L	0.300	1.00
1912-24-9	Atrazine	U	3.00	ug/L	3.00	10.0
92-87-5	Benzidine	U	3.90	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene	U	0.300	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	0.300	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	U	0.300	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	0.300	ug/L	0.300	1.00

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 1203976628

Client Sample: QC for batch 1741115

Client ID: MB for batch 1741115

Batch ID: 1741116

Run Date: 02/23/2018 15:02

Prep Date: 02/23/2018 08:05

Data File: s022318.s\3b2305.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD3.I

Analyst: JLD1

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.300	ug/L	0.300	1.00
65-85-0	Benzoic acid	U	6.00	ug/L	6.00	20.0
100-51-6	Benzyl alcohol	U	3.00	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate	U	3.00	ug/L	3.00	10.0
218-01-9	Chrysene	U	0.300	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	3.00	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate	U	3.00	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene	U	0.300	ug/L	0.300	1.00
132-64-9	Dibenzofuran	U	3.00	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	3.00	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	3.00	ug/L	3.00	10.0
88-85-7	Dinoseb	U	3.00	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	3.00	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	0.300	ug/L	0.300	1.00
86-73-7	Fluorene	U	0.300	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	U	3.00	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	3.00	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	U	3.00	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	3.00	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.300	ug/L	0.300	1.00
78-59-1	Isophorone	U	3.50	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.00	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
621-64-7	N-Nitrosodi-n-propylamine	U	3.00	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.00	ug/L	3.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
98-95-3	Nitrobenzene	U	3.00	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	3.00	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	0.300	ug/L	0.300	1.00
108-95-2	Phenol	U	3.00	ug/L	3.00	10.0
129-00-0	Pyrene	U	0.300	ug/L	0.300	1.00
110-86-1	Pyridine	U	3.00	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.00	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	3.00	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	3.00	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.00	ug/L	3.00	1.00

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SDG Number: 2018-1772	Matrix: WATER
Lab Sample ID: 1203976628	
Client Sample: QC for batch 1741115	Client: ARSL004
Client ID: MB for batch 1741115	Method: SW846 3510C/8270D
Batch ID: 1741116	Inst: MSD3.I
Run Date: 02/23/2018 15:02	Analyst: JLD1
Prep Date: 02/23/2018 08:05	Aliquot: 1000 mL
Data File: s022318.s\s3b2305.D	Column: DB-5ms
	Project: QC
	SOP Ref: GL-OA-E-009
	Dilution: 1
	Inj. Vol: 1 uL
	Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.70	ug/L	3.70	10.0
99-09-2	3-Nitroaniline	U	3.00	ug/L	3.00	10.0
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.00	ug/L	3.00	10.0
88-74-4	2-Nitroaniline	U	3.00	ug/L	3.00	10.0
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.00	ug/L	3.00	10.0
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	84.1	100	ug/L	84	(32%-124%)
2-Fluorobiphenyl	25.5	50.0	ug/L	51	(32%-112%)
2-Fluorophenol	46.8	100	ug/L	47	(15%-88%)
Nitrobenzene-d5	36.4	50.0	ug/L	73	(36%-115%)
Phenol-d5	30.2	100	ug/L	30	(15%-91%)
p-Terphenyl-d14	52.2	50.0	ug/L	104	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.093	5.3	ug/L	0	J
000079-01-6	Trichloroethylene	2.371	4.89	ug/L	98	NJ

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SDG Number: 2018-1772

Lab Sample ID: 1203976629

Client Sample: QC for batch 1741115

Client ID: LCS for batch 1741115

Batch ID: 1741116

Run Date: 02/23/2018 15:32

Prep Date: 02/23/2018 08:05

Data File: s022318.s\s3b2306.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD3.I

Analyst: JLD1

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		37.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		30.2	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		28.4	ug/L	3.00	10.0
122-66-7	Azobenzene		43.2	ug/L	3.00	10.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene		27.6	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		27.5	ug/L	3.00	10.0
123-91-1	1,4-Dioxane		27.4	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene		34.3	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol		46.2	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		43.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		43.2	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		42.2	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		37.2	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol		50.7	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene		49.5	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		47.3	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		36.7	ug/L	0.410	1.00
95-57-8	2-Chlorophenol		37.7	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		48.4	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		32.8	ug/L	0.300	1.00
88-75-5	2-Nitrophenol		39.6	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		53.2	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether		44.1	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol		45.5	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline		59.9	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether		48.3	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		18.8	ug/L	3.00	10.0
83-32-9	Acenaphthene		44.7	ug/L	0.300	1.00
208-96-8	Acenaphthylene		42.1	ug/L	0.300	1.00
62-53-3	Aniline		44.5	ug/L	4.20	10.0
120-12-7	Anthracene		47.7	ug/L	0.300	1.00
1912-24-9	Atrazine		53.9	ug/L	3.00	10.0
92-87-5	Benzidine	E	133	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene		47.8	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		48.0	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene		44.8	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		66.5	ug/L	0.300	1.00

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SDG Number: 2018-1772

Lab Sample ID: 1203976629

Client Sample: QC for batch 1741115

Client ID: LCS for batch 1741115

Batch ID: 1741116

Run Date: 02/23/2018 15:32

Prep Date: 02/23/2018 08:05

Data File: s022318.s\3b2306.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD3.I

Analyst: JLD1

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		46.1	ug/L	0.300	1.00
65-85-0	Benzoic acid		29.5	ug/L	6.00	20.0
100-51-6	Benzyl alcohol		36.9	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate		50.7	ug/L	3.00	10.0
218-01-9	Chrysene		48.1	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		56.3	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate		46.8	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene		65.5	ug/L	0.300	1.00
132-64-9	Dibenzofuran		45.6	ug/L	3.00	10.0
84-66-2	Diethylphthalate		54.8	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		52.4	ug/L	3.00	10.0
88-85-7	Dinoseb	U	3.00	ug/L	3.00	10.0
122-39-4	Diphenylamine		46.1	ug/L	3.00	10.0
206-44-0	Fluoranthene		52.7	ug/L	0.300	1.00
86-73-7	Fluorene		47.4	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene		44.5	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		28.7	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene		23.5	ug/L	3.00	10.0
67-72-1	Hexachloroethane		26.1	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene		64.4	ug/L	0.300	1.00
78-59-1	Isophorone		39.9	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine		26.1	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
621-64-7	N-Nitrosodi-n-propylamine		44.9	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine		45.7	ug/L	3.00	10.0
91-20-3	Naphthalene		32.2	ug/L	0.300	1.00
98-95-3	Nitrobenzene		38.9	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		54.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		47.3	ug/L	0.300	1.00
108-95-2	Phenol		15.4	ug/L	3.00	10.0
129-00-0	Pyrene		49.3	ug/L	0.300	1.00
110-86-1	Pyridine		30.9	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		39.4	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		41.9	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		39.6	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		53.6	ug/L	3.00	1.00

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SDG Number: 2018-1772	Matrix: WATER
Lab Sample ID: 1203976629	
Client Sample: QC for batch 1741115	Client: ARSL004
Client ID: LCS for batch 1741115	Method: SW846 3510C/8270D
Batch ID: 1741116	Inst: MSD3.I
Run Date: 02/23/2018 15:32	Analyst: JLD1
Prep Date: 02/23/2018 08:05	Aliquot: 1000 mL
Data File: s022318.s\s3b2306.D	Column: DB-5ms
	Project: QC
	SOP Ref: GL-OA-E-009
	Dilution: 1
	Inj. Vol: 1 uL
	Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		37.3	ug/L	3.70	10.0
99-09-2	3-Nitroaniline		65.8	ug/L	3.00	10.0
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol		34.1	ug/L	3.00	10.0
88-74-4	2-Nitroaniline		52.1	ug/L	3.00	10.0
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline		60.8	ug/L	3.00	10.0
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	111	100	ug/L	111	(32%-124%)
2-Fluorobiphenyl	40.4	50.0	ug/L	81	(32%-112%)
2-Fluorophenol	48.6	100	ug/L	49	(15%-88%)
Nitrobenzene-d5	40.7	50.0	ug/L	81	(36%-115%)
Phenol-d5	30.6	100	ug/L	31	(15%-91%)
p-Terphenyl-d14	55.1	50.0	ug/L	110	(36%-121%)

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SDG Number: 2018-1772
Lab Sample ID: 1203976630
Client Sample: QC for batch 1741115
Client ID: CAWA-18-28MS
Batch ID: 1741116
Run Date: 02/23/2018 16:31
Prep Date: 02/23/2018 08:05
Data File: s022318.s\3b2308.D

Date Collected: 02/16/2018 11:30
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 430 mL
Column: DB-5ms

Matrix: W
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		67.3	ug/L	6.98	23.3
120-82-1	1,2,4-Trichlorobenzene		56.9	ug/L	6.98	23.3
95-50-1	1,2-Dichlorobenzene		54.6	ug/L	6.98	23.3
122-66-7	Azobenzene		86.1	ug/L	6.98	23.3
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene		52.5	ug/L	6.98	23.3
106-46-7	1,4-Dichlorobenzene		53.4	ug/L	6.98	23.3
123-91-1	1,4-Dioxane		58.2	ug/L	6.98	23.3
90-12-0	1-Methylnaphthalene		66.4	ug/L	0.698	2.33
58-90-2	2,3,4,6-Tetrachlorophenol		86.5	ug/L	6.98	23.3
95-95-4	2,4,5-Trichlorophenol		81.8	ug/L	6.98	23.3
88-06-2	2,4,6-Trichlorophenol		79.2	ug/L	6.98	23.3
120-83-2	2,4-Dichlorophenol		75.7	ug/L	6.98	23.3
105-67-9	2,4-Dimethylphenol		66.5	ug/L	6.98	23.3
51-28-5	2,4-Dinitrophenol		108	ug/L	11.6	46.5
121-14-2	2,4-Dinitrotoluene		98.0	ug/L	6.98	23.3
606-20-2	2,6-Dinitrotoluene		90.2	ug/L	6.98	23.3
91-58-7	2-Chloronaphthalene		68.1	ug/L	0.953	2.33
95-57-8	2-Chlorophenol		66.0	ug/L	6.98	23.3
534-52-1	2-Methyl-4,6-dinitrophenol		96.3	ug/L	6.98	23.3
91-57-6	2-Methylnaphthalene		63.4	ug/L	0.698	2.33
88-75-5	2-Nitrophenol		69.7	ug/L	6.98	23.3
91-94-1	3,3'-Dichlorobenzidine		117	ug/L	6.98	23.3
101-55-3	4-Bromophenylphenylether		85.6	ug/L	6.98	23.3
59-50-7	Parachlorometa cresol		90.8	ug/L	6.98	23.3
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline		103	ug/L	7.67	23.3
7005-72-3	4-Chlorophenylphenylether		92.1	ug/L	6.98	23.3
100-02-7	4-Nitrophenol		62.5	ug/L	6.98	23.3
83-32-9	Acenaphthene		84.0	ug/L	0.698	2.33
208-96-8	Acenaphthylene		80.1	ug/L	0.698	2.33
62-53-3	Aniline		74.2	ug/L	9.77	23.3
120-12-7	Anthracene		93.1	ug/L	0.698	2.33
1912-24-9	Atrazine		106	ug/L	6.98	23.3
92-87-5	Benzidine		228	ug/L	9.07	23.3
56-55-3	Benzo(a)anthracene		93.6	ug/L	0.698	2.33
50-32-8	Benzo(a)pyrene		94.3	ug/L	0.698	2.33
205-99-2	Benzo(b)fluoranthene		84.8	ug/L	0.698	2.33
191-24-2	Benzo(ghi)perylene		119	ug/L	0.698	2.33

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SDG Number: 2018-1772
Lab Sample ID: 1203976630
Client Sample: QC for batch 1741115
Client ID: CAWA-18-28MS
Batch ID: 1741116
Run Date: 02/23/2018 16:31
Prep Date: 02/23/2018 08:05
Data File: s022318.s\s3b2308.D

Date Collected: 02/16/2018 11:30
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 430 mL
Column: DB-5ms

Matrix: W
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		85.9	ug/L	0.698	2.33
65-85-0	Benzoic acid		126	ug/L	14.0	46.5
100-51-6	Benzyl alcohol		72.9	ug/L	6.98	23.3
85-68-7	Butylbenzylphthalate		96.6	ug/L	6.98	23.3
218-01-9	Chrysene		97.0	ug/L	0.698	2.33
84-74-2	Di-n-butylphthalate		105	ug/L	6.98	23.3
117-84-0	Di-n-octylphthalate		98.7	ug/L	6.98	23.3
53-70-3	Dibenzo(a,h)anthracene		121	ug/L	0.698	2.33
132-64-9	Dibenzofuran		86.7	ug/L	6.98	23.3
84-66-2	Diethylphthalate		106	ug/L	6.98	23.3
131-11-3	Dimethylphthalate		99.3	ug/L	6.98	23.3
88-85-7	Dinoseb	U	6.98	ug/L	6.98	23.3
122-39-4	Diphenylamine		90.2	ug/L	6.98	23.3
206-44-0	Fluoranthene		97.3	ug/L	0.698	2.33
86-73-7	Fluorene		89.8	ug/L	0.698	2.33
118-74-1	Hexachlorobenzene		86.8	ug/L	6.98	23.3
87-68-3	Hexachlorobutadiene		54.5	ug/L	6.98	23.3
77-47-4	Hexachlorocyclopentadiene		43.0	ug/L	6.98	23.3
67-72-1	Hexachloroethane		51.0	ug/L	6.98	23.3
193-39-5	Indeno(1,2,3-cd)pyrene		126	ug/L	0.698	2.33
78-59-1	Isophorone		72.0	ug/L	8.14	23.3
62-75-9	N-Methyl-N-nitrosomethylamine		56.9	ug/L	6.98	23.3
924-16-3	N-Nitrosodi-n-butylamine	U	6.98	ug/L	6.98	23.3
55-18-5	N-Nitrosodiethylamine	U	6.98	ug/L	6.98	23.3
621-64-7	N-Nitrosodi-n-propylamine		80.3	ug/L	6.98	23.3
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine		91.2	ug/L	6.98	23.3
91-20-3	Naphthalene		61.6	ug/L	0.698	2.33
98-95-3	Nitrobenzene		68.4	ug/L	6.98	23.3
608-93-5	Pentachlorobenzene	U	6.98	ug/L	6.98	23.3
87-86-5	Pentachlorophenol		106	ug/L	6.98	23.3
85-01-8	Phenanthrene		92.8	ug/L	0.698	2.33
108-95-2	Phenol		45.5	ug/L	6.98	23.3
129-00-0	Pyrene		91.9	ug/L	0.698	2.33
110-86-1	Pyridine		61.2	ug/L	6.98	23.3
108-60-1	bis(2-Chloro-1-methylethyl)ether		72.1	ug/L	6.98	23.3
111-91-1	bis(2-Chloroethoxy)methane		72.8	ug/L	6.98	23.3
111-44-4	bis(2-Chloroethyl) ether		68.0	ug/L	6.98	23.3
117-81-7	bis(2-Ethylhexyl)phthalate		97.3	ug/L	6.98	2.33

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Sample Summary**

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SDG Number: 2018-1772	Date Collected: 02/16/2018 11:30	Matrix: W
Lab Sample ID: 1203976630	Date Received: 02/21/2018 09:20	
Client Sample: QC for batch 1741115	Client: ARSL004	Project: QC
Client ID: CAWA-18-28MS	Method: SW846 3510C/8270D	SOP Ref: GL-OA-E-009
Batch ID: 1741116	Inst: MSD3.I	Dilution: 1
Run Date: 02/23/2018 16:31	Analyst: JLD1	Inj. Vol: 1 uL
Prep Date: 02/23/2018 08:05	Aliquot: 430 mL	Final Volume: 1 mL
Data File: s022318.s\s3b2308.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		81.4	ug/L	8.60	23.3
99-09-2	3-Nitroaniline		122	ug/L	6.98	23.3
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol		68.2	ug/L	6.98	23.3
88-74-4	2-Nitroaniline		97.8	ug/L	6.98	23.3
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline		111	ug/L	6.98	23.3
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	208	233	ug/L	89	(32%-124%)
2-Fluorobiphenyl	69.4	116	ug/L	60	(32%-112%)
2-Fluorophenol	112	233	ug/L	48	(15%-88%)
Nitrobenzene-d5	68.8	116	ug/L	59	(36%-115%)
Phenol-d5	93.3	233	ug/L	40	(15%-91%)
p-Terphenyl-d14	102	116	ug/L	87	(36%-121%)

**Semi-Volatile
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Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203976631
Client Sample: QC for batch 1741115
Client ID: CAWA-18-28MSD
Batch ID: 1741116
Run Date: 02/23/2018 17:00
Prep Date: 02/23/2018 08:05
Data File: s022318.s\3b2309.D

Date Collected: 02/16/2018 11:30
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 430 mL
Column: DB-5ms

Matrix: W
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		61.7	ug/L	6.98	23.3
120-82-1	1,2,4-Trichlorobenzene		48.8	ug/L	6.98	23.3
95-50-1	1,2-Dichlorobenzene		46.8	ug/L	6.98	23.3
122-66-7	Azobenzene		78.3	ug/L	6.98	23.3
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene		44.9	ug/L	6.98	23.3
106-46-7	1,4-Dichlorobenzene		45.3	ug/L	6.98	23.3
123-91-1	1,4-Dioxane		52.6	ug/L	6.98	23.3
90-12-0	1-Methylnaphthalene		60.7	ug/L	0.698	2.33
58-90-2	2,3,4,6-Tetrachlorophenol		84.7	ug/L	6.98	23.3
95-95-4	2,4,5-Trichlorophenol		80.0	ug/L	6.98	23.3
88-06-2	2,4,6-Trichlorophenol		77.4	ug/L	6.98	23.3
120-83-2	2,4-Dichlorophenol		70.8	ug/L	6.98	23.3
105-67-9	2,4-Dimethylphenol		63.0	ug/L	6.98	23.3
51-28-5	2,4-Dinitrophenol		105	ug/L	11.6	46.5
121-14-2	2,4-Dinitrotoluene		92.9	ug/L	6.98	23.3
606-20-2	2,6-Dinitrotoluene		86.0	ug/L	6.98	23.3
91-58-7	2-Chloronaphthalene		63.6	ug/L	0.953	2.33
95-57-8	2-Chlorophenol		60.8	ug/L	6.98	23.3
534-52-1	2-Methyl-4,6-dinitrophenol		90.8	ug/L	6.98	23.3
91-57-6	2-Methylnaphthalene		57.3	ug/L	0.698	2.33
88-75-5	2-Nitrophenol		66.0	ug/L	6.98	23.3
91-94-1	3,3'-Dichlorobenzidine		103	ug/L	6.98	23.3
101-55-3	4-Bromophenylphenylether		78.5	ug/L	6.98	23.3
59-50-7	Parachlorometa cresol		86.5	ug/L	6.98	23.3
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline		99.3	ug/L	7.67	23.3
7005-72-3	4-Chlorophenylphenylether		87.3	ug/L	6.98	23.3
100-02-7	4-Nitrophenol		59.9	ug/L	6.98	23.3
83-32-9	Acenaphthene		79.6	ug/L	0.698	2.33
208-96-8	Acenaphthylene		75.6	ug/L	0.698	2.33
62-53-3	Aniline		70.9	ug/L	9.77	23.3
120-12-7	Anthracene		89.0	ug/L	0.698	2.33
1912-24-9	Atrazine		99.4	ug/L	6.98	23.3
92-87-5	Benzidine		216	ug/L	9.07	23.3
56-55-3	Benzo(a)anthracene		90.0	ug/L	0.698	2.33
50-32-8	Benzo(a)pyrene		88.7	ug/L	0.698	2.33
205-99-2	Benzo(b)fluoranthene		82.8	ug/L	0.698	2.33
191-24-2	Benzo(ghi)perylene		118	ug/L	0.698	2.33

**Semi-Volatile
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Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203976631
Client Sample: QC for batch 1741115
Client ID: CAWA-18-28MSD
Batch ID: 1741116
Run Date: 02/23/2018 17:00
Prep Date: 02/23/2018 08:05
Data File: s022318.s\s3b2309.D

Date Collected: 02/16/2018 11:30
Date Received: 02/21/2018 09:20
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 430 mL
Column: DB-5ms

Matrix: W
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		83.6	ug/L	0.698	2.33
65-85-0	Benzoic acid		129	ug/L	14.0	46.5
100-51-6	Benzyl alcohol		70.0	ug/L	6.98	23.3
85-68-7	Butylbenzylphthalate		95.4	ug/L	6.98	23.3
218-01-9	Chrysene		90.5	ug/L	0.698	2.33
84-74-2	Di-n-butylphthalate		107	ug/L	6.98	23.3
117-84-0	Di-n-octylphthalate		90.7	ug/L	6.98	23.3
53-70-3	Dibenzo(a,h)anthracene		117	ug/L	0.698	2.33
132-64-9	Dibenzofuran		82.2	ug/L	6.98	23.3
84-66-2	Diethylphthalate		101	ug/L	6.98	23.3
131-11-3	Dimethylphthalate		94.8	ug/L	6.98	23.3
88-85-7	Dinoseb	U	6.98	ug/L	6.98	23.3
122-39-4	Diphenylamine		82.4	ug/L	6.98	23.3
206-44-0	Fluoranthene		100	ug/L	0.698	2.33
86-73-7	Fluorene		86.3	ug/L	0.698	2.33
118-74-1	Hexachlorobenzene		83.0	ug/L	6.98	23.3
87-68-3	Hexachlorobutadiene		45.5	ug/L	6.98	23.3
77-47-4	Hexachlorocyclopentadiene		34.9	ug/L	6.98	23.3
67-72-1	Hexachloroethane		42.3	ug/L	6.98	23.3
193-39-5	Indeno(1,2,3-cd)pyrene		117	ug/L	0.698	2.33
78-59-1	Isophorone		69.3	ug/L	8.14	23.3
62-75-9	N-Methyl-N-nitrosomethylamine		52.2	ug/L	6.98	23.3
924-16-3	N-Nitrosodi-n-butylamine	U	6.98	ug/L	6.98	23.3
55-18-5	N-Nitrosodiethylamine	U	6.98	ug/L	6.98	23.3
621-64-7	N-Nitrosodi-n-propylamine		77.9	ug/L	6.98	23.3
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine		88.2	ug/L	6.98	23.3
91-20-3	Naphthalene		54.4	ug/L	0.698	2.33
98-95-3	Nitrobenzene		63.6	ug/L	6.98	23.3
608-93-5	Pentachlorobenzene	U	6.98	ug/L	6.98	23.3
87-86-5	Pentachlorophenol		102	ug/L	6.98	23.3
85-01-8	Phenanthrene		88.2	ug/L	0.698	2.33
108-95-2	Phenol		42.6	ug/L	6.98	23.3
129-00-0	Pyrene		89.8	ug/L	0.698	2.33
110-86-1	Pyridine		57.8	ug/L	6.98	23.3
108-60-1	bis(2-Chloro-1-methylethyl)ether		66.2	ug/L	6.98	23.3
111-91-1	bis(2-Chloroethoxy)methane		69.6	ug/L	6.98	23.3
111-44-4	bis(2-Chloroethyl) ether		62.1	ug/L	6.98	23.3
117-81-7	bis(2-Ethylhexyl)phthalate		98.8	ug/L	6.98	2.33

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Sample Summary**

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SDG Number: 2018-1772	Date Collected: 02/16/2018 11:30	Matrix: W
Lab Sample ID: 1203976631	Date Received: 02/21/2018 09:20	
Client Sample: QC for batch 1741115	Client: ARSL004	Project: QC
Client ID: CAWA-18-28MSD	Method: SW846 3510C/8270D	SOP Ref: GL-OA-E-009
Batch ID: 1741116	Inst: MSD3.I	Dilution: 1
Run Date: 02/23/2018 17:00	Analyst: JLD1	Inj. Vol: 1 uL
Prep Date: 02/23/2018 08:05	Aliquot: 430 mL	Final Volume: 1 mL
Data File: s022318.s\s3b2309.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		77.5	ug/L	8.60	23.3
99-09-2	3-Nitroaniline		117	ug/L	6.98	23.3
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol		64.4	ug/L	6.98	23.3
88-74-4	2-Nitroaniline		93.6	ug/L	6.98	23.3
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline		109	ug/L	6.98	23.3
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	199	233	ug/L	86	(32%-124%)
2-Fluorobiphenyl	67.2	116	ug/L	58	(32%-112%)
2-Fluorophenol	99.4	233	ug/L	43	(15%-88%)
Nitrobenzene-d5	64.2	116	ug/L	55	(36%-115%)
Phenol-d5	85.1	233	ug/L	37	(15%-91%)
p-Terphenyl-d14	97.1	116	ug/L	83	(36%-121%)

**Semi-Volatile
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Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 1203978892

Client Sample: QC for batch 1742247

Client ID: MB for batch 1742247

Batch ID: 1742249

Run Date: 02/27/2018 18:06

Prep Date: 02/27/2018 08:00

Data File: s022718.s\3b2713.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD3.I

Analyst: JLD1

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.00	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	3.00	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	3.00	ug/L	3.00	10.0
122-66-7	Azobenzene	U	3.00	ug/L	3.00	10.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	3.00	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	3.00	ug/L	3.00	10.0
123-91-1	1,4-Dioxane	U	3.00	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol	U	3.00	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	3.00	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	3.00	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	3.00	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	3.00	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	U	5.00	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	0.410	ug/L	0.410	1.00
95-57-8	2-Chlorophenol	U	3.00	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.00	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
88-75-5	2-Nitrophenol	U	3.00	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	3.00	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether	U	3.00	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol	U	3.00	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	3.30	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether	U	3.00	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	3.00	ug/L	3.00	10.0
83-32-9	Acenaphthene	U	0.300	ug/L	0.300	1.00
208-96-8	Acenaphthylene	U	0.300	ug/L	0.300	1.00
62-53-3	Aniline	U	4.20	ug/L	4.20	10.0
120-12-7	Anthracene	U	0.300	ug/L	0.300	1.00
1912-24-9	Atrazine	U	3.00	ug/L	3.00	10.0
92-87-5	Benzidine	U	3.90	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene	U	0.300	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	0.300	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	U	0.300	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	0.300	ug/L	0.300	1.00

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Sample Summary**

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SDG Number: 2018-1772

Lab Sample ID: 1203978892

Client Sample: QC for batch 1742247

Client ID: MB for batch 1742247

Batch ID: 1742249

Run Date: 02/27/2018 18:06

Prep Date: 02/27/2018 08:00

Data File: s022718.s\3b2713.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD3.I

Analyst: JLD1

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	0.300	ug/L	0.300	1.00
65-85-0	Benzoic acid	U	6.00	ug/L	6.00	20.0
100-51-6	Benzyl alcohol	U	3.00	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate	U	3.00	ug/L	3.00	10.0
218-01-9	Chrysene	U	0.300	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	3.00	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate	U	3.00	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene	U	0.300	ug/L	0.300	1.00
132-64-9	Dibenzofuran	U	3.00	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	3.00	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	3.00	ug/L	3.00	10.0
88-85-7	Dinoseb	U	3.00	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	3.00	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	0.300	ug/L	0.300	1.00
86-73-7	Fluorene	U	0.300	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	U	3.00	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	3.00	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	U	3.00	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	3.00	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene	U	0.300	ug/L	0.300	1.00
78-59-1	Isophorone	U	3.50	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.00	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
621-64-7	N-Nitrosodi-n-propylamine	U	3.00	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	3.00	ug/L	3.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
98-95-3	Nitrobenzene	U	3.00	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	3.00	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	0.300	ug/L	0.300	1.00
108-95-2	Phenol	U	3.00	ug/L	3.00	10.0
129-00-0	Pyrene	U	0.300	ug/L	0.300	1.00
110-86-1	Pyridine	U	3.00	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.00	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	3.00	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	3.00	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	3.00	ug/L	3.00	1.00

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Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203978892
Client Sample: QC for batch 1742247
Client ID: MB for batch 1742247
Batch ID: 1742249
Run Date: 02/27/2018 18:06
Prep Date: 02/27/2018 08:00
Data File: s022718.s\s3b2713.D

Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 1000 mL
Column: DB-5ms

Matrix: WATER
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	3.70	ug/L	3.70	10.0
99-09-2	3-Nitroaniline	U	3.00	ug/L	3.00	10.0
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	3.00	ug/L	3.00	10.0
88-74-4	2-Nitroaniline	U	3.00	ug/L	3.00	10.0
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	3.00	ug/L	3.00	10.0
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	41.4	100	ug/L	41	(32%-124%)
2-Fluorobiphenyl	29.4	50.0	ug/L	59	(32%-112%)
2-Fluorophenol	34.9	100	ug/L	35	(15%-88%)
Nitrobenzene-d5	29.5	50.0	ug/L	59	(36%-115%)
Phenol-d5	21.4	100	ug/L	21	(15%-91%)
p-Terphenyl-d14	30.3	50.0	ug/L	61	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
No Tentatively Identified Compounds Found				ug/L		

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203978893
Client Sample: QC for batch 1742247
Client ID: LCS for batch 1742247
Batch ID: 1742249
Run Date: 02/27/2018 18:36
Prep Date: 02/27/2018 08:00
Data File: s022718.s\s3b2714.D

Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 1000 mL
Column: DB-5ms

Matrix: WATER
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		37.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		34.2	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		34.8	ug/L	3.00	10.0
122-66-7	Azobenzene		38.0	ug/L	3.00	10.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene		33.9	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		34.1	ug/L	3.00	10.0
123-91-1	1,4-Dioxane		27.6	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene		33.8	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol		32.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		33.7	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		35.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		37.1	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		32.4	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol		34.3	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene		33.2	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		34.6	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		34.1	ug/L	0.410	1.00
95-57-8	2-Chlorophenol		37.3	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		34.6	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		32.6	ug/L	0.300	1.00
88-75-5	2-Nitrophenol		37.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		44.1	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether		38.1	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol		36.1	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline		49.7	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether		38.6	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		17.6	ug/L	3.00	10.0
83-32-9	Acenaphthene		38.4	ug/L	0.300	1.00
208-96-8	Acenaphthylene		35.4	ug/L	0.300	1.00
62-53-3	Aniline		39.9	ug/L	4.20	10.0
120-12-7	Anthracene		37.1	ug/L	0.300	1.00
1912-24-9	Atrazine		32.4	ug/L	3.00	10.0
92-87-5	Benzidine		88.9	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene		36.2	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		37.0	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene		34.3	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		44.4	ug/L	0.300	1.00

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203978893
Client Sample: QC for batch 1742247
Client ID: LCS for batch 1742247
Batch ID: 1742249
Run Date: 02/27/2018 18:36
Prep Date: 02/27/2018 08:00
Data File: s022718.s\3b2714.D

Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 1000 mL
Column: DB-5ms

Matrix: WATER
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		35.6	ug/L	0.300	1.00
65-85-0	Benzoic acid		40.5	ug/L	6.00	20.0
100-51-6	Benzyl alcohol		35.2	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate		35.4	ug/L	3.00	10.0
218-01-9	Chrysene		36.7	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		42.7	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate		39.1	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene		45.3	ug/L	0.300	1.00
132-64-9	Dibenzofuran		36.7	ug/L	3.00	10.0
84-66-2	Diethylphthalate		38.9	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		38.4	ug/L	3.00	10.0
88-85-7	Dinoseb	U	3.00	ug/L	3.00	10.0
122-39-4	Diphenylamine		37.4	ug/L	3.00	10.0
206-44-0	Fluoranthene		41.3	ug/L	0.300	1.00
86-73-7	Fluorene		36.7	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene		37.3	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		34.3	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene		27.8	ug/L	3.00	10.0
67-72-1	Hexachloroethane		33.3	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene		43.8	ug/L	0.300	1.00
78-59-1	Isophorone		35.4	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine		27.5	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
621-64-7	N-Nitrosodi-n-propylamine		43.6	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine		40.9	ug/L	3.00	10.0
91-20-3	Naphthalene		34.2	ug/L	0.300	1.00
98-95-3	Nitrobenzene		37.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		39.4	ug/L	3.00	10.0
85-01-8	Phenanthrene		36.9	ug/L	0.300	1.00
108-95-2	Phenol		21.4	ug/L	3.00	10.0
129-00-0	Pyrene		28.2	ug/L	0.300	1.00
110-86-1	Pyridine		31.4	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		41.7	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		37.7	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		39.6	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		40.0	ug/L	3.00	1.00

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Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203978893
Client Sample: QC for batch 1742247
Client ID: LCS for batch 1742247
Batch ID: 1742249
Run Date: 02/27/2018 18:36
Prep Date: 02/27/2018 08:00
Data File: s022718.s\s3b2714.D

Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 1000 mL
Column: DB-5ms

Matrix: WATER
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		37.4	ug/L	3.70	10.0
99-09-2	3-Nitroaniline		42.6	ug/L	3.00	10.0
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol		34.1	ug/L	3.00	10.0
88-74-4	2-Nitroaniline		37.0	ug/L	3.00	10.0
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline		35.9	ug/L	3.00	10.0
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	75.3	100	ug/L	75	(32%-124%)
2-Fluorobiphenyl	34.0	50.0	ug/L	68	(32%-112%)
2-Fluorophenol	55.4	100	ug/L	55	(15%-88%)
Nitrobenzene-d5	37.7	50.0	ug/L	75	(36%-115%)
Phenol-d5	43.9	100	ug/L	44	(15%-91%)
p-Terphenyl-d14	32.5	50.0	ug/L	65	(36%-121%)

**Semi-Volatile
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Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203978894
Client Sample: QC for batch 1742247
Client ID: CAWA-18-56MS
Batch ID: 1742249
Run Date: 02/28/2018 00:30
Prep Date: 02/27/2018 08:00
Data File: s022718.s\3b2726.D

Date Collected: 02/21/2018 10:44
Date Received: 02/23/2018 09:25
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 435 mL
Column: DB-5ms

Matrix: W
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		79.2	ug/L	6.90	23.0
120-82-1	1,2,4-Trichlorobenzene		65.1	ug/L	6.90	23.0
95-50-1	1,2-Dichlorobenzene		64.4	ug/L	6.90	23.0
122-66-7	Azobenzene		73.0	ug/L	6.90	23.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene		63.7	ug/L	6.90	23.0
106-46-7	1,4-Dichlorobenzene		62.7	ug/L	6.90	23.0
123-91-1	1,4-Dioxane		64.7	ug/L	6.90	23.0
90-12-0	1-Methylnaphthalene		63.8	ug/L	0.690	2.30
58-90-2	2,3,4,6-Tetrachlorophenol		60.7	ug/L	6.90	23.0
95-95-4	2,4,5-Trichlorophenol		66.7	ug/L	6.90	23.0
88-06-2	2,4,6-Trichlorophenol		71.1	ug/L	6.90	23.0
120-83-2	2,4-Dichlorophenol		69.5	ug/L	6.90	23.0
105-67-9	2,4-Dimethylphenol		59.1	ug/L	6.90	23.0
51-28-5	2,4-Dinitrophenol		72.9	ug/L	11.5	46.0
121-14-2	2,4-Dinitrotoluene		61.2	ug/L	6.90	23.0
606-20-2	2,6-Dinitrotoluene		63.3	ug/L	6.90	23.0
91-58-7	2-Chloronaphthalene		71.1	ug/L	0.943	2.30
95-57-8	2-Chlorophenol		72.1	ug/L	6.90	23.0
534-52-1	2-Methyl-4,6-dinitrophenol		69.3	ug/L	6.90	23.0
91-57-6	2-Methylnaphthalene		61.2	ug/L	0.690	2.30
88-75-5	2-Nitrophenol		70.3	ug/L	6.90	23.0
91-94-1	3,3'-Dichlorobenzidine		87.2	ug/L	6.90	23.0
101-55-3	4-Bromophenylphenylether		70.2	ug/L	6.90	23.0
59-50-7	Parachlorometa cresol		64.9	ug/L	6.90	23.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline		91.8	ug/L	7.59	23.0
7005-72-3	4-Chlorophenylphenylether		70.8	ug/L	6.90	23.0
100-02-7	4-Nitrophenol		46.5	ug/L	6.90	23.0
83-32-9	Acenaphthene		75.4	ug/L	0.690	2.30
208-96-8	Acenaphthylene		70.9	ug/L	0.690	2.30
62-53-3	Aniline		78.6	ug/L	9.66	23.0
120-12-7	Anthracene		69.6	ug/L	0.690	2.30
1912-24-9	Atrazine		76.1	ug/L	6.90	23.0
92-87-5	Benzidine		222	ug/L	8.97	23.0
56-55-3	Benzo(a)anthracene		69.0	ug/L	0.690	2.30
50-32-8	Benzo(a)pyrene		69.5	ug/L	0.690	2.30
205-99-2	Benzo(b)fluoranthene		64.8	ug/L	0.690	2.30
191-24-2	Benzo(ghi)perylene		77.8	ug/L	0.690	2.30

**Semi-Volatile
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Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203978894
Client Sample: QC for batch 1742247
Client ID: CAWA-18-56MS
Batch ID: 1742249
Run Date: 02/28/2018 00:30
Prep Date: 02/27/2018 08:00
Data File: s022718.s\s3b2726.D

Date Collected: 02/21/2018 10:44
Date Received: 02/23/2018 09:25
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 435 mL
Column: DB-5ms

Matrix: W
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		67.3	ug/L	0.690	2.30
65-85-0	Benzoic acid		106	ug/L	13.8	46.0
100-51-6	Benzyl alcohol		70.7	ug/L	6.90	23.0
85-68-7	Butylbenzylphthalate		69.9	ug/L	6.90	23.0
218-01-9	Chrysene		70.6	ug/L	0.690	2.30
84-74-2	Di-n-butylphthalate		83.9	ug/L	6.90	23.0
117-84-0	Di-n-octylphthalate		79.9	ug/L	6.90	23.0
53-70-3	Dibenzo(a,h)anthracene		78.9	ug/L	0.690	2.30
132-64-9	Dibenzofuran		70.9	ug/L	6.90	23.0
84-66-2	Diethylphthalate		70.3	ug/L	6.90	23.0
131-11-3	Dimethylphthalate		70.5	ug/L	6.90	23.0
88-85-7	Dinoseb	U	6.90	ug/L	6.90	23.0
122-39-4	Diphenylamine		70.7	ug/L	6.90	23.0
206-44-0	Fluoranthene		79.8	ug/L	0.690	2.30
86-73-7	Fluorene		67.8	ug/L	0.690	2.30
118-74-1	Hexachlorobenzene		70.2	ug/L	6.90	23.0
87-68-3	Hexachlorobutadiene		63.4	ug/L	6.90	23.0
77-47-4	Hexachlorocyclopentadiene		61.4	ug/L	6.90	23.0
67-72-1	Hexachloroethane		60.4	ug/L	6.90	23.0
193-39-5	Indeno(1,2,3-cd)pyrene		77.1	ug/L	0.690	2.30
78-59-1	Isophorone		65.1	ug/L	8.05	23.0
62-75-9	N-Methyl-N-nitrosomethylamine		65.7	ug/L	6.90	23.0
924-16-3	N-Nitrosodi-n-butylamine	U	6.90	ug/L	6.90	23.0
55-18-5	N-Nitrosodiethylamine	U	6.90	ug/L	6.90	23.0
621-64-7	N-Nitrosodi-n-propylamine		77.6	ug/L	6.90	23.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine		75.7	ug/L	6.90	23.0
91-20-3	Naphthalene		67.3	ug/L	0.690	2.30
98-95-3	Nitrobenzene		71.8	ug/L	6.90	23.0
608-93-5	Pentachlorobenzene	U	6.90	ug/L	6.90	23.0
87-86-5	Pentachlorophenol		79.0	ug/L	6.90	23.0
85-01-8	Phenanthrene		70.0	ug/L	0.690	2.30
108-95-2	Phenol		50.3	ug/L	6.90	23.0
129-00-0	Pyrene		56.2	ug/L	0.690	2.30
110-86-1	Pyridine		71.9	ug/L	6.90	23.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		78.0	ug/L	6.90	23.0
111-91-1	bis(2-Chloroethoxy)methane		69.3	ug/L	6.90	23.0
111-44-4	bis(2-Chloroethyl) ether		74.6	ug/L	6.90	23.0
117-81-7	bis(2-Ethylhexyl)phthalate		78.3	ug/L	6.90	2.30

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Sample Summary**

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SDG Number: 2018-1772	Date Collected: 02/21/2018 10:44	Matrix: W
Lab Sample ID: 1203978894	Date Received: 02/23/2018 09:25	
Client Sample: QC for batch 1742247	Client: ARSL004	Project: QC
Client ID: CAWA-18-56MS	Method: SW846 3510C/8270D	SOP Ref: GL-OA-E-009
Batch ID: 1742249	Inst: MSD3.I	Dilution: 1
Run Date: 02/28/2018 00:30	Analyst: JLD1	Inj. Vol: 1 uL
Prep Date: 02/27/2018 08:00	Aliquot: 435 mL	Final Volume: 1 mL
Data File: s022718.s\s3b2726.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		76.6	ug/L	8.51	23.0
99-09-2	3-Nitroaniline		81.1	ug/L	6.90	23.0
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol		68.6	ug/L	6.90	23.0
88-74-4	2-Nitroaniline		72.4	ug/L	6.90	23.0
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline		71.4	ug/L	6.90	23.0
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	138	230	ug/L	60	(32%-124%)
2-Fluorobiphenyl	74.5	115	ug/L	65	(32%-112%)
2-Fluorophenol	131	230	ug/L	57	(15%-88%)
Nitrobenzene-d5	73.9	115	ug/L	64	(36%-115%)
Phenol-d5	102	230	ug/L	45	(15%-91%)
p-Terphenyl-d14	66.0	115	ug/L	57	(36%-121%)

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203978895
Client Sample: QC for batch 1742247
Client ID: CAWA-18-56MSD
Batch ID: 1742249
Run Date: 02/28/2018 01:00
Prep Date: 02/27/2018 08:00
Data File: s022718.s\3b2727.D

Date Collected: 02/21/2018 10:44
Date Received: 02/23/2018 09:25
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 435 mL
Column: DB-5ms

Matrix: W
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		74.8	ug/L	6.90	23.0
120-82-1	1,2,4-Trichlorobenzene		67.3	ug/L	6.90	23.0
95-50-1	1,2-Dichlorobenzene		65.8	ug/L	6.90	23.0
122-66-7	Azobenzene		76.5	ug/L	6.90	23.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene		63.4	ug/L	6.90	23.0
106-46-7	1,4-Dichlorobenzene		63.9	ug/L	6.90	23.0
123-91-1	1,4-Dioxane		60.6	ug/L	6.90	23.0
90-12-0	1-Methylnaphthalene		70.4	ug/L	0.690	2.30
58-90-2	2,3,4,6-Tetrachlorophenol		64.0	ug/L	6.90	23.0
95-95-4	2,4,5-Trichlorophenol		69.3	ug/L	6.90	23.0
88-06-2	2,4,6-Trichlorophenol		71.1	ug/L	6.90	23.0
120-83-2	2,4-Dichlorophenol		75.2	ug/L	6.90	23.0
105-67-9	2,4-Dimethylphenol		60.4	ug/L	6.90	23.0
51-28-5	2,4-Dinitrophenol		79.4	ug/L	11.5	46.0
121-14-2	2,4-Dinitrotoluene		64.2	ug/L	6.90	23.0
606-20-2	2,6-Dinitrotoluene		66.8	ug/L	6.90	23.0
91-58-7	2-Chloronaphthalene		69.7	ug/L	0.943	2.30
95-57-8	2-Chlorophenol		74.3	ug/L	6.90	23.0
534-52-1	2-Methyl-4,6-dinitrophenol		73.5	ug/L	6.90	23.0
91-57-6	2-Methylnaphthalene		68.3	ug/L	0.690	2.30
88-75-5	2-Nitrophenol		75.4	ug/L	6.90	23.0
91-94-1	3,3'-Dichlorobenzidine		91.1	ug/L	6.90	23.0
101-55-3	4-Bromophenylphenylether		72.7	ug/L	6.90	23.0
59-50-7	Parachlorometa cresol		76.0	ug/L	6.90	23.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline		90.5	ug/L	7.59	23.0
7005-72-3	4-Chlorophenylphenylether		74.8	ug/L	6.90	23.0
100-02-7	4-Nitrophenol		45.5	ug/L	6.90	23.0
83-32-9	Acenaphthene		75.5	ug/L	0.690	2.30
208-96-8	Acenaphthylene		71.9	ug/L	0.690	2.30
62-53-3	Aniline		73.9	ug/L	9.66	23.0
120-12-7	Anthracene		72.1	ug/L	0.690	2.30
1912-24-9	Atrazine		76.7	ug/L	6.90	23.0
92-87-5	Benzidine		202	ug/L	8.97	23.0
56-55-3	Benzo(a)anthracene		71.9	ug/L	0.690	2.30
50-32-8	Benzo(a)pyrene		73.7	ug/L	0.690	2.30
205-99-2	Benzo(b)fluoranthene		68.9	ug/L	0.690	2.30
191-24-2	Benzo(ghi)perylene		74.5	ug/L	0.690	2.30

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203978895
Client Sample: QC for batch 1742247
Client ID: CAWA-18-56MSD
Batch ID: 1742249
Run Date: 02/28/2018 01:00
Prep Date: 02/27/2018 08:00
Data File: s022718.s\s3b2727.D

Date Collected: 02/21/2018 10:44
Date Received: 02/23/2018 09:25
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 435 mL
Column: DB-5ms

Matrix: W
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		70.4	ug/L	0.690	2.30
65-85-0	Benzoic acid		116	ug/L	13.8	46.0
100-51-6	Benzyl alcohol		75.2	ug/L	6.90	23.0
85-68-7	Butylbenzylphthalate		71.8	ug/L	6.90	23.0
218-01-9	Chrysene		73.6	ug/L	0.690	2.30
84-74-2	Di-n-butylphthalate		84.8	ug/L	6.90	23.0
117-84-0	Di-n-octylphthalate		83.7	ug/L	6.90	23.0
53-70-3	Dibenzo(a,h)anthracene		77.7	ug/L	0.690	2.30
132-64-9	Dibenzofuran		73.4	ug/L	6.90	23.0
84-66-2	Diethylphthalate		72.6	ug/L	6.90	23.0
131-11-3	Dimethylphthalate		73.1	ug/L	6.90	23.0
88-85-7	Dinoseb	U	6.90	ug/L	6.90	23.0
122-39-4	Diphenylamine		74.3	ug/L	6.90	23.0
206-44-0	Fluoranthene		81.0	ug/L	0.690	2.30
86-73-7	Fluorene		71.8	ug/L	0.690	2.30
118-74-1	Hexachlorobenzene		72.2	ug/L	6.90	23.0
87-68-3	Hexachlorobutadiene		63.3	ug/L	6.90	23.0
77-47-4	Hexachlorocyclopentadiene		54.7	ug/L	6.90	23.0
67-72-1	Hexachloroethane		60.8	ug/L	6.90	23.0
193-39-5	Indeno(1,2,3-cd)pyrene		76.3	ug/L	0.690	2.30
78-59-1	Isophorone		69.9	ug/L	8.05	23.0
62-75-9	N-Methyl-N-nitrosomethylamine		62.8	ug/L	6.90	23.0
924-16-3	N-Nitrosodi-n-butylamine	U	6.90	ug/L	6.90	23.0
55-18-5	N-Nitrosodiethylamine	U	6.90	ug/L	6.90	23.0
621-64-7	N-Nitrosodi-n-propylamine		85.4	ug/L	6.90	23.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine		84.6	ug/L	6.90	23.0
91-20-3	Naphthalene		70.7	ug/L	0.690	2.30
98-95-3	Nitrobenzene		75.7	ug/L	6.90	23.0
608-93-5	Pentachlorobenzene	U	6.90	ug/L	6.90	23.0
87-86-5	Pentachlorophenol		85.0	ug/L	6.90	23.0
85-01-8	Phenanthrene		72.9	ug/L	0.690	2.30
108-95-2	Phenol		48.6	ug/L	6.90	23.0
129-00-0	Pyrene		57.7	ug/L	0.690	2.30
110-86-1	Pyridine		64.9	ug/L	6.90	23.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		81.8	ug/L	6.90	23.0
111-91-1	bis(2-Chloroethoxy)methane		74.3	ug/L	6.90	23.0
111-44-4	bis(2-Chloroethyl) ether		77.8	ug/L	6.90	23.0
117-81-7	bis(2-Ethylhexyl)phthalate		81.1	ug/L	6.90	2.30

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2018-1772
Lab Sample ID: 1203978895
Client Sample: QC for batch 1742247
Client ID: CAWA-18-56MSD
Batch ID: 1742249
Run Date: 02/28/2018 01:00
Prep Date: 02/27/2018 08:00
Data File: s022718.s\s3b2727.D

Date Collected: 02/21/2018 10:44
Date Received: 02/23/2018 09:25
Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD3.I
Analyst: JLD1
Aliquot: 435 mL
Column: DB-5ms

Matrix: W
Project: QC
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		83.0	ug/L	8.51	23.0
99-09-2	3-Nitroaniline		82.4	ug/L	6.90	23.0
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol		72.8	ug/L	6.90	23.0
88-74-4	2-Nitroaniline		76.3	ug/L	6.90	23.0
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline		75.3	ug/L	6.90	23.0
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	148	230	ug/L	64	(32%-124%)
2-Fluorobiphenyl	70.8	115	ug/L	62	(32%-112%)
2-Fluorophenol	126	230	ug/L	55	(15%-88%)
Nitrobenzene-d5	76.7	115	ug/L	67	(36%-115%)
Phenol-d5	98.6	230	ug/L	43	(15%-91%)
p-Terphenyl-d14	66.9	115	ug/L	58	(36%-121%)

Perchlorates by LCMSMS Analysis

Case Narrative

**Perchlorates by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-1772
Work Order #: 444396**

Method/Analysis Information

Procedure: **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**

Analytical Method: SW-846:6850

Prep Method: SW-846:6850

Analytical Batch Number: 1742510

Prep Batch Number: 1742509

Sample Analysis

Sample ID	Client ID
444396001	444396001 (CAWA-18-27)
444396005	444396005 (CAWA-18-35)
444396009	444396009 (CAWA-18-124)
444396012	444396012 (CAWA-18-39)
444396017	444396017 (CAWA-18-42)
444396022	444396022 (CAWA-18-21)
444396026	444396026 (CAWA-18-122)
444396029	444396029 (CAWA-18-29)
1203979483	Interference Check Sample (ICS)
1203979479	Method Blank (MB)
1203979480	Laboratory Control Sample (LCS)
1203979481	444396001(CAWA-18-27) Matrix Spike (MS)
1203979482	444396001(CAWA-18-27) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

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-067 REV# 14.

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements

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

CCB Requirements

All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements

All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements

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

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Interference Check Sample (ICS)

The ICS spike recoveries met the acceptance criteria.

QC Sample Designation

Client sample 444396001 (CAWA-18-27) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement

One or more of the required spiking analytes were not within the acceptance limits in the matrix spike (MS) (See Below). Both the LCS and MSD met spike recoveries. The failing recoveries are attributed to vagaries in the extraction process. .

Sample	Value
1203979481 (CAWA-18-27MS)	59* (75%-125%)

MS/MSD Relative Percent Difference (RPD) Statement

The RPDs between the MS and MSD met the acceptance limits.

Internal Standard Area Acceptance

The internal standard areas were within the required acceptance criteria for all samples and QC.

Retention Time

During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by DOD QSM 5.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

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.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information**Manual Integrations**

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

Method Comments

The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments

The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are internally corrected for using Perchlorate-O (18).

Perchlorate Isotope Ratio

The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with a Micromass Quattro Ultima Mass Spectrometer/Mass Spectrometer. It is designated as LCMSMS #2. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for

Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate 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 Perchlorate analysis was performed on a Quatro Ultima LC/MS/MS.

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

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: 2018-1772 GEL Work Order: 444396

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
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature: 

Name: Michael Penny

Date: 02 MAR 2018

Title: Group Leader

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAWA-18-27Date Received: 21-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 444396001Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.401	ug/L		1	28-FEB-18 15:46	per0228016a
	Perchlorate Isotope Ratio			3.23			1	28-FEB-18 15:46	per0228016a
14797-73-0	Perchlorate-101	.05	.2	0.362	ug/L		1	28-FEB-18 15:46	per0228016a
	Perchlorate-O(18)			0.464	ug/L		1	28-FEB-18 15:46	per0228016a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample No.

CAWA-18-35Lab Code: GELDate Received: 21-FEB-18Instrument: LCMSMSGEL Job No (SDG): 2018-1772Method: SW846 6850 ModifiedGEL Sample ID: 444396005Matrix: WATERDate Filtered: 27-FEB-18Extraction Batch ID: 1742509Injection Volume (uL): 20Extraction Type: Filter/DAISample Volume/Weight: 10.0 mL%Solids: Concentrated Extract Volume: 10.0

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.500	ug/L		1	28-FEB-18 16:09	per0228019a
	Perchlorate Isotope Ratio			3.14			1	28-FEB-18 16:09	per0228019a
14797-73-0	Perchlorate-101	.05	.2	0.464	ug/L		1	28-FEB-18 16:09	per0228019a
	Perchlorate-O(18)			0.453	ug/L		1	28-FEB-18 16:09	per0228019a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAWA-18-124Date Received: 21-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 444396009Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.494	ug/L		1	28-FEB-18 16:17	per0228020a
	Perchlorate Isotope Ratio			2.94			1	28-FEB-18 16:17	per0228020a
14797-73-0	Perchlorate-101	.05	.2	0.490	ug/L		1	28-FEB-18 16:17	per0228020a
	Perchlorate-O(18)			0.464	ug/L		1	28-FEB-18 16:17	per0228020a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAWA-18-39Date Received: 21-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 444396012Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.321	ug/L		1	28-FEB-18 16:25	per0228021a
	Perchlorate Isotope Ratio			2.91			1	28-FEB-18 16:25	per0228021a
14797-73-0	Perchlorate-101	.05	.2	0.321	ug/L		1	28-FEB-18 16:25	per0228021a
	Perchlorate-O(18)			0.448	ug/L		1	28-FEB-18 16:25	per0228021a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAWA-18-42Date Received: 21-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 444396017Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.357	ug/L		1	28-FEB-18 16:33	per0228022a
	Perchlorate Isotope Ratio			2.88			1	28-FEB-18 16:33	per0228022a
14797-73-0	Perchlorate-101	.05	.2	0.362	ug/L		1	28-FEB-18 16:33	per0228022a
	Perchlorate-O(18)			0.419	ug/L		1	28-FEB-18 16:33	per0228022a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAWA-18-21Date Received: 21-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 444396022Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	28-FEB-18 17:05	per0228026a
	Perchlorate Isotope Ratio						1	28-FEB-18 17:05	per0228026a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	28-FEB-18 17:05	per0228026a
	Perchlorate-O(18)			0.449	ug/L		1	28-FEB-18 17:05	per0228026a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAWA-18-122Date Received: 21-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 444396026Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	28-FEB-18 17:13	per0228027a
	Perchlorate Isotope Ratio						1	28-FEB-18 17:13	per0228027a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	28-FEB-18 17:13	per0228027a
	Perchlorate-O(18)			0.434	ug/L		1	28-FEB-18 17:13	per0228027a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAWA-18-29Date Received: 21-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 444396029Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	28-FEB-18 17:21	per0228028a
	Perchlorate Isotope Ratio						1	28-FEB-18 17:21	per0228028a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	28-FEB-18 17:21	per0228028a
	Perchlorate-O(18)			0.437	ug/L		1	28-FEB-18 17:21	per0228028a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2018-1772

Extract Batch Code: 1742509

Date Filtered: 27-FEB-18

Matrix: WATER

Sample ID: 1203979480

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.176	ug/L	88		85 - 115
Perchlorate Isotope Ratio		2.76				-
Perchlorate-101	0.200	.186	ug/L	93		85 - 115
Perchlorate-O(18)		.479	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2018-1772

Extract Batch Code: 1742509

Date Extracted: 27-FEB-18

GEL MS/PS ID: 1203979481

Client ID: CAWA-18-27

GEL MSD/PSD ID: 1203979482

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.401	ug/L	0.520	59 *	.6	100	14	30	75 - 125
Perchlorate Isotope Ratio	0	3.23		2.78		3.01		8		-
Perchlorate-101	0.200	0.362	ug/L	0.546	92	.581	110	6	30	75 - 125
Perchlorate-O(18)	0	0.464	ug/L	0.467		.409		13		-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: EPA 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

MBDate Received: 27-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 1203979479Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	28-FEB-18 15:22	per0228013a
	Perchlorate Isotope Ratio						1	28-FEB-18 15:22	per0228013a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	28-FEB-18 15:22	per0228013a
	Perchlorate-O(18)			0.449	ug/L		1	28-FEB-18 15:22	per0228013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: EPA 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

LCSDate Received: 27-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 1203979480Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.176	ug/L	J	1	28-FEB-18 15:30	per0228014a
	Perchlorate Isotope Ratio			2.76			1	28-FEB-18 15:30	per0228014a
14797-73-0	Perchlorate-101	.05	.2	0.186	ug/L	J	1	28-FEB-18 15:30	per0228014a
	Perchlorate-O(18)			0.479	ug/L		1	28-FEB-18 15:30	per0228014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

ICS

Date Received:

GEL Job No (SDG): 2018-1772GEL Sample ID: 1203979483Date Filtered: 27-FEB-18Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.213	ug/L		1	28-FEB-18 15:38	per0228015a
	Perchlorate Isotope Ratio			2.85			1	28-FEB-18 15:38	per0228015a
14797-73-0	Perchlorate-101	.05	.2	0.217	ug/L		1	28-FEB-18 15:38	per0228015a
	Perchlorate-O(18)			0.483	ug/L		1	28-FEB-18 15:38	per0228015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAWA-18-27MSDate Received: 21-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 1203979481Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.520	ug/L		1	28-FEB-18 15:53	per0228017a
	Perchlorate Isotope Ratio			2.78			1	28-FEB-18 15:53	per0228017a
14797-73-0	Perchlorate-101	.05	.2	0.546	ug/L		1	28-FEB-18 15:53	per0228017a
	Perchlorate-O(18)			0.467	ug/L		1	28-FEB-18 15:53	per0228017a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1742509Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAWA-18-27MSDDate Received: 21-FEB-18GEL Job No (SDG): 2018-1772GEL Sample ID: 1203979482Date Filtered: 27-FEB-18Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.600	ug/L		1	28-FEB-18 16:01	per0228018a
	Perchlorate Isotope Ratio			3.01			1	28-FEB-18 16:01	per0228018a
14797-73-0	Perchlorate-101	.05	.2	0.581	ug/L		1	28-FEB-18 16:01	per0228018a
	Perchlorate-O(18)			0.409	ug/L		1	28-FEB-18 16:01	per0228018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\% \text{Solids}}$$

Explosives by LCMSMS Analysis

Case Narrative

**Explosives by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-1772
Work Order #: 444396**

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: 1741753

Prep Batch Number: 1741752

Sample Analysis

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

Sample ID	Client ID
444396003	CAWA-18-28
444396007	CAWA-18-36
444396011	CAWA-18-127
444396014	CAWA-18-40
444396019	CAWA-18-43
444396024	CAWA-18-22
444396028	CAWA-18-125
444396031	CAWA-18-30
1203977813	Method Blank (MB)
1203977814	Laboratory Control Sample (LCS)
1203977815	444396003(CAWA-18-28) Matrix Spike (MS)
1203977816	444396003(CAWA-18-28) 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 continuing calibration verification standards (CCV) have not met requirements of 80-120% for in this SDG. Please refer to Form 7 of the data package for a list of recoveries. A LLOQ level standard was analyzed following the biased low CCV with all target analytes meeting acceptance limits. Since the target analyte was not detected in 444396024 (CAWA-18-22), 444396028 (CAWA-18-125) and 444396031 (CAWA-18-30), the data are reported.

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 444396003 (CAWA-18-28) 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. Samples 444396003 (CAWA-18-28), 444396007 (CAWA-18-36), 444396011 (CAWA-18-127), 444396014 (CAWA-18-40) and 444396019 (CAWA-18-43) were further diluted to bring the over range concentrations within the calibration range. The final dilution in each case takes the 1:1 v/v dilution into account.

Analyte	444396				
	003	007	011	014	019
HMX	2X	10X	2X	2X	2X
RDX	4X	10X	10X	50X	50X

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 Qtrap LC/MS/MS.

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: 2018-1772 GEL Work Order: 444396

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
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature: 

Name: Michael Penny

Date: 01 MAR 2018

Title: Group Leader

Sample Data Summary

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-28

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396003

Sample Amount 900 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223018.wiff

Date Analyzed: 24-FEB-18 04:55

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-14-2	2,4-Dinitrotoluene	.0889	U	0.0889	0.278
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
479-45-8	Tetryl	.0889	U	0.0889	0.556
<i>479-45-8</i>	<i>Tetryl</i>				
606-20-2	2,6-Dinitrotoluene	.0889	U	0.0889	0.278
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
98-95-3	Nitrobenzene	.0889	U	0.0889	0.278
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.0889	U	0.0889	0.278
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	.0889	U	0.0889	0.278
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
99-65-0	m-Dinitrobenzene	.0889	U	0.0889	0.278
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0911	U	0.0911	0.278
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
118-96-7	2,4,6-Trinitrotoluene	.0957	J	0.0889	0.278
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
78-11-5	PETN	.111	U	0.111	0.556
<i>78-11-5</i>	<i>PETN</i>				
99-99-0	p-Nitrotoluene	.167	U	0.167	0.556
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
80251-29-2	DNX	.243	J	0.0889	0.278
<i>80251-29-2</i>	<i>DNX</i>				
13980-04-6	TNX	.306		0.0889	0.278
<i>13980-04-6</i>	<i>TNX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-28

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396003

Sample Amount 900 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	.333	U	0.333	1.11
<i>3058-38-6</i>	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	.333	U	0.333	1.11
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	.333	U	0.333	1.11
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
5755-27-1	MNX	.379		0.0889	0.278
<i>5755-27-1</i>	<i>MNX</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	.556	U	0.556	2.78
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	.556	U	0.556	2.78
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	1.07		0.0889	0.278
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	1.32		0.0889	0.278
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	10.2		0.0889	0.278
<i>2691-41-0</i>	<i>HMX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-28

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396003

Sample Amount 900 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223069.wiff

Date Analyzed: 26-FEB-18 20:47

Dilution Factor: 4

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	10.5		0.178	0.556
121-82-4	RDX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-36

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396007

Sample Amount 940 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223021.wiff

Date Analyzed: 24-FEB-18 06:41

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.0851	U	0.0851	0.266
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.0851	U	0.0851	0.266
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
479-45-8	Tetryl	.0851	U	0.0851	0.532
<i>479-45-8</i>	<i>Tetryl</i>				
606-20-2	2,6-Dinitrotoluene	.0851	U	0.0851	0.266
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
98-95-3	Nitrobenzene	.0851	U	0.0851	0.266
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.0851	U	0.0851	0.266
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	.0851	U	0.0851	0.266
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
99-65-0	m-Dinitrobenzene	.0851	U	0.0851	0.266
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0872	U	0.0872	0.266
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.0895	J	0.0851	0.266
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
78-11-5	PETN	.106	U	0.106	0.532
<i>78-11-5</i>	<i>PETN</i>				
80251-29-2	DNX	.148	J	0.0851	0.266
<i>80251-29-2</i>	<i>DNX</i>				
99-99-0	p-Nitrotoluene	.16	U	0.160	0.532
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-36

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396007

Sample Amount 940 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
19406-51-0	4-Amino-2,6-dinitrotoluene	.169	J	0.0851	0.266
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
13980-04-6	TNX	.226	J	0.0851	0.266
<i>13980-04-6</i>	<i>TNX</i>				
5755-27-1	MNX	.254	J	0.0851	0.266
<i>5755-27-1</i>	<i>MNX</i>				
3058-38-6	TATB	.319	U	0.319	1.06
<i>3058-38-6</i>	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	.319	U	0.319	1.06
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	.319	U	0.319	1.06
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	.532	U	0.532	2.66
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	.532	U	0.532	2.66
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-36

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396007

Sample Amount 940 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223057.wiff

Date Analyzed: 26-FEB-18 13:40

Dilution Factor: 10

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
2691-41-0	HMX	1.99		0.426	1.33
2691-41-0	HMX				
121-82-4	RDX	31.4		0.426	1.33
121-82-4	RDX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-127

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396011

Sample Amount 960 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223022.wiff

Date Analyzed: 24-FEB-18 07:17

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.0833	U	0.0833	0.260
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.0833	U	0.0833	0.260
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
479-45-8	Tetryl	.0833	U	0.0833	0.521
<i>479-45-8</i>	<i>Tetryl</i>				
606-20-2	2,6-Dinitrotoluene	.0833	U	0.0833	0.260
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
98-95-3	Nitrobenzene	.0833	U	0.0833	0.260
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.0833	U	0.0833	0.260
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	.0833	U	0.0833	0.260
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
99-65-0	m-Dinitrobenzene	.0833	U	0.0833	0.260
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0854	U	0.0854	0.260
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.0919	J	0.0833	0.260
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
78-11-5	PETN	.104	U	0.104	0.521
<i>78-11-5</i>	<i>PETN</i>				
80251-29-2	DNX	.154	J	0.0833	0.260
<i>80251-29-2</i>	<i>DNX</i>				
99-99-0	p-Nitrotoluene	.156	U	0.156	0.521
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-127

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396011

Sample Amount 960 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
19406-51-0	4-Amino-2,6-dinitrotoluene	.186	J	0.0833	0.260
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
13980-04-6	TNX	.224	J	0.0833	0.260
<i>13980-04-6</i>	<i>TNX</i>				
5755-27-1	MNX	.253	J	0.0833	0.260
<i>5755-27-1</i>	<i>MNX</i>				
3058-38-6	TATB	.313	U	0.313	1.04
<i>3058-38-6</i>	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	.313	U	0.313	1.04
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	.313	U	0.313	1.04
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	.521	U	0.521	2.60
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	.521	U	0.521	2.60
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
2691-41-0	HMX	1.96		0.0833	0.260
<i>2691-41-0</i>	<i>HMX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-127

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396011

Sample Amount 960 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223058.wiff

Date Analyzed: 26-FEB-18 14:16

Dilution Factor: 10

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	27.1		0.417	1.30
121-82-4	RDX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-40

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396014

Sample Amount 960 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223023.wiff

Date Analyzed: 24-FEB-18 07:52

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.0833	U	0.0833	0.260
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.0833	U	0.0833	0.260
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.0833	U	0.0833	0.260
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
479-45-8	Tetryl	.0833	U	0.0833	0.521
<i>479-45-8</i>	<i>Tetryl</i>				
606-20-2	2,6-Dinitrotoluene	.0833	U	0.0833	0.260
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
98-95-3	Nitrobenzene	.0833	U	0.0833	0.260
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.0833	U	0.0833	0.260
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	.0833	U	0.0833	0.260
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
99-65-0	m-Dinitrobenzene	.0833	U	0.0833	0.260
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0854	U	0.0854	0.260
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
78-11-5	PETN	.104	U	0.104	0.521
<i>78-11-5</i>	<i>PETN</i>				
13980-04-6	TNX	.142	J	0.0833	0.260
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.149	J	0.0833	0.260
<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: CAWA-18-40

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396014

Sample Amount 960 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-99-0	p-Nitrotoluene	.156	U	0.156	0.521
99-99-0	p-Nitrotoluene				
80251-29-2	DNX	.191	J	0.0833	0.260
80251-29-2	DNX				
3058-38-6	TATB	.313	U	0.313	1.04
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	.313	U	0.313	1.04
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	.313	U	0.313	1.04
78-30-8	tris(o-cresyl) phosphate				
5755-27-1	MNX	.423		0.0833	0.260
5755-27-1	MNX				
59229-75-3	2,6-Diamino-4-nitrotoluene	.521	U	0.521	2.60
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	.521	U	0.521	2.60
6629-29-4	2,4-Diamino-6-nitrotoluene				
2691-41-0	HMX	1.47		0.0833	0.260
2691-41-0	HMX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-40

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396014

Sample Amount 960 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223070.wiff

Date Analyzed: 26-FEB-18 21:22

Dilution Factor: 50

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	98.1		2.08	6.51
121-82-4	RDX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-43

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396019

Sample Amount 910 mL

Date Received: 21-FEB-18

Moisture:

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223024.wiff

Date Analyzed: 24-FEB-18 08:28

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>				
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>				
606-20-2	2,6-Dinitrotoluene	.0879	U	0.0879	0.275
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</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>				
99-65-0	m-Dinitrobenzene	.0879	U	0.0879	0.275
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0901	U	0.0901	0.275
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
78-11-5	PETN	.11	U	0.110	0.549
<i>78-11-5</i>	<i>PETN</i>				
99-99-0	p-Nitrotoluene	.165	U	0.165	0.549
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
13980-04-6	TNX	.222	J	0.0879	0.275
<i>13980-04-6</i>	<i>TNX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-43

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396019

Sample Amount 910 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
80251-29-2	DNX	.267	J	0.0879	0.275
80251-29-2	DNX				
3058-38-6	TATB	.33	U	0.330	1.10
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	.33	U	0.330	1.10
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	.33	U	0.330	1.10
78-30-8	tris(o-cresyl) phosphate				
5755-27-1	MNX	.496		0.0879	0.275
5755-27-1	MNX				
59229-75-3	2,6-Diamino-4-nitrotoluene	.549	U	0.549	2.75
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	.549	U	0.549	2.75
6629-29-4	2,4-Diamino-6-nitrotoluene				
19406-51-0	4-Amino-2,6-dinitrotoluene	1.81		0.0879	0.275
19406-51-0	4-Amino-2,6-dinitrotoluene				
2691-41-0	HMX	10.2		0.0879	0.275
2691-41-0	HMX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-43

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396019

Sample Amount 910 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223071.wiff

Date Analyzed: 26-FEB-18 21:58

Dilution Factor: 50

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	138		2.20	6.87
121-82-4	RDX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-22

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396024

Sample Amount 910 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223029.wiff

Date Analyzed: 24-FEB-18 11:25

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>				
479-45-8	Tetryl	.0879	U	0.0879	0.549
<i>479-45-8</i>	<i>Tetryl</i>				
5755-27-1	MXN	.0879	U	0.0879	0.275
<i>5755-27-1</i>	<i>MXN</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>				
99-65-0	m-Dinitrobenzene	.0879	U	0.0879	0.275
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0901	U	0.0901	0.275
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
78-11-5	PETN	.11	U	0.110	0.549
<i>78-11-5</i>	<i>PETN</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-22

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396024

Sample Amount 910 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-99-0	p-Nitrotoluene	.165	U	0.165	0.549
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.19	J	0.0879	0.275
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.216	J	0.0879	0.275
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
3058-38-6	TATB	.33	U	0.330	1.10
<i>3058-38-6</i>	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	.33	U	0.330	1.10
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	.33	U	0.330	1.10
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
121-82-4	RDX	.491		0.0879	0.275
<i>121-82-4</i>	<i>RDX</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	.549	U	0.549	2.75
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	.549	U	0.549	2.75
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
2691-41-0	HMX	1.68		0.0879	0.275
<i>2691-41-0</i>	<i>HMX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-125

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396028

Sample Amount 930 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223030.wiff

Date Analyzed: 24-FEB-18 12:01

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.086	U	0.086	0.269
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.086	U	0.086	0.269
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
13980-04-6	TNX	.086	U	0.086	0.269
<i>13980-04-6</i>	<i>TNX</i>				
479-45-8	Tetryl	.086	U	0.086	0.538
<i>479-45-8</i>	<i>Tetryl</i>				
606-20-2	2,6-Dinitrotoluene	.086	U	0.086	0.269
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	.086	U	0.086	0.269
<i>80251-29-2</i>	<i>DNX</i>				
98-95-3	Nitrobenzene	.086	U	0.086	0.269
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.086	U	0.086	0.269
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	.086	U	0.086	0.269
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
99-65-0	m-Dinitrobenzene	.086	U	0.086	0.269
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
5755-27-1	MNX	.0862	J	0.086	0.269
<i>5755-27-1</i>	<i>MNX</i>				
88-72-2	o-Nitrotoluene	.0882	U	0.0882	0.269
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
78-11-5	PETN	.108	U	0.108	0.538
<i>78-11-5</i>	<i>PETN</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-125

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396028

Sample Amount 930 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-99-0	p-Nitrotoluene	.161	U	0.161	0.538
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.186	J	0.086	0.269
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.232	J	0.086	0.269
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
3058-38-6	TATB	.323	U	0.323	1.08
<i>3058-38-6</i>	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	.323	U	0.323	1.08
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	.323	U	0.323	1.08
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
121-82-4	RDX	.533		0.086	0.269
<i>121-82-4</i>	<i>RDX</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	.538	U	0.538	2.69
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	.538	U	0.538	2.69
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
2691-41-0	HMX	1.58		0.086	0.269
<i>2691-41-0</i>	<i>HMX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-30

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396031

Sample Amount 920 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223031.wiff

Date Analyzed: 24-FEB-18 12:36

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>				
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>				
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>				
99-35-4	1,3,5-Trinitrobenzene	.087	U	0.087	0.272
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
99-65-0	m-Dinitrobenzene	.087	U	0.087	0.272
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-30

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 444396031

Sample Amount 920 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
88-72-2	o-Nitrotoluene	.0891	U	0.0891	0.272
88-72-2	<i>o-Nitrotoluene</i>				
121-82-4	RDX	.0922	J	0.087	0.272
121-82-4	<i>RDX</i>				
78-11-5	PETN	.109	U	0.109	0.543
78-11-5	<i>PETN</i>				
99-99-0	p-Nitrotoluene	.163	U	0.163	0.543
99-99-0	<i>p-Nitrotoluene</i>				
3058-38-6	TATB	.326	U	0.326	1.09
3058-38-6	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	.326	U	0.326	1.09
618-87-1	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	.326	U	0.326	1.09
78-30-8	<i>tris(o-cresyl) phosphate</i>				
2691-41-0	HMX	.362		0.087	0.272
2691-41-0	<i>HMX</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	.543	U	0.543	2.72
59229-75-3	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	.543	U	0.543	2.72
6629-29-4	<i>2,4-Diamino-6-nitrotoluene</i>				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLCGEL Job No (SDG): 2018-1772Lab Code: GEL

HPLC Column: Ultracarb Phenomenex 5u ODS (20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
444396003	CAWA-18-28	99	55 - 115	
444396003	CAWA-18-28DL	98	55 - 115	
444396007	CAWA-18-36	96	55 - 115	
444396007	CAWA-18-36DL	97	55 - 115	
444396011	CAWA-18-127	107	55 - 115	
444396011	CAWA-18-127DL	98	55 - 115	
444396014	CAWA-18-40	97	55 - 115	
444396014	CAWA-18-40DL	92	55 - 115	
444396019	CAWA-18-43	95	55 - 115	
444396019	CAWA-18-43DL	88	55 - 115	
444396024	CAWA-18-22	98	55 - 115	
444396028	CAWA-18-125	99	55 - 115	
444396031	CAWA-18-30	99	55 - 115	
1203977813	MB for batch 1741752	106	55 - 115	
1203977814	LCS for batch 1741752	89	55 - 115	
1203977815	CAWA-18-28MS	88	55 - 115	
1203977816	CAWA-18-28MSD	95	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) 2018-1772

Extract Batch Code: 1741752

Date Extracted: 23-FEB-18

GEL LCS ID: 1203977814

GEL LCSDUP ID: .

Analysis Date/Time: 24-FEB-18 04:19

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
o-Nitrotoluene	5	4.23	85					64 - 115
p-Nitrotoluene	5	4.34	87					66 - 127
tris(o-cresyl) phosphate	5	3.3	66					43 - 104
1,3,5-Trinitrobenzene	5	4.53	91					70 - 110
2,4,6-Trinitrotoluene	5	4.55	91					69 - 113
2,4-Diamino-6-nitrotoluene	5	3.58	72					50 - 121
2,4-Dinitrotoluene	5	4.57	91					71 - 110
2,6-Diamino-4-nitrotoluene	5	3.82	76					53 - 127
2,6-Dinitrotoluene	5	4.38	88					72 - 105
2-Amino-4,6-dinitrotoluene	5	4.51	90					70 - 112
3,5-Dinitroaniline	5	4.73	95					70 - 121
4-Amino-2,6-dinitrotoluene	5	4.44	89					74 - 116
DNX	5	4.71	94					65 - 113
HMX	5	4.57	91					58 - 113
MNX	5	4.82	96					66 - 114
Nitrobenzene	5	4.1	82					64 - 115
PETN	5	4.89	98					57 - 126
RDX	5	4.63	93					64 - 117
TATB	3.5	3.14	90					47 - 135
TNX	5	4.66	93					51 - 110
Tetryl	5	4.71	94					55 - 122
m-Dinitrobenzene	5	4.49	90					74 - 117
m-Nitrotoluene	5	4.71	94					66 - 114

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

* Values outside of QC limits

3
High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAWA-18-28

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Extract Batch Code: 1741752

Date Extracted: 23-FEB-18

GEL Spike ID: 1203977815

GEL SpikeDup ID: 1203977816

Analysis Date/Time: 24-FEB-18 05:30

MSD Analysis Date/Time: 24-FEB-18 06:06

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Rec Limits
1,3,5-Trinitrobenzene	5.31915	0	4.7	88	5.32	93	12	30	67 - 111
2,4,6-Trinitrotoluene	5.31915	.0957	4.51	83	4.91	84	8	30	66 - 112
2,4-Diamino-6-nitrotoluene	5.31915	0	4.72	89	4.95	86	5	30	50 - 121
2,4-Dinitrotoluene	5.31915	.0534	4.4	82	5.39	93	20	30	69 - 113
2,6-Diamino-4-nitrotoluene	5.31915	0	4.22	79	4.96	86	16	30	53 - 127
2,6-Dinitrotoluene	5.31915	0	4.38	82	5.23	91	18	30	70 - 106
2-Amino-4,6-dinitrotoluene	5.31915	1.07	5.29	79	6.3	91	17	30	67 - 115
3,5-Dinitroaniline	5.31915	.163	4.72	86	5.48	92	15	30	70 - 121
4-Amino-2,6-dinitrotoluene	5.31915	1.32	5.54	79	6.36	88	14	30	65 - 120
DNX	5.31915	.243	4.81	86	5.84	97	19	30	53 - 124
HMX	5.31915	10.2	15.2	94	15.8	98	4	30	44 - 128
MXN	5.31915	.379	5.48	96	6.48	106	17	30	60 - 121
Nitrobenzene	5.31915	0	4.13	78	5.03	88	20	30	62 - 116
PETN	5.31915	0	4.89	92	5.7	99	15	30	51 - 131
RDX	5.31915	10.5	15.4	67	17.1	91	10	30	57 - 125
TATB	3.7234	0	3.74	100	4.52	112	19	30	38 - 149
TNX	5.31915	.306	5.11	90	5.91	97	14	30	46 - 120
Tetryl	5.31915	0	5.11	96	5.42	94	6	30	50 - 126
m-Dinitrobenzene	5.31915	0	4.28	81	5.67	99	28	30	74 - 117
m-Nitrotoluene	5.31915	0	4.34	82	5.28	92	20	30	59 - 120
o-Nitrotoluene	5.31915	0	3.79	71	4.65	81	20	30	56 - 119
p-Nitrotoluene	5.31915	0	4.34	82	5.14	90	17	30	61 - 129
tris(o-cresyl) phosphate	5.31915	0	3.57	67	4.46	78	22	30	38 - 105

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

Quality Control Data

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1741752

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 1203977813

Sample Amount 1000 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223016.wiff

Date Analyzed: 24-FEB-18 03:44

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 1741752

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 1203977813

Sample Amount 1000 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

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 1741752

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 1203977814

Sample Amount 1000 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223017.wiff

Date Analyzed: 24-FEB-18 04:19

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	3.14		0.300	1.00
<i>3058-38-6</i>	<i>TATB</i>				
78-30-8	tris(o-cresyl) phosphate	3.3		0.300	1.00
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	3.58		0.500	2.50
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	3.82		0.500	2.50
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
98-95-3	Nitrobenzene	4.1		0.080	0.250
<i>98-95-3</i>	<i>Nitrobenzene</i>				
88-72-2	o-Nitrotoluene	4.23		0.082	0.250
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
99-99-0	p-Nitrotoluene	4.34		0.150	0.500
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
606-20-2	2,6-Dinitrotoluene	4.38		0.080	0.250
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.44		0.080	0.250
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
99-65-0	m-Dinitrobenzene	4.49		0.080	0.250
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.51		0.080	0.250
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	4.53		0.080	0.250
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
118-96-7	2,4,6-Trinitrotoluene	4.55		0.080	0.250
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1741752

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 1203977814

Sample Amount 1000 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-14-2	2,4-Dinitrotoluene	4.57		0.080	0.250
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
2691-41-0	HMX	4.57		0.080	0.250
<i>2691-41-0</i>	<i>HMX</i>				
121-82-4	RDX	4.63		0.080	0.250
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	4.66		0.080	0.250
<i>13980-04-6</i>	<i>TNX</i>				
479-45-8	Tetryl	4.71		0.080	0.500
<i>479-45-8</i>	<i>Tetryl</i>				
80251-29-2	DNX	4.71		0.080	0.250
<i>80251-29-2</i>	<i>DNX</i>				
99-08-1	m-Nitrotoluene	4.71		0.080	0.250
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
618-87-1	3,5-Dinitroaniline	4.73		0.300	1.00
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
5755-27-1	MNX	4.82		0.080	0.250
<i>5755-27-1</i>	<i>MNX</i>				
78-11-5	PETN	4.89		0.100	0.500
<i>78-11-5</i>	<i>PETN</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-28(444396003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 1203977815

Sample Amount 940 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223019.wiff

Date Analyzed: 24-FEB-18 05:30

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
78-30-8	tris(o-cresyl) phosphate	3.57		0.319	1.06
78-30-8	tris(o-cresyl) phosphate				
3058-38-6	TATB	3.74		0.319	1.06
3058-38-6	TATB				
88-72-2	o-Nitrotoluene	3.79		0.0872	0.266
88-72-2	o-Nitrotoluene				
98-95-3	Nitrobenzene	4.13		0.0851	0.266
98-95-3	Nitrobenzene				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.22		0.532	2.66
59229-75-3	2,6-Diamino-4-nitrotoluene				
99-65-0	m-Dinitrobenzene	4.28		0.0851	0.266
99-65-0	m-Dinitrobenzene				
99-08-1	m-Nitrotoluene	4.34		0.0851	0.266
99-08-1	m-Nitrotoluene				
99-99-0	p-Nitrotoluene	4.34		0.160	0.532
99-99-0	p-Nitrotoluene				
606-20-2	2,6-Dinitrotoluene	4.38		0.0851	0.266
606-20-2	2,6-Dinitrotoluene				
121-14-2	2,4-Dinitrotoluene	4.4		0.0851	0.266
121-14-2	2,4-Dinitrotoluene				
118-96-7	2,4,6-Trinitrotoluene	4.51		0.0851	0.266
118-96-7	2,4,6-Trinitrotoluene				
99-35-4	1,3,5-Trinitrobenzene	4.7		0.0851	0.266
99-35-4	1,3,5-Trinitrobenzene				
618-87-1	3,5-Dinitroaniline	4.72		0.319	1.06
618-87-1	3,5-Dinitroaniline				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-28(444396003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 1203977815

Sample Amount 940 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
6629-29-4	2,4-Diamino-6-nitrotoluene	4.72		0.532	2.66
6629-29-4	2,4-Diamino-6-nitrotoluene				
80251-29-2	DNX	4.81		0.0851	0.266
80251-29-2	DNX				
78-11-5	PETN	4.89		0.106	0.532
78-11-5	PETN				
13980-04-6	TNX	5.11		0.0851	0.266
13980-04-6	TNX				
479-45-8	Tetryl	5.11		0.0851	0.532
479-45-8	Tetryl				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.29		0.0851	0.266
35572-78-2	2-Amino-4,6-dinitrotoluene				
5755-27-1	MNX	5.48		0.0851	0.266
5755-27-1	MNX				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.54		0.0851	0.266
19406-51-0	4-Amino-2,6-dinitrotoluene				
2691-41-0	HMX	15.2		0.0851	0.266
2691-41-0	HMX				
121-82-4	RDX	15.4		0.0851	0.266
121-82-4	RDX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-28(444396003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 1203977816

Sample Amount 870 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0223020.wiff

Date Analyzed: 24-FEB-18 06:06

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
78-30-8	tris(o-cresyl) phosphate	4.46		0.345	1.15
78-30-8	tris(o-cresyl) phosphate				
3058-38-6	TATB	4.52		0.345	1.15
3058-38-6	TATB				
88-72-2	o-Nitrotoluene	4.65		0.0943	0.287
88-72-2	o-Nitrotoluene				
118-96-7	2,4,6-Trinitrotoluene	4.91		0.092	0.287
118-96-7	2,4,6-Trinitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.95		0.575	2.87
6629-29-4	2,4-Diamino-6-nitrotoluene				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.96		0.575	2.87
59229-75-3	2,6-Diamino-4-nitrotoluene				
98-95-3	Nitrobenzene	5.03		0.092	0.287
98-95-3	Nitrobenzene				
99-99-0	p-Nitrotoluene	5.14		0.172	0.575
99-99-0	p-Nitrotoluene				
606-20-2	2,6-Dinitrotoluene	5.23		0.092	0.287
606-20-2	2,6-Dinitrotoluene				
99-08-1	m-Nitrotoluene	5.28		0.092	0.287
99-08-1	m-Nitrotoluene				
99-35-4	1,3,5-Trinitrobenzene	5.32		0.092	0.287
99-35-4	1,3,5-Trinitrobenzene				
121-14-2	2,4-Dinitrotoluene	5.39		0.092	0.287
121-14-2	2,4-Dinitrotoluene				
479-45-8	Tetryl	5.42		0.092	0.575
479-45-8	Tetryl				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-28(444396003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-1772

Matrix: WATER

GEL Sample ID: 1203977816

Sample Amount 870 mL

Date Received: 21-FEB-18

Moisture: .

Extraction Batch ID: 1741752

Extraction Type Sol Exchange

Date Extracted: 23-FEB-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
618-87-1	3,5-Dinitroaniline	5.48		0.345	1.15
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
99-65-0	m-Dinitrobenzene	5.67		0.092	0.287
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
78-11-5	PETN	5.7		0.115	0.575
<i>78-11-5</i>	<i>PETN</i>				
80251-29-2	DNX	5.84		0.092	0.287
<i>80251-29-2</i>	<i>DNX</i>				
13980-04-6	TNX	5.91		0.092	0.287
<i>13980-04-6</i>	<i>TNX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	6.3		0.092	0.287
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	6.36		0.092	0.287
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
5755-27-1	MNX	6.48		0.092	0.287
<i>5755-27-1</i>	<i>MNX</i>				
2691-41-0	HMX	15.8		0.092	0.287
<i>2691-41-0</i>	<i>HMX</i>				
121-82-4	RDX	17.1		0.092	0.287
<i>121-82-4</i>	<i>RDX</i>				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2018-1772Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 23-FEB-18 18:51GEL Data File: EXP0223001.wiffInstrument ID: LCMSMS5Column: 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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2018-1772Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 23-FEB-18 19:26GEL Data File: EXP0223002.wiffInstrument ID: LCMSMS5Column: 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): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 24-FEB-18 00:10

GEL Data File: EXP0223010.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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
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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 24-FEB-18 02:32

GEL Data File: EXP0223014.wiff

Instrument ID: LCMSMS5

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): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 24-FEB-18 09:03

GEL Data File: EXP0223025.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
PETN	0	0
RDX	0	14.89
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 24-FEB-18 10:14

GEL Data File: EXP0223027.wiff

Instrument ID: LCMSMS5

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): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK06

Analysis Date: 24-FEB-18 13:12

GEL Data File: EXP0223032.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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
DNX	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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK07

Analysis Date: 24-FEB-18 13:48

GEL Data File: EXP0223033.wiff

Instrument ID: LCMSMS5

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): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK08

Analysis Date: 24-FEB-18 16:10

GEL Data File: EXP0223037.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK09

Analysis Date: 24-FEB-18 20:18

GEL Data File: EXP0223044.wiff

Instrument ID: LCMSMS5

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): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK10

Analysis Date: 24-FEB-18 22:05

GEL Data File: EXP0223047.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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	13.41
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	5.14
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK11

Analysis Date: 24-FEB-18 23:16

GEL Data File: EXP0223049.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK12

Analysis Date: 26-FEB-18 10:06

GEL Data File: EXP0223051.wiff

Instrument ID: LCMSMS5

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): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK13

Analysis Date: 26-FEB-18 10:42

GEL Data File: EXP0223052.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK14

Analysis Date: 26-FEB-18 11:53

GEL Data File: EXP0223054.wiff

Instrument ID: LCMSMS5

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): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK15

Analysis Date: 26-FEB-18 18:25

GEL Data File: EXP0223065.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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	9.48
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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK16

Analysis Date: 26-FEB-18 19:00

GEL Data File: EXP0223066.wiff

Instrument ID: LCMSMS5

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): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK17

Analysis Date: 26-FEB-18 20:11

GEL Data File: EXP0223068.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK18

Analysis Date: 26-FEB-18 23:44

GEL Data File: EXP0223074.wiff

Instrument ID: LCMSMS5

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): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK19

Analysis Date: 27-FEB-18 02:07

GEL Data File: EXP0223078.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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
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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1772

Lab Code: GEL

Lab Sample ID: XIBLK20

Analysis Date: 27-FEB-18 03:18

GEL Data File: EXP0223080.wiff

Instrument ID: LCMSMS5

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

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-1772
Work Order #: 444396

Sample ID	Client ID
444396001	CAWA-18-27
444396002	CAWA-18-28
444396005	CAWA-18-35
444396006	CAWA-18-36
444396009	CAWA-18-124
444396010	CAWA-18-127
444396012	CAWA-18-39
444396013	CAWA-18-40
444396017	CAWA-18-42
444396018	CAWA-18-43
444396022	CAWA-18-21
444396023	CAWA-18-22
444396026	CAWA-18-122
444396027	CAWA-18-125
444396029	CAWA-18-29
444396030	CAWA-18-30
1203976438	Method Blank (MB) ICP
1203976439	Laboratory Control Sample (LCS)
1203976442	444396001(CAWA-18-27L) Serial Dilution (SD)
1203976440	444396001(CAWA-18-27D) Sample Duplicate (DUP)
1203976441	444396001(CAWA-18-27S) Matrix Spike (MS)
1203976443	Method Blank (MB) ICP-MS
1203976444	Laboratory Control Sample (LCS)
1203976447	444396001(CAWA-18-27L) Serial Dilution (SD)
1203976445	444396001(CAWA-18-27D) Sample Duplicate (DUP)
1203976446	444396001(CAWA-18-27S) Matrix Spike (MS)
1203977172	Method Blank (MB) CVAA
1203977173	Laboratory Control Sample (LCS)
1203977178	444396001(CAWA-18-27L) Serial Dilution (SD)
1203977174	444396001(CAWA-18-27D) Sample Duplicate (DUP)
1203977176	444396001(CAWA-18-27S) Matrix Spike (MS)

Sample Analysis

Samples 444396001,002,005,006,009,010,012,013,017,018,022,023,026,027,029 and 030 in this SDG were analyzed for metals and mercury on an "as received" basis.

Method/Analysis Information

Analytical Batch: 1741029, 1741031, 1741433 and 1747180

Prep Batch : 1741028, 1741030 and 1741432

Standard Operating Procedures:	GL-MA-E-013 REV# 30, GL-MA-E-006 REV# 14, GL-MA-E-014 REV# 32, GL-MA-E-010 REV# 36 and GL-GC-E-107 REV# 10
Analytical Method:	SW846 3005A/6010C, SW846 3005A/6020A, EPA 245.2 1974 and SM:A2340B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO₃ is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with an ESI SC-FAST introduction, cyclonic spray chamber, and yttrium or scandium internal standard.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm.

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 350X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

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

CRDL/PQL Requirements

The CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria. For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following samples were selected as the quality control (QC) samples for this SDG: 444396001 (CAWA-18-27)-ICP, ICP-MS and CVAA.

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate Relative Percent Difference (RPD) Statement

The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. The relative percent differences (RPD) between the sample and its duplicate (DUP) were within acceptable limits for all applicable analytes.

Serial Dilution % Difference Statement

The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. Not all the applicable analytes were within the established acceptance criteria. Matrix suppression may be suspected. The data has been qualified.

Analyte	Sample	Value
Potassium	1203976442 (CAWA-18-27SDILT)	16.5 *(0%-10%)

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. 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

The samples in this SDG did not require dilutions.

Preparation Information

The samples in this SDG were not diluted and were prepared according to the cited SOP.

Miscellaneous Information

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.

Additional Comments

Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

$$\text{Hardness} = 2.497 (\text{Ca}) + 4.118 (\text{Mg})$$

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

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: 2018-1772 GEL Work Order: 444396

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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: Nik-Cole Elmore

Date: 19 MAR 2018

Title: Data Validator

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396001**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-27**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:09	022618W2-3	1741433

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 444396001

BASIS: As Received

DATE COLLECTED 16-FEB-18

CLIENT ID: CAWA-18-27

LEVEL: Low

DATE RECEIVED 21-FEB-18

MATRIX: W

%SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	270	ug/L		68	200	200	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7440-38-2	Arsenic	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7440-39-3	Barium	2960	ug/L		1	5	5	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-41-7	Beryllium	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-42-8	Boron	15	ug/L	U	15	50	50	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-43-9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7440-70-2	Calcium	15600	ug/L		50	200	200	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7439-89-6	Iron	133	ug/L		30	100	100	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7439-95-4	Magnesium	4410	ug/L		110	300	300	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7439-96-5	Manganese	2	ug/L	U	2	10	10	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7439-98-7	Molybdenum	0.955	ug/L		0.2	0.5	0.5	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7440-02-0	Nickel	0.681	ug/L	J	0.6	2	2	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7440-09-7	Potassium	2650	ug/L	E	50	150	150	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7782-49-2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7631-86-9	Silica	33600	ug/L		53	213	213	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-22-4	Silver	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7440-23-5	Sodium	14000	ug/L		100	300	300	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-24-6	Strontium	130	ug/L		1	5	5	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-28-0	Thallium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7440-31-5	Tin	2.5	ug/L	U	2.5	10	10	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-61-1	Uranium	0.077	ug/L	J	0.067	0.2	0.2	1	MS	BAJ	02/28/18 20:24	180228-2	1741031
7440-62-2	Vanadium	1.71	ug/L	J	1	5	5	1	P	TXT1	03/07/18 19:47	030718-1	1741029
7440-66-6	Zinc	3.3	ug/L	U	3.3	10	10	1	P	TXT1	03/07/18 19:47	030718-1	1741029

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 444396001**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-27**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	57.2	mg/L		0.453	1.24	1.24	1		TXT1	03/14/18 13:54		1747180

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741029	1741028	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741031	1741030	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396002**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-28**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:21	022618W2-3	1741433

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396005**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-35**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:23	022618W2-3	1741433

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 444396005

BASIS: As Received

DATE COLLECTED 16-FEB-18

CLIENT ID: CAWA-18-35

LEVEL: Low

DATE RECEIVED 21-FEB-18

MATRIX: W

%SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	68	ug/L	U	68	200	200	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7440-38-2	Arsenic	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7440-39-3	Barium	16.9	ug/L		1	5	5	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-41-7	Beryllium	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-42-8	Boron	36.6	ug/L	J	15	50	50	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-43-9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7440-70-2	Calcium	14400	ug/L		50	200	200	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-50-8	Copper	14.4	ug/L		3	10	10	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7439-95-4	Magnesium	6010	ug/L		110	300	300	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7439-96-5	Manganese	2	ug/L	U	2	10	10	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7439-98-7	Molybdenum	0.650	ug/L		0.2	0.5	0.5	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7440-02-0	Nickel	2.78	ug/L		0.6	2	2	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7440-09-7	Potassium	2230	ug/L	E	50	150	150	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7782-49-2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7631-86-9	Silica	56000	ug/L		53	213	213	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-22-4	Silver	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7440-23-5	Sodium	11700	ug/L		100	300	300	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-24-6	Strontium	100	ug/L		1	5	5	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-28-0	Thallium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7440-31-5	Tin	2.5	ug/L	U	2.5	10	10	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-61-1	Uranium	0.357	ug/L		0.067	0.2	0.2	1	MS	BAJ	02/28/18 20:51	180228-2	1741031
7440-62-2	Vanadium	2.73	ug/L	J	1	5	5	1	P	TXT1	03/07/18 20:03	030718-1	1741029
7440-66-6	Zinc	34.3	ug/L		3.3	10	10	1	P	TXT1	03/07/18 20:03	030718-1	1741029

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 444396005**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-35**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	60.8	mg/L		0.453	1.24	1.24	1		TXT1	03/14/18 13:54		1747180

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741029	1741028	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741031	1741030	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396006**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-36**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:24	022618W2-3	1741433

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396009**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-124**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:26	022618W2-3	1741433

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 444396009

BASIS: As Received

DATE COLLECTED 16-FEB-18

CLIENT ID: CAWA-18-124

LEVEL: Low

DATE RECEIVED 21-FEB-18

MATRIX: W

%SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	68	ug/L	U	68	200	200	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7440-38-2	Arsenic	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7440-39-3	Barium	17	ug/L		1	5	5	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-41-7	Beryllium	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-42-8	Boron	36.5	ug/L	J	15	50	50	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-43-9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7440-70-2	Calcium	14800	ug/L		50	200	200	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-50-8	Copper	14.5	ug/L		3	10	10	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7439-95-4	Magnesium	6130	ug/L		110	300	300	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7439-96-5	Manganese	2	ug/L	U	2	10	10	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7439-98-7	Molybdenum	0.608	ug/L		0.2	0.5	0.5	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7440-02-0	Nickel	2.67	ug/L		0.6	2	2	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7440-09-7	Potassium	2310	ug/L	E	50	150	150	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7782-49-2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7631-86-9	Silica	57300	ug/L		53	213	213	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-22-4	Silver	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7440-23-5	Sodium	11900	ug/L		100	300	300	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-24-6	Strontium	102	ug/L		1	5	5	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-28-0	Thallium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7440-31-5	Tin	2.5	ug/L	U	2.5	10	10	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-61-1	Uranium	0.351	ug/L		0.067	0.2	0.2	1	MS	BAJ	02/28/18 20:54	180228-2	1741031
7440-62-2	Vanadium	2.84	ug/L	J	1	5	5	1	P	TXT1	03/07/18 20:06	030718-1	1741029
7440-66-6	Zinc	34.8	ug/L		3.3	10	10	1	P	TXT1	03/07/18 20:06	030718-1	1741029

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 444396009**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-124**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	62.2	mg/L		0.453	1.24	1.24	1		TXT1	03/14/18 13:54		1747180

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741029	1741028	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741031	1741030	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396010**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-127**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:28	022618W2-3	1741433

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396012**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-39**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:29	022618W2-3	1741433

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 444396012

BASIS: As Received

DATE COLLECTED 16-FEB-18

CLIENT ID: CAWA-18-39

LEVEL: Low

DATE RECEIVED 21-FEB-18

MATRIX: W

%SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	68	ug/L	U	68	200	200	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7440-38-2	Arsenic	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7440-39-3	Barium	2.11	ug/L	J	1	5	5	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-41-7	Beryllium	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-42-8	Boron	15	ug/L	U	15	50	50	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-43-9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7440-70-2	Calcium	9870	ug/L		50	200	200	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7439-89-6	Iron	54.5	ug/L	J	30	100	100	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7439-95-4	Magnesium	2570	ug/L		110	300	300	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7439-96-5	Manganese	2	ug/L	U	2	10	10	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7439-98-7	Molybdenum	1.04	ug/L		0.2	0.5	0.5	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7440-02-0	Nickel	0.606	ug/L	J	0.6	2	2	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7440-09-7	Potassium	305	ug/L	E	50	150	150	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7782-49-2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7631-86-9	Silica	59100	ug/L		53	213	213	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-22-4	Silver	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7440-23-5	Sodium	12100	ug/L		100	300	300	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-24-6	Strontium	60.6	ug/L		1	5	5	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-28-0	Thallium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7440-31-5	Tin	2.5	ug/L	U	2.5	10	10	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-61-1	Uranium	0.249	ug/L		0.067	0.2	0.2	1	MS	BAJ	02/28/18 20:57	180228-2	1741031
7440-62-2	Vanadium	1.09	ug/L	J	1	5	5	1	P	TXT1	03/07/18 20:09	030718-1	1741029
7440-66-6	Zinc	14	ug/L		3.3	10	10	1	P	TXT1	03/07/18 20:09	030718-1	1741029

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 444396012**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-39**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	35.2	mg/L		0.453	1.24	1.24	1		TXT1	03/14/18 13:54		1747180

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741029	1741028	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741031	1741030	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

Analytical Methods:*P** SW846 3005A/6010C**MS** SW846 3005A/6020A**AV** EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396013**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-40**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:31	022618W2-3	1741433

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396017**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-42**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:33	022618W2-3	1741433

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 444396017

BASIS: As Received

DATE COLLECTED 16-FEB-18

CLIENT ID: CAWA-18-42

LEVEL: Low

DATE RECEIVED 21-FEB-18

MATRIX: W

%SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	68	ug/L	U	68	200	200	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7440-38-2	Arsenic	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7440-39-3	Barium	3.4	ug/L	J	1	5	5	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-41-7	Beryllium	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-42-8	Boron	22.9	ug/L	J	15	50	50	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-43-9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7440-70-2	Calcium	10900	ug/L		50	200	200	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7439-95-4	Magnesium	3180	ug/L		110	300	300	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7439-96-5	Manganese	2	ug/L	U	2	10	10	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7439-98-7	Molybdenum	0.646	ug/L		0.2	0.5	0.5	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7440-02-0	Nickel	0.699	ug/L	J	0.6	2	2	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7440-09-7	Potassium	961	ug/L	E	50	150	150	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7782-49-2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7631-86-9	Silica	58700	ug/L		53	213	213	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-22-4	Silver	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7440-23-5	Sodium	9740	ug/L		100	300	300	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-24-6	Strontium	61.8	ug/L		1	5	5	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-28-0	Thallium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7440-31-5	Tin	2.5	ug/L	U	2.5	10	10	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-61-1	Uranium	0.447	ug/L		0.067	0.2	0.2	1	MS	BAJ	02/28/18 21:00	180228-2	1741031
7440-62-2	Vanadium	2.69	ug/L	J	1	5	5	1	P	TXT1	03/07/18 20:12	030718-1	1741029
7440-66-6	Zinc	12.4	ug/L		3.3	10	10	1	P	TXT1	03/07/18 20:12	030718-1	1741029

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 444396017**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-42**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	40.4	mg/L		0.453	1.24	1.24	1		TXT1	03/14/18 13:54		1747180

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741029	1741028	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741031	1741030	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396018**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-43**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:38	022618W2-3	1741433

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396022**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-21**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:39	022618W2-3	1741433

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 444396022

BASIS: As Received

DATE COLLECTED 16-FEB-18

CLIENT ID: CAWA-18-21

LEVEL: Low

DATE RECEIVED 21-FEB-18

MATRIX: W

%SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	406	ug/L		68	200	200	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7440-38-2	Arsenic	2.03	ug/L	J	2	5	5	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7440-39-3	Barium	5050	ug/L		1	5	5	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-41-7	Beryllium	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-42-8	Boron	15	ug/L	U	15	50	50	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-43-9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7440-70-2	Calcium	16500	ug/L		50	200	200	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7439-89-6	Iron	603	ug/L		30	100	100	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7439-95-4	Magnesium	4410	ug/L		110	300	300	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7439-96-5	Manganese	99.2	ug/L		2	10	10	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7439-98-7	Molybdenum	0.656	ug/L		0.2	0.5	0.5	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7440-02-0	Nickel	1.16	ug/L	J	0.6	2	2	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7440-09-7	Potassium	2720	ug/L	E	50	150	150	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7782-49-2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7631-86-9	Silica	41500	ug/L		53	213	213	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-22-4	Silver	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7440-23-5	Sodium	14100	ug/L		100	300	300	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-24-6	Strontium	144	ug/L		1	5	5	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-28-0	Thallium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7440-31-5	Tin	2.5	ug/L	U	2.5	10	10	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-61-1	Uranium	0.067	ug/L	U	0.067	0.2	0.2	1	MS	BAJ	02/28/18 21:04	180228-2	1741031
7440-62-2	Vanadium	2.65	ug/L	J	1	5	5	1	P	TXT1	03/07/18 20:15	030718-1	1741029
7440-66-6	Zinc	4.45	ug/L	J	3.3	10	10	1	P	TXT1	03/07/18 20:15	030718-1	1741029

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 444396022**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-21**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	59.4	mg/L		0.453	1.24	1.24	1		TXT1	03/14/18 13:54		1747180

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741029	1741028	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741031	1741030	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396023**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-22**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:41	022618W2-3	1741433

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396026**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-122**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:43	022618W2-3	1741433

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 444396026

BASIS: As Received

DATE COLLECTED 16-FEB-18

CLIENT ID: CAWA-18-122

LEVEL: Low

DATE RECEIVED 21-FEB-18

MATRIX: W

%SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	402	ug/L		68	200	200	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7440-38-2	Arsenic	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7440-39-3	Barium	5340	ug/L		1	5	5	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-41-7	Beryllium	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-42-8	Boron	15	ug/L	U	15	50	50	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-43-9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7440-70-2	Calcium	17600	ug/L		50	200	200	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7439-89-6	Iron	616	ug/L		30	100	100	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7439-95-4	Magnesium	4650	ug/L		110	300	300	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7439-96-5	Manganese	114	ug/L		2	10	10	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7439-98-7	Molybdenum	0.649	ug/L		0.2	0.5	0.5	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7440-02-0	Nickel	1.12	ug/L	J	0.6	2	2	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7440-09-7	Potassium	2880	ug/L	E	50	150	150	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7782-49-2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7631-86-9	Silica	43600	ug/L		53	213	213	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-22-4	Silver	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7440-23-5	Sodium	15000	ug/L		100	300	300	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-24-6	Strontium	153	ug/L		1	5	5	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-28-0	Thallium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7440-31-5	Tin	2.5	ug/L	U	2.5	10	10	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-61-1	Uranium	0.067	ug/L	U	0.067	0.2	0.2	1	MS	BAJ	02/28/18 21:07	180228-2	1741031
7440-62-2	Vanadium	2.68	ug/L	J	1	5	5	1	P	TXT1	03/07/18 20:17	030718-1	1741029
7440-66-6	Zinc	3.34	ug/L	J	3.3	10	10	1	P	TXT1	03/07/18 20:17	030718-1	1741029

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 444396026**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-122**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	63.1	mg/L		0.453	1.24	1.24	1		TXT1	03/14/18 13:54		1747180

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741029	1741028	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741031	1741030	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396027**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-125**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:44	022618W2-3	1741433

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396029**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-29**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:46	022618W2-3	1741433

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 444396029

BASIS: As Received

DATE COLLECTED 16-FEB-18

CLIENT ID: CAWA-18-29

LEVEL: Low

DATE RECEIVED 21-FEB-18

MATRIX: W

%SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	179	ug/L	J	68	200	200	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7440-38-2	Arsenic	3.71	ug/L	J	2	5	5	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7440-39-3	Barium	1340	ug/L		1	5	5	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-41-7	Beryllium	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-42-8	Boron	15	ug/L	U	15	50	50	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-43-9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7440-70-2	Calcium	15700	ug/L		50	200	200	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7440-48-4	Cobalt	3.62	ug/L	J	1	5	5	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7439-89-6	Iron	11700	ug/L		30	100	100	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7439-95-4	Magnesium	3440	ug/L		110	300	300	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7439-96-5	Manganese	1880	ug/L		2	10	10	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7439-98-7	Molybdenum	2.04	ug/L		0.2	0.5	0.5	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7440-02-0	Nickel	1.67	ug/L	J	0.6	2	2	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7440-09-7	Potassium	2780	ug/L	E	50	150	150	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7782-49-2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7631-86-9	Silica	36900	ug/L		53	213	213	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-22-4	Silver	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7440-23-5	Sodium	15100	ug/L		100	300	300	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-24-6	Strontium	75.7	ug/L		1	5	5	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-28-0	Thallium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7440-31-5	Tin	2.5	ug/L	U	2.5	10	10	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-61-1	Uranium	0.067	ug/L	U	0.067	0.2	0.2	1	MS	BAJ	02/28/18 21:10	180228-2	1741031
7440-62-2	Vanadium	1	ug/L	U	1	5	5	1	P	TXT1	03/07/18 20:19	030718-1	1741029
7440-66-6	Zinc	3.65	ug/L	J	3.3	10	10	1	P	TXT1	03/07/18 20:19	030718-1	1741029

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 444396029**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-29**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	53.5	mg/L		0.453	1.24	1.24	1		TXT1	03/14/18 13:54		1747180

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741029	1741028	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741031	1741030	SW846 3005A	50	mL	50	mL	02/21/18	JXM8
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV EPA 245.2 1974

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018-1772**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 444396030**BASIS:** As Received**DATE COLLECTED** 16-FEB-18**CLIENT ID:** CAWA-18-30**LEVEL:** Low**DATE RECEIVED** 21-FEB-18**MATRIX:** W**%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	02/26/18 11:48	022618W2-3	1741433

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1741433	1741432	EPA 245.1/245.2 Prep	20	mL	20	mL	02/22/18	AXS5

***Analytical Methods:**

AV EPA 245.2 1974

Quality Control Summary

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 2018-1772

Contract: ESHL00114

Matrix: W

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Acceptance Window</u>	<u>Conc Qual</u>	<u>M*</u>	<u>MDL</u>	<u>RDL</u>
1203976438	Aluminum	68	ug/L	+/-200	U	P	68	200
	Barium	1	ug/L	+/-5	U	P	1	5
	Beryllium	1	ug/L	+/-5	U	P	1	5
	Boron	15	ug/L	+/-50	U	P	15	50
	Calcium	50	ug/L	+/-200	U	P	50	200
	Cobalt	1	ug/L	+/-5	U	P	1	5
	Copper	3	ug/L	+/-10	U	P	3	10
	Iron	30	ug/L	+/-100	U	P	30	100
	Magnesium	110	ug/L	+/-300	U	P	110	300
	Manganese	2	ug/L	+/-10	U	P	2	10
	Potassium	50	ug/L	+/-150	U	P	50	150
	Silica	53	ug/L	+/-213	U	P	53	213
	Sodium	100	ug/L	+/-300	U	P	100	300
	Strontium	1	ug/L	+/-5	U	P	1	5
	Tin	2.5	ug/L	+/-10	U	P	2.5	10
	Vanadium	1	ug/L	+/-5	U	P	1	5
	Zinc	3.3	ug/L	+/-10	U	P	3.3	10
1203976443	Antimony	1	ug/L	+/-3	U	MS	1	3
	Arsenic	2	ug/L	+/-5	U	MS	2	5
	Cadmium	0.3	ug/L	+/-1	U	MS	0.3	1
	Chromium	3	ug/L	+/-10	U	MS	3	10
	Lead	0.5	ug/L	+/-2	U	MS	0.5	2
	Molybdenum	0.2	ug/L	+/-0.5	U	MS	0.2	0.5
	Nickel	0.6	ug/L	+/-2	U	MS	0.6	2
	Selenium	2	ug/L	+/-5	U	MS	2	5
	Silver	0.3	ug/L	+/-1	U	MS	0.3	1
	Thallium	0.6	ug/L	+/-2	U	MS	0.6	2
	Uranium	0.067	ug/L	+/-0.2	U	MS	0.067	0.2
1203977172	Mercury	0.067	ug/L	+/-0.2	U	AV	0.067	0.2

*Analytical Methods:

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV EPA 245.1/245.2

METALS

-5a-

Matrix Spike Summary

SDG NO. 2018-1772

Client ID: CAWA-18-27S

Contract: ESHL00114

Level: Low

Matrix: WATER

% Solids:

Sample ID: 444396001

Spike ID: 1203976441

<u>Analyte</u>	<u>Units</u>	<u>Acceptance Limit</u>	<u>Spiked Result</u>	<u>C</u>	<u>Sample Result</u>	<u>C</u>	<u>Spike Added</u>	<u>% Recovery</u>	<u>Qual</u>	<u>M*</u>
Aluminum	ug/L	75-125	5100		270		5000	96.6		P
Barium	ug/L		3320		2960		500	72.6	N/A	P
Beryllium	ug/L	75-125	477		1	U	500	95.3		P
Boron	ug/L	75-125	467		15	U	500	93.4		P
Calcium	ug/L	75-125	19900		15600		5000	85.8		P
Cobalt	ug/L	75-125	470		1	U	500	93.9		P
Copper	ug/L	75-125	477		3	U	500	95.4		P
Iron	ug/L	75-125	4970		133		5000	96.8		P
Magnesium	ug/L	75-125	9170		4410		5000	95.2		P
Manganese	ug/L	75-125	471		2	U	500	94		P
Potassium	ug/L	75-125	7310		2650		5000	93.3		P
Silica	ug/L	75-125	42500		33600		10700	83.4		P
Sodium	ug/L	75-125	18200		14000		5000	83.6		P
Strontium	ug/L	75-125	601		130		500	94.1		P
Tin	ug/L	75-125	468		2.5	U	500	93.7		P
Vanadium	ug/L	75-125	479		1.71	J	500	95.5		P
Zinc	ug/L	75-125	454		3.3	U	500	90.3		P

*Analytical Methods:

P SW846 3005A/6010C

METALS

-5a-

Matrix Spike Summary

SDG NO. 2018-1772 Client ID: CAWA-18-27S

Contract: ESHL00114 Level: Low

Matrix: WATER % Solids:

Sample ID: 444396001 Spike ID: 1203976446

<u>Analyte</u>	<u>Units</u>	<u>Acceptance Limit</u>	<u>Spiked Result</u>	<u>C</u>	<u>Sample Result</u>	<u>C</u>	<u>Spike Added</u>	<u>% Recovery</u>	<u>Qual</u>	<u>M*</u>
Antimony	ug/L	75-125	47.8		1	U	50	95.2		MS
Arsenic	ug/L	75-125	49.3		2	U	50	95.6		MS
Cadmium	ug/L	75-125	50.1		0.3	U	50	100		MS
Lead	ug/L	75-125	48.2		0.5	U	50	96.3		MS
Molybdenum	ug/L	75-125	52.1		0.955		50	102		MS
Nickel	ug/L	75-125	49.6		0.681	J	50	97.9		MS
Selenium	ug/L	75-125	47.8		2	U	50	95.5		MS
Silver	ug/L	75-125	49.9		0.3	U	50	99.7		MS
Thallium	ug/L	75-125	46.3		0.6	U	50	92.6		MS
Chromium	ug/L	75-125	48.8		3	U	50	95.8		MS
Uranium	ug/L	75-125	47.9		0.077	J	50	95.7		MS

*Analytical Methods:

MS SW846 3005A/6020A

METALS

-5a-

Matrix Spike Summary

SDG NO. 2018-1772 Client ID CAWA-18-27S

Contract: ESHL00114 Level: Low

Matrix: WATER % Solids:

Sample ID: 444396001 Spike ID: 1203977176

<u>Analyte</u>	<u>Units</u>	<u>Acceptance Limit</u>	<u>Spiked Result</u>	<u>C</u>	<u>Sample Result</u>	<u>C</u>	<u>Spike Added</u>	<u>% Recovery</u>	<u>Qual</u>	<u>M*</u>
Mercury	ug/L	75-125	2		0.067	U	2	99.9		AV

*Analytical Methods:

AV EPA 245.1/245.2

Metals
-6-
Duplicate Sample Summary

SDG No.: 2018-1772

Lab Code: GEL

Contract: ESHL00114

Client ID: CAWA-18-27D

Matrix: WATER

Level: Low

Sample ID: 444396001

Duplicate ID: 1203976440

Percent Solids for Dup: N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L	+/-200	270		269		.645		P
Barium	ug/L	+/-20%	2960		2970		.627		P
Beryllium	ug/L		1 U		1 U				P
Boron	ug/L		15 U		15 U				P
Calcium	ug/L	+/-20%	15600		15700		.683		P
Cobalt	ug/L		1 U		1 U				P
Copper	ug/L		3 U		3 U				P
Iron	ug/L	+/-100	133		130		2.06		P
Magnesium	ug/L	+/-20%	4410		4440		.576		P
Manganese	ug/L		2 U		2 U				P
Potassium	ug/L	+/-20%	2650		2650		.0113		P
Silica	ug/L	+/-20%	33600		33800		.496		P
Sodium	ug/L	+/-20%	14000		14000		.378		P
Strontium	ug/L	+/-20%	130		131		.925		P
Tin	ug/L		2.5 U		2.5 U				P
Vanadium	ug/L	+/-5	1.71 J		1.97 J		13.8		P
Zinc	ug/L		3.3 U		3.3 U				P

*Analytical Methods:

P SW846 3005A/6010C

Metals
-6-
Duplicate Sample Summary

SDG No.: 2018-1772

Lab Code: GEL

Contract: ESHL00114

Client ID: CAWA-18-27D

Matrix: WATER

Level: Low

Sample ID: 444396001

Duplicate ID: 1203976445

Percent Solids for Dup: N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1 U		1 U				MS
Arsenic	ug/L		2 U		2 U				MS
Cadmium	ug/L		0.3 U		0.3 U				MS
Chromium	ug/L		3 U		3 U				MS
Lead	ug/L		0.5 U		0.5 U				MS
Molybdenum	ug/L	+/- .5	0.955		0.934		2.22		MS
Nickel	ug/L	+/- 2	0.681 J		0.648 J		4.97		MS
Selenium	ug/L		2 U		2 U				MS
Silver	ug/L		0.3 U		0.3 U				MS
Thallium	ug/L		0.6 U		0.6 U				MS
Uranium	ug/L	+/- .2	0.077 J		0.076 J		1.31		MS

*Analytical Methods:

MS SW846 3005A/6020A

Metals
–6–
Duplicate Sample Summary

SDG No.: 2018–1772**Lab Code:** GEL**Contract:** ESHL00114**Client ID:** CAWA–18–27D**Matrix:** WATER**Level:** Low**Sample ID:** 444396001**Duplicate ID:** 1203977174**Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

*Analytical Methods:

AV EPA 245.1/245.2

METALS

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Laboratory Control Sample Summary

SDG NO. 2018-1772

Contract: ESHL00114

Aqueous LCS Source:OS2I

Solid LCS Source:

<u>Sample ID</u>	<u>Analyte</u>	<u>Units</u>	<u>True Value</u>	<u>Result</u>	<u>C</u>	<u>% Recovery</u>	<u>Acceptance Limit</u>	<u>M*</u>
1203976439								
	Aluminum	ug/L	5000	4880		97.7	80-120	P
	Barium	ug/L	500	486		97.2	80-120	P
	Beryllium	ug/L	500	482		96.4	80-120	P
	Boron	ug/L	500	477		95.4	80-120	P
	Calcium	ug/L	5000	4990		99.7	80-120	P
	Cobalt	ug/L	500	483		96.6	80-120	P
	Copper	ug/L	500	483		96.7	80-120	P
	Iron	ug/L	5000	4910		98.2	80-120	P
	Magnesium	ug/L	5000	5070		101	80-120	P
	Manganese	ug/L	500	489		97.9	80-120	P
	Potassium	ug/L	5000	4770		95.4	80-120	P
	Silica	ug/L	10700	9940		92.9	80-120	P
	Sodium	ug/L	5000	4730		94.6	80-120	P
	Strontium	ug/L	500	476		95.3	80-120	P
	Tin	ug/L	500	485		96.9	80-120	P
	Vanadium	ug/L	500	489		97.7	80-120	P
	Zinc	ug/L	500	467		93.3	80-120	P

*Analytical Methods:

P SW846 3005A/6010C

METALS

-7-

Laboratory Control Sample Summary

SDG NO. 2018-1772

Contract: ESHL00114

Aqueous LCS Source: Inorganic Ventures

Solid LCS Source:

<u>Sample ID</u>	<u>Analyte</u>	<u>Units</u>	<u>True Value</u>	<u>Result</u>	<u>C</u>	<u>% Recovery</u>	<u>Acceptance Limit</u>	<u>M*</u>
1203976444								
	Antimony	ug/L	50	48.1		96.2	80-120	MS
	Arsenic	ug/L	50	50		100	80-120	MS
	Cadmium	ug/L	50	50.5		101	80-120	MS
	Chromium	ug/L	50	48		96	80-120	MS
	Lead	ug/L	50	48.4		96.9	80-120	MS
	Molybdenum	ug/L	50	50.4		101	80-120	MS
	Nickel	ug/L	50	48.6		97.1	80-120	MS
	Selenium	ug/L	50	50.5		101	80-120	MS
	Silver	ug/L	50	50.5		101	80-120	MS
	Thallium	ug/L	50	45.9		91.7	80-120	MS
	Uranium	ug/L	50	46.1		92.1	80-120	MS

*Analytical Methods:

MS SW846 3005A/6020A

METALS

-7-

Laboratory Control Sample Summary

SDG NO. 2018-1772

Contract: ESHL00114

Aqueous LCS Source: GEL

Solid LCS Source:

<u>Sample ID</u>	<u>Analyte</u>	<u>Units</u>	<u>True Value</u>	<u>Result</u>	<u>C</u>	<u>% Recovery</u>	<u>Acceptance Limit</u>	<u>M*</u>
1203977173	Mercury	ug/L	2	2.09		105	85-115	AV

*Analytical Methods:

AV EPA 245.1/245.2

METALS

-9-

Serial Dilution Sample Summary

SDG NO. 2018-1772

Client ID: CAWA-18-27L

Contract: ESHL00114

Matrix: LIQUID

Level: Low

Sample ID: 444396001

Serial Dilution ID: 1203976442

<u>Analyte</u>	<u>Initial Value ug/L</u>	<u>C</u>	<u>Serial Value ug/L</u>	<u>C</u>	<u>% Difference</u>	<u>Qual</u>	<u>Acceptance Limit</u>	<u>M*</u>
Aluminum	270		340	U	.921			P
Barium	2960		3060		3.426		10	P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	15600		15800		.987		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	133		150	U	5.231			P
Magnesium	4410		4550		2.964			P
Manganese	2	U	10	U				P
Potassium	2650		3090		16.486	E	10	P
Silica	33600		33900		1.021		10	P
Sodium	14000		14200		1.376		10	P
Strontium	130		133		2.324		10	P
Tin	2.5	U	12.5	U				P
Vanadium	1.71	J	5	U	37.726			P
Zinc	3.3	U	16.5	U				P

*Analytical Methods:

P SW846 3005A/6010C

METALS

-9-

Serial Dilution Sample Summary

SDG NO. 2018-1772

Client ID: CAWA-18-27L

Contract: ESHL00114

Matrix: LIQUID

Level: Low

Sample ID: 444396001

Serial Dilution ID: 1203976447

<u>Analyte</u>	<u>Initial Value ug/L</u>	<u>C</u>	<u>Serial Value ug/L</u>	<u>C</u>	<u>% Difference</u>	<u>Qual</u>	<u>Acceptance Limit</u>	<u>M*</u>
Antimony	1	U	5	U				MS
Arsenic	2	U	10	U				MS
Cadmium	.3	U	1.5	U				MS
Chromium	3	U	15	U				MS
Lead	.5	U	2.5	U				MS
Molybdenum	.955		1.15	J	20.419			MS
Nickel	.681	J	3	U	14.097			MS
Selenium	2	U	10	U				MS
Silver	.3	U	1.5	U				MS
Thallium	.6	U	3	U				MS
Uranium	.077	J	.335	U	94.805			MS

*Analytical Methods:

MS SW846 3005A/6020A

METALS

-9-

Serial Dilution Sample Summary

SDG NO. 2018-1772 **Client ID:** CAWA-18-27L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 444396001 **Serial Dilution ID:** 1203977178

<u>Analyte</u>	<u>Initial Value ug/L</u>	<u>C</u>	<u>Serial Value ug/L</u>	<u>C</u>	<u>% Difference</u>	<u>Qual</u>	<u>Acceptance Limit</u>	<u>M*</u>
Mercury	.067	U	.335	U				AV

*Analytical Methods:

AV EPA 245.1/245.2

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-1772
Work Order #: 444396**

Method/Analysis Information

Product: Carbon and Total Organic

Analytical Batch: 1741062

Method: SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW-846:9060:

Sample ID	Client ID
444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40
444396018	CAWA-18-43
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30
1203976532	Method Blank (MB)
1203976533	Laboratory Control Sample (LCS)
1203976536	444396013(CAWA-18-40) Sample Duplicate (DUP)
1203976539	444396013(CAWA-18-40) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-093 REV# 15.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical 1030W Carbon Analyzer.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

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

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 444396013 (CAWA-18-40) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits where applicable.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The following sample was diluted in the first analytical run, and a dilution was not required, therefore the sample was re-run neat, the reanalysis results are being reported. 444396030 (CAWA-18-30). Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. **Sample Re-analysis**

The samples in this SDG did not require re-analysis.

Miscellaneous Information**Additional Comments**

Additional comments were not required for this SDG.

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. 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.

Method/Analysis Information

Product: Cyanide and Total
Analytical Batch: 1740518 and 1741329 **Method:** WSP-CN(T)
Prep Batch : 1740517 and 1741327 **Method:** EPA 335.4

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 335.4 1993:

Sample ID	Client ID
444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40
444396018	CAWA-18-43
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30
1203975195	Method Blank (MB)
1203976957	Method Blank (MB)
1203975196	Laboratory Control Sample (LCS)
1203976958	Laboratory Control Sample (LCS)
1203975197	444396002(CAWA-18-28) Sample Duplicate (DUP)
1203976959	444396013(CAWA-18-40) Sample Duplicate (DUP)
1203975198	444396002(CAWA-18-28) Matrix Spike (MS)
1203976961	444396013(CAWA-18-40) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-095 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Flow Injection analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation

Samples 444396002 (CAWA-18-28) and 444396013 (CAWA-18-40) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Additional Comments

Additional comments were not required for this SDG.

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:

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Method/Analysis Information

Product: Ion Chromatography
Analytical Batch: 1741253 **Method:** WSP-ANIONS

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA:300.0:

Sample ID	Client ID
444396001	CAWA-18-27
444396005	CAWA-18-35
444396009	CAWA-18-124
444396012	CAWA-18-39
444396017	CAWA-18-42
444396022	CAWA-18-21
444396026	CAWA-18-122
444396029	CAWA-18-29
1203976837	Method Blank (MB)
1203976838	Laboratory Control Sample (LCS)
1203976839	444396001(CAWA-18-27) Sample Duplicate (DUP)
1203976840	444396001(CAWA-18-27) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-086 REV# 25.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

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

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 444396001 (CAWA-18-27) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The following samples 1203976839 (CAWA-18-27DUP), 1203976840 (CAWA-18-27PS), 444396001 (CAWA-18-27), 444396022 (CAWA-18-21), 444396026 (CAWA-18-122) and 444396029 (CAWA-18-29) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	444396			
	001	022	026	029
Chloride	2X	5X	5X	5X

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Manual Integrations

Samples 1203976838 (LCS), 444396005 (CAWA-18-35), 444396009 (CAWA-18-124), 444396012 (CAWA-18-39), 444396017 (CAWA-18-42), 444396022 (CAWA-18-21), 444396026 (CAWA-18-122) and 444396029 (CAWA-18-29) were manually integrated to correctly position the baseline as set in the calibration standards.

Additional Comments

Additional comments were not required for this SDG.

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. 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.

Method/Analysis Information

Product:	Ammonia Nitrogen		
Analytical Batch:	1741254	Method:	NH3
Prep Batch :	1741252	Method:	EPA 350.1 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA:350.1:

Sample ID	Client ID
444396001	CAWA-18-27
444396005	CAWA-18-35
444396009	CAWA-18-124
444396012	CAWA-18-39
444396017	CAWA-18-42
444396022	CAWA-18-21
444396026	CAWA-18-122
444396029	CAWA-18-29
1203976841	Method Blank (MB)
1203976842	Laboratory Control Sample (LCS)
1203976843	444026001(CAMO-18-1) Sample Duplicate (DUP)
1203976851	444396001(CAWA-18-27) Sample Duplicate (DUP)
1203976844	444026001(CAMO-18-1) Matrix Spike (MS)
1203976852	444396001(CAWA-18-27) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-106 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Calibration Verification Information

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

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

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

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 444026001 (CAMO-18-1) and 444396001 (CAWA-18-27) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

Sample1203976842 (LCS) was re-analyzed due to instrument failure. The results from the reanalysis are reported.

Miscellaneous Information

Additional Comments

Additional comments were not required for this SDG.

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. 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.

Method/Analysis Information

Product:	Total Kjeldahl Nitrogen		
Analytical Batch:	1742074	Method:	TKN
Prep Batch :	1742073	Method:	EPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA:351.2:

Sample ID	Client ID
444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40
444396018	CAWA-18-43
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30
1203978464	Method Blank (MB)
1203978465	Laboratory Control Sample (LCS)
1203978466	444396002(CAWA-18-28) Sample Duplicate (DUP)
1203978468	444396006(CAWA-18-36) Sample Duplicate (DUP)
1203978467	444396002(CAWA-18-28) Matrix Spike (MS)
1203978469	444396006(CAWA-18-36) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-104 REV# 15.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Calibration Verification Information

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

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

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

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 444396002 (CAWA-18-28) and 444396006 (CAWA-18-36) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Nitrogen, Total Kjeldahl	1203978467 (CAWA-18-28MS)	50.1* (90%-110%)
	1203978469 (CAWA-18-36MS)	75.1* (90%-110%)

Duplicate Relative Percent Difference (RPD) Statement

The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample:

Analyte	Sample	Value
Nitrogen, Total Kjeldahl	1203978466 (CAWA-18-28DUP)	abs(-.0202 - .164)* (+/- .1 mg/L)

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours

are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

Samples 1203978467 (CAWA-18-28MS), 1203978468 (CAWA-18-36DUP), 1203978469 (CAWA-18-36MS), 444396006 (CAWA-18-36), 444396010 (CAWA-18-127), 444396013 (CAWA-18-40), 444396018 (CAWA-18-43), 444396023 (CAWA-18-22), 444396027 (CAWA-18-125) and 444396030 (CAWA-18-30) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported.

Miscellaneous Information**Additional Comments**

Additional comments were not required for this SDG.

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. 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.

Method/Analysis Information

Product: Nitrate Nitrite by Cadmium Reduction

Analytical Batch: 1742109

Method: NO3NO2

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA:353.2:

Sample ID	Client ID
444396001	CAWA-18-27
444396005	CAWA-18-35
444396009	CAWA-18-124
444396012	CAWA-18-39
444396017	CAWA-18-42
444396022	CAWA-18-21
444396026	CAWA-18-122
444396029	CAWA-18-29
1203978566	Method Blank (MB)
1203978567	Laboratory Control Sample (LCS)
1203978569	444396001(CAWA-18-27) Sample Duplicate (DUP)
1203978571	444396001(CAWA-18-27) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-128 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Calibration Verification Information

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

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 444396001 (CAWA-18-27) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The following sample 444396029 (CAWA-18-29) in this sample group was diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	444396
	029
Nitrogen, Nitrate/Nitrite	5X

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information**Additional Comments**

Additional comments were not required for this SDG.

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. 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.

Method/Analysis Information

Product:	Total Phosphorus		
Analytical Batch:	1742097	Method:	PO4
Prep Batch :	1742096	Method:	EPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4 1974:

Sample ID	Client ID
444396001	CAWA-18-27
444396005	CAWA-18-35
444396009	CAWA-18-124
444396012	CAWA-18-39
444396017	CAWA-18-42
444396022	CAWA-18-21
444396026	CAWA-18-122
444396029	CAWA-18-29
1203978529	Method Blank (MB)
1203978530	Laboratory Control Sample (LCS)
1203978531	444396001(CAWA-18-27) Sample Duplicate (DUP)
1203978532	444396001(CAWA-18-27) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-103 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

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

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 444396001 (CAWA-18-27) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits where applicable.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information**Additional Comments**

Additional comments were not required for this SDG.

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. 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.

Method/Analysis Information

Product: Solids and Total Dissolved

Analytical Batch: 1741245

Method: TDS

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA:160.1:

Sample ID	Client ID
444396001	CAWA-18-27
444396005	CAWA-18-35
444396009	CAWA-18-124
444396012	CAWA-18-39
444396017	CAWA-18-42
444396022	CAWA-18-21
444396026	CAWA-18-122
444396029	CAWA-18-29
1203976822	Method Blank (MB)
1203976823	Laboratory Control Sample (LCS)
1203976825	444036003(CAMO-18-21) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-001 REV# 15.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration

All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Sample	Analyte	Value
1203976822 (MB)	Total Dissolved Solids	5.71 between (3.4 - 14.3)

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Consecutive Weight Checks

All consecutive weight checks were met.

Quality Control (QC) Designation

Sample 444036003 (CAMO-18-21) was selected for QC analysis.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Additional Comments

Additional comments were not required for this SDG.

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. 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.

Method/Analysis Information

Product: Specific Conductivity

Analytical Batch: 1742248

Method: EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA:120.1:

Sample ID	Client ID
444396001	CAWA-18-27
444396005	CAWA-18-35
444396009	CAWA-18-124
444396012	CAWA-18-39
444396017	CAWA-18-42
444396022	CAWA-18-21
444396026	CAWA-18-122
444396029	CAWA-18-29
1203978901	Laboratory Control Sample (LCS)
1203978902	444026001(CAMO-18-1) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-009 REV# 16.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration and Ion analysis was performed on a Thermo Scientific Orion Star A212 Conductivity Meter.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Initial Standardization

The titrant was properly standardized

Calibration Verification Information

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

Quality Control (QC) Information

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 444026001 (CAMO-18-1) was selected for QC analysis.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Additional Comments

Additional comments were not required for this SDG.

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. 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.

Method/Analysis Information

Product: pH

Analytical Batch: 1741049 **Method:** PH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1 1982:

Sample ID	Client ID
444396001	CAWA-18-27
444396005	CAWA-18-35
444396009	CAWA-18-124
444396012	CAWA-18-39
444396017	CAWA-18-42
444396022	CAWA-18-21
444396026	CAWA-18-122
444396029	CAWA-18-29
1203976494	Laboratory Control Sample (LCS)
1203976495	444026001(CAMO-18-1) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-008 REV# 23.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration and Ion analysis was performed on a Thermo Orion Star A111. Immediates

Initial Calibration

All initial calibration requirements have been met for this SDG.

Initial Standardization

The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 444026001 (CAMO-18-1) was selected for QC analysis.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1203976495 (CAMO-18-1DUP)	pH	Received 19-FEB-18, out of holding 14-FEB-18
444396001 (CAWA-18-27)	pH	Received 21-FEB-18, out of holding 16-FEB-18
444396005 (CAWA-18-35)	pH	Received 21-FEB-18, out of holding 16-FEB-18
444396009 (CAWA-18-124)	pH	Received 21-FEB-18, out of holding 16-FEB-18
444396012 (CAWA-18-39)	pH	Received 21-FEB-18, out of holding 16-FEB-18
444396017 (CAWA-18-42)	pH	Received 21-FEB-18, out of holding 16-FEB-18
444396022 (CAWA-18-21)	pH	Received 21-FEB-18, out of holding 16-FEB-18
444396026 (CAWA-18-122)	pH	Received 21-FEB-18, out of holding 16-FEB-18
444396029 (CAWA-18-29)	pH	Received 21-FEB-18, out of holding 16-FEB-18

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information**Additional Comments**

Additional comments were not required for this SDG.

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. 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.

Method/Analysis Information

Product: Alkalinity

Analytical Batch: 1741047 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA:310.1:

Sample ID	Client ID
444396001	CAWA-18-27
444396005	CAWA-18-35
444396009	CAWA-18-124
444396012	CAWA-18-39
444396017	CAWA-18-42
444396022	CAWA-18-21
444396026	CAWA-18-122
444396029	CAWA-18-29
1203976485	Laboratory Control Sample (LCS)
1203976486	444026001(CAMO-18-1) Sample Duplicate (DUP)
1203976487	444396029(CAWA-18-29) Sample Duplicate (DUP)
1203976488	444026001(CAMO-18-1) Matrix Spike (MS)
1203976489	444396029(CAWA-18-29) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

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-GC-E-033 REV# 13.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration and Ion analysis was performed on a Electronic bottle-top buret.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Initial Standardization

The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 444026001 (CAMO-18-1) and 444396029 (CAWA-18-29) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Additional Comments

Additional comments were not required for this SDG.

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. 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.

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: 2018-1772 GEL Work Order: 444396


The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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: Aubrey Kingsbury

Date: 15 MAR 2018

Title: Analyst I

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-27
Sample ID: 444396001
Matrix: W
Collect Date: 16-FEB-18 11:30
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
WSP-ANIONS "As Received"												
Bromide	U	ND	0.067	0.200	mg/L		1	JXH5	02/22/18	0030	1741253	1
Fluoride		0.212	0.033	0.100	mg/L		1					
Sulfate		7.22	0.133	0.400	mg/L		1					
Chloride		17.8	0.134	0.400	mg/L		2	JXH5	02/23/18	0253	1741253	2
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia	J	0.0439	0.017	0.050	mg/L	1.00	1	KLP1	03/01/18	1119	1741254	3
NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite		0.783	0.017	0.050	mg/L		1	AXH3	02/26/18	0900	1742109	4
PO4 "As Received"												
Phosphorus, Total as P		0.0883	0.020	0.050	mg/L	1.00	1	KLP1	03/05/18	1206	1742097	5
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		153	3.40	14.3	mg/L			KLP1	02/22/18	1431	1741245	6
Titration and Ion Analysis												
EPA 310.1 Total Alkalinity "As Received"												
Alkalinity, Total as CaCO3		58.8	1.45	4.00	mg/L			RXB5	02/24/18	1442	1741047	7
Carbonate alkalinity (CaCO3)	U	ND	1.45	4.00	mg/L							
EPA120.1 Specific Conductivity "As Received"												
Conductivity		194	1.00	1.00	umhos/cm		1	HXC1	02/26/18	1415	1742248	8
PH "As Received"												
pH at Temp 14.2C	H	7.21	0.010	0.100	SU		1	RXB5	02/24/18	1440	1741049	9

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	03/01/18	0929	1741252
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	03/05/18	0900	1742096

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-27
Sample ID: 444396001

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description					Analyst Comments						
1	EPA:300.0											
2	EPA:300.0											
3	EPA:350.1											
4	EPA:353.2											
5	EPA 365.4 1974											
6	EPA:160.1											
7	EPA:310.1											
8	EPA:120.1											
9	EPA 150.1 1982											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-28
Sample ID: 444396002
Matrix: W
Collect Date: 16-FEB-18 11:30
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
SW 9060 Total Organic Carbon "As Received"												
Total Organic Carbon Average		1.69	0.330	1.00	mg/L		1	TSM	02/24/18	1719	1741062	1
Flow Injection Analysis												
WSP-CN(T) "As Received"												
Cyanide, Total	U	ND	1.67	5.00	ug/L	1.00	1	AXH3	02/28/18	0756	1740518	2
Nutrient Analysis												
TKN "As Received"												
Nitrogen, Total Kjeldahl		0.164	0.033	0.100	mg/L	1.00	1	KLP1	02/28/18	1414	1742074	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	02/28/18	0630	1740517
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	02/27/18	1000	1742073

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW-846:9060	
2	EPA 335.4 1993	
3	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-35
Sample ID: 444396005
Matrix: W
Collect Date: 16-FEB-18 12:15
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
WSP-ANIONS "As Received"												
Bromide	J	0.104	0.067	0.200	mg/L		1	JXH5	02/22/18	0203	1741253	1
Chloride		8.38	0.067	0.200	mg/L		1					
Fluoride	U	ND	0.033	0.100	mg/L		1					
Sulfate		9.91	0.133	0.400	mg/L		1					
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		0.353	0.017	0.050	mg/L	1.00	1	KLP1	03/01/18	1121	1741254	2
NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite		0.910	0.017	0.050	mg/L		1	AXH3	02/26/18	0903	1742109	3
PO4 "As Received"												
Phosphorus, Total as P		0.0736	0.020	0.050	mg/L	1.00	1	KLP1	03/05/18	1213	1742097	4
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		173	3.40	14.3	mg/L			KLP1	02/22/18	1431	1741245	5
Titration and Ion Analysis												
EPA 310.1 Total Alkalinity "As Received"												
Alkalinity, Total as CaCO3		65.0	1.45	4.00	mg/L			RXB5	02/24/18	1445	1741047	6
Carbonate alkalinity (CaCO3)	U	ND	1.45	4.00	mg/L							
EPA120.1 Specific Conductivity "As Received"												
Conductivity		185	1.00	1.00	umhos/cm		1	HXC1	02/26/18	1416	1742248	7
PH "As Received"												
pH at Temp 11.6C	H	7.11	0.010	0.100	SU		1	RXB5	02/24/18	1443	1741049	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	03/01/18	0929	1741252
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	03/05/18	0900	1742096

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Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-35
Sample ID: 444396005

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description					Analyst Comments						
1	EPA:300.0											
2	EPA:350.1											
3	EPA:353.2											
4	EPA 365.4 1974											
5	EPA:160.1											
6	EPA:310.1											
7	EPA:120.1											
8	EPA 150.1 1982											

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: March 15, 2018

Company : Los Alamos National Laboratory
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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-36
Sample ID: 444396006
Matrix: W
Collect Date: 16-FEB-18 12:15
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
SW 9060 Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.958	0.330	1.00	mg/L		1	TSM	02/24/18	1818	1741062	1
Flow Injection Analysis												
WSP-CN(T) "As Received"												
Cyanide, Total	U	ND	1.67	5.00	ug/L	1.00	1	AXH3	02/28/18	0759	1740518	2
Nutrient Analysis												
TKN "As Received"												
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1.00	1	KLP1	02/28/18	1452	1742074	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	02/28/18	0630	1740517
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	02/27/18	1000	1742073

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW-846:9060	
2	EPA 335.4 1993	
3	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-124
Sample ID: 444396009
Matrix: W
Collect Date: 16-FEB-18 12:15
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
WSP-ANIONS "As Received"												
Bromide	J	0.0944	0.067	0.200	mg/L		1	JXH5	02/22/18	0234	1741253	1
Chloride		8.40	0.067	0.200	mg/L		1					
Fluoride	U	ND	0.033	0.100	mg/L		1					
Sulfate		9.88	0.133	0.400	mg/L		1					
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		0.285	0.017	0.050	mg/L	1.00	1	KLP1	03/01/18	1122	1741254	2
NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite		0.911	0.017	0.050	mg/L		1	AXH3	02/26/18	0904	1742109	3
PO4 "As Received"												
Phosphorus, Total as P		0.077	0.020	0.050	mg/L	1.00	1	KLP1	03/05/18	1213	1742097	4
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		187	3.40	14.3	mg/L			KLP1	02/22/18	1431	1741245	5
Titration and Ion Analysis												
EPA 310.1 Total Alkalinity "As Received"												
Alkalinity, Total as CaCO3		64.2	1.45	4.00	mg/L			RXB5	02/24/18	1447	1741047	6
Carbonate alkalinity (CaCO3)	U	ND	1.45	4.00	mg/L							
EPA120.1 Specific Conductivity "As Received"												
Conductivity		184	1.00	1.00	umhos/cm		1	HXC1	02/26/18	1422	1742248	7
PH "As Received"												
pH at Temp 11.7C	H	7.11	0.010	0.100	SU		1	RXB5	02/24/18	1446	1741049	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	03/01/18	0929	1741252
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	03/05/18	0900	1742096

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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-124
Sample ID: 444396009

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description					Analyst Comments						
1	EPA:300.0											
2	EPA:350.1											
3	EPA:353.2											
4	EPA 365.4 1974											
5	EPA:160.1											
6	EPA:310.1											
7	EPA:120.1											
8	EPA 150.1 1982											

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-127
Sample ID: 444396010
Matrix: W
Collect Date: 16-FEB-18 12:15
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
SW 9060 Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.909	0.330	1.00	mg/L		1	TSM	02/24/18	1858	1741062	1
Flow Injection Analysis												
WSP-CN(T) "As Received"												
Cyanide, Total	U	ND	1.67	5.00	ug/L	1.00	1	AXH3	02/28/18	0800	1740518	2
Nutrient Analysis												
TKN "As Received"												
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1.00	1	KLP1	02/28/18	1455	1742074	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	02/28/18	0630	1740517
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	02/27/18	1000	1742073

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW-846:9060	
2	EPA 335.4 1993	
3	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-39
Sample ID: 444396012
Matrix: W
Collect Date: 16-FEB-18 11:01
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
WSP-ANIONS "As Received"												
Bromide	J	0.0774	0.067	0.200	mg/L		1	JXH5	02/22/18	0305	1741253	1
Chloride		3.15	0.067	0.200	mg/L		1					
Fluoride		0.237	0.033	0.100	mg/L		1					
Sulfate		4.47	0.133	0.400	mg/L		1					
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia	J	0.022	0.017	0.050	mg/L	1.00	1	KLP1	03/01/18	1123	1741254	2
NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite		0.603	0.017	0.050	mg/L		1	AXH3	02/26/18	0906	1742109	3
PO4 "As Received"												
Phosphorus, Total as P		0.0808	0.020	0.050	mg/L	1.00	1	KLP1	03/05/18	1214	1742097	4
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		146	3.40	14.3	mg/L			KLP1	02/22/18	1431	1741245	5
Titration and Ion Analysis												
EPA 310.1 Total Alkalinity "As Received"												
Alkalinity, Total as CaCO3		51.4	1.45	4.00	mg/L			RXB5	02/24/18	1450	1741047	6
Carbonate alkalinity (CaCO3)	U	ND	1.45	4.00	mg/L							
EPA120.1 Specific Conductivity "As Received"												
Conductivity		126	1.00	1.00	umhos/cm		1	HXC1	02/26/18	1423	1742248	7
PH "As Received"												
pH at Temp 13.8C	H	7.28	0.010	0.100	SU		1	RXB5	02/24/18	1448	1741049	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	03/01/18	0929	1741252
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	03/05/18	0900	1742096

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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-39
Sample ID: 444396012

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description					Analyst Comments						
1	EPA:300.0											
2	EPA:350.1											
3	EPA:353.2											
4	EPA 365.4 1974											
5	EPA:160.1											
6	EPA:310.1											
7	EPA:120.1											
8	EPA 150.1 1982											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

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Company : Los Alamos National Laboratory
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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-40
Sample ID: 444396013
Matrix: W
Collect Date: 16-FEB-18 11:01
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
SW 9060 Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.475	0.330	1.00	mg/L		1	TSM	02/24/18	1937	1741062	1
Flow Injection Analysis												
WSP-CN(T) "As Received"												
Cyanide, Total	U	ND	1.67	5.00	ug/L	1.00	1	AXH3	02/28/18	0825	1741329	2
Nutrient Analysis												
TKN "As Received"												
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1.00	1	KLP1	02/28/18	1456	1742074	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	02/28/18	0738	1741327
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	02/27/18	1000	1742073

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW-846:9060	
2	EPA 335.4 1993	
3	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : Los Alamos National Laboratory
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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-42
Sample ID: 444396017
Matrix: W
Collect Date: 16-FEB-18 09:39
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
WSP-ANIONS "As Received"												
Bromide	J	0.090	0.067	0.200	mg/L		1	JXH5	02/22/18	0336	1741253	1
Chloride		3.79	0.067	0.200	mg/L		1					
Fluoride		0.197	0.033	0.100	mg/L		1					
Sulfate		3.83	0.133	0.400	mg/L		1					
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia	J	0.0243	0.017	0.050	mg/L	1.00	1	KLP1	03/01/18	1128	1741254	2
NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite		0.876	0.017	0.050	mg/L		1	AXH3	02/26/18	0907	1742109	3
PO4 "As Received"												
Phosphorus, Total as P		0.0804	0.020	0.050	mg/L	1.00	1	KLP1	03/05/18	1215	1742097	4
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		134	3.40	14.3	mg/L			KLP1	02/22/18	1431	1741245	5
Titration and Ion Analysis												
EPA 310.1 Total Alkalinity "As Received"												
Alkalinity, Total as CaCO3		50.0	1.45	4.00	mg/L			RXB5	02/24/18	1453	1741047	6
Carbonate alkalinity (CaCO3)	U	ND	1.45	4.00	mg/L							
EPA120.1 Specific Conductivity "As Received"												
Conductivity		125	1.00	1.00	umhos/cm		1	HXC1	02/26/18	1423	1742248	7
PH "As Received"												
pH at Temp 14.0C	H	7.33	0.010	0.100	SU		1	RXB5	02/24/18	1451	1741049	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	03/01/18	0929	1741252
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	03/05/18	0900	1742096

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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-42
Sample ID: 444396017

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description					Analyst Comments						
1	EPA:300.0											
2	EPA:350.1											
3	EPA:353.2											
4	EPA 365.4 1974											
5	EPA:160.1											
6	EPA:310.1											
7	EPA:120.1											
8	EPA 150.1 1982											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

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Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-43
Sample ID: 444396018
Matrix: W
Collect Date: 16-FEB-18 09:39
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
SW 9060 Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.513	0.330	1.00	mg/L		1	TSM	02/24/18	2136	1741062	1
Flow Injection Analysis												
WSP-CN(T) "As Received"												
Cyanide, Total	U	ND	1.67	5.00	ug/L	1.00	1	AXH3	02/28/18	0828	1741329	2
Nutrient Analysis												
TKN "As Received"												
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1.00	1	KLP1	02/28/18	1456	1742074	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	02/28/18	0738	1741327
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	02/27/18	1000	1742073

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW-846:9060	
2	EPA 335.4 1993	
3	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-21
Sample ID: 444396022
Matrix: W
Collect Date: 16-FEB-18 10:03
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
WSP-ANIONS "As Received"												
Bromide	J	0.0824	0.067	0.200	mg/L		1	JXH5	02/22/18	0406	1741253	1
Fluoride		0.238	0.033	0.100	mg/L		1					
Sulfate		7.66	0.133	0.400	mg/L		1					
Chloride		18.4	0.335	1.00	mg/L		5	JXH5	02/23/18	0426	1741253	2
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		0.0964	0.017	0.050	mg/L	1.00	1	KLP1	03/01/18	1129	1741254	3
NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite	J	0.0173	0.017	0.050	mg/L		1	AXH3	02/26/18	0913	1742109	4
PO4 "As Received"												
Phosphorus, Total as P		0.0807	0.020	0.050	mg/L	1.00	1	KLP1	03/05/18	1216	1742097	5
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		159	3.40	14.3	mg/L			KLP1	02/22/18	1431	1741245	6
Titration and Ion Analysis												
EPA 310.1 Total Alkalinity "As Received"												
Alkalinity, Total as CaCO3		62.2	1.45	4.00	mg/L			RXB5	02/24/18	1455	1741047	7
Carbonate alkalinity (CaCO3)	U	ND	1.45	4.00	mg/L							
EPA120.1 Specific Conductivity "As Received"												
Conductivity		203	1.00	1.00	umhos/cm		1	HXC1	02/26/18	1424	1742248	8
PH "As Received"												
pH at Temp 12.7C	H	7.00	0.010	0.100	SU		1	RXB5	02/24/18	1453	1741049	9

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	03/01/18	0929	1741252
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	03/05/18	0900	1742096

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Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-21
Sample ID: 444396022

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description					Analyst Comments						
1	EPA:300.0											
2	EPA:300.0											
3	EPA:350.1											
4	EPA:353.2											
5	EPA 365.4 1974											
6	EPA:160.1											
7	EPA:310.1											
8	EPA:120.1											
9	EPA 150.1 1982											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-22
Sample ID: 444396023
Matrix: W
Collect Date: 16-FEB-18 10:03
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
SW 9060 Total Organic Carbon "As Received"												
Total Organic Carbon Average		2.50	0.330	1.00	mg/L		1	TSM	02/24/18	2216	1741062	1
Flow Injection Analysis												
WSP-CN(T) "As Received"												
Cyanide, Total	U	ND	1.67	5.00	ug/L	1.00	1	AXH3	02/28/18	0829	1741329	2
Nutrient Analysis												
TKN "As Received"												
Nitrogen, Total Kjeldahl	J	0.0664	0.033	0.100	mg/L	1.00	1	KLP1	02/28/18	1457	1742074	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	02/28/18	0738	1741327
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	02/27/18	1000	1742073

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW-846:9060	
2	EPA 335.4 1993	
3	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-122
Sample ID: 444396026
Matrix: W
Collect Date: 16-FEB-18 10:03
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
WSP-ANIONS "As Received"												
Bromide	J	0.0787	0.067	0.200	mg/L		1	JXH5	02/22/18	0539	1741253	1
Fluoride		0.247	0.033	0.100	mg/L		1					
Sulfate		7.68	0.133	0.400	mg/L		1					
Chloride		18.1	0.335	1.00	mg/L		5	JXH5	02/23/18	0457	1741253	2
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		0.210	0.017	0.050	mg/L	1.00	1	KLP1	03/01/18	1130	1741254	3
NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite	U	ND	0.017	0.050	mg/L		1	AXH3	02/26/18	0914	1742109	4
PO4 "As Received"												
Phosphorus, Total as P		0.0878	0.020	0.050	mg/L	1.00	1	KLP1	03/05/18	1217	1742097	5
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		181	3.40	14.3	mg/L			KLP1	02/22/18	1431	1741245	6
Titration and Ion Analysis												
EPA 310.1 Total Alkalinity "As Received"												
Alkalinity, Total as CaCO3		61.6	1.45	4.00	mg/L			RXB5	02/24/18	1458	1741047	7
Carbonate alkalinity (CaCO3)	U	ND	1.45	4.00	mg/L							
EPA120.1 Specific Conductivity "As Received"												
Conductivity		202	1.00	1.00	umhos/cm		1	HXC1	02/26/18	1425	1742248	8
PH "As Received"												
pH at Temp 13.3C	H	7.05	0.010	0.100	SU		1	RXB5	02/24/18	1455	1741049	9

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	03/01/18	0929	1741252
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	03/05/18	0900	1742096

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Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-122
Sample ID: 444396026

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description					Analyst Comments						
1	EPA:300.0											
2	EPA:300.0											
3	EPA:350.1											
4	EPA:353.2											
5	EPA 365.4 1974											
6	EPA:160.1											
7	EPA:310.1											
8	EPA:120.1											
9	EPA 150.1 1982											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

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Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-125
Sample ID: 444396027
Matrix: W
Collect Date: 16-FEB-18 10:03
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
SW 9060 Total Organic Carbon "As Received"												
Total Organic Carbon Average		2.50	0.330	1.00	mg/L		1	TSM	02/24/18	2256	1741062	1
Flow Injection Analysis												
WSP-CN(T) "As Received"												
Cyanide, Total	U	ND	1.67	5.00	ug/L	1.00	1	AXH3	02/28/18	0830	1741329	2
Nutrient Analysis												
TKN "As Received"												
Nitrogen, Total Kjeldahl	J	0.0334	0.033	0.100	mg/L	1.00	1	KLP1	02/28/18	1458	1742074	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	02/28/18	0738	1741327
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	02/27/18	1000	1742073

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW-846:9060	
2	EPA 335.4 1993	
3	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-29
Sample ID: 444396029
Matrix: W
Collect Date: 16-FEB-18 13:24
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
WSP-ANIONS "As Received"												
Bromide	J	0.0953	0.067	0.200	mg/L		1	JXH5	02/22/18	0610	1741253	1
Fluoride	J	0.0886	0.033	0.100	mg/L		1					
Sulfate		6.62	0.133	0.400	mg/L		1					
Chloride		19.5	0.335	1.00	mg/L		5	JXH5	02/23/18	0528	1741253	2
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		0.191	0.017	0.050	mg/L	1.00	1	KLP1	03/01/18	1130	1741254	3
NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite	U	ND	0.085	0.250	mg/L		5	AXH3	02/26/18	0929	1742109	4
PO4 "As Received"												
Phosphorus, Total as P		0.320	0.020	0.050	mg/L	1.00	1	KLP1	03/05/18	1217	1742097	5
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		179	3.40	14.3	mg/L			KLP1	02/22/18	1431	1741245	6
Titration and Ion Analysis												
EPA 310.1 Total Alkalinity "As Received"												
Alkalinity, Total as CaCO3		65.2	1.45	4.00	mg/L			RXB5	02/24/18	1501	1741047	7
Carbonate alkalinity (CaCO3)	U	ND	1.45	4.00	mg/L							
EPA120.1 Specific Conductivity "As Received"												
Conductivity		205	1.00	1.00	umhos/cm		1	HXC1	02/26/18	1426	1742248	8
PH "As Received"												
pH at Temp 14.9C	H	6.61	0.010	0.100	SU		1	RXB5	02/24/18	1459	1741049	9

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	03/01/18	0929	1741252
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	03/05/18	0900	1742096

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Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-29
Sample ID: 444396029

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description					Analyst Comments						
1	EPA:300.0											
2	EPA:300.0											
3	EPA:350.1											
4	EPA:353.2											
5	EPA 365.4 1974											
6	EPA:160.1											
7	EPA:310.1											
8	EPA:120.1											
9	EPA 150.1 1982											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: March 15, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- WQH Water Samples

Client SDG: 2018-1772

Client Sample ID: CAWA-18-30
Sample ID: 444396030
Matrix: W
Collect Date: 16-FEB-18 13:24
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
SW 9060 Total Organic Carbon "As Received"												
Total Organic Carbon Average		6.10	0.330	1.00	mg/L		1	TSM	02/26/18	2007	1741062	1
Flow Injection Analysis												
WSP-CN(T) "As Received"												
Cyanide, Total	U	ND	1.67	5.00	ug/L	1.00	1	AXH3	02/28/18	0831	1741329	2
Nutrient Analysis												
TKN "As Received"												
Nitrogen, Total Kjeldahl		0.443	0.033	0.100	mg/L	1.00	1	KLP1	02/28/18	1459	1742074	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	02/28/18	0738	1741327
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	02/27/18	1000	1742073

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW-846:9060	
2	EPA 335.4 1993	
3	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Quality Control Summary

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QC Summary

Report Date: March 15, 2018

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Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico

Contact: Ms. Nita Patel

Workorder: 444396

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis											
Batch	1741062										
QC1203976536	444396013	DUP									
Total Organic Carbon Average		J	0.475	J	0.452	mg/L	4.96	^	(+/-1.00)	TSM	02/24/18 20:17
QC1203976533	LCS										
Total Organic Carbon Average	10.0				10.7	mg/L			107	(80%-120%)	02/24/18 13:54
QC1203976532	MB										
Total Organic Carbon Average			U		ND	mg/L					02/24/18 13:44
QC1203976539	444396013	PS									
Total Organic Carbon Average	10.0	J	0.475		11.5	mg/L			110	(75%-125%)	02/24/18 20:56
Flow Injection Analysis											
Batch	1740518										
QC1203975197	444396002	DUP									
Cyanide, Total		U	ND	U	ND	ug/L	N/A			AXH3	02/28/18 07:57
QC1203975196	LCS										
Cyanide, Total	50.0				49.7	ug/L			99.4	(90%-110%)	02/28/18 07:41
QC1203975195	MB										
Cyanide, Total			U		ND	ug/L					02/28/18 07:40
QC1203975198	444396002	MS									
Cyanide, Total	100	U	ND		105	ug/L			105	(90%-110%)	02/28/18 07:58
Batch	1741329										
QC1203976959	444396013	DUP									
Cyanide, Total		U	ND	U	ND	ug/L	N/A			AXH3	02/28/18 08:26

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QC Summary

Workorder: 444396

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Flow Injection Analysis											
Batch	1741329										
QC1203976958 LCS											
Cyanide, Total	50.0			50.3	ug/L		101	(90%-110%)	AXH3	02/28/18	08:23
QC1203976957 MB											
Cyanide, Total			U	ND	ug/L					02/28/18	08:22
QC1203976961 444396013 MS											
Cyanide, Total	100	U	ND	104	ug/L		104	(90%-110%)		02/28/18	08:27
Ion Chromatography											
Batch	1741253										
QC1203976839 444396001 DUP											
Bromide		U	ND	U	ND	mg/L	N/A		JXH5	02/22/18	01:01
Chloride			17.8		17.8	mg/L	0.17	(0%-20%)		02/23/18	03:24
Fluoride			0.212		0.222	mg/L	4.66 ^	(+/-0.100)		02/22/18	01:01
Sulfate			7.22		7.20	mg/L	0.348	(0%-20%)			
QC1203976838 LCS											
Bromide	1.25			1.23	mg/L		98.8	(80%-120%)		02/21/18	23:59
Chloride	5.00			4.81	mg/L		96.2	(80%-120%)			
Fluoride	2.50			2.55	mg/L		102	(80%-120%)			
Sulfate	10.0			9.72	mg/L		97.2	(80%-120%)			
QC1203976837 MB											
Bromide			U	ND	mg/L					02/21/18	23:28
Chloride			U	ND	mg/L						

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QC Summary

Workorder: 444396

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1741253										
Fluoride			U	ND	mg/L				JXH5	02/21/18	23:28
Sulfate			U	ND	mg/L						
QC1203976840 444396001 PS											
Bromide	1.25	U	ND	1.29	mg/L		103	(75%-125%)		02/22/18	01:32
Chloride	5.00		8.89	14.6	mg/L		114	(75%-125%)		02/23/18	03:55
Fluoride	2.50		0.212	2.73	mg/L		101	(75%-125%)		02/22/18	01:32
Sulfate	10.0		7.22	17.5	mg/L		103	(75%-125%)			
Nutrient Analysis											
Batch	1741254										
QC1203976843 444026001 DUP											
Nitrogen, Ammonia			0.123	0.118	mg/L	4.15	^	(+/-0.050)	KLP1	03/01/18	11:06
QC1203976851 444396001 DUP											
Nitrogen, Ammonia		J	0.0439	J	0.0431	mg/L	1.84	^	(+/-0.050)		03/01/18 11:20
QC1203976842 LCS											
Nitrogen, Ammonia	1.00			1.07	mg/L		107	(90%-110%)		03/01/18	11:15
QC1203976841 MB											
Nitrogen, Ammonia			U	ND	mg/L					03/01/18	11:04
QC1203976844 444026001 MS											
Nitrogen, Ammonia	1.00		0.123	1.05	mg/L		92.7	(90%-110%)		03/01/18	11:07
QC1203976852 444396001 MS											
Nitrogen, Ammonia	1.00	J	0.0439	1.10	mg/L		106	(90%-110%)		03/01/18	11:20

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QC Summary

Workorder: 444396

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Nutrient Analysis											
Batch	1742074										
QC1203978466	444396002	DUP									
Nitrogen, Total Kjeldahl		0.164	U	ND	mg/L	200* ^		(+/-0.100)	KLP1	02/28/18	14:14
QC1203978468	444396006	DUP									
Nitrogen, Total Kjeldahl	U	ND	U	ND	mg/L	N/A				02/28/18	14:53
QC1203978465	LCS										
Nitrogen, Total Kjeldahl	1.00			0.964	mg/L		96.4	(90%-110%)		02/28/18	14:13
QC1203978464	MB										
Nitrogen, Total Kjeldahl			U	ND	mg/L					02/28/18	14:12
QC1203978467	444396002	MS									
Nitrogen, Total Kjeldahl	1.00	0.164		0.665	mg/L		50.1 *	(90%-110%)		02/28/18	14:51
QC1203978469	444396006	MS									
Nitrogen, Total Kjeldahl	1.00	U	ND	0.751	mg/L		75.1 *	(90%-110%)		02/28/18	14:54
Batch	1742097										
QC1203978531	444396001	DUP									
Phosphorus, Total as P		0.0883		0.0898	mg/L	1.68 ^		(+/-0.050)	KLP1	03/05/18	12:06
QC1203978530	LCS										
Phosphorus, Total as P	1.00			1.10	mg/L		110	(80%-124%)		03/05/18	12:01
QC1203978529	MB										
Phosphorus, Total as P			U	ND	mg/L					03/05/18	12:00
QC1203978532	444396001	MS									
Phosphorus, Total as P	1.00	0.0883		1.09	mg/L		100	(63%-139%)		03/05/18	12:12
Batch	1742109										
QC1203978569	444396001	DUP									
Nitrogen, Nitrate/Nitrite		0.783		0.781	mg/L	0.256		(0%-20%)	AXH3	02/26/18	09:01

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QC Summary

Workorder: 444396

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Nutrient Analysis											
Batch	1742109										
QC1203978567	LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.09	mg/L		109	(90%-110%)	AXH3	02/26/18	08:48
QC1203978566	MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					02/26/18	08:47
QC1203978571	444396001	PS									
Nitrogen, Nitrate/Nitrite	1.00	0.783		1.74	mg/L		95.7	(90%-110%)		02/26/18	09:02
Solids Analysis											
Batch	1741245										
QC1203976825	444036003	DUP									
Total Dissolved Solids		163		167	mg/L	2.6		(0%-5%)	KLP1	02/22/18	14:31
QC1203976823	LCS										
Total Dissolved Solids	300			303	mg/L		101	(95%-105%)		02/22/18	14:31
QC1203976822	MB										
Total Dissolved Solids			J	5.71	mg/L					02/22/18	14:31
Titration and Ion Analysis											
Batch	1741047										
QC1203976486	444026001	DUP									
Alkalinity, Total as CaCO3		58.0		57.4	mg/L	1.04		(0%-20%)	RXB5	02/24/18	14:29
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A					
QC1203976487	444396029	DUP									
Alkalinity, Total as CaCO3		65.2		64.4	mg/L	1.23		(0%-20%)		02/24/18	15:01
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A					
QC1203976485	LCS										
Alkalinity, Total as CaCO3	100			107	mg/L		107	(90%-110%)		02/24/18	14:24

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QC Summary

Workorder: 444396

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Titration and Ion Analysis											
Batch	1741047										
QC1203976488	444026001	MS									
Alkalinity, Total as CaCO3	100	58.0		163	mg/L		105	(80%-120%)	RXB5	02/24/18	14:30
QC1203976489	444396029	MS									
Alkalinity, Total as CaCO3	100	65.2		166	mg/L		101	(80%-120%)		02/24/18	15:03
Batch	1741049										
QC1203976495	444026001	DUP									
pH		H	7.93	H	7.91	SU	0.253	(0%-5%)	RXB5	02/24/18	14:27
QC1203976494	LCS										
pH	7.00			7.00	SU		100	(99%-101%)		02/24/18	14:25
Batch	1742248										
QC1203978902	444026001	DUP									
Conductivity		134		136	umhos/cm	1.11		(0%-10%)	HXC1	02/26/18	14:08
QC1203978901	LCS										
Conductivity	1410			1410	umhos/cm		99.6	(95%-105%)		02/26/18	13:58

Notes:

- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J Value is estimated
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected

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QC Summary

Workorder: 444396

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
d	5-day BOD--The 2:1 depletion requirement was not met for this sample										
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Radiological Analysis

Case Narrative

**Radiochemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-1772
Work Order #: 444396**

Method/Analysis Information

Product: Alphaspec Am241 Liquid

Analytical Method: HASL-300:AM-241

Analytical Batch Number: 1741073

Sample ID	Client ID
444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40
444396018	CAWA-18-43
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30
1203976540	Method Blank (MB)
1203976542	Laboratory Control Sample (LCS)
1203976541	444396002(CAWA-18-28) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

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-RAD-A-011 REV# 26.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244. The initial Calibration was performed in February 2018.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

Aliquots for samples 1203976540 (MB) and 1203976542 (LCS) were changed to 1.0, and the MDCs (and Lc if requested) for all samples are calculated using a blank population per client request.

Method Blank Criteria

The Method Blank (MB) met acceptance criteria.

CSU

The blank result is less than 1.65 times the CSU.

Blank Decision Level

The blank result is less than the decision level.

Tracer/Carrier Yield

All yields met the required acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Designated QC

The following sample was used for QC: 444396002 (CAWA-18-28). The QC was from ARSL work order 444396.

Duplication Criteria between QC Sample and Duplicate Sample

The QC Sample and Duplicate Sample (DUP) met the duplication acceptance criteria.

RDL Met

Samples (See Below) did not meet the detection limits due to limited sample volume. Samples were counted the maximum count time in order to achieve the lowest MDAs possible.

Sample	Analyte	Value
1203976541 (CAWA-18-28DUP)	Americium-241	Result 0.0126 < MDA 0.071 > RDL 0.05 pCi/L
444396002 (CAWA-18-28)	Americium-241	Result 0.0413 < MDA 0.0997 > RDL 0.05 pCi/L

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Negative > 3 sigma TPU

Samples results are not more negative than three sigma TPU.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

Sample 1203976541 (CAWA-18-28DUP) was recounted due to a peak shift. The recount is reported.

Miscellaneous Information:**Manual Integration**

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: ISOPU

Analytical Method: HASL-300:ISOPU

Analytical Batch Number: 1741075

Sample ID	Client ID
444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40
444396018	CAWA-18-43
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30
1203976547	Method Blank (MB)
1203976549	Laboratory Control Sample (LCS)
1203976548	444396002(CAWA-18-28) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

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-RAD-A-011 REV# 26.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244. The initial Calibration was performed in February 2018.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:**Blank Information**

Aliquots for samples 1203976547 (MB) and 1203976549 (LCS) were changed to 1.0, and the MDCs (and Lc if requested) for all samples are calculated using a blank population per client request.

Method Blank Criteria

The Method Blank (MB) met acceptance criteria.

CSU

The blank result is less than 1.65 times the CSU.

Blank Decision Level

The blank result is less than the decision level.

Tracer/Carrier Yield

All yields met the required acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Designated QC

The following sample was used for QC: 444396002 (CAWA-18-28). The QC was from ARSL work order 444396.

Duplication Criteria between QC Sample and Duplicate Sample

The QC Sample and Duplicate Sample (DUP) met the duplication acceptance criteria.

RDL Met

Samples (See Below) did not meet the detection limits due to limited sample volume. Samples were counted the maximum count time in order to achieve the lowest MDAs possible.

Sample	Analyte	Value
1203976548 (CAWA-18-28DUP)	Plutonium-238	Result 0.025 < MDA 0.0869 > RDL 0.05 pCi/L
	Plutonium-239/240	Result 0.005 < MDA 0.07 > RDL 0.05 pCi/L
444396002 (CAWA-18-28)	Plutonium-238	Result 0.0421 < MDA 0.0732 > RDL 0.05 pCi/L
	Plutonium-239/240	Result 0.0421 < MDA 0.0589 > RDL 0.05 pCi/L
444396006 (CAWA-18-36)	Plutonium-238	Result -0.0285 < MDA 0.0551 > RDL 0.05 pCi/L
444396010 (CAWA-18-127)	Plutonium-238	Result 0.00317 < MDA 0.0552 > RDL 0.05 pCi/L
444396023 (CAWA-18-22)	Plutonium-238	Result 0.0317 < MDA 0.0689 > RDL 0.05 pCi/L
	Plutonium-239/240	Result 0.00397 < MDA 0.0555 > RDL 0.05 pCi/L
444396027 (CAWA-18-125)	Plutonium-238	Result 0.0263 < MDA 0.0653 > RDL 0.05 pCi/L

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Negative > 3 sigma TPU

Samples results are not more negative than three sigma TPU.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:**Manual Integration**

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

The tracer peak centroid for sample 444396030 (CAWA-18-30) is greater than 50 keV from the expected library energy value for the tracer; however, the tracer yield requirement was met and the tracer peak is within the tracer region of interest.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	IsoU
Analytical Method:	HASL-300:ISOU
Analytical Batch Number:	1741076

Sample ID	Client ID
444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40
444396018	CAWA-18-43
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30

1203976550 Method Blank (MB)
 1203976552 Laboratory Control Sample (LCS)
 1203976551 444396002(CAWA-18-28) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

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-RAD-A-011 REV# 26.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244. The initial Calibrations were performed in February 2018 and March 2018.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

Aliquots for samples 1203976550 (MB) and 1203976552 (LCS) were changed to 1.0, and the MDCs (and Lc if requested) for all samples are calculated using a blank population per client request.

Method Blank Criteria

The Method Blank (MB) met acceptance criteria.

CSU

The blank (See Below) result is greater than 1.65 times the CSU but less than the MDC.

Sample	Analyte	Value
1203976550 (MB)	Uranium-233/234, Uranium-235/236 and Uranium-238	Blank result > 1.65 CSU

Blank Decision Level

The blank (See Below) result is greater than the decision level but less than the MDC.

Sample	Analyte	Value
1203976550 (MB)	Uranium-233/234 and Uranium-235/236	Blank result > DL

Tracer/Carrier Yield

All yields met the required acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Designated QC

The following sample was used for QC: 444396002 (CAWA-18-28). The QC was from ARSL work order 444396.

Duplication Criteria between QC Sample and Duplicate Sample

The QC Sample and Duplicate Sample (DUP) met the duplication acceptance criteria.

RDL Met

The method RDL has been met.

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Negative > 3 sigma TPU

Samples results are not more negative than three sigma TPU.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

Samples 1203976551 (CAWA-18-28DUP), 444396006 (CAWA-18-36), 444396010 (CAWA-18-127), 444396013 (CAWA-18-40), 444396023 (CAWA-18-22), 444396027 (CAWA-18-125) and 444396030 (CAWA-18-30) were given additional clean-up steps and recounted in order to improve the resolution. The recounts are reported. Sample 444396018 (CAWA-18-43) was given additional clean-up steps and recounted in order to improve the resolution. The sample was then recounted due to a peak shift and the third count is reported. Sample 444396002 (CAWA-18-28) was given additional clean-up steps and recounted in order to improve the resolution. The sample was then recounted due to a detector error and the third count is reported.

Miscellaneous Information:**Manual Integration**

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: **Gammasepec**

Analytical Method: EPA:901.1

Analytical Batch Number: 1741316

Sample ID	Client ID
444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40
444396018	CAWA-18-43
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30
1203976942	Method Blank (MB)
1203976944	Laboratory Control Sample (LCS)
1203976943	444396002(CAWA-18-28) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

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-RAD-A-013 REV# 27.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. The initial Calibrations were performed in August 2017, January 2018, July 2017, June 2017, May 2017, October 2017 and September 2017.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Method Blank Criteria

The Method Blank (MB) met acceptance criteria.

CSU

The blank result is less than 1.65 times the CSU.

Blank Decision Level

The blank result is less than the decision level.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Designated QC

The following sample was used for QC: 444396002 (CAWA-18-28). The QC was from ARSL work order

444396.

Duplication Criteria between QC Sample and Duplicate Sample

The QC Sample and Duplicate Sample (DUP) met the duplication acceptance criteria.

RDL Met

The method RDL has been met.

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

Additional Identified Radionuclides

No additional radionuclides were added.

Miscellaneous Information:**Sample-Specific MDA/MDC**

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Results are considered a false positive due to high peak-width.	Potassium-40	444396023	CAWA-18-22

Method/Analysis Information

Product:	GFPC, Sr90, liquid
Analytical Method:	EPA:905.0
Analytical Batch Number:	1741102

Sample ID Client ID

444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40
444396018	CAWA-18-43
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30
1203976609	Method Blank (MB)
1203976612	Laboratory Control Sample (LCS)
1203976610	444396002(CAWA-18-28) Sample Duplicate (DUP)
1203976611	444396002(CAWA-18-28) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

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-RAD-A-004 REV# 19.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2016.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

Aliquots for samples 1203976609 (MB) and 1203976612 (LCS) were changed to 1.0 per client request.

Method Blank Criteria

The Method Blank (MB) met acceptance criteria.

CSU

The blank result is less than 1.65 times the CSU.

Blank Decision Level

The blank result is less than the decision level.

Tracer/Carrier Yield

All yields met the required acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Designated QC

The following sample was used for QC: 444396002 (CAWA-18-28). The QC was from ARSL work order

444396.

Matrix Spike (MS) Recovery

The MS spike recoveries met acceptance limits.

Duplication Criteria between QC Sample and Duplicate Sample

The QC Sample and Duplicate Sample (DUP) met the duplication acceptance criteria.

RDL Met

The method RDL has been met.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Negative > 3 sigma TPU

Samples results are not more negative than three sigma TPU.

Sample Re-prep/Re-analysis

None of the samples in this sample set required prep or reanalysis.

Recounts

Samples 444396006 (CAWA-18-36) and 444396023 (CAWA-18-22) were recounted due to results more negative than the three sigma TPU. The second counts are reported.

Miscellaneous Information:

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

The matrix spike, 1203976611 (CAWA-18-28MS), aliquot was reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	WSP-GrossA/B
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1742280

Sample ID	Client ID
444396002	CAWA-18-28
444396006	CAWA-18-36
444396010	CAWA-18-127
444396013	CAWA-18-40

444396018	CAWA-18-43
444396023	CAWA-18-22
444396027	CAWA-18-125
444396030	CAWA-18-30
1203978996	Method Blank (MB)
1203979000	Laboratory Control Sample (LCS)
1203978997	444396013(CAWA-18-40) Sample Duplicate (DUP)
1203978998	444396013(CAWA-18-40) Matrix Spike (MS)
1203978999	444396013(CAWA-18-40) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

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-RAD-A-001 REV# 19.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2017.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

Aliquots for samples 1203978996 (MB) and 1203979000 (LCS) were changed to 1.0 per client request.

Method Blank Criteria

The Method Blank (MB) met acceptance criteria.

CSU

The blank result is less than 1.65 times the CSU.

Blank Decision Level

The blank result is less than the decision level.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Designated QC

The following sample was used for QC: 444396013 (CAWA-18-40). The QC was from ARSL work order 444396.

Matrix Spike (MS) Recovery

The MS spike recoveries met acceptance limits.

Duplication Criteria between MS and MSD

The Matrix Spike (MS) and Matrix Spike Duplicate (MSD) met the duplication acceptance criteria.

Duplication Criteria between QC Sample and Duplicate Sample

The QC Sample and Duplicate Sample (DUP) met the duplication acceptance criteria.

RDL Met

The method RDL has been met.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Negative > 3 sigma TPU

Samples results are not more negative than three sigma TPU.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

The matrix spike and matrix spike duplicate, 1203978998 (CAWA-18-40MS) and 1203978999 (CAWA-18-40MSD), aliquots were reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

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: 2018-1772 GEL Work Order: 444396

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- UI Gamma Spectroscopy--Uncertain identification

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: Kate Gellatly

Date: 12 MAR 2018

Title: Analyst I

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Report Date: March 12, 2018

Client Sample ID: CAWA-18-28
Sample ID: 444396002
Matrix: W
Collect Date: 16-FEB-18
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
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Rad Alpha Spec Analysis

Alphaspec Am241 Liquid "As Received"

Americium-241	U	0.0413	+/-0.0177	0.0997	0.0419	+/-0.0178	0.050	pCi/L			BXA4	03/01/18	1341	1741073	1
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ISOPU "As Received"

Plutonium-238	U	0.0421	+/-0.0179	0.0732	0.0309	+/-0.0179	0.050	pCi/L			BXA4	03/01/18	1326	1741075	2
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Plutonium-239/240	U	0.0421	+/-0.0188	0.0589	0.0238	+/-0.0189	0.050	pCi/L							
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IsoU "As Received"

Uranium-234		0.479	+/-0.0767	0.469	0.219	+/-0.0823	1.00	pCi/L			BXA4	03/05/18	1546	1741076	3
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Uranium-235/236	U	0.0995	+/-0.0478	0.264	0.113	+/-0.0482	1.00	pCi/L							
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Uranium-238		0.265	+/-0.0585	0.239	0.104	+/-0.0606	0.500	pCi/L							
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Rad Gamma Spec Analysis

Gammasespec "As Received"

Cesium-137	U	-0.579	+/-1.02	3.11	1.42	+/-1.03	8.00	pCi/L			BSW1	02/22/18	0737	1741316	4
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Cobalt-60	U	0.764	+/-0.801	3.31	1.44	+/-0.821	8.00	pCi/L							
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Neptunium-237	U	-3.02	+/-1.88	5.93	2.78	+/-2.00		pCi/L							
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Potassium-40	U	-9.36	+/-11.0	35.8	15.8	+/-11.2		pCi/L							
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Sodium-22	U	0.039	+/-0.664	2.64	1.11	+/-0.664		pCi/L							
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Rad Gas Flow Proportional Counting

GFPC, Sr90, liquid "As Received"

Strontium-90	U	-0.0622	+/-0.129	0.484	0.219	+/-0.129	0.500	pCi/L			KSD1	02/26/18	1425	1741102	5
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WSP-GrossA/B "As Received"

Beta		5.10	+/-0.975	2.73	1.26	+/-1.07	3.00	pCi/L			BXG2	03/08/18	0829	1742280	6
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Alpha		2.45	+/-0.910	2.27	0.761	+/-0.936	3.00	pCi/L			BXG2	03/08/18	1337	1742280	7
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The following Analytical Methods were performed

Method	Description
1	HASL-300:AM-241
2	HASL-300:ISOPU
3	HASL-300:ISOU
4	EPA:901.1
5	EPA:905.0
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1741073	82.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "As Received"	1741075	77.4	(50%-105%)
Uranium-232 Tracer	IsoU "As Received"	1741076	64.1	(50%-105%)

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-28

Sample ID: 444396002

Project: ESHL00114

Client ID: ARSL004

Report Date: March 12, 2018

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test								Batch ID	Recovery%	Acceptable Limits				
Strontium Carrier		GFPC, Sr90, liquid "As Received"							1741102	90.7	(50%-105%)				

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

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Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-36

Sample ID: 444396006

Matrix: W

Collect Date: 16-FEB-18

Receive Date: 21-FEB-18

Collector: Client

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis															
<i>Alphaspec Am241 Liquid "As Received"</i>															
Americium-241	U	0.0192	+/-0.0106	0.0463	0.0194	+/-0.0106	0.050	pCi/L			BXA4	03/01/18	1300	1741073	1
<i>ISOPU "As Received"</i>															
Plutonium-238	U	-0.0285	+/-0.0177	0.0551	0.0233	+/-0.0177	0.050	pCi/L			BXA4	03/01/18	1326	1741075	2
Plutonium-239/240	U	-0.00317	+/-0.0171	0.0444	0.0179	+/-0.0171	0.050	pCi/L							
<i>IsoU "As Received"</i>															
Uranium-234		0.437	+/-0.0656	0.376	0.175	+/-0.0716	1.00	pCi/L			BXA4	03/03/18	1146	1741076	3
Uranium-235/236	U	0.0855	+/-0.0352	0.211	0.0902	+/-0.0356	1.00	pCi/L							
Uranium-238		0.249	+/-0.0504	0.191	0.0832	+/-0.0528	0.500	pCi/L							
Rad Gamma Spec Analysis															
<i>Gammaspes "As Received"</i>															
Cesium-137	U	0.148	+/-0.871	3.09	1.41	+/-0.871	8.00	pCi/L			BSW1	02/22/18	0738	1741316	4
Cobalt-60	U	1.66	+/-0.834	2.94	1.27	+/-0.921	8.00	pCi/L							
Neptunium-237	U	-0.761	+/-1.62	5.76	2.70	+/-1.63		pCi/L							
Potassium-40	U	-13.1	+/-12.3	37.5	16.8	+/-12.6		pCi/L							
Sodium-22	U	-0.247	+/-0.869	3.17	1.39	+/-0.871		pCi/L							
Rad Gas Flow Proportional Counting															
<i>GFPC, Sr90, liquid "As Received"</i>															
Strontium-90	U	0.133	+/-0.137	0.479	0.206	+/-0.137	0.500	pCi/L			KSD1	02/27/18	0806	1741102	5
<i>WSP-GrossA/B "As Received"</i>															
Beta		3.63	+/-0.892	2.63	1.21	+/-0.945	3.00	pCi/L			BXG2	03/08/18	0829	1742280	6
Alpha	U	1.06	+/-0.704	2.35	0.902	+/-0.710	3.00	pCi/L			BXG2	03/08/18	1337	1742280	7

The following Analytical Methods were performed

Method	Description
1	HASL-300:AM-241
2	HASL-300:ISOPU
3	HASL-300:ISOU
4	EPA:901.1
5	EPA:905.0
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer	Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer		Alphaspec Am241 Liquid "As Received"	1741073	86.2	(50%-105%)
Plutonium-242 Tracer		ISOPU "As Received"	1741075	82.5	(50%-105%)
Uranium-232 Tracer		IsoU "As Received"	1741076	61.1	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1741102	93	(50%-105%)

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Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-36

Sample ID: 444396006

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test											Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-127

Sample ID: 444396010

Matrix: W

Collect Date: 16-FEB-18

Receive Date: 21-FEB-18

Collector: Client

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis															
<i>Alphaspec Am241 Liquid "As Received"</i>															
Americium-241	U	-0.00823	+/-0.0091	0.0464	0.0195	+/-0.0091	0.050	pCi/L			BXA4	03/01/18	1300	1741073	1
<i>ISOPU "As Received"</i>															
Plutonium-238	U	0.00317	+/-0.0131	0.0552	0.0233	+/-0.0131	0.050	pCi/L			BXA4	03/01/18	1326	1741075	2
Plutonium-239/240	U	0.0349	+/-0.0152	0.0444	0.0179	+/-0.0153	0.050	pCi/L							
<i>IsoU "As Received"</i>															
Uranium-234		0.471	+/-0.0693	0.357	0.167	+/-0.0756	1.00	pCi/L			BXA4	03/03/18	1146	1741076	3
Uranium-235/236	U	0.125	+/-0.0399	0.201	0.0857	+/-0.0407	1.00	pCi/L							
Uranium-238		0.215	+/-0.0452	0.182	0.0791	+/-0.0472	0.500	pCi/L							
Rad Gamma Spec Analysis															
<i>Gammaspex "As Received"</i>															
Cesium-137	U	-0.146	+/-0.855	3.04	1.38	+/-0.856	8.00	pCi/L			BSW1	02/22/18	0738	1741316	4
Cobalt-60	U	0.441	+/-0.710	2.94	1.26	+/-0.717	8.00	pCi/L							
Neptunium-237	U	0.783	+/-1.88	6.09	2.86	+/-1.89		pCi/L							
Potassium-40	U	-22.5	+/-11.1	35.9	15.9	+/-12.3		pCi/L							
Sodium-22	U	1.17	+/-0.911	2.92	1.26	+/-0.912		pCi/L							
Rad Gas Flow Proportional Counting															
<i>GFPC, Sr90, liquid "As Received"</i>															
Strontium-90	U	-0.122	+/-0.122	0.481	0.214	+/-0.122	0.500	pCi/L			KSD1	02/26/18	1425	1741102	5
<i>WSP-GrossA/B "As Received"</i>															
Beta		3.21	+/-0.910	2.76	1.27	+/-0.949	3.00	pCi/L			BXG2	03/08/18	0829	1742280	6
Alpha	U	0.117	+/-0.551	2.34	0.869	+/-0.551	3.00	pCi/L			BXG2	03/08/18	1338	1742280	7

The following Analytical Methods were performed

Method	Description
1	HASL-300:AM-241
2	HASL-300:ISOPU
3	HASL-300:ISOU
4	EPA:901.1
5	EPA:905.0
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer	Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer		Alphaspec Am241 Liquid "As Received"	1741073	82	(50%-105%)
Plutonium-242 Tracer		ISOPU "As Received"	1741075	75.4	(50%-105%)
Uranium-232 Tracer		IsoU "As Received"	1741076	65.3	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1741102	88.4	(50%-105%)

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Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-127

Sample ID: 444396010

Project: ESHL00114

Client ID: ARSL004

Report Date: March 12, 2018

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test											Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-40
Sample ID: 444396013
Matrix: W
Collect Date: 16-FEB-18
Receive Date: 21-FEB-18
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Report Date: March 12, 2018

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis															
<i>Alphaspec Am241 Liquid "As Received"</i>															
Americium-241	U	-0.00532	+/-0.00922	0.045	0.0189	+/-0.00922	0.050	pCi/L			BXA4	03/01/18	1300	1741073	1
<i>ISOPU "As Received"</i>															
Plutonium-238	U	0.012	+/-0.00852	0.0523	0.0221	+/-0.00853	0.050	pCi/L			BXA4	03/01/18	1326	1741075	2
Plutonium-239/240	U	-0.0271	+/-0.0138	0.0421	0.017	+/-0.0138	0.050	pCi/L							
<i>IsoU "As Received"</i>															
Uranium-234	U	0.244	+/-0.054	0.331	0.154	+/-0.0562	1.00	pCi/L			BXA4	03/03/18	1146	1741076	3
Uranium-235/236	U	0.106	+/-0.0356	0.186	0.0794	+/-0.0361	1.00	pCi/L							
Uranium-238		0.203	+/-0.0429	0.169	0.0733	+/-0.0446	0.500	pCi/L							
Rad Gamma Spec Analysis															
<i>Gammasppec "As Received"</i>															
Cesium-137	U	-0.888	+/-1.48	4.59	2.04	+/-1.49	8.00	pCi/L			BSW1	02/22/18	0739	1741316	4
Cobalt-60	U	0.923	+/-1.41	5.77	2.48	+/-1.42	8.00	pCi/L							
Neptunium-237	U	-0.423	+/-2.63	8.77	4.08	+/-2.63		pCi/L							
Potassium-40	U	11.9	+/-24.7	38.9	15.4	+/-24.7		pCi/L							
Sodium-22	U	-0.141	+/-1.46	5.59	2.41	+/-1.46		pCi/L							
Rad Gas Flow Proportional Counting															
<i>GFPC, Sr90, liquid "As Received"</i>															
Strontium-90	U	-0.106	+/-0.130	0.485	0.223	+/-0.130	0.500	pCi/L			KSD1	02/26/18	1425	1741102	5
<i>WSP-GrossA/B "As Received"</i>															
Beta	U	1.06	+/-0.798	2.67	1.23	+/-0.804	3.00	pCi/L			BXG2	03/08/18	0830	1742280	6
Alpha	U	1.66	+/-0.765	2.24	0.821	+/-0.778	3.00	pCi/L			BXG2	03/08/18	1337	1742280	7

The following Analytical Methods were performed

Method	Description
1	HASL-300:AM-241
2	HASL-300:ISOPU
3	HASL-300:ISOU
4	EPA:901.1
5	EPA:905.0
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer	Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer		Alphaspec Am241 Liquid "As Received"	1741073	87.8	(50%-105%)
Plutonium-242 Tracer		ISOPU "As Received"	1741075	79.4	(50%-105%)
Uranium-232 Tracer		IsoU "As Received"	1741076	71.3	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1741102	93	(50%-105%)

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Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-40

Sample ID: 444396013

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test											Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-43

Sample ID: 444396018

Matrix: W

Collect Date: 16-FEB-18

Receive Date: 21-FEB-18

Collector: Client

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis															
<i>Alphaspec Am241 Liquid "As Received"</i>															
Americium-241	U	0.012	+/-0.00949	0.0507	0.0213	+/-0.0095	0.050	pCi/L			BXA4	03/01/18	1300	1741073	1
<i>ISOPU "As Received"</i>															
Plutonium-238	U	0.00305	+/-0.00806	0.053	0.0224	+/-0.00807	0.050	pCi/L			BXA4	03/01/18	1326	1741075	2
Plutonium-239/240	U	0.0122	+/-0.00862	0.0426	0.0172	+/-0.00863	0.050	pCi/L							
<i>IsoU "As Received"</i>															
Uranium-234		0.346	+/-0.0566	0.327	0.153	+/-0.0607	1.00	pCi/L			BXA4	03/05/18	1546	1741076	3
Uranium-235/236	U	0.0695	+/-0.0311	0.184	0.0785	+/-0.0313	1.00	pCi/L							
Uranium-238		0.197	+/-0.0426	0.167	0.0724	+/-0.0442	0.500	pCi/L							
Rad Gamma Spec Analysis															
<i>Gammasespec "As Received"</i>															
Cesium-137	U	0.907	+/-1.20	4.45	2.05	+/-1.22	8.00	pCi/L			BSW1	02/22/18	0739	1741316	4
Cobalt-60	U	-0.652	+/-1.60	4.80	2.14	+/-1.61	8.00	pCi/L							
Neptunium-237	U	0.989	+/-2.29	8.06	3.81	+/-2.30		pCi/L							
Potassium-40	U	-5.64	+/-15.7	58.3	26.5	+/-15.7		pCi/L							
Sodium-22	U	-0.448	+/-1.24	4.45	1.97	+/-1.24		pCi/L							
Rad Gas Flow Proportional Counting															
<i>GFPC, Sr90, liquid "As Received"</i>															
Strontium-90	U	-0.236	+/-0.113	0.479	0.214	+/-0.113	0.500	pCi/L			KSD1	02/26/18	1425	1741102	5
<i>WSP-GrossA/B "As Received"</i>															
Beta	U	0.501	+/-0.835	2.88	1.34	+/-0.836	3.00	pCi/L			BXG2	03/08/18	0830	1742280	6
Alpha	U	1.62	+/-0.862	2.72	1.04	+/-0.874	3.00	pCi/L			BXG2	03/08/18	1337	1742280	7

The following Analytical Methods were performed

Method	Description
1	HASL-300:AM-241
2	HASL-300:ISOPU
3	HASL-300:ISOU
4	EPA:901.1
5	EPA:905.0
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer	Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer		Alphaspec Am241 Liquid "As Received"	1741073	83.8	(50%-105%)
Plutonium-242 Tracer		ISOPU "As Received"	1741075	71.7	(50%-105%)
Uranium-232 Tracer		IsoU "As Received"	1741076	64.4	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1741102	79.1	(50%-105%)

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-43

Sample ID: 444396018

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test											Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-22

Sample ID: 444396023

Matrix: W

Collect Date: 16-FEB-18

Receive Date: 21-FEB-18

Collector: Client

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis															
<i>Alphaspec Am241 Liquid "As Received"</i>															
Americium-241	U	0.00753	+/-0.00753	0.0424	0.0178	+/-0.00753	0.050	pCi/L			BXA4	03/01/18	1300	1741073	1
<i>ISOPU "As Received"</i>															
Plutonium-238	U	0.0317	+/-0.0168	0.0689	0.0291	+/-0.0169	0.050	pCi/L			BXA4	03/01/18	1326	1741075	2
Plutonium-239/240	U	0.00397	+/-0.0143	0.0555	0.0224	+/-0.0143	0.050	pCi/L							
<i>IsoU "As Received"</i>															
Uranium-234	U	0.190	+/-0.0435	0.327	0.153	+/-0.0452	1.00	pCi/L			BXA4	03/03/18	1354	1741076	3
Uranium-235/236	U	0.0844	+/-0.0322	0.184	0.0785	+/-0.0326	1.00	pCi/L							
Uranium-238	U	0.0843	+/-0.0301	0.167	0.0724	+/-0.0305	0.500	pCi/L							
Rad Gamma Spec Analysis															
<i>Gammasespec "As Received"</i>															
Cesium-137	U	-0.922	+/-0.979	2.82	1.30	+/-1.00	8.00	pCi/L			BSW1	02/22/18	0742	1741316	4
Cobalt-60	U	-0.19	+/-0.770	2.78	1.23	+/-0.771	8.00	pCi/L							
Neptunium-237	U	1.40	+/-1.59	5.78	2.75	+/-1.62		pCi/L							
Potassium-40	UI	41.9	+/-16.0	23.3	10.0	+/-16.1		pCi/L							
Sodium-22	U	1.15	+/-0.836	3.30	1.49	+/-0.878		pCi/L							
Rad Gas Flow Proportional Counting															
<i>GFPC, Sr90, liquid "As Received"</i>															
Strontium-90	U	-0.203	+/-0.108	0.484	0.209	+/-0.108	0.500	pCi/L			KSD1	02/27/18	0806	1741102	5
<i>WSP-GrossA/B "As Received"</i>															
Beta		4.60	+/-0.875	2.42	1.11	+/-0.957	3.00	pCi/L			BXG2	03/08/18	0830	1742280	6
Alpha	U	1.70	+/-0.865	2.60	0.912	+/-0.878	3.00	pCi/L			BXG2	03/08/18	1338	1742280	7

The following Analytical Methods were performed

Method	Description
1	HASL-300:AM-241
2	HASL-300:ISOPU
3	HASL-300:ISOU
4	EPA:901.1
5	EPA:905.0
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer	Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer		Alphaspec Am241 Liquid "As Received"	1741073	87.8	(50%-105%)
Plutonium-242 Tracer		ISOPU "As Received"	1741075	62.5	(50%-105%)
Uranium-232 Tracer		IsoU "As Received"	1741076	72.5	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1741102	93	(50%-105%)

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-22
Sample ID: 444396023

Project: ESHL00114
Client ID: ARSL004

Report Date: March 12, 2018

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test											Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

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Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-125

Sample ID: 444396027

Matrix: W

Collect Date: 16-FEB-18

Receive Date: 21-FEB-18

Collector: Client

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis															
<i>Alphaspec Am241 Liquid "As Received"</i>															
Americium-241	U	-0.00505	+/-0.00944	0.0426	0.0179	+/-0.00944	0.050	pCi/L			BXA4	03/01/18	1300	1741073	1
<i>ISOPU "As Received"</i>															
Plutonium-238	U	0.0263	+/-0.0113	0.0653	0.0276	+/-0.0113	0.050	pCi/L			BXA4	03/01/18	1326	1741075	2
Plutonium-239/240	U	0.00752	+/-0.0106	0.0526	0.0212	+/-0.0106	0.050	pCi/L							
<i>IsoU "As Received"</i>															
Uranium-234	U	0.271	+/-0.0485	0.328	0.153	+/-0.0515	1.00	pCi/L			BXA4	03/03/18	1553	1741076	3
Uranium-235/236	U	0.0994	+/-0.0376	0.184	0.0787	+/-0.0381	1.00	pCi/L							
Uranium-238	U	0.105	+/-0.032	0.167	0.0726	+/-0.0326	0.500	pCi/L							
Rad Gamma Spec Analysis															
<i>Gammasespec "As Received"</i>															
Cesium-137	U	0.870	+/-0.824	2.99	1.38	+/-0.849	8.00	pCi/L			BSW1	02/22/18	0753	1741316	4
Cobalt-60	U	0.0588	+/-0.750	2.90	1.28	+/-0.750	8.00	pCi/L							
Neptunium-237	U	-1.98	+/-1.53	5.32	2.51	+/-1.59		pCi/L							
Potassium-40	U	14.3	+/-20.2	24.3	10.4	+/-20.2		pCi/L							
Sodium-22	U	0.236	+/-0.719	2.68	1.18	+/-0.721		pCi/L							
Rad Gas Flow Proportional Counting															
<i>GFPC, Sr90, liquid "As Received"</i>															
Strontium-90	U	0.0764	+/-0.136	0.479	0.216	+/-0.136	0.500	pCi/L			KSD1	02/26/18	1426	1741102	5
<i>WSP-GrossA/B "As Received"</i>															
Beta		4.81	+/-0.895	2.47	1.14	+/-0.983	3.00	pCi/L			BXG2	03/08/18	0830	1742280	6
Alpha	U	0.357	+/-0.651	2.50	0.986	+/-0.652	3.00	pCi/L			BXG2	03/08/18	1337	1742280	7

The following Analytical Methods were performed

Method	Description
1	HASL-300:AM-241
2	HASL-300:ISOPU
3	HASL-300:ISOU
4	EPA:901.1
5	EPA:905.0
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer	Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer		Alphaspec Am241 Liquid "As Received"	1741073	82.4	(50%-105%)
Plutonium-242 Tracer		ISOPU "As Received"	1741075	71.6	(50%-105%)
Uranium-232 Tracer		IsoU "As Received"	1741076	61.1	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1741102	83.7	(50%-105%)

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Certificate of Analysis

Company : Los Alamos National Laboratory
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Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-125

Sample ID: 444396027

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test											Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-30

Sample ID: 444396030

Matrix: W

Collect Date: 16-FEB-18

Receive Date: 21-FEB-18

Collector: Client

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis															
<i>Alphaspec Am241 Liquid "As Received"</i>															
Americium-241	U	1.81E-09	+/-0.0086	0.046	0.0193	+/-0.0086	0.050	pCi/L			BXA4	03/01/18	1300	1741073	1
<i>ISOPU "As Received"</i>															
Plutonium-238	U	0.0184	+/-0.00948	0.0457	0.0193	+/-0.00951	0.050	pCi/L			BXA4	03/01/18	1326	1741075	2
Plutonium-239/240	U	0.0131	+/-0.00789	0.0368	0.0148	+/-0.00791	0.050	pCi/L							
<i>IsoU "As Received"</i>															
Uranium-234	U	0.193	+/-0.0453	0.339	0.158	+/-0.047	1.00	pCi/L			BXA4	03/03/18	1553	1741076	3
Uranium-235/236	U	0.0617	+/-0.0305	0.191	0.0813	+/-0.0307	1.00	pCi/L							
Uranium-238	U	0.0457	+/-0.025	0.173	0.075	+/-0.0252	0.500	pCi/L							
Rad Gamma Spec Analysis															
<i>Gammaspex "As Received"</i>															
Cesium-137	U	-0.378	+/-0.947	3.29	1.51	+/-0.951	8.00	pCi/L			BSW1	02/22/18	0753	1741316	4
Cobalt-60	U	-0.0964	+/-0.801	3.05	1.32	+/-0.802	8.00	pCi/L							
Neptunium-237	U	-0.498	+/-1.73	6.21	2.91	+/-1.73		pCi/L							
Potassium-40	U	7.51	+/-14.7	28.6	12.2	+/-14.7		pCi/L							
Sodium-22	U	-0.272	+/-0.851	3.16	1.38	+/-0.854		pCi/L							
Rad Gas Flow Proportional Counting															
<i>GFPC, Sr90, liquid "As Received"</i>															
Strontium-90	U	0.0713	+/-0.138	0.488	0.221	+/-0.138	0.500	pCi/L			KSD1	02/26/18	1426	1741102	5
<i>WSP-GrossA/B "As Received"</i>															
Beta		5.89	+/-0.939	2.49	1.15	+/-1.06	3.00	pCi/L			BXG2	03/08/18	0830	1742280	6
Alpha	U	1.68	+/-0.757	2.20	0.800	+/-0.770	3.00	pCi/L			BXG2	03/08/18	1337	1742280	7

The following Analytical Methods were performed

Method	Description
1	HASL-300:AM-241
2	HASL-300:ISOPU
3	HASL-300:ISOU
4	EPA:901.1
5	EPA:905.0
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer	Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer		Alphaspec Am241 Liquid "As Received"	1741073	86.9	(50%-105%)
Plutonium-242 Tracer		ISOPU "As Received"	1741075	84.9	(50%-105%)
Uranium-232 Tracer		IsoU "As Received"	1741076	62.2	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1741102	81.4	(50%-105%)

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545

Contact: Ms. Nita Patel

Project: LANL- WQH Water Samples

Client Sample ID: CAWA-18-30

Sample ID: 444396030

Report Date: March 12, 2018

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test											Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

Quality Control Summary

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QC Summary

Report Date: March 12, 2018

Page 1 of 6

Client : Los Alamos National Laboratory
TA-00, SM1237, Rm104C

Los Alamos, New Mexico

Contact: Ms. Nita Patel

Workorder: 444396

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1741073										
QC1203976541	444396002	DUP									
Americium-241	U	0.0413	U	0.0126	pCi/L	0.472		(0-1)	BXA4	03/03/18	16:46
	Uncert:	+/-0.0177		+/-0.0126							
	TPU:	+/-0.0178		+/-0.0126							
**Americium-243 Tracer	5.24	4.34		4.49	pCi/L		85.7	(50%-105%)			
	Uncert:	+/-0.175		+/-0.148							
	TPU:	+/-0.304		+/-0.274							
QC1203976542	LCS										
Americium-241	1.97			1.90	pCi/L		96.6	(80%-120%)	BXA4	03/01/18	13:01
	Uncert:			+/-0.063							
	TPU:			+/-0.108							
**Americium-243 Tracer	2.10			1.76	pCi/L		84	(50%-105%)			
	Uncert:			+/-0.0655							
	TPU:			+/-0.116							
QC1203976540	MB										
Americium-241			U	0.00471	pCi/L				BXA4	03/01/18	13:00
	Uncert:			+/-0.0052							
	TPU:			+/-0.00521							
**Americium-243 Tracer	2.10			1.80	pCi/L		86	(50%-105%)			
	Uncert:			+/-0.0577							
	TPU:			+/-0.108							
Batch	1741075										
QC1203976548	444396002	DUP									
Plutonium-238	U	0.0421	U	0.025	pCi/L	0.259		(0-1)	BXA4	03/01/18	13:26
	Uncert:	+/-0.0179		+/-0.015							
	TPU:	+/-0.0179		+/-0.015							
Plutonium-239/240	U	0.0421	U	0.005	pCi/L	0.577		(0-1)			
	Uncert:	+/-0.0188		+/-0.0132							
	TPU:	+/-0.0189		+/-0.0132							
**Plutonium-242 Tracer	4.95	3.83		3.96	pCi/L		80.2	(50%-105%)			
	Uncert:	+/-0.145		+/-0.158							
	TPU:	+/-0.248		+/-0.264							
QC1203976549	LCS										
Plutonium-238			U	0.0117	pCi/L			(80%-120%)	BXA4	03/01/18	13:21
	Uncert:			+/-0.00782							
	TPU:			+/-0.00783							
Plutonium-239/240	1.98			1.91	pCi/L		96.8	(80%-120%)			
	Uncert:			+/-0.0615							
	TPU:			+/-0.102							
**Plutonium-242 Tracer	1.98			1.71	pCi/L		86.3	(50%-105%)			
	Uncert:			+/-0.0625							
	TPU:			+/-0.104							

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QC Summary

Workorder: 444396

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1741075										
QC1203976547	MB										
Plutonium-238			U	-0.00539	pCi/L				BXA4	03/01/18	13:26
				Uncert: +/-0.00596							
				TPU: +/-0.00596							
Plutonium-239/240			U	-0.00539	pCi/L						
				Uncert: +/-0.00596							
				TPU: +/-0.00596							
**Plutonium-242 Tracer	1.98			1.52	pCi/L		77	(50%-105%)			
				Uncert: +/-0.0599							
				TPU: +/-0.101							
Batch	1741076										
QC1203976551	444396002	DUP									
Uranium-234		0.479	U	0.328	pCi/L	0.514		(0-1)	BXA4	03/03/18	15:53
		Uncert: +/-0.0767		+/-0.062							
		TPU: +/-0.0823		+/-0.065							
Uranium-235/236		U 0.0995	U	0.0349	pCi/L	0.423		(0-1)			
		Uncert: +/-0.0478		+/-0.028							
		TPU: +/-0.0482		+/-0.0281							
Uranium-238		0.265		0.198	pCi/L	0.305		(0-1)			
		Uncert: +/-0.0585		+/-0.0475							
		TPU: +/-0.0606		+/-0.0488							
**Uranium-232 Tracer	5.22	3.35		3.72	pCi/L		71.2	(50%-105%)			
		Uncert: +/-0.248		+/-0.226							
		TPU: +/-0.401		+/-0.374							
QC1203976552	LCS										
Uranium-234				2.95	pCi/L				BXA4	03/01/18	13:01
		Uncert: +/-0.119		+/-0.119							
		TPU: +/-0.216		+/-0.216							
Uranium-235/236				0.292	pCi/L						
		Uncert: +/-0.0423		+/-0.0423							
		TPU: +/-0.0459		+/-0.0459							
Uranium-238	2.70			3.03	pCi/L		112	(80%-120%)			
		Uncert: +/-0.121		+/-0.121							
		TPU: +/-0.221		+/-0.221							
**Uranium-232 Tracer	2.09			1.63	pCi/L		77.9	(50%-105%)			
		Uncert: +/-0.101		+/-0.101							
		TPU: +/-0.163		+/-0.163							
QC1203976550	MB										
Uranium-234			U	0.104	pCi/L				BXA4	03/01/18	13:01
		Uncert: +/-0.025		+/-0.025							
		TPU: +/-0.0259		+/-0.0259							
Uranium-235/236			U	0.0919	pCi/L						
		Uncert: +/-0.0248		+/-0.0248							
		TPU: +/-0.0254		+/-0.0254							
Uranium-238			U	0.0359	pCi/L						
		Uncert: +/-0.0159		+/-0.0159							
		TPU: +/-0.0161		+/-0.0161							

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QC Summary

Workorder: 444396

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1741076										
*Uranium-232 Tracer	2.09			1.51	pCi/L		72.5	(50%-105%)			
	Uncert:			+/-0.101							
	TPU:			+/-0.162							
Rad Gamma Spec											
Batch	1741316										
QC1203976943	444396002	DUP									
Cesium-137	U	-0.579	U	-1.62	pCi/L	0.237		(0-1)	BSW1	02/22/18	12:07
	Uncert:	+/-1.02		+/-1.10							
	TPU:	+/-1.03		+/-1.16							
Cobalt-60	U	0.764	U	-1.28	pCi/L	0.48		(0-1)			
	Uncert:	+/-0.801		+/-1.27							
	TPU:	+/-0.821		+/-1.31							
Neptunium-237	U	-3.02	U	-1.74	pCi/L	0.143		(0-1)			
	Uncert:	+/-1.88		+/-2.45							
	TPU:	+/-2.00		+/-2.49							
Potassium-40	U	-9.36	U	25.6	pCi/L	0.604		(0-1)			
	Uncert:	+/-11.0		+/-17.7							
	TPU:	+/-11.2		+/-17.7							
Sodium-22	U	0.039	U	-0.642	pCi/L	0.157		(0-1)			
	Uncert:	+/-0.664		+/-1.50							
	TPU:	+/-0.664		+/-1.51							
QC1203976944	LCS										
Americium-241	34300			38300	pCi/L		112	(80%-120%)	BSW1	02/22/18	08:52
	Uncert:			+/-1060							
	TPU:			+/-2220							
Cesium-137	12900			13100	pCi/L		101	(80%-120%)			
	Uncert:			+/-176							
	TPU:			+/-612							
Cobalt-60	10900			11200	pCi/L		103	(80%-120%)			
	Uncert:			+/-191							
	TPU:			+/-599							
Neptunium-237			U	-8.86	pCi/L						
	Uncert:			+/-60.2							
	TPU:			+/-60.2							
Potassium-40			U	124	pCi/L						
	Uncert:			+/-135							
	TPU:			+/-138							
Sodium-22			U	8.84	pCi/L						
	Uncert:			+/-16.5							
	TPU:			+/-16.7							
QC1203976942	MB										
Cesium-137			U	0.249	pCi/L				BSW1	02/22/18	08:13
	Uncert:			+/-0.891							
	TPU:			+/-0.893							
Cobalt-60			U	0.976	pCi/L						
	Uncert:			+/-0.758							

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	1741316										
Neptunium-237	TPU:			+/-0.792							
			U	0.699	pCi/L						
	Uncert:			+/-1.51							
Potassium-40	TPU:			+/-1.52							
			U	5.25	pCi/L						
	Uncert:			+/-16.2							
Sodium-22	TPU:			+/-16.2							
			U	-0.679	pCi/L						
	Uncert:			+/-0.774							
	TPU:			+/-0.790							
Rad Gas Flow											
Batch	1741102										
QC1203976610	444396002	DUP									
Strontium-90	U	-0.0622	U	-0.0774	pCi/L	0.0295		(0-1)	KSD1	02/26/18	14:25
	Uncert:	+/-0.129		+/-0.128							
	TPU:	+/-0.129		+/-0.128							
**Strontium Carrier	4.30	3.90		3.40	mg		79.1	(50%-105%)			
QC1203976612	LCS										
Strontium-90	23.5			22.6	pCi/L		96.1	(80%-120%)	KSD1	02/26/18	14:25
	Uncert:			+/-0.637							
	TPU:			+/-1.97							
**Strontium Carrier	4.30			4.20	mg		97.7	(50%-105%)			
QC1203976609	MB										
Strontium-90			U	0.0797	pCi/L				KSD1	02/26/18	14:25
	Uncert:			+/-0.0858							
	TPU:			+/-0.086							
**Strontium Carrier	4.30			4.30	mg		100	(50%-105%)			
QC1203976611	444396002	MS									
Strontium-90	236	U	-0.0622	215	pCi/L		91.1	(75%-125%)	KSD1	02/26/18	14:25
	Uncert:		+/-0.129	+/-6.55							
	TPU:		+/-0.129	+/-18.6							
**Strontium Carrier	4.30	3.90		3.90	mg		90.7	(50%-105%)			
Batch	1742280										
QC1203978997	444396013	DUP									
Alpha	U	1.66	U	1.99	pCi/L	0.0957		(0-1)	BXG2	03/08/18	13:38
	Uncert:	+/-0.765		+/-0.906							
	TPU:	+/-0.778		+/-0.921							
Beta	U	1.06	U	1.10	pCi/L	0.0141		(0-1)		03/08/18	08:31
	Uncert:	+/-0.798		+/-0.720							
	TPU:	+/-0.804		+/-0.726							
QC1203979000	LCS										
Alpha	12.1			13.0	pCi/L		108	(80%-120%)	BXG2	03/08/18	13:41
	Uncert:			+/-0.626							
	TPU:			+/-1.30							
Beta	47.0			50.1	pCi/L		107	(80%-120%)		03/08/18	08:22

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch	1742280										
				Uncert:							
				TPU:							
QC1203978996	MB										
Alpha			U	-0.28	pCi/L				BXG2	03/08/1813:38	
				Uncert:							
				TPU:							
Beta			U	-0.0375	pCi/L					03/08/1808:21	
				Uncert:							
				TPU:							
QC1203978998	444396013	MS									
Alpha		483	U	1.66	442	pCi/L		91.4	(75%-125%)	BXG2	03/08/1813:41
				Uncert:							
				TPU:							
Beta		1880	U	1.06	1970	pCi/L		105	(75%-125%)		03/08/1808:21
				Uncert:							
				TPU:							
QC1203978999	444396013	MSD									
Alpha		483	U	1.66	473	pCi/L	0.172	97.9	(0-1)	BXG2	03/08/1813:41
				Uncert:							
				TPU:							
Beta		1880	U	1.06	1910	pCi/L	0.0959	101	(0-1)		03/08/1808:22
				Uncert:							
				TPU:							

Notes:

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMF Result > MDC/CL and < RDL
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

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Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
R	Sample results are rejected									
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.									
UI	Gamma Spectroscopy--Uncertain identification									
UJ	Gamma Spectroscopy--Uncertain identification									
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.									
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.									
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.									
h	Preparation or preservation holding time was exceeded									

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

** Indicates analyte is a surrogate/tracer compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.