

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME:

Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95756

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1512		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-62		FIELD PREP:	UF	OK
LOCATION TYPE:	NA		FIELD QC TYPE:	FB	↓
TOP DEPTH:	NA		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	2	HCL	Y	NA
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS:

NA

LOCATION COMMENTS:

NA

FIELD PARAMETERS:

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

COLLECTED BY (PRINT):

J. Romero

RELINQUISHED BY (Printed Name) <i>Sorathia Romero</i> (Signature) <i>Sorathia Romero</i>	Date/Time 5/12/15 1615	RECEIVED BY <i>S. Sherwood</i> (Printed Name) <i>S. Sherwood</i> (Signature) <i>S. Sherwood</i>	Date/Time 5/12/15 1615
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 04/30/2015

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95757

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1122		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	OC
LOCATION ID:	R-60		FIELD PREP:	UF	OK
LOCATION TYPE:	NA		FIELD QC TYPE:	FB	↓
TOP DEPTH:	NA		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	2	HCL	Y	NA
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS:

NA

LOCATION COMMENTS:

NA

FIELD PARAMETERS:

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

COLLECTED BY (PRINT):

J. Romero

RELINQUISHED BY (Printed Name) AUDREY VIGIL (Signature) <i>Audrey Vigil</i>	Date/Time 5/14/15 1615	RECEIVED BY (Printed Name) S. Sherwood (Signature) <i>Sher Sherwood</i>	Date/Time 5/12/15 1615
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 04/30/2015

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95759

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1512		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	GSR
LOCATION ID:	R-62		FIELD PREP:	UF	OK
LOCATION TYPE:	NA		FIELD QC TYPE:	FD	↓
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	MSGP-Hg	1 LITER 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-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 COMMENTS:

NA

LOCATION COMMENTS:

NA

FIELD PARAMETERS:

Dissolved Oxygen

NA

mg/L

Flow (in gpm)

NA

GPM

Oxidation-Reduction Potential

NA

mV

pH

↓

SU

Specific Conductance

↓

uS/cm

Temperature

↓

deg C

Turbidity

↓

NTU

COLLECTED BY (PRINT):

A. V. G. I.

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY**EVENT ID:** 9200**EVENT NAME:** Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling**SAMPLE ID:** CAMO-15-95759**WORK ORDER:**

RELINQUISHED BY (Printed Name) <i>Jonathan Romero</i> (Signature) <i>[Signature]</i>	Date/Time <i>5/12/15</i> <i>1615</i>	RECEIVED BY (Printed Name) <i>Sherwood</i> (Signature) <i>[Signature]</i>	Date/Time <i>5/12/15</i> <i>1615</i>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 04/30/2015

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95760

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1122		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	4SP
LOCATION ID:	R-60		FIELD PREP:	UF	OK
LOCATION TYPE:	NA		FIELD QC TYPE:	FD	↓
TOP DEPTH:	↓		SAMPLE USAGE:	QC	↓
BOTTOM DEPTH:	↓	↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER 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-CN(T)	250 ML POLY	1	NAOH		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS: NA

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

COLLECTED BY (PRINT): A. Vigil

RELINQUISHED BY (Printed Name) Andrew Vigil (Signature) [Signature]	Date/Time 5/12/15 1615	RECEIVED BY (Printed Name) S. Sherwood (Signature) [Signature]	Date/Time 5/12/15 1615
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Date/Time

Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95762

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1312		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	LSP
LOCATION ID:	R-62		FIELD PREP:	F	OK
LOCATION TYPE:	NA		FIELD QC TYPE:	FD	↓
TOP DEPTH:	NA		SAMPLE USAGE:	QC	↓
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-CR52/53	1 LITER POLY	1	ICE	↓	↓
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-N15/O18-NO3	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓
↓	WSP-NH3+NO3/NO2	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): A. Vigil

RELINQUISHED BY (Printed Name) Jonathan Renero (Signature) Jonathan Renero	Date/Time 5/12/15 1615	RECEIVED BY (Printed Name) J. Sherwood (Signature) J. Sherwood	Date/Time 5/12/15 1615
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 04/30/2015

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95763

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1122		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-60		FIELD PREP:	F	OK
LOCATION TYPE:	NA		FIELD QC TYPE:	FD	↓
TOP DEPTH:	NA		SAMPLE USAGE:	QC	↓
BOTTOM DEPTH:	NA	↓	EXCAVATED:		YES / NO / NA (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-NH3+NO3/NO2	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): A. Vigil

RELINQUISHED BY (Printed Name) ANDREW VIGIL (Signature) Andrew Vigil	Date/Time 5/12/15 1615	RECEIVED BY (Printed Name) J. Sherwood (Signature) J. Sherwood	Date/Time 5/12/15 1615
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 04/30/2015

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95768

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1512		MEDIA:	UA	OK
PRS ID:	NA		SAMPLE TECH CODE:	UA	OK
LOCATION ID:	R-62		FIELD PREP:	UF	OK
LOCATION TYPE:	NA		FIELD QC TYPE:	FTB	
TOP DEPTH:	NA		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	2	5/12/15 HCL	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): A. Vigil

RELINQUISHED BY (Printed Name) Jonathan Romero (Signature) Jonathan Romero	Date/Time 05/12/2015 1615	RECEIVED BY (Printed Name) S. Sherwood (Signature) S. Sherwood	Date/Time 5/12/15 1615
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 04/30/2015

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95790

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1122		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-60		FIELD PREP:	UF	OK
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	1 LITER 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-CN(T)	250 ML POLY	1	NAOH		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: None

LOCATION COMMENTS: Sampled w/in 50' of running diesel generator

FIELD PARAMETERS:

Dissolved Oxygen	5.23	mg/L	Flow (in gpm)	2.7	GPM	Oxidation-Reduction Potential	24.5	mV
pH	8.29	SU	Specific Conductance	130	uS/cm	Temperature	22.47	deg C
Turbidity	3.29	NTU						

COLLECTED BY (PRINT): A. Vigil

RELINQUISHED BY (Printed Name) ANDREW VIGIL (Signature) Andrew Vigil	Date/Time 5/12/15 1615	RECEIVED BY (Printed Name) S. Sherwood (Signature) S. Sherwood	Date/Time 5/12/15 1615
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Date/Time

Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95792

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1312		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	LSP
LOCATION ID:	R-62		FIELD PREP:	UF	OK
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	1 LITER 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-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 COMMENTS: NA

LOCATION COMMENTS: 5/12/15 NA

FIELD PARAMETERS:

Dissolved Oxygen	6.56	mg/L	Flow (in gpm)	1.8	GPM	Oxidation-Reduction Potential	66.2	mV
pH	8.39	SU	Specific Conductance	194	uS/cm	Temperature	19.12	deg C
Turbidity	0.92	NTU						

COLLECTED BY (PRINT): A. Vigil

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY**EVENT ID:** 9200**EVENT NAME:** Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling**SAMPLE ID:** CAMO-15-95792**WORK ORDER:** NA

RELINQUISHED BY (Printed Name) Jonathan Romero (Signature) <i>Jonathan Romero</i>	Date/Time 5/12/15 1615	RECEIVED BY (Printed Name) S. Sheenwood (Signature) <i>S. Sheenwood</i>	Date/Time 5/12/15 1615
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 04/30/2015

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95812

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1122		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	SSP
LOCATION ID:	R-60		FIELD PREP:	F	OK
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-NH3+NO3/NO2	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): A. Vigil

RELINQUISHED BY (Printed Name) ANDREW UGALDE (Signature) Andrew Ugalde	Date/Time 5/12/15 1615	RECEIVED BY (Printed Name) J. Sherwood (Signature) J. Sherwood	Date/Time 5/12/15 1615
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 04/30/2015

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95814

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1512		MEDIA:	UA	↓
PRS ID:	NA		SAMPLE TECH CODE:	UA	LSP
LOCATION ID:	R-62		FIELD PREP:	F	OK
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-CR52/53	1 LITER POLY	1	ICE	↓	↓
↓	WSP- GENINORG+PerChlorat e	1 LITER POLY	1	ICE	↓	↓
↓	WSP-N15/O18- NO3	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓
↓	WSP- NH3+NO3/NO2	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): A.V. Gil

RELINQUISHED BY (Printed Name) Jonathan Ramon (Signature) <i>Jonathan Ramon</i>	Date/Time 5/12/15 1615	RECEIVED BY (Printed Name) P. Sherwood (Signature) <i>P. Sherwood</i>	Date/Time 5/12/15 1615
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

EVENT NAME: Mortandad/Sandia (Chromium, MDA C and General Surveillance) MY2015 Q3 Watershed Sampling

SAMPLE ID: CAMO-15-95815

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	05/12/2015	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1122	1122	MEDIA:	UA	↓
PRS ID:	NA	OK	SAMPLE TECH CODE:	UA	PC
LOCATION ID:	R-60	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	FTB	↓
TOP DEPTH:	NA	↓	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	1/2 5/12/15	HCL	Y	NA

SAMPLE COMMENTS:

NA

LOCATION COMMENTS:

NA

FIELD PARAMETERS:

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

COLLECTED BY (PRINT):

A. Vigil

RELINQUISHED BY (Printed Name) Andrew Vigil (Signature) [Signature]	Date/Time 5/12/15 1615	RECEIVED BY (Printed Name) S. Sherwood (Signature) [Signature]	Date/Time 5/12/15 1615
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date: 04/30/2015

DATA VALIDATION REPORT

Chain Of Custody No. 2015-1191

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
373005	EPA:120.1	2	2			
373005	EPA:150.1	2	2			
373005	EPA:160.1	2	2			
373005	EPA:245.2	4	4			
373005	EPA:300.0	2	2			
373005	EPA:310.1	2	2			
373005	EPA:335.4	2	2			
373005	EPA:350.1	2	2			
373005	EPA:351.2	2	2			
373005	EPA:353.2	2	2			
373005	EPA:365.4	2	2			
373005	EPA:900	1	1			
373005	EPA:901.1	1	1			
373005	EPA:905.0	1	1			
373005	HASL-300:AM-241	1	1			
373005	HASL-300:ISOPU	1	1			
373005	HASL-300:ISOU	1	1			
373005	SM:A2340B	2	2			
373005	SW-846:6010C	2	2			
373005	SW-846:6020	2	2			
373005	SW-846:6850	2	2			
373005	SW-846:8260B	2	2	2	2	
373005	SW-846:8270D	2	2		2	
373005	SW-846:9060	2	2			

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
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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
373005	EPA:120.1	1479616	1479616	2	2									1			1				
373005	EPA:150.1	1478981	1478981	2	2									1			2				
373005	EPA:160.1	1478821	1478821	2	2				1					1			1				
373005	EPA:245.2	1482657	1482655	4	4				1	2				1			2				
373005	EPA:300.0	1479153	1479153	2	2				1					1			1				
373005	EPA:310.1	1478898	1478898	2	2				2	2				2	2		2				
373005	EPA:335.4	1478627	1478626	2	2				1	2				1			2				
373005	EPA:350.1	1479222	1479221	2	2				1	1				1			1				
373005	EPA:351.2	1479224	1479223	2	2				1	1				1			1				
373005	EPA:353.2	1477965	1477965	2	2				1					1			1				
373005	EPA:365.4	1478376	1478375	2	2				1	1				1			1				
373005	EPA:900	1481041	1481041	1	1				1	1	1			1			1				
373005	EPA:901.1	1479268	1479268	1	1				1					1			1				
373005	EPA:905.0	1481040	1481040	1	1				1	1				1			1				
373005	HASL-300:AM-241	1479690	1479690	1	1				1					1			1				
373005	HASL-300:ISOPU	1479697	1479697	1	1				1					1			1				
373005	HASL-300:ISOU	1479699	1479699	1	1				1					1			1				
373005	SM:A2340B	1483075	1483075	2	2																
373005	SW-846:6010C	1478643	1478642	2	2				1	1				1			1				
373005	SW-846:6020	1478651	1478650	2	2				1	1				1			1				
373005	SW-846:6850	1480135	1480134	2	2				1	1	1			1							
373005	SW-846:8260B	1480885	1480885	2	2	2	2		2					4							
373005	SW-846:8270D	1479033	1479032	2	2		2		1	1	1			1							
373005	SW-846:9060	1478944	1478944	2	2				1					1			1				

2. Distribution Of Analytes In EDD.

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-15-95762	373005011	FD	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-15-95763	373005005	FD	1	0	0	0

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-15-95812	373005002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-15-95814	373005008	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-15-95855	1203321147	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1203321145	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-15-95762	373005011	FD	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-15-95763	373005005	FD	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-15-95800	1203319405	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-15-95812	1203319428	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-15-95812	373005002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-15-95814	373005008	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1203319403	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-15-95762	373005011	FD	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-15-95763	373005005	FD	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-15-95801	1203318963	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-15-95812	373005002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-15-95814	373005008	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1203318962	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1203318961	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95759	373005010	FD	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95760	373005004	FD	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95762	373005011	FD	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95763	373005005	FD	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95790	373005001	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95792	373005007	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95812	373005002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95814	373005008	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-98778	1203329214	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-98778	1203329215	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1203329210	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1203329209	MB	1	0	0	0
EPA:245.2	INORGANIC	WST16-15-97392	1203329211	DUP	1	0	0	0
EPA:245.2	INORGANIC	WST16-15-97392	1203329212	MS	0	0	1	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-15-95762	373005011	FD	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-15-95763	373005005	FD	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-15-95811	1203319813	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-15-95812	373005002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-15-95814	373005008	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1203319812	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1203319811	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-15-95762	373005011	FD	2	0	0	0

DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:310.1	GENERAL CHEMISTRY	CAMO-15-95763	1203319211	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-15-95763	1203319213	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-15-95763	373005005	FD	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-15-95809	1203319210	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-15-95809	1203319212	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-15-95812	373005002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-15-95814	373005008	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1203319208	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1203319209	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCSD	1203321735	LCSD	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCSD	1203321736	LCSD	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1203319206	MB	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1203319207	MB	2	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95759	373005010	FD	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95760	373005004	FD	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95779	1203318473	DUP	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95779	1203318474	MS	0	0	1	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95780	1203319954	DUP	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95780	1203319955	MS	0	0	1	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95790	373005001	REG	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95792	373005007	REG	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	LCS	1203318472	LCS	0	0	1	0
EPA:335.4	GENERAL CHEMISTRY	MB	1203318471	MB	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95762	373005011	FD	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95763	373005005	FD	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95801	1203320013	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95801	1203320015	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95812	373005002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95814	373005008	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1203320012	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1203320011	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-15-95759	373005010	FD	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-15-95760	373005004	FD	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-15-95779	1203320019	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-15-95779	1203320021	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-15-95790	373005001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-15-95792	373005007	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1203320018	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1203320017	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-15-95762	373005011	FD	1	0	0	0

DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:353.2	GENERAL CHEMISTRY	CAMO-15-95763	373005005	FD	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-15-95795	1203316522	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-15-95812	373005002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-15-95814	373005008	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1203316521	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1203316520	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-15-95762	373005011	FD	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-15-95763	373005005	FD	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-15-95800	1203317742	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-15-95800	1203317743	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-15-95812	373005002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-15-95814	373005008	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1203317741	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1203317740	MB	1	0	0	0
EPA:900	RAD	CAMO-15-95759	373005010	FD	2	0	0	0
EPA:900	RAD	CAMO-15-95791	1203324903	DUP	2	0	0	0
EPA:900	RAD	CAMO-15-95791	1203324904	MS	0	0	2	0
EPA:900	RAD	CAMO-15-95791	1203324905	MSD	0	0	2	0
EPA:900	RAD	CAMO-15-95792	373005007	REG	2	0	0	0
EPA:900	RAD	LCS	1203324906	LCS	0	0	2	0
EPA:900	RAD	MB	1203324902	MB	2	0	0	0
EPA:901.1	RAD	CAMO-15-95759	373005010	FD	5	0	0	0
EPA:901.1	RAD	CAMO-15-95779	1203320132	DUP	5	0	0	0
EPA:901.1	RAD	CAMO-15-95792	373005007	REG	5	0	0	0
EPA:901.1	RAD	LCS	1203320133	LCS	0	0	3	0
EPA:901.1	RAD	MB	1203320131	MB	5	0	0	0
EPA:905.0	RAD	CAMO-15-95759	373005010	FD	1	0	0	0
EPA:905.0	RAD	CAMO-15-95792	373005007	REG	1	0	0	0
EPA:905.0	RAD	LCS	1203324901	LCS	0	0	1	0
EPA:905.0	RAD	MB	1203324898	MB	1	0	0	0
EPA:905.0	RAD	WST16-15-97389	1203324899	DUP	1	0	0	0
EPA:905.0	RAD	WST16-15-97389	1203324900	MS	0	0	1	0
HASL-300:AM-241	RAD	CAMO-15-95759	373005010	FD	1	0	0	0
HASL-300:AM-241	RAD	CAMO-15-95792	1203321334	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-15-95792	373005007	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1203321335	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1203321333	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-15-95759	373005010	FD	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-15-95792	1203321342	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-15-95792	373005007	REG	2	0	0	0

DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
HASL-300:ISOPU	RAD	LCS	1203321343	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1203321341	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-15-95759	373005010	FD	3	0	0	0
HASL-300:ISOU	RAD	CAMO-15-95792	1203321348	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-15-95792	373005007	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1203321349	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1203321347	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-15-95762	373005011	FD	1	0	0	0
SM:A2340B	INORGANIC	CAMO-15-95763	373005005	FD	1	0	0	0
SM:A2340B	INORGANIC	CAMO-15-95812	373005002	REG	1	0	0	0
SM:A2340B	INORGANIC	CAMO-15-95814	373005008	REG	1	0	0	0
SW-846:6010C	INORGANIC	CAMO-15-95762	373005011	FD	17	0	0	0
SW-846:6010C	INORGANIC	CAMO-15-95763	373005005	FD	17	0	0	0
SW-846:6010C	INORGANIC	CAMO-15-95812	1203318522	DUP	17	0	0	0
SW-846:6010C	INORGANIC	CAMO-15-95812	1203318523	MS	0	0	17	0
SW-846:6010C	INORGANIC	CAMO-15-95812	373005002	REG	17	0	0	0
SW-846:6010C	INORGANIC	CAMO-15-95814	373005008	REG	17	0	0	0
SW-846:6010C	INORGANIC	LCS	1203318521	LCS	0	0	17	0
SW-846:6010C	INORGANIC	MB	1203318520	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-15-95762	373005011	FD	11	0	0	0
SW-846:6020	INORGANIC	CAMO-15-95763	373005005	FD	11	0	0	0
SW-846:6020	INORGANIC	CAMO-15-95801	1203318543	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-15-95801	1203318544	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-15-95812	373005002	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-15-95814	373005008	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1203318542	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1203318541	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-15-95762	373005011	FD	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-15-95763	1203322526	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-15-95763	1203322527	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-15-95763	373005005	FD	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-15-95812	373005002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-15-95814	373005008	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1203322525	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1203322524	MB	1	0	0	0
SW-846:8260B	VOC	CAMO-15-95756	373005009	FB	80	3	0	0
SW-846:8260B	VOC	CAMO-15-95757	373005003	FB	80	3	0	0
SW-846:8260B	VOC	CAMO-15-95759	373005010	FD	80	3	0	0
SW-846:8260B	VOC	CAMO-15-95760	373005004	FD	80	3	0	0
SW-846:8260B	VOC	CAMO-15-95768	373005012	FTB	80	3	0	0

DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
SW-846:8260B	VOC	CAMO-15-95790	373005001	REG	80	3	0	0
SW-846:8260B	VOC	CAMO-15-95792	373005007	REG	80	3	0	0
SW-846:8260B	VOC	CAMO-15-95815	373005006	FTB	80	3	0	0
SW-846:8260B	VOC	LCS	1203324490	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203324491	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1203334156	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203334157	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203324489	MB	80	3	0	0
SW-846:8260B	VOC	MB	1203334155	MB	80	3	0	0
SW-846:8270D	SVOC	CAMO-15-95756	373005009	FB	80	6	0	0
SW-846:8270D	SVOC	CAMO-15-95757	373005003	FB	80	6	0	0
SW-846:8270D	SVOC	CAMO-15-95759	373005010	FD	80	6	0	0
SW-846:8270D	SVOC	CAMO-15-95760	373005004	FD	80	6	0	0
SW-846:8270D	SVOC	CAMO-15-95790	373005001	REG	80	6	0	0
SW-846:8270D	SVOC	CAMO-15-95792	373005007	REG	80	6	0	0
SW-846:8270D	SVOC	LCS	1203319536	LCS	0	6	76	0
SW-846:8270D	SVOC	MB	1203319535	MB	80	6	0	0
SW-846:8270D	SVOC	WST16-15-97393	1203319537	MS	0	6	76	0
SW-846:8270D	SVOC	WST16-15-97393	1203319538	MSD	0	6	76	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-15-95759	373005010	FD	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-15-95760	373005004	FD	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-15-95780	1203320063	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-15-95790	373005001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-15-95792	373005007	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1203320062	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1203320061	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

DATA VALIDATION REPORT

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	1203317740	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0413	J	mg/L	0.050
MB	1203318520	METHOD BLANK	SW-846:6010C	W	Sodium	-174	J	ug/L	300
MB	1203320011	METHOD BLANK	EPA:350.1	W	Ammonia as Nitrogen	0.0431	J	mg/L	0.050
MB	1203324489	METHOD BLANK	SW-846:8260B	W	Methylene Chloride	1.62	J	ug/L	10.0
CAMO-15-95757	373005003	FIELD BLANK	SW-846:8260B	W	Methylene Chloride	1.47	BJ	ug/L	10.0
CAMO-15-95815	373005006	TRIP BLANK	SW-846:8260B	W	Methylene Chloride	1.66	BJ	ug/L	10.0
CAMO-15-95756	373005009	FIELD BLANK	SW-846:8260B	W	Methylene Chloride	1.60	BJ	ug/L	10.0
CAMO-15-95768	373005012	TRIP BLANK	SW-846:8260B	W	Methylene Chloride	1.77	BJ	ug/L	10.0

Field Sample ID	Blank Lab	Blank Type	Analytical Method	Parameter Name	Blank Lab Result	Blank Lab Units	Lab Result	Lab Qualifier	Lab Detection Limit	Detect Flag	Detect to Nondetect Factor	Detect to Estimated Factor	Use Factors
CAMO-15-95812	1203320011	METHOD BLANK	EPA:350.1	Ammonia as Nitrogen	0.0431	mg/L	0.311		0.050	Y	5	100	Y
CAMO-15-95763	1203320011	METHOD BLANK	EPA:350.1	Ammonia as Nitrogen	0.0431	mg/L	0.758		0.050	Y	5	100	Y
CAMO-15-95814	1203320011	METHOD BLANK	EPA:350.1	Ammonia as Nitrogen	0.0431	mg/L	0.136		0.050	Y	5	100	Y
CAMO-15-95762	1203320011	METHOD BLANK	EPA:350.1	Ammonia as Nitrogen	0.0431	mg/L	0.132		0.050	Y	5	100	Y
CAMO-15-95812	1203317740	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	0.0413	mg/L	0.0456	J	0.050	Y	5	100	Y
CAMO-15-95763	1203317740	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	0.0413	mg/L	0.0474	J	0.050	Y	5	100	Y
CAMO-15-95814	1203317740	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	0.0413	mg/L	0.0509		0.050	Y	5	100	Y
CAMO-15-95762	1203317740	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	0.0413	mg/L	0.0407	J	0.050	Y	5	100	Y
CAMO-15-95812	1203318520	METHOD BLANK	SW-846:6010C	Sodium	-174	ug/L	9970		300	Y			
CAMO-15-95763	1203318520	METHOD BLANK	SW-846:6010C	Sodium	-174	ug/L	9990		300	Y			
CAMO-15-95814	1203318520	METHOD BLANK	SW-846:6010C	Sodium	-174	ug/L	10900		300	Y			
CAMO-15-95762	1203318520	METHOD BLANK	SW-846:6010C	Sodium	-174	ug/L	10800		300	Y			
CAMO-15-95790	373005006	TRIP BLANK	SW-846:8260B	Methylene Chloride	1.66	ug/L	1.68	BJ	10.0	Y	5	100	Y
CAMO-15-95790	1203324489	METHOD BLANK	SW-846:8260B	Methylene Chloride	1.62	ug/L	1.68	BJ	10.0	Y	5	100	Y
CAMO-15-95790	373005003	FIELD BLANK	SW-846:8260B	Methylene Chloride	1.47	ug/L	1.68	BJ	10.0	Y	5	100	Y

DATA VALIDATION REPORT

Field Sample ID	Blank Lab	Blank Type	Analytical Method	Parameter Name	Blank Lab Result	Blank Lab Units	Lab Result	Lab Qualifier	Lab Detection Limit	Detect Flag	Detect to Nondetect Factor	Detect to Estimated Factor	Use Factors
CAMO-15-95757	1203324489	METHOD BLANK	SW-846.8260B	Methylene Chloride	1.62	ug/L	1.47	BJ	10.0	Y	5	100	Y
CAMO-15-95760	1203324489	METHOD BLANK	SW-846.8260B	Methylene Chloride	1.62	ug/L	1.70	BJ	10.0	Y	5	100	Y
CAMO-15-95815	1203324489	METHOD BLANK	SW-846.8260B	Methylene Chloride	1.62	ug/L	1.66	BJ	10.0	Y	5	100	Y
CAMO-15-95792	373005009	FIELD BLANK	SW-846.8260B	Methylene Chloride	1.60	ug/L	1.81	BJ	10.0	Y	5	100	Y
CAMO-15-95792	373005012	TRIP BLANK	SW-846.8260B	Methylene Chloride	1.77	ug/L	1.81	BJ	10.0	Y	5	100	Y
CAMO-15-95782	1203324489	METHOD BLANK	SW-846.8260B	Methylene Chloride	1.62	ug/L	1.81	BJ	10.0	Y	5	100	Y
CAMO-15-95756	1203324489	METHOD BLANK	SW-846.8260B	Methylene Chloride	1.62	ug/L	1.60	BJ	10.0	Y	5	100	Y
CAMO-15-95759	1203324489	METHOD BLANK	SW-846.8260B	Methylene Chloride	1.62	ug/L	1.76	BJ	10.0	Y	5	100	Y
CAMO-15-95768	1203324489	METHOD BLANK	SW-846.8260B	Methylene Chloride	1.62	ug/L	1.77	BJ	10.0	Y	5	100	Y

6. Any surrogate recoveries outside the control limits?

No.

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
CAMO-15-95779	1203318474		EPA:335.4	Cyanide (Total)	1478626	05-18-2015	W	112		110	90	10		
CAMO-15-95801	1203320015		EPA:350.1	Ammonia as Nitrogen	1479221	05-28-2015	W	126		110	90	10		

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

DATA VALIDATION REPORT

LCS Lab Sample	LCSD Lab	Analytical Method	Parameter Name	Lab Lot ID	Analysis	Sample Matrix	LC Spike Recovery	LCSD Spike Recovery	Upper Limit	Lower Limit	Upper Rejection Limit	Lower Rejection Limit	RPD	RPD Limit
1203321349		HASL-300:ISOU	Uranium-232	1479699	06-06-2015	W	40.8		105	50		10		
1203334156		SW-846:8260B	Bromoform	1480885	05-27-2015	W	137		132	65		10		

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

13. Display Flagged Data.

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
R-62	2015-1191	CAMO-15-95756	FB	INIT	VOC	SW-846:8260B	Methylene Chloride	BJ	U	V4	N	1.60	ug/L	1.60	ug/L			W	05/12/2015		1480885	VAL	Y
R-60	2015-1191	CAMO-15-95757	FB	INIT	VOC	SW-846:8260B	Methylene Chloride	BJ	U	V4	N	1.47	ug/L	1.47	ug/L			W	05/12/2015		1480885	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	HASL-300-AM-241	Americium-241	U	U	R5	N	.00977	pCi/L	.00977	pCi/L	0.0451	0.00598	W	05/12/2015		1479690	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N	-.896	pCi/L	-.896	pCi/L	5.73	1.62	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N	2.56	pCi/L	2.56	pCi/L	5.76	0.854	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N	1.19	pCi/L	1.19	pCi/L	1.79	0.552	W	05/12/2015		1481041	VAL	Y

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
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	EPA:900	Gross beta	U	U	R5	N	1.66	pCi/L	1.66	pCi/L	1.94	0.598	W	05/12/2015		1481041	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	VOC	SW-846.8260B	Methylene Chloride	BJ	U	V4	N	1.76	ug/L	1.76	ug/L			W	05/12/2015		1480885	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N	3.3	pCi/L	3.3	pCi/L	9.67	2.55	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N	-.0246	pCi/L	-.0246	pCi/L	0.0671	0.0148	W	05/12/2015		1479697	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N	-.0246	pCi/L	-.0246	pCi/L	0.122	0.0163	W	05/12/2015		1479697	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N	4.59	pCi/L	4.59	pCi/L	83.9	16.1	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N	-1.16	pCi/L	-1.16	pCi/L	4.66	1.31	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N	-.236	pCi/L	-.236	pCi/L	0.325	0.0797	W	05/12/2015		1481040	VAL	Y
R-62	2015-1191	CAMO-15-95759	FD	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N	.0131	pCi/L	.0131	pCi/L	0.0515	0.0115	W	05/12/2015		1479699	VAL	Y
R-60	2015-1191	CAMO-15-95760	FD	INIT	VOC	SW-846.8260B	Methylene Chloride	BJ	U	V4	N	1.70	ug/L	1.70	ug/L			W	05/12/2015		1480885	VAL	Y
R-62	2015-1191	CAMO-15-95762	FD	INIT	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	U	U	I4	N	0.132	mg/L	0.132	mg/L			W	05/12/2015		1479222	VAL	Y
R-62	2015-1191	CAMO-15-95762	FD	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	U	U	I4	N	0.0407	mg/L	0.0407	mg/L			W	05/12/2015		1478376	VAL	Y
R-60	2015-1191	CAMO-15-95763	FD	INIT	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	U	U	I4a	Y	0.758	mg/L	0.758	mg/L			W	05/12/2015		1479222	VAL	Y
R-60	2015-1191	CAMO-15-95763	FD	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	U	U	I4	N	0.0474	mg/L	0.0474	mg/L			W	05/12/2015		1478376	VAL	Y
R-62	2015-1191	CAMO-15-95768	FTB	INIT	VOC	SW-846.8260B	Methylene Chloride	BJ	U	V4	N	1.77	ug/L	1.77	ug/L			W	05/12/2015		1480885	VAL	Y
R-60	2015-1191	CAMO-15-95790	REG	INIT	VOC	SW-846.8260B	Methylene Chloride	BJ	U	V4d	N	1.68	ug/L	1.68	ug/L			W	05/12/2015		1480885	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N	.00264	pCi/L	.00264	pCi/L	0.0488	0.00458	W	05/12/2015		1479690	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N	1.87	pCi/L	1.87	pCi/L	5.96	1.44	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N	.51	pCi/L	.51	pCi/L	5.48	1.28	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N	.687	pCi/L	.687	pCi/L	1.91	0.572	W	05/12/2015		1481041	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N	.172	pCi/L	.172	pCi/L	1.73	0.516	W	05/12/2015		1481041	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	VOC	SW-846.8260B	Methylene Chloride	BJ	U	V4d	N	1.81	ug/L	1.81	ug/L			W	05/12/2015		1480885	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N	9.26	pCi/L	9.26	pCi/L	10.7	4.50	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N	-.00739	pCi/L	-.00739	pCi/L	0.0336	0.00739	W	05/12/2015		1479697	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N	-.000000002	pCi/L	-.0000000024	pCi/L	0.0613	0.00921	W	05/12/2015		1479697	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N	36.3	pCi/L	36.3	pCi/L	83.4	18.9	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N	-.436	pCi/L	-.436	pCi/L	4.70	1.18	W	05/12/2015		1479268	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N	-.224	pCi/L	-.224	pCi/L	0.478	0.119	W	05/12/2015		1481040	VAL	Y
R-62	2015-1191	CAMO-15-95792	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N	.0188	pCi/L	.0188	pCi/L	0.0444	0.0145	W	05/12/2015		1479699	VAL	Y
R-60	2015-1191	CAMO-15-95812	REG	INIT	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	U	U	I4a	Y	0.311	mg/L	0.311	mg/L			W	05/12/2015		1479222	VAL	Y
R-60	2015-1191	CAMO-15-95812	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	U	U	I4	N	0.0456	mg/L	0.0456	mg/L			W	05/12/2015		1478376	VAL	Y
R-62	2015-1191	CAMO-15-95814	REG	INIT	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	U	U	I4	N	0.136	mg/L	0.136	mg/L			W	05/12/2015		1479222	VAL	Y

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
R-62	2015-1191	CAMO-15-95814	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	U	I4	N	0.0509	mg/L	0.0509	mg/L				W	05/12/2015		1478376	VAL	Y
R-60	2015-1191	CAMO-15-95815	FTB	INIT	VOC	SW-846:8260B	Methylene Chloride	BJ	U	V4	N	1.66	ug/L	1.66	ug/L			W	05/12/2015		1480885	VAL	Y

Reason Code

Description

I4	the sample result is $\leq 5 \times$ the concentration of related analyte in the method blank.
I4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was $> 5 \times$
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 qualify. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.
V4	The sample result is less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
V4d	The samples result is $\leq 5 \times$ the concentration of the related analyte in the trip, rinsate and/or equipment blank.

14. Usable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAMO-15-95756	R-62	FB	SW-846:8260B	0	80
CAMO-15-95756	R-62	FB	SW-846:8270D	0	80
CAMO-15-95757	R-60	FB	SW-846:8260B	0	80
CAMO-15-95757	R-60	FB	SW-846:8270D	0	80
CAMO-15-95759	R-62	FD	EPA:245.2	0	1
CAMO-15-95759	R-62	FD	EPA:335.4	0	1
CAMO-15-95759	R-62	FD	EPA:351.2	0	1
CAMO-15-95759	R-62	FD	EPA:900	0	2
CAMO-15-95759	R-62	FD	EPA:901.1	0	5
CAMO-15-95759	R-62	FD	EPA:905.0	0	1
CAMO-15-95759	R-62	FD	HASL-300:AM-241	0	1
CAMO-15-95759	R-62	FD	HASL-300:ISOPU	0	2

DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAMO-15-95759	R-62	FD	HASL-300:ISOU	0	3
CAMO-15-95759	R-62	FD	SW-846:8260B	0	80
CAMO-15-95759	R-62	FD	SW-846:8270D	0	80
CAMO-15-95759	R-62	FD	SW-846:9060	0	1
CAMO-15-95760	R-60	FD	EPA:245.2	0	1
CAMO-15-95760	R-60	FD	EPA:335.4	0	1
CAMO-15-95760	R-60	FD	EPA:351.2	0	1
CAMO-15-95760	R-60	FD	SW-846:8260B	0	80
CAMO-15-95760	R-60	FD	SW-846:8270D	0	80
CAMO-15-95760	R-60	FD	SW-846:9060	0	1
CAMO-15-95762	R-62	FD	EPA:120.1	0	1
CAMO-15-95762	R-62	FD	EPA:150.1	0	1
CAMO-15-95762	R-62	FD	EPA:160.1	0	1
CAMO-15-95762	R-62	FD	EPA:245.2	0	1
CAMO-15-95762	R-62	FD	EPA:300.0	0	4
CAMO-15-95762	R-62	FD	EPA:310.1	0	2
CAMO-15-95762	R-62	FD	EPA:350.1	0	1
CAMO-15-95762	R-62	FD	EPA:353.2	0	1
CAMO-15-95762	R-62	FD	EPA:365.4	0	1
CAMO-15-95762	R-62	FD	SM:A2340B	0	1
CAMO-15-95762	R-62	FD	SW-846:6010C	0	17
CAMO-15-95762	R-62	FD	SW-846:6020	0	11
CAMO-15-95762	R-62	FD	SW-846:6850	0	1
CAMO-15-95763	R-60	FD	EPA:120.1	0	1
CAMO-15-95763	R-60	FD	EPA:150.1	0	1
CAMO-15-95763	R-60	FD	EPA:160.1	0	1
CAMO-15-95763	R-60	FD	EPA:245.2	0	1
CAMO-15-95763	R-60	FD	EPA:300.0	0	4
CAMO-15-95763	R-60	FD	EPA:310.1	0	2
CAMO-15-95763	R-60	FD	EPA:350.1	0	1
CAMO-15-95763	R-60	FD	EPA:353.2	0	1
CAMO-15-95763	R-60	FD	EPA:365.4	0	1
CAMO-15-95763	R-60	FD	SM:A2340B	0	1
CAMO-15-95763	R-60	FD	SW-846:6010C	0	17
CAMO-15-95763	R-60	FD	SW-846:6020	0	11
CAMO-15-95763	R-60	FD	SW-846:6850	0	1
CAMO-15-95768	R-62	FTB	SW-846:8260B	0	80

DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAMO-15-95790	R-60	REG	EPA:245.2	0	1
CAMO-15-95790	R-60	REG	EPA:335.4	0	1
CAMO-15-95790	R-60	REG	EPA:351.2	0	1
CAMO-15-95790	R-60	REG	SW-846:8260B	0	80
CAMO-15-95790	R-60	REG	SW-846:8270D	0	80
CAMO-15-95790	R-60	REG	SW-846:9060	0	1
CAMO-15-95792	R-62	REG	EPA:245.2	0	1
CAMO-15-95792	R-62	REG	EPA:335.4	0	1
CAMO-15-95792	R-62	REG	EPA:351.2	0	1
CAMO-15-95792	R-62	REG	EPA:900	0	2
CAMO-15-95792	R-62	REG	EPA:901.1	0	5
CAMO-15-95792	R-62	REG	EPA:905.0	0	1
CAMO-15-95792	R-62	REG	HASL-300:AM-241	0	1
CAMO-15-95792	R-62	REG	HASL-300:ISOPU	0	2
CAMO-15-95792	R-62	REG	HASL-300:ISOU	0	3
CAMO-15-95792	R-62	REG	SW-846:8260B	0	80
CAMO-15-95792	R-62	REG	SW-846:8270D	0	80
CAMO-15-95792	R-62	REG	SW-846:9060	0	1
CAMO-15-95812	R-60	REG	EPA:120.1	0	1
CAMO-15-95812	R-60	REG	EPA:150.1	0	1
CAMO-15-95812	R-60	REG	EPA:160.1	0	1
CAMO-15-95812	R-60	REG	EPA:245.2	0	1
CAMO-15-95812	R-60	REG	EPA:300.0	0	4
CAMO-15-95812	R-60	REG	EPA:310.1	0	2
CAMO-15-95812	R-60	REG	EPA:350.1	0	1
CAMO-15-95812	R-60	REG	EPA:353.2	0	1
CAMO-15-95812	R-60	REG	EPA:365.4	0	1
CAMO-15-95812	R-60	REG	SM:A2340B	0	1
CAMO-15-95812	R-60	REG	SW-846:6010C	0	17
CAMO-15-95812	R-60	REG	SW-846:6020	0	11
CAMO-15-95812	R-60	REG	SW-846:6850	0	1
CAMO-15-95814	R-62	REG	EPA:120.1	0	1
CAMO-15-95814	R-62	REG	EPA:150.1	0	1
CAMO-15-95814	R-62	REG	EPA:160.1	0	1
CAMO-15-95814	R-62	REG	EPA:245.2	0	1
CAMO-15-95814	R-62	REG	EPA:300.0	0	4
CAMO-15-95814	R-62	REG	EPA:310.1	0	2

DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAMO-15-95814	R-62	REG	EPA:350.1	0	1
CAMO-15-95814	R-62	REG	EPA:353.2	0	1
CAMO-15-95814	R-62	REG	EPA:365.4	0	1
CAMO-15-95814	R-62	REG	SM:A2340B	0	1
CAMO-15-95814	R-62	REG	SW-846:6010C	0	17
CAMO-15-95814	R-62	REG	SW-846:6020	0	11
CAMO-15-95814	R-62	REG	SW-846:6850	0	1
CAMO-15-95815	R-60	FTB	SW-846:8260B	0	80

DATA VALIDATION REPORT

Chain Of Custody No. 2015-1191

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
376718	EPA:245.2	1	1			

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
376718	EPA:245.2	1491240	1491239	1	1				1	1				1				1			

2. Distribution Of Analytes In EDD.

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:245.2	INORGANIC	CAMO-15-95759	376718002	FD	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95792	1203350607	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95792	1203350608	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-15-95792	376718001	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1203350606	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1203350605	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

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
CAMO-15-95759	376718002	EPA:245.2	05-12-2015	07-09-2015	07-10-2015	58	28	56	XX	1	28	56	

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
CAMO-15-95792	376718001	EPA.245.2	05-12-2015	07-09-2015	07-10-2015	58	28	56	XX	1	28	56	

5. Any contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

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

No.

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

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

DATA VALIDATION REPORT

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

13. Display Flagged Data.

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
R-62	2015-1191	CAMO-15-95759	FD	RE	INORGANIC	EPA:245.2	Mercury	U	R	19a	N	0.200	ug/L	0.200	ug/L			W	05/12/2015	1491240	VAL	Y	
R-62	2015-1191	CAMO-15-95792	REG	RE	INORGANIC	EPA:245.2	Mercury	U	R	19a	N	0.200	ug/L	0.200	ug/L			W	05/12/2015	1491240	VAL	Y	

Reason Code

Description

19a

The affected analytes should be regarded as estimated because the extraction holding time was exceeded by 2 times the acceptable holding time.

14. Usable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAMO-15-95759	R-62	FD	EPA:245.2	0	1
CAMO-15-95792	R-62	REG	EPA:245.2	0	1

June 05, 2015

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

Re: LANL- WQH Water Samples
Work Order: 373005
SDG: 2015-1191

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 14, 2015, and analyzed for 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,

Hope Taylor for
Valerie Davis
Project Manager

Chain of Custody: 2015-1191
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 373005
SDG: 2015-1191

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 373005
SDG # : 2015-1191**

June 05, 2015

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 May 14, 2015 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
373005001	CAMO-15-95790
373005002	CAMO-15-95812
373005003	CAMO-15-95757
373005004	CAMO-15-95760
373005005	CAMO-15-95763
373005006	CAMO-15-95815
373005007	CAMO-15-95792
373005008	CAMO-15-95814
373005009	CAMO-15-95756
373005010	CAMO-15-95759
373005011	CAMO-15-95762
373005012	CAMO-15-95768

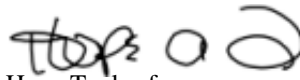
Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS 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.

A handwritten signature in black ink, appearing to read 'Hope Taylor'.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 05 June 2015

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
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	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122014-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-15-10
Utah NELAP	SC000122015-17
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Chain of Custody and Supporting Documentation

Chain of Custody/Analysis Request ADef

SAMPLE RECEIPT & REVIEW FORM

Client: <u>LANL</u>		SDG/AR/COC/Work Order: <u>2015-1191</u>	
Received By: <u>Shantia Mack</u>		Date Received: <u>5-14-15</u> <u>12:00</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.	
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>308m</u>	
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?	
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>		
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.	
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:	
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>		

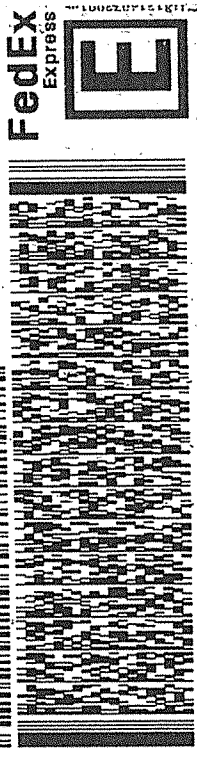
Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags <u>Blue ice</u> Dry ice None Other (describe) <u>314' 21'</u> *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <u>64092024949</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 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)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 Do Low Level Perchlorate samples (EPA 6850) have headspace as required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
8 Are Encore containers present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
9 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
10 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:
11 Date & time on COC match date & time on bottles? <u>5-14-15</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <u>CAMO-15-95762 time on Sample is 15:12</u>
12 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <u>lab only received 1 vial for CAMO-15-95815</u>
13 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other <u>5908 1778 8040</u> <u>5908 1778 8030</u> <u>5908 1778 8029</u> <u>5908 1778 8018</u> <u>5908 1778 7993</u> <u>5908 1778 8007</u>

Comments (Use Continuation Form if needed):

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SHIP DATE: 13MAY15
ACTWGT: 36.0 LB MAN
CAD: 0014176/CAFE2806
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
BILL SENDER
LOS ALAMOS, NM 87545
UNITED STATES US

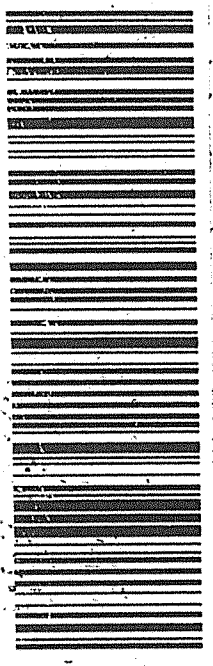
TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 568-8171



2 of 3
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Mstr# 5908 1778 8929
THU - 14 MAY 10:30A
PRIORITY OVERNIGHT

29407
SC-US CHS



Part # 156140-434 R

5908 1778 8040

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
T800 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13 MAY 15
ACTING: 47.0 LB MAN
CAD: 0014176/CAFE2806

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 568-8171

REF: MRGW04BAGWEO



FedEx
Express

3 of 3

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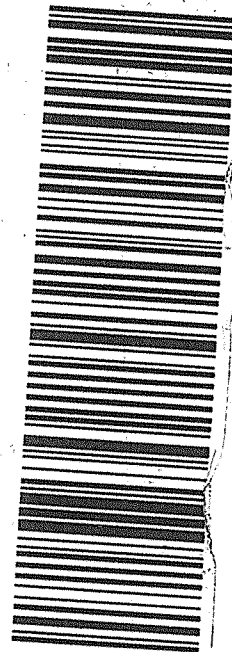
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X7 CHSA

29407

SC-US CHS



Part # 156148-434 RIT2 10/11

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KEITH GREENE
LOS ALAMOS NATL LAB
T800 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13 MAY 15
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GENERAL ENGINEERING LAB
2040 SAVAGE RD

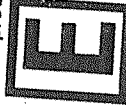
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Express



1 of 3

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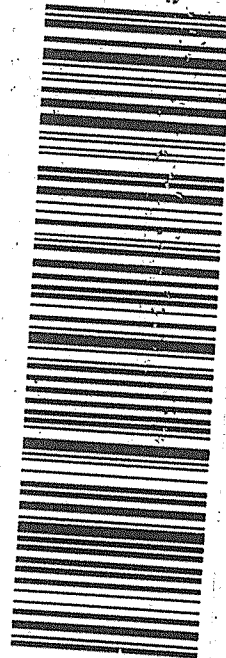
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PRIORITY OVERNIGHT

X7 CHSA

29407

SC-US CHS



Part # 156148-434 RIT2 10/11

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KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPJ 03
LOS ALAMOS, NM 87545
UNITED STATES US

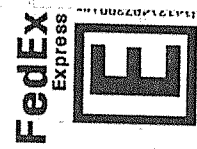
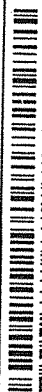
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TO **VALERIE DAVIS**
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CHARLESTON SC 29407

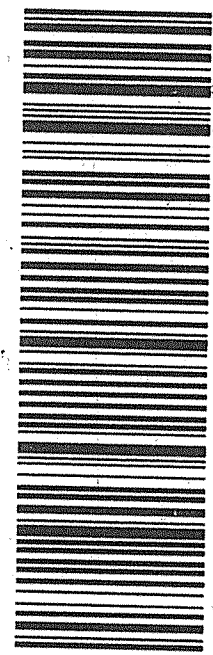
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1 of 3
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MASTER ##
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PRIORITY OVERNIGHT

X7 CHSA

29407
SC-US
CHS



Part # 156146-434 R112 10/11 20

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KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPJ 03
LOS ALAMOS, NM 87545
UNITED STATES US

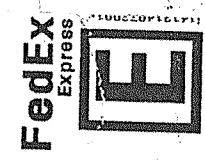
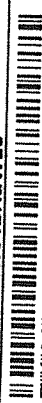
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ACTUAT: 39.0 LB MAN
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TO **VALERIE DAVIS**
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

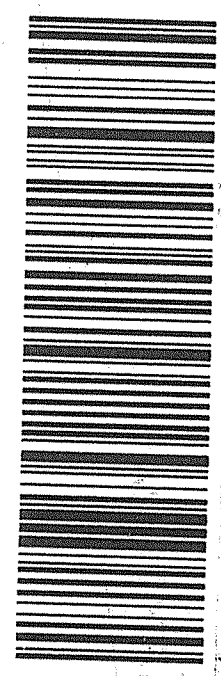
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2 of 3
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Mstr# 5908 1778 7993
THU - 14 MAY 10:30A
PRIORITY OVERNIGHT

X7 CHSA

29407
SC-US
CHS



Part # 156146-434 R112 10/11 20

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 #: 2015-1191
Work Order #: 373005**

Method/Analysis Information

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

Analytical Method: SW846 8260B DOE-AL

Analytical Batch
Number: 1480885

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
373005001	CAMO-15-95790
373005003	CAMO-15-95757
373005004	CAMO-15-95760
373005006	CAMO-15-95815
373005007	CAMO-15-95792
373005009	CAMO-15-95756
373005010	CAMO-15-95759
373005012	CAMO-15-95768
1203324489	Method Blank (MB)
1203324490	Laboratory Control Sample (LCS)
1203324491	Laboratory Control Sample (LCS)
1203324492	373005001(CAMO-15-95790) Post Spike (PS)
1203324493	373005001(CAMO-15-95790) Post Spike Duplicate (PSD)
1203324494	373005001(CAMO-15-95790) Post Spike (PS)
1203324495	373005001(CAMO-15-95790) Post Spike Duplicate (PSD)
1203334155	Method Blank (MB)
1203334156	Laboratory Control Sample (LCS)
1203334157	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# 21.

Calibration Information

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

Initial Calibration

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

Continuing Calibration Verification Requirements

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

Quality Control (QC) Information

Blank (MB) Statement

Target analytes were detected in the blanks 1203324489 (MB) and 1203334155 (MB) below the reporting limit.

Surrogate Recoveries

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

Laboratory Control Sample (LCS) Recovery

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

Sample	Analyte	Value
1203334156 (LCS)	Bromoform	137* (65%-132%)

QC Sample Designation

Sample 373005001 (CAMO-15-95790) 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

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. Samples 1203324494 (CAMO-15-95790PS), 1203324494 (CAMO-15-95790PS), 1203324495 (CAMO-15-95790PSD) and 1203324495 (CAMO-15-95790PSD) were not analyzed within the recommended holding. However, the samples were analyzed within two times the holding period. This satisfies the client criteria.

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

Samples 1203324494 (CAMO-15-95790PS) and 1203324495 (CAMO-15-95790PSD) were re-analyzed due to unacceptable surrogate or internal standard recoveries in the initial analysis. The re-analyses passed and were reported.

Miscellaneous Information**Data Exception (DER) Documentation**

A data exception report (DER) 1419076 was generated for samples 1203324494 (CAMO-15-95790PS), 1203324495 (CAMO-15-95790PSD) and 1203334156 (LCS) in this SDG/batch.

Manual Integrations

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

TIC Comment

Tentatively identified compounds (TIC) may be requested for samples 1203324489 (MB), 1203334155 (MB), 373005001 (CAMO-15-95790), 373005003 (CAMO-15-95757), 373005004 (CAMO-15-95760), 373005006 (CAMO-15-95815), 373005007 (CAMO-15-95792), 373005009 (CAMO-15-95756), 373005010 (CAMO-15-95759), 373005012 (CAMO-15-95768) and All 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.

System Configuration

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA6.I	Agilent 6890N/5975 GC/MS w/ OI 4560/Archon Autosampler	HP6890N/HP5975	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report for

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

Client SDG: 2015-1191 GEL Work Order: 373005

The Qualifiers in this report are defined as follows:

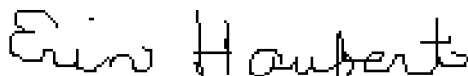
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- B The target analyte was detected in the associated blank.
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, 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: 10 JUN 2015

Title: Data Validator

Sample Data Summary

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005001

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95790

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/24/2015 23:19

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/24/2015 23:19

Data File: 052415V6\6K711.D

Column: DB-624

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005001

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95790

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/24/2015 23:19

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/24/2015 23:19

Data File: 052415V6\6K711.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	BJ	1.68	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005001

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95790

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/24/2015 23:19

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/24/2015 23:19

Column: DB-624

Data File: 052415V6\6K711.D

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.3	50.0	ug/L 109	(77%-123%)
Bromofluorobenzene	54.1	50.0	ug/L 108	(80%-120%)
Toluene-d8	53.2	50.0	ug/L 106	(80%-120%)

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: 2015-1191

Lab Sample ID: 373005003

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95757

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/24/2015 23:48

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/24/2015 23:48

Data File: 052415V6\6K712.D

Column: DB-624

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005003

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95757

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/24/2015 23:48

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/24/2015 23:48

Data File: 052415V6\6K712.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	BJ	1.47	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005003

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95757

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/24/2015 23:48

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/24/2015 23:48

Data File: 052415V6\6K712.D

Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.9	50.0	ug/L 97.8	(77%-123%)
Bromofluorobenzene	48.7	50.0	ug/L 97.3	(80%-120%)
Toluene-d8	47.5	50.0	ug/L 94.9	(80%-120%)

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: 2015-1191

Lab Sample ID: 373005004

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95760

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 00:17

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 00:17

Data File: 052415V6\6K713.D

Column: DB-624

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005004

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95760

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 00:17

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 00:17

Data File: 052415V6\6K713.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	BJ	1.70	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005004

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95760

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 00:17

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 00:17

Column: DB-624

Data File: 052415V6\6K713.D

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.3	50.0	ug/L 111	(77%-123%)
Bromofluorobenzene	54.5	50.0	ug/L 109	(80%-120%)
Toluene-d8	52.8	50.0	ug/L 106	(80%-120%)

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: 2015-1191

Lab Sample ID: 373005006

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95815

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 00:46

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 00:46

Data File: 052415V6\6K714.D

Column: DB-624

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005006

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95815

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 00:46

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 00:46

Data File: 052415V6\6K714.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	BJ	1.66	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005006

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95815

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 00:46

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 00:46

Column: DB-624

Data File: 052415V6\6K714.D

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	56.3	50.0	ug/L 113	(77%-123%)
Bromofluorobenzene	55.2	50.0	ug/L 110	(80%-120%)
Toluene-d8	53.1	50.0	ug/L 106	(80%-120%)

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: 2015-1191

Lab Sample ID: 373005007

Date Collected: 05/12/2015 13:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95792

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 01:16

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 01:16

Data File: 052415V6\6K715.D

Column: DB-624

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2015-1191

Lab Sample ID: 373005007

Date Collected: 05/12/2015 13:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95792

Batch ID: 1480885

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Run Date: 05/25/2015 01:16

Inst: VOA6.I

Dilution: 1

Prep Date: 05/25/2015 01:16

Analyst: GRB2

Purge Vol: 5 mL

Data File: 052415V6\6K715.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	BJ	1.81	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005007

Date Collected: 05/12/2015 13:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95792

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 01:16

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 01:16

Data File: 052415V6\6K715.D

Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	57.8	50.0	ug/L 116	(77%-123%)
Bromofluorobenzene	55.3	50.0	ug/L 111	(80%-120%)
Toluene-d8	53.7	50.0	ug/L 107	(80%-120%)

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: 2015-1191

Lab Sample ID: 373005009

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95756

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 01:45

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 01:45

Data File: 052415V6\6K716.D

Column: DB-624

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005009

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95756

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 01:45

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 01:45

Data File: 052415V6\6K716.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	BJ	1.60	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005009

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client ID: CAMO-15-95756

Batch ID: 1480885

Run Date: 05/25/2015 01:45

Prep Date: 05/25/2015 01:45

Data File: 052415V6\6K716.D

Client: ARSL004

Method: SW846 8260B DOE-AL

Inst: VOA6.I

Analyst: GRB2

Project: ESHL00114

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	56.0	50.0	ug/L 112	(77%-123%)
Bromofluorobenzene	54.7	50.0	ug/L 109	(80%-120%)
Toluene-d8	53.0	50.0	ug/L 106	(80%-120%)

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: 2015-1191

Lab Sample ID: 373005010

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95759

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 02:14

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 02:14

Data File: 052415V6\6K717.D

Column: DB-624

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005010

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95759

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 02:14

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 02:14

Data File: 052415V6\6K717.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	BJ	1.76	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2015-1191

Lab Sample ID: 373005010

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95759

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 02:14

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 02:14

Data File: 052415V6\6K717.D

Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	57.0	50.0	ug/L 114	(77%-123%)
Bromofluorobenzene	55.5	50.0	ug/L 111	(80%-120%)
Toluene-d8	53.4	50.0	ug/L 107	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	11.446	6.57	ug/L	0	J
	unknown siloxane	13.842	9.35	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2015-1191

Lab Sample ID: 373005012

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95768

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 02:44

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 02:44

Data File: 052415V6\6K718.D

Column: DB-624

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

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005012

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95768

Batch ID: 1480885

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Run Date: 05/25/2015 02:44

Inst: VOA6.I

Dilution: 1

Prep Date: 05/25/2015 02:44

Analyst: GRB2

Purge Vol: 5 mL

Data File: 052415V6\6K718.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	BJ	1.77	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2015-1191

Lab Sample ID: 373005012

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95768

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1480885

Inst: VOA6.I

Dilution: 1

Run Date: 05/25/2015 02:44

Analyst: GRB2

Purge Vol: 5 mL

Prep Date: 05/25/2015 02:44

Data File: 052415V6\6K718.D

Column: DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	58.5	50.0	ug/L 117	(77%-123%)
Bromofluorobenzene	55.4	50.0	ug/L 111	(80%-120%)
Toluene-d8	53.2	50.0	ug/L 106	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	13.842	5.18	ug/L	0	J

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2015-1191**Matrix Type: LIQUID**

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203324490	LCS for batch 1480885	100	101	103
1203324491	LCS for batch 1480885	102	102	102
1203324489	MB for batch 1480885	109	108	109
373005001	CAMO-15-95790	109	106	108
373005003	CAMO-15-95757	98	95	97
373005004	CAMO-15-95760	111	106	109
373005006	CAMO-15-95815	113	106	110
373005007	CAMO-15-95792	116	107	111
373005009	CAMO-15-95756	112	106	109
373005010	CAMO-15-95759	114	107	111
373005012	CAMO-15-95768	117	106	111
1203324492	CAMO-15-95790PS	104	103	104
1203324493	CAMO-15-95790PSD	109	105	105
1203334156	LCS for batch 1480885	107	107	108
1203334157	LCS for batch 1480885	95	91	93
1203334155	MB for batch 1480885	96	94	97
1203324494	CAMO-15-95790PS	106	104	106
1203324495	CAMO-15-95790PSD	106	104	107

Surrogate**Acceptance Limits**

DCED4 = 1,2-Dichloroethane-d4 (77%-123%)

TOL = Toluene-d8 (80%-120%)

BFB = Bromofluorobenzene (80%-120%)

* 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: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203324490

Instrument: VOA6.I

Analysis Date: 05/24/2015 20:24

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	88.5	89	78-120
75-05-8	LCS Acetonitrile	1250	0.0	953	76	60-124
67-64-1	LCS Acetone	250	0.0	196	79	55-147
74-88-4	LCS Iodomethane	250	0.0	210	84	72-126
75-15-0	LCS Carbon disulfide	250	0.0	220	88	73-135
108-05-4	LCS Vinyl acetate	250	0.0	256	102	61-133
78-93-3	LCS 2-Butanone	250	0.0	192	77	57-145
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	207	83	67-128
591-78-6	LCS 2-Hexanone	250	0.0	208	83	59-147
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	34.3	69	52-134
74-87-3	LCS Chloromethane	50.0	0.0	43.8	88	57-126
75-01-4	LCS Vinyl chloride	50.0	0.0	46.0	92	62-126
74-83-9	LCS Bromomethane	50.0	0.0	46.7	93	63-127
75-00-3	LCS Chloroethane	50.0	0.0	48.4	97	69-120
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	50.5	101	69-129
60-29-7	LCS Ethyl ether	50.0	0.0	50.8	102	72-120
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	41.3	83	70-127
75-09-2	LCS Methylene chloride	50.0	0.0	45.3	91	70-120
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	42.3	85	74-120
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	42.2	84	73-120
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	42.4	85	75-120
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	42.7	85	76-120

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203324490

Instrument: VOA6.I

Analysis Date: 05/24/2015 20:24

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	45.1	90	76-131
74-97-5	LCS Bromochloromethane	50.0	0.0	43.2	86	76-122
67-66-3	LCS Chloroform	50.0	0.0	44.1	88	76-120
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	45.7	91	76-131
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	44.0	88	73-123
56-23-5	LCS Carbon tetrachloride	50.0	0.0	47.9	96	76-135
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	41.9	84	71-120
71-43-2	LCS Benzene	50.0	0.0	42.2	84	75-120
79-01-6	LCS Trichloroethylene	50.0	0.0	43.6	87	77-123
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	43.3	87	76-120
74-95-3	LCS Dibromomethane	50.0	0.0	42.8	86	77-120
75-27-4	LCS Bromodichloromethane	50.0	0.0	47.7	95	78-126
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	46.6	93	78-125
108-88-3	LCS Toluene	50.0	0.0	42.2	84	75-120
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	47.7	95	78-124
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	42.0	84	76-120
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	41.1	82	73-120
127-18-4	LCS Tetrachloroethylene	50.0	0.0	42.9	86	73-125
124-48-1	LCS Dibromochloromethane	50.0	0.0	52.0	104	72-131
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	44.0	88	79-120
108-90-7	LCS Chlorobenzene	50.0	0.0	43.2	86	77-120
100-41-4	LCS Ethylbenzene	50.0	0.0	44.6	89	77-120

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203324490

Instrument: VOA6.I

Analysis Date: 05/24/2015 20:24

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	LCS o-Xylene	50.0	0.0	44.4	89	78-120
100-42-5	LCS Styrene	50.0	0.0	47.6	95	79-124
75-25-2	LCS Bromoform	50.0	0.0	55.5	111	65-132
98-82-8	LCS Isopropylbenzene	50.0	0.0	46.0	92	76-123
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	45.4	91	72-122
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	42.9	86	71-120
108-86-1	LCS Bromobenzene	50.0	0.0	43.5	87	76-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	45.7	91	75-121
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	46.3	93	77-122
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	43.5	87	76-120
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	44.7	89	76-120
98-06-6	LCS tert-Butylbenzene	50.0	0.0	46.2	92	77-127
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	46.2	92	77-121
135-98-8	LCS sec-Butylbenzene	50.0	0.0	47.0	94	77-124
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	47.5	95	77-126
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	43.4	87	76-120
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	43.6	87	76-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	48.8	98	76-127
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	49.5	99	60-130
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	50.1	100	69-133
91-20-3	LCS Naphthalene	50.0	0.0	50.1	100	67-129
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	49.3	99	66-131

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203324490

Instrument: VOA6.I

Analysis Date: 05/24/2015 20:24

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	48.2	96	68-132
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	47.1	94	80-126
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	43.7	87	77-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	4770	95	61-135

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203324491

Instrument: VOA6.I

Analysis Date: 05/24/2015 21:22

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	242	97	61-132
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	265	106	67-139
107-05-1	LCS Allyl chloride	250	0.0	242	97	64-124
107-13-1	LCS Acrylonitrile	250	0.0	232	93	68-123
107-12-0	LCS Propionitrile	250	0.0	226	90	69-128
126-98-7	LCS Methacrylonitrile	250	0.0	235	94	66-124
80-62-6	LCS Methyl methacrylate	250	0.0	230	92	73-123
97-63-2	LCS Ethyl methacrylate	250	0.0	236	94	75-122
78-83-1	LCS Isobutyl alcohol	2500	0.0	2340	94	64-132
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	58.3	117	60-137

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 8

SDG Number: 2015-1191

Sample Type: Post Spike

Client ID: CAMO-15-95790PS

Matrix: WATER

Lab Sample ID 1203324492

Instrument: VOA6.I

Analysis Date: 05/25/2015 04:40

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS m,p-Xylenes	100	0.00 U	88.6	89	69-122
75-05-8	PS Acetonitrile	1250	0.00 U	933	75	54-130
67-64-1	PS Acetone	250	0.00 U	81.1	32	27-155
74-88-4	PS Iodomethane	250	0.00 U	217	87	69-128
75-15-0	PS Carbon disulfide	250	0.00 U	226	91	68-138
108-05-4	PS Vinyl acetate	250	0.00 U	257	103	50-137
78-93-3	PS 2-Butanone	250	0.00 U	115	46	30-145
108-10-1	PS 4-Methyl-2-pentanone	250	0.00 U	187	75	60-132
591-78-6	PS 2-Hexanone	250	0.00 U	146	58	38-144
75-09-2	PS Methylene chloride	50.0	1.68 BJ	45.0	87	68-119
75-71-8	PS Dichlorodifluoromethane	50.0	0.00 U	36.1	72	37-143
74-87-3	PS Chloromethane	50.0	0.00 U	45.0	90	48-132
75-01-4	PS Vinyl chloride	50.0	0.00 U	47.7	95	53-132
74-83-9	PS Bromomethane	50.0	0.00 U	52.0	104	60-132
75-00-3	PS Chloroethane	50.0	0.00 U	49.9	100	66-120
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	54.1	108	64-131
60-29-7	PS Ethyl ether	50.0	0.00 U	51.5	103	69-119
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	43.2	86	65-129
1634-04-4	PS tert-Butyl methyl ether	50.0	0.00 U	42.8	86	70-123
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	44.4	89	68-123
75-34-3	PS 1,1-Dichloroethane	50.0	0.00 U	44.3	89	71-122
156-59-2	PS cis-1,2-Dichloroethylene	50.0	0.00 U	44.5	89	72-122

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Post Spike

Client ID: CAMO-15-95790PS

Matrix: WATER

Lab Sample ID 1203324492

Instrument: VOA6.I

Analysis Date: 05/25/2015 04:40

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	PS 2,2-Dichloropropane	50.0	0.00 U	47.0	94	69-131
74-97-5	PS Bromochloromethane	50.0	0.00 U	45.4	91	74-123
67-66-3	PS Chloroform	50.0	0.00 U	46.1	92	72-123
71-55-6	PS 1,1,1-Trichloroethane	50.0	0.00 U	48.6	97	71-133
563-58-6	PS 1,1-Dichloropropene	50.0	0.00 U	45.4	91	68-125
56-23-5	PS Carbon tetrachloride	50.0	0.00 U	50.6	101	70-139
107-06-2	PS 1,2-Dichloroethane	50.0	0.00 U	44.4	89	67-123
71-43-2	PS Benzene	50.0	0.00 U	43.2	86	71-118
79-01-6	PS Trichloroethylene	50.0	0.00 U	44.7	89	68-130
78-87-5	PS 1,2-Dichloropropane	50.0	0.00 U	43.8	88	72-118
74-95-3	PS Dibromomethane	50.0	0.00 U	43.2	86	74-122
75-27-4	PS Bromodichloromethane	50.0	0.00 U	49.7	99	75-129
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00 U	47.1	94	73-125
108-88-3	PS Toluene	50.0	0.00 U	42.5	85	69-119
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00 U	48.4	97	73-125
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00 U	42.3	85	73-118
142-28-9	PS 1,3-Dichloropropane	50.0	0.00 U	41.5	83	71-116
127-18-4	PS Tetrachloroethylene	50.0	0.00 U	43.7	87	65-128
124-48-1	PS Dibromochloromethane	50.0	0.00 U	53.1	106	68-133
106-93-4	PS 1,2-Dibromoethane	50.0	0.00 U	44.0	88	76-122
108-90-7	PS Chlorobenzene	50.0	0.00 U	43.6	87	71-119
100-41-4	PS Ethylbenzene	50.0	0.00 U	45.1	90	70-121

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 8

SDG Number: 2015-1191

Sample Type: Post Spike

Client ID: CAMO-15-95790PS

Matrix: WATER

Lab Sample ID 1203324492

Instrument: VOA6.I

Analysis Date: 05/25/2015 04:40

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	PS o-Xylene	50.0	0.00 U	45.1	90	70-123
100-42-5	PS Styrene	50.0	0.00 U	47.0	94	72-127
75-25-2	PS Bromoform	50.0	0.00 U	55.9	112	60-133
98-82-8	PS Isopropylbenzene	50.0	0.00 U	46.9	94	67-127
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	43.8	88	67-125
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	41.1	82	68-123
108-86-1	PS Bromobenzene	50.0	0.00 U	43.2	86	69-120
103-65-1	PS n-Propylbenzene	50.0	0.00 U	45.9	92	65-125
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	46.8	94	67-126
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	44.1	88	67-122
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	45.0	90	66-121
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	47.0	94	67-130
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	46.5	93	66-124
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	47.7	95	67-128
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	47.7	95	66-129
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	43.9	88	67-120
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	43.2	86	66-118
104-51-8	PS n-Butylbenzene	50.0	0.00 U	48.9	98	63-131
96-12-8	PS 1,2-Dibromo-3-chloropropane	50.0	0.00 U	47.6	95	55-131
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	51.2	102	55-138
91-20-3	PS Naphthalene	50.0	0.00 U	49.3	99	61-131
87-61-6	PS 1,2,3-Trichlorobenzene	50.0	0.00 U	49.1	98	56-133

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Post Spike

Client ID: CAMO-15-95790PS

Matrix: WATER

Lab Sample ID 1203324492

Instrument: VOA6.I

Analysis Date: 05/25/2015 04:40

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	47.6	95	56-131
630-20-6	PS 1,1,1,2-Tetrachloroethane	50.0	0.00 U	48.6	97	76-129
95-50-1	PS 1,2-Dichlorobenzene	50.0	0.00 U	44.1	88	69-119
71-36-3	PS n-Butyl alcohol	5000	0.00 U	4340	87	55-141

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Post Spike Duplicate

Client ID: CAMO-15-95790PSD

Matrix: WATER

Lab Sample ID 1203324493

Instrument: VOA6.I

Analysis Date: 05/25/2015 05:10

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD m,p-Xylenes	100	0.00 U	90.4	90	69-122	2	0-20
75-05-8	PSD Acetonitrile	1250	0.00 U	1020	82	54-130	9	0-20
67-64-1	PSD Acetone	250	0.00 U	89.2	36	27-155	9	0-20
74-88-4	PSD Iodomethane	250	0.00 U	219	88	69-128	1	0-20
75-15-0	PSD Carbon disulfide	250	0.00 U	229	92	68-138	1	0-20
108-05-4	PSD Vinyl acetate	250	0.00 U	270	108	50-137	5	0-20
78-93-3	PSD 2-Butanone	250	0.00 U	127	51	30-145	10	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00 U	203	81	60-132	8	0-20
591-78-6	PSD 2-Hexanone	250	0.00 U	160	64	38-144	10	0-20
75-09-2	PSD Methylene chloride	50.0	1.68 BJ	45.2	87	68-119	0	0-20
75-71-8	PSD Dichlorodifluoromethane	50.0	0.00 U	36.5	73	37-143	1	0-20
74-87-3	PSD Chloromethane	50.0	0.00 U	45.7	91	48-132	1	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00 U	48.8	98	53-132	2	0-20
74-83-9	PSD Bromomethane	50.0	0.00 U	52.9	106	60-132	2	0-20
75-00-3	PSD Chloroethane	50.0	0.00 U	51.3	103	66-120	3	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00 U	54.8	110	64-131	1	0-20
60-29-7	PSD Ethyl ether	50.0	0.00 U	53.0	106	69-119	3	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00 U	44.0	88	65-129	2	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.00 U	44.0	88	70-123	3	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00 U	45.2	90	68-123	2	0-20
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00 U	45.2	90	71-122	2	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00 U	45.7	91	72-122	3	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Post Spike Duplicate

Client ID: CAMO-15-95790PSD

Matrix: WATER

Lab Sample ID 1203324493

Instrument: VOA6.I

Analysis Date: 05/25/2015 05:10

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
594-20-7	PSD 2,2-Dichloropropane	50.0	0.00 U	47.6	95	69-131	1	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00 U	45.9	92	74-123	1	0-20
67-66-3	PSD Chloroform	50.0	0.00 U	46.7	93	72-123	1	0-20
71-55-6	PSD 1,1,1-Trichloroethane	50.0	0.00 U	49.3	99	71-133	2	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00 U	46.5	93	68-125	2	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00 U	51.7	103	70-139	2	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00 U	45.2	90	67-123	2	0-20
71-43-2	PSD Benzene	50.0	0.00 U	44.7	89	71-118	3	0-20
79-01-6	PSD Trichloroethylene	50.0	0.00 U	45.8	92	68-130	2	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00 U	45.7	91	72-118	4	0-20
74-95-3	PSD Dibromomethane	50.0	0.00 U	45.0	90	74-122	4	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00 U	50.7	101	75-129	2	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00 U	48.5	97	73-125	3	0-20
108-88-3	PSD Toluene	50.0	0.00 U	43.3	87	69-119	2	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00 U	49.3	99	73-125	2	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00 U	43.0	86	73-118	1	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00 U	43.0	86	71-116	3	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.00 U	45.1	90	65-128	3	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00 U	54.6	109	68-133	3	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00 U	45.3	91	76-122	3	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00 U	44.1	88	71-119	1	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00 U	45.8	92	70-121	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Post Spike Duplicate

Client ID: CAMO-15-95790PSD

Matrix: WATER

Lab Sample ID 1203324493

Instrument: VOA6.I

Analysis Date: 05/25/2015 05:10

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	45.7	91	70-123	1	0-20
100-42-5	PSD Styrene	50.0	0.00 U	48.2	96	72-127	3	0-20
75-25-2	PSD Bromoform	50.0	0.00 U	58.7	117	60-133	5	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00 U	47.5	95	67-127	1	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00 U	46.6	93	67-125	6	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00 U	45.1	90	68-123	9	0-20
108-86-1	PSD Bromobenzene	50.0	0.00 U	44.4	89	69-120	3	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00 U	46.8	94	65-125	2	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00 U	47.2	94	67-126	1	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00 U	44.4	89	67-122	1	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00 U	45.5	91	66-121	1	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00 U	47.7	95	67-130	1	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00 U	47.0	94	66-124	1	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00 U	48.7	97	67-128	2	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00 U	48.6	97	66-129	2	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00 U	44.0	88	67-120	0	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00 U	43.8	88	66-118	2	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00 U	48.9	98	63-131	0	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00 U	51.4	103	55-131	8	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00 U	52.5	105	55-138	3	0-20
91-20-3	PSD Naphthalene	50.0	0.00 U	51.0	102	61-131	3	0-20
87-61-6	PSD 1,2,3-Trichlorobenzene	50.0	0.00 U	49.2	98	56-133	0	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Post Spike Duplicate

Client ID: CAMO-15-95790PSD

Matrix: WATER

Lab Sample ID 1203324493

Instrument: VOA6.I

Analysis Date: 05/25/2015 05:10

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	47.4	95	56-131	0	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	49.2	98	76-129	1	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	44.1	88	69-119	0	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00 U	4920	98	55-141	13	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 2015-1191

Sample Type: Post Spike

Client ID: CAMO-15-95790PS

Matrix: WATER

Lab Sample ID 1203324494

Instrument: VOA6.I

Analysis Date: 05/27/2015 22:15

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	229	92	48-138
76-13-1	PS Trichlorotrifluoroethane	250	0.00 U	298	119	63-146
107-05-1	PS Allyl chloride	250	0.00 U	281	112	61-126
107-13-1	PS Acrylonitrile	250	0.00 U	280	112	62-128
107-12-0	PS Propionitrile	250	0.00 U	269	108	63-133
126-98-7	PS Methacrylonitrile	250	0.00 U	279	112	61-131
80-62-6	PS Methyl methacrylate	250	0.00 U	271	108	69-127
97-63-2	PS Ethyl methacrylate	250	0.00 U	270	108	70-126
78-83-1	PS Isobutyl alcohol	2500	0.00 U	2810	112	57-139
126-99-8	PS 2-Chloro-1,3-butadiene	50.0	0.00 U	61.0	122	56-140

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 2015-1191

Sample Type: Post Spike Duplicate

Client ID: CAMO-15-95790PSD

Matrix: WATER

Lab Sample ID 1203324495

Instrument: VOA6.I

Analysis Date: 05/27/2015 22:44

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
107-02-8	PSD Acrolein	250	0.00 U	214	85	48-138	7	0-20
76-13-1	PSD Trichlorotrifluoroethane	250	0.00 U	285	114	63-146	4	0-20
107-05-1	PSD Allyl chloride	250	0.00 U	274	110	61-126	2	0-20
107-13-1	PSD Acrylonitrile	250	0.00 U	263	105	62-128	6	0-20
107-12-0	PSD Propionitrile	250	0.00 U	253	101	63-133	6	0-20
126-98-7	PSD Methacrylonitrile	250	0.00 U	264	106	61-131	6	0-20
80-62-6	PSD Methyl methacrylate	250	0.00 U	259	103	69-127	5	0-20
97-63-2	PSD Ethyl methacrylate	250	0.00 U	256	103	70-126	5	0-20
78-83-1	PSD Isobutyl alcohol	2500	0.00 U	2590	104	57-139	8	0-20
126-99-8	PSD 2-Chloro-1,3-butadiene	50.0	0.00 U	59.9	120	56-140	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203334156

Instrument: VOA6.I

Analysis Date: 05/27/2015 12:32

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	109	109	78-120
75-05-8	LCS Acetonitrile	1250	0.0	1130	91	60-124
67-64-1	LCS Acetone	250	0.0	233	93	55-147
74-88-4	LCS Iodomethane	250	0.0	273	109	72-126
75-15-0	LCS Carbon disulfide	250	0.0	292	117	73-135
108-05-4	LCS Vinyl acetate	250	0.0	272	109	61-133
78-93-3	LCS 2-Butanone	250	0.0	233	93	57-145
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	248	99	67-128
591-78-6	LCS 2-Hexanone	250	0.0	249	99	59-147
75-71-8	LCS Dichlorodifluoromethane	50.0	0.0	61.3	123	52-134
74-87-3	LCS Chloromethane	50.0	0.0	58.6	117	57-126
75-01-4	LCS Vinyl chloride	50.0	0.0	59.4	119	62-126
74-83-9	LCS Bromomethane	50.0	0.0	58.1	116	63-127
75-00-3	LCS Chloroethane	50.0	0.0	57.1	114	69-120
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	60.7	121	69-129
60-29-7	LCS Ethyl ether	50.0	0.0	55.4	111	72-120
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	54.7	109	70-127
75-09-2	LCS Methylene chloride	50.0	0.0	56.9	114	70-120
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	53.0	106	74-120
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	54.9	110	73-120
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	54.2	108	75-120
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	54.2	108	76-120

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203334156

Instrument: VOA6.I

Analysis Date: 05/27/2015 12:32

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	LCS 2,2-Dichloropropane	50.0	0.0	57.9	116	76-131
74-97-5	LCS Bromochloromethane	50.0	0.0	55.6	111	76-122
67-66-3	LCS Chloroform	50.0	0.0	55.7	111	76-120
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	59.2	118	76-131
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	55.8	112	73-123
56-23-5	LCS Carbon tetrachloride	50.0	0.0	61.7	123	76-135
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	53.3	107	71-120
71-43-2	LCS Benzene	50.0	0.0	53.2	106	75-120
79-01-6	LCS Trichloroethylene	50.0	0.0	55.5	111	77-123
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	54.1	108	76-120
74-95-3	LCS Dibromomethane	50.0	0.0	53.9	108	77-120
75-27-4	LCS Bromodichloromethane	50.0	0.0	60.2	120	78-126
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	58.8	118	78-125
108-88-3	LCS Toluene	50.0	0.0	52.4	105	75-120
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	59.6	119	78-124
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	51.3	103	76-120
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	49.7	99	73-120
127-18-4	LCS Tetrachloroethylene	50.0	0.0	53.8	108	73-125
124-48-1	LCS Dibromochloromethane	50.0	0.0	64.7	129	72-131
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	53.7	107	79-120
108-90-7	LCS Chlorobenzene	50.0	0.0	53.0	106	77-120
100-41-4	LCS Ethylbenzene	50.0	0.0	54.9	110	77-120

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203334156

Instrument: VOA6.I

Analysis Date: 05/27/2015 12:32

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	54.4	109	78-120
100-42-5	LCS Styrene	50.0	0.0	57.6	115	79-124
75-25-2	LCS Bromoform	50.0	0.0	68.6	137 *	65-132
98-82-8	LCS Isopropylbenzene	50.0	0.0	56.1	112	76-123
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	53.6	107	72-122
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	50.6	101	71-120
108-86-1	LCS Bromobenzene	50.0	0.0	52.7	105	76-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	55.8	112	75-121
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	56.0	112	77-122
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	53.0	106	76-120
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	54.5	109	76-120
98-06-6	LCS tert-Butylbenzene	50.0	0.0	56.5	113	77-127
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	56.1	112	77-121
135-98-8	LCS sec-Butylbenzene	50.0	0.0	57.1	114	77-124
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	57.7	115	77-126
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	53.0	106	76-120
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	52.7	105	76-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	59.2	118	76-127
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	58.6	117	60-130
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	61.8	124	69-133
91-20-3	LCS Naphthalene	50.0	0.0	58.3	117	67-129
87-61-6	LCS 1,2,3-Trichlorobenzene	50.0	0.0	58.3	117	66-131

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203334156

Instrument: VOA6.I

Analysis Date: 05/27/2015 12:32

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	57.8	116	68-132
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	58.1	116	80-126
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	52.7	105	77-120
71-36-3	LCS n-Butyl alcohol	5000	0.0	5550	111	61-135

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1480885

Matrix: WATER

Lab Sample ID 1203334157

Instrument: VOA6.I

Analysis Date: 05/27/2015 14:00

Dilution: 1

Analyst: GRB2

Purge Vol: 5 mL

Batch ID: 1480885

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	212	85	61-132
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	284	113	67-139
107-05-1	LCS Allyl chloride	250	0.0	263	105	64-124
107-13-1	LCS Acrylonitrile	250	0.0	254	102	68-123
107-12-0	LCS Propionitrile	250	0.0	245	98	69-128
126-98-7	LCS Methacrylonitrile	250	0.0	251	101	66-124
80-62-6	LCS Methyl methacrylate	250	0.0	247	99	73-123
97-63-2	LCS Ethyl methacrylate	250	0.0	245	98	75-122
78-83-1	LCS Isobutyl alcohol	2500	0.0	2550	102	64-132
126-99-8	LCS 2-Chloro-1,3-butadiene	50.0	0.0	58.4	117	60-137

Method Blank Summary

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SDG Number:	2015-1191	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1480885	Instrument ID:	VOA6.I	Data File:	052415V6\6K710BAR.D
Lab Sample ID:	1203324489	Prep Date:	05/24/2015 22:49	Analyzed:	05/24/15 22:49
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
02 LCS for batch 1480885	1203324490	052415V6\6K705LAR.D	05/24/15	2024
04 LCS for batch 1480885	1203324491	052415V6\6K707SHAR.D	05/24/15	2122
05 CAMO-15-95790	373005001	052415V6\6K711.D	05/24/15	2319
06 CAMO-15-95757	373005003	052415V6\6K712.D	05/24/15	2348
07 CAMO-15-95760	373005004	052415V6\6K713.D	05/25/15	0017
08 CAMO-15-95815	373005006	052415V6\6K714.D	05/25/15	0046
09 CAMO-15-95792	373005007	052415V6\6K715.D	05/25/15	0116
10 CAMO-15-95756	373005009	052415V6\6K716.D	05/25/15	0145
11 CAMO-15-95759	373005010	052415V6\6K717.D	05/25/15	0214
12 CAMO-15-95768	373005012	052415V6\6K718.D	05/25/15	0244
14 CAMO-15-95790PS	1203324492	052415V6\6K722.D	05/25/15	0440
16 CAMO-15-95790PSD	1203324493	052415V6\6K723.D	05/25/15	0510

Method Blank Summary

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SDG Number:	2015-1191	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1480885	Instrument ID:	VOA6.I	Data File:	052715V6\6L312BAR.D
Lab Sample ID:	1203334155	Prep Date:	05/27/2015 16:26	Analyzed:	05/27/15 16:26
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
19 LCS for batch 1480885	1203334156	052715V6\6L304LAR.D	05/27/15	1232
21 LCS for batch 1480885	1203334157	052715V6\6L307SHAR.D	05/27/15	1400
23 CAMO-15-95790PS	1203324494	052715V6\6L324.D	05/27/15	2215
25 CAMO-15-95790PSD	1203324495	052715V6\6L325.D	05/27/15	2244

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2015-1191	Matrix: WATER	
Lab Sample ID: 1203324489		
Client Sample: QC for batch 1480885	Client: ARSL004	Project: QC
Client ID: MB for batch 1480885	Method: SW846 8260B DOE-AL	SOP Ref: GL-OA-E-038
Batch ID: 1480885	Inst: VOA6.I	Dilution: 1
Run Date: 05/24/2015 22:49	Analyst: GRB2	Purge Vol: 5 mL
Prep Date: 05/24/2015 22:49		
Data File: 052415V6\6K710BAR.D	Column: DB-624	

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2015-1191	Matrix: WATER
Lab Sample ID: 1203324489	
Client Sample: QC for batch 1480885	Client: ARSL004
Client ID: MB for batch 1480885	Method: SW846 8260B DOE-AL
Batch ID: 1480885	Inst: VOA6.I
Run Date: 05/24/2015 22:49	Analyst: GRB2
Prep Date: 05/24/2015 22:49	Purge Vol: 5 mL
Data File: 052415V6\6K710BAR.D	Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	J	1.62	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

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Sample Summary

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SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203324489		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	MB for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/24/2015 22:49	Analyst:	GRB2
Prep Date:	05/24/2015 22:49	Purge Vol:	5 mL
Data File:	052415V6\6K710BAR.D	Column:	DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.3	50.0	ug/L 109	(77%-123%)
Bromofluorobenzene	54.5	50.0	ug/L 109	(80%-120%)
Toluene-d8	53.8	50.0	ug/L 108	(80%-120%)

Tentatively Identified Compound Summary

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

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Sample Summary

SDG Number: 2015-1191	Matrix: WATER
Lab Sample ID: 1203324490	
Client Sample: QC for batch 1480885	Client: ARSL004
Client ID: LCS for batch 1480885	Method: SW846 8260B DOE-AL
Batch ID: 1480885	Project: QC
Run Date: 05/24/2015 20:24	SOP Ref: GL-OA-E-038
Prep Date: 05/24/2015 20:24	Dilution: 1
Data File: 052415V6\6K705LAR.D	Purge Vol: 5 mL
	Analyst: GRB2
	Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		47.1	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		45.7	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		45.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		42.0	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		42.4	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		41.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		44.0	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		49.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		42.9	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		48.2	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		46.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		49.5	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		44.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		43.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		41.9	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		43.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		46.3	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		43.4	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		41.1	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		43.6	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		45.1	ug/L	0.300	1.00
78-93-3	2-Butanone		192	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		43.5	ug/L	0.300	1.00
591-78-6	2-Hexanone		208	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		44.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		47.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		207	ug/L	1.50	5.00
67-64-1	Acetone		196	ug/L	1.50	10.0
75-05-8	Acetonitrile		953	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		42.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		43.5	ug/L	0.300	1.00
74-97-5	Bromochloromethane		43.2	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		47.7	ug/L	0.300	1.00
75-25-2	Bromoform		55.5	ug/L	0.300	1.00

**Volatile
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Sample Summary**

SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203324490		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	LCS for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/24/2015 20:24	Analyst:	GRB2
Prep Date:	05/24/2015 20:24	Purge Vol:	5 mL
Data File:	052415V6\6K705LAR.D	Column:	DB-624

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		220	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		47.9	ug/L	0.300	1.00
108-90-7	Chlorobenzene		43.2	ug/L	0.300	1.00
75-00-3	Chloroethane		48.4	ug/L	0.300	1.00
67-66-3	Chloroform		44.1	ug/L	0.300	1.00
74-87-3	Chloromethane		43.8	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.0	ug/L	0.300	1.00
74-95-3	Dibromomethane		42.8	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		34.3	ug/L	0.300	1.00
60-29-7	Ethyl ether		50.8	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		44.6	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		50.1	ug/L	0.300	1.00
74-88-4	Iodomethane		210	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		46.0	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	B	45.3	ug/L	1.00	10.0
91-20-3	Naphthalene		50.1	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		47.6	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		42.9	ug/L	0.300	1.00
108-88-3	Toluene		42.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		43.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		50.5	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		256	ug/L	1.50	5.00
75-01-4	Vinyl chloride		46.0	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		42.7	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		46.6	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		88.5	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4770	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		48.8	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		45.7	ug/L	0.300	1.00
95-47-6	o-Xylene		44.4	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		47.0	ug/L	0.300	1.00

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Sample Summary

SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203324490		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	LCS for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/24/2015 20:24	Analyst:	GRB2
Prep Date:	05/24/2015 20:24	Purge Vol:	5 mL
Data File:	052415V6\6K705LAR.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		42.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		46.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		42.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.7	ug/L	0.300	1.00
Surrogate/Tracer recovery		Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4		50.0	50.0	ug/L	99.9	(77%-123%)
Bromofluorobenzene		51.7	50.0	ug/L	103	(80%-120%)
Toluene-d8		50.5	50.0	ug/L	101	(80%-120%)

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203324491		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	LCS for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/24/2015 21:22	Analyst:	GRB2
Prep Date:	05/24/2015 21:22	Purge Vol:	5 mL
Data File:	052415V6\6K707SHAR.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		58.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		242	ug/L	1.50	5.00
107-13-1	Acrylonitrile		232	ug/L	1.50	5.00
107-05-1	Allyl chloride		242	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

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Sample Summary

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SDG Number: 2015-1191	Matrix: WATER
Lab Sample ID: 1203324491	
Client Sample: QC for batch 1480885	Client: ARSL004
Client ID: LCS for batch 1480885	Method: SW846 8260B DOE-AL
Batch ID: 1480885	Inst: VOA6.I
Run Date: 05/24/2015 21:22	Analyst: GRB2
Prep Date: 05/24/2015 21:22	Purge Vol: 5 mL
Data File: 052415V6\6K707SHAR.D	Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		236	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2340	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		235	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		230	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile		226	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		265	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

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Sample Summary**

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SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203324491		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	LCS for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/24/2015 21:22	Analyst:	GRB2
Prep Date:	05/24/2015 21:22	Purge Vol:	5 mL
Data File:	052415V6\6K707SHAR.D	Column:	DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.0	50.0	ug/L 102	(77%-123%)
Bromofluorobenzene	51.2	50.0	ug/L 102	(80%-120%)
Toluene-d8	51.0	50.0	ug/L 102	(80%-120%)

Volatile
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Sample Summary

SDG Number: 2015-1191	Date Collected: 05/12/2015 11:22	Matrix: WATER
Lab Sample ID: 1203324492	Date Received: 05/14/2015 12:00	
Client Sample: QC for batch 1480885	Client: ARSL004	Project: QC
Client ID: CAMO-15-95790PS	Method: SW846 8260B DOE-AL	SOP Ref: GL-OA-E-038
Batch ID: 1480885	Inst: VOA6.I	Dilution: 1
Run Date: 05/25/2015 04:40	Analyst: GRB2	Purge Vol: 5 mL
Prep Date: 05/25/2015 04:40		
Data File: 052415V6\6K722.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		48.6	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.6	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		43.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		42.3	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		44.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		43.2	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		45.4	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		49.1	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		41.1	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		47.6	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		46.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		47.6	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		44.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		44.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		44.4	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		43.8	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		46.8	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		43.9	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		41.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		43.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		47.0	ug/L	0.300	1.00
78-93-3	2-Butanone		115	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		44.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		146	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		45.0	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		47.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		187	ug/L	1.50	5.00
67-64-1	Acetone		81.1	ug/L	1.50	10.0
75-05-8	Acetonitrile		933	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		43.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		43.2	ug/L	0.300	1.00
74-97-5	Bromochloromethane		45.4	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.7	ug/L	0.300	1.00
75-25-2	Bromoform		55.9	ug/L	0.300	1.00

**Volatile
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Sample Summary**

SDG Number:	2015-1191	Date Collected:	05/12/2015 11:22	Matrix:	WATER
Lab Sample ID:	1203324492	Date Received:	05/14/2015 12:00		
Client Sample:	QC for batch 1480885	Client:	ARSL004	Project:	QC
Client ID:	CAMO-15-95790PS	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1480885	Inst:	VOA6.I	Dilution:	1
Run Date:	05/25/2015 04:40	Analyst:	GRB2	Purge Vol:	5 mL
Prep Date:	05/25/2015 04:40				
Data File:	052415V6\6K722.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		52.0	ug/L	0.300	1.00
75-15-0	Carbon disulfide		226	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		50.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		43.6	ug/L	0.300	1.00
75-00-3	Chloroethane		49.9	ug/L	0.300	1.00
67-66-3	Chloroform		46.1	ug/L	0.300	1.00
74-87-3	Chloromethane		45.0	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		43.2	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		36.1	ug/L	0.300	1.00
60-29-7	Ethyl ether		51.5	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		45.1	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		51.2	ug/L	0.300	1.00
74-88-4	Iodomethane		217	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		46.9	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	B	45.0	ug/L	1.00	10.0
91-20-3	Naphthalene		49.3	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		47.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		43.7	ug/L	0.300	1.00
108-88-3	Toluene		42.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		44.7	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		54.1	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		257	ug/L	1.50	5.00
75-01-4	Vinyl chloride		47.7	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		44.5	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		47.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		88.6	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4340	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		48.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		45.9	ug/L	0.300	1.00
95-47-6	o-Xylene		45.1	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		47.7	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number:	2015-1191	Date Collected:	05/12/2015 11:22	Matrix:	WATER
Lab Sample ID:	1203324492	Date Received:	05/14/2015 12:00		
Client Sample:	QC for batch 1480885	Client:	ARSL004	Project:	QC
Client ID:	CAMO-15-95790PS	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1480885	Inst:	VOA6.I	Dilution:	1
Run Date:	05/25/2015 04:40	Analyst:	GRB2	Purge Vol:	5 mL
Prep Date:	05/25/2015 04:40				
Data File:	052415V6\6K722.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		42.8	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		47.0	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		44.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		48.4	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.2	50.0	ug/L 104	(77%-123%)
Bromofluorobenzene	51.8	50.0	ug/L 104	(80%-120%)
Toluene-d8	51.3	50.0	ug/L 103	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	2015-1191	Date Collected:	05/12/2015 11:22	Matrix:	WATER
Lab Sample ID:	1203324493	Date Received:	05/14/2015 12:00		
Client Sample:	QC for batch 1480885	Client:	ARSL004	Project:	QC
Client ID:	CAMO-15-95790PSD	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1480885	Inst:	VOA6.I	Dilution:	1
Run Date:	05/25/2015 05:10	Analyst:	GRB2	Purge Vol:	5 mL
Prep Date:	05/25/2015 05:10				
Data File:	052415V6\6K723.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		49.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		49.3	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		43.0	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		45.2	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		46.5	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		49.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		45.1	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		47.4	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		47.0	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		51.4	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		45.3	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		44.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.2	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.7	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		47.2	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		44.0	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		43.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		43.8	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		47.6	ug/L	0.300	1.00
78-93-3	2-Butanone		127	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		44.4	ug/L	0.300	1.00
591-78-6	2-Hexanone		160	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		45.5	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		48.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		203	ug/L	1.50	5.00
67-64-1	Acetone		89.2	ug/L	1.50	10.0
75-05-8	Acetonitrile		1020	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		44.7	ug/L	0.300	1.00
108-86-1	Bromobenzene		44.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		45.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		50.7	ug/L	0.300	1.00
75-25-2	Bromoform		58.7	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2015-1191	Date Collected:	05/12/2015 11:22	Matrix:	WATER
Lab Sample ID:	1203324493	Date Received:	05/14/2015 12:00		
Client Sample:	QC for batch 1480885	Client:	ARSL004	Project:	QC
Client ID:	CAMO-15-95790PSD	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1480885	Inst:	VOA6.I	Dilution:	1
Run Date:	05/25/2015 05:10	Analyst:	GRB2	Purge Vol:	5 mL
Prep Date:	05/25/2015 05:10				
Data File:	052415V6\6K723.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		52.9	ug/L	0.300	1.00
75-15-0	Carbon disulfide		229	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		51.7	ug/L	0.300	1.00
108-90-7	Chlorobenzene		44.1	ug/L	0.300	1.00
75-00-3	Chloroethane		51.3	ug/L	0.300	1.00
67-66-3	Chloroform		46.7	ug/L	0.300	1.00
74-87-3	Chloromethane		45.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		54.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		45.0	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		36.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		53.0	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		45.8	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		52.5	ug/L	0.300	1.00
74-88-4	Iodomethane		219	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		47.5	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	B	45.2	ug/L	1.00	10.0
91-20-3	Naphthalene		51.0	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		48.2	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		45.1	ug/L	0.300	1.00
108-88-3	Toluene		43.3	ug/L	0.300	1.00
79-01-6	Trichloroethylene		45.8	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		54.8	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		270	ug/L	1.50	5.00
75-01-4	Vinyl chloride		48.8	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		45.7	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		48.5	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		90.4	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4920	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		48.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		46.8	ug/L	0.300	1.00
95-47-6	o-Xylene		45.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		48.7	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2015-1191	Date Collected:	05/12/2015 11:22	Matrix:	WATER
Lab Sample ID:	1203324493	Date Received:	05/14/2015 12:00		
Client Sample:	QC for batch 1480885	Client:	ARSL004	Project:	QC
Client ID:	CAMO-15-95790PSD	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1480885	Inst:	VOA6.I	Dilution:	1
Run Date:	05/25/2015 05:10	Analyst:	GRB2	Purge Vol:	5 mL
Prep Date:	05/25/2015 05:10				
Data File:	052415V6\6K723.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		44.0	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		47.7	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		45.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.3	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.6	50.0	ug/L 109	(77%-123%)
Bromofluorobenzene	52.5	50.0	ug/L 105	(80%-120%)
Toluene-d8	52.3	50.0	ug/L 105	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2015-1191	Date Collected: 05/12/2015 11:22	Matrix: WATER
Lab Sample ID: 1203324494	Date Received: 05/14/2015 12:00	
Client Sample: QC for batch 1480885	Client: ARSL004	Project: QC
Client ID: CAMO-15-95790PS	Method: SW846 8260B DOE-AL	SOP Ref: GL-OA-E-038
Batch ID: 1480885	Inst: VOA6.I	Dilution: 1
Run Date: 05/27/2015 22:15	Analyst: GRB2	Purge Vol: 5 mL
Prep Date: 05/27/2015 22:15		
Data File: 052715V6\6L324.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	HU	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	HU	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	HU	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	HU	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	HU	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	HU	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	HU	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	HU	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	HU	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	HU	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	HU	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	HU	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	HU	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	HU	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	HU	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	HU	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	HU	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	HU	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	HU	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	HU	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	HU	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	HU	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	H	61.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	HU	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	HU	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	HU	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	HU	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	HU	5.00	ug/L	1.50	5.00
67-64-1	Acetone	HU	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	HU	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	H	229	ug/L	1.50	5.00
107-13-1	Acrylonitrile	H	280	ug/L	1.50	5.00
107-05-1	Allyl chloride	H	281	ug/L	1.50	5.00
71-43-2	Benzene	HU	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	HU	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	HU	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	HU	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	HU	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2015-1191	Date Collected:	05/12/2015 11:22	Matrix:	WATER
Lab Sample ID:	1203324494	Date Received:	05/14/2015 12:00		
Client Sample:	QC for batch 1480885	Client:	ARSL004	Project:	QC
Client ID:	CAMO-15-95790PS	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1480885	Inst:	VOA6.I	Dilution:	1
Run Date:	05/27/2015 22:15	Analyst:	GRB2	Purge Vol:	5 mL
Prep Date:	05/27/2015 22:15				
Data File:	052715V6\6L324.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	HU	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	HU	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	HU	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	HU	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	HU	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	HU	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	HU	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	HU	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	HU	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	HU	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	HU	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	H	270	ug/L	1.50	5.00
100-41-4	Ethylbenzene	HU	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	HU	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	HU	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	H	2810	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	HU	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	H	279	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	H	271	ug/L	1.50	5.00
75-09-2	Methylene chloride	HU	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	HU	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	H	269	ug/L	1.50	5.00
100-42-5	Styrene	HU	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	HU	1.00	ug/L	0.300	1.00
108-88-3	Toluene	HU	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	HU	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	HU	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	H	298	ug/L	2.00	5.00
108-05-4	Vinyl acetate	HU	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	HU	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	HU	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	HU	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	HU	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	HU	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	HU	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	HU	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	HU	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	HU	1.00	ug/L	0.300	1.00

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Sample Summary

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SDG Number:	2015-1191	Date Collected:	05/12/2015 11:22	Matrix:	WATER
Lab Sample ID:	1203324494	Date Received:	05/14/2015 12:00		
Client Sample:	QC for batch 1480885	Client:	ARSL004	Project:	QC
Client ID:	CAMO-15-95790PS	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1480885	Inst:	VOA6.I	Dilution:	1
Run Date:	05/27/2015 22:15	Analyst:	GRB2	Purge Vol:	5 mL
Prep Date:	05/27/2015 22:15				
Data File:	052715V6\6L324.D	Column:	DB-624		

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.9	50.0	ug/L 106	(77%-123%)
Bromofluorobenzene	53.1	50.0	ug/L 106	(80%-120%)
Toluene-d8	52.1	50.0	ug/L 104	(80%-120%)

Volatile
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Sample Summary

SDG Number: 2015-1191	Date Collected: 05/12/2015 11:22	Matrix: WATER
Lab Sample ID: 1203324495	Date Received: 05/14/2015 12:00	
Client Sample: QC for batch 1480885	Client: ARSL004	Project: QC
Client ID: CAMO-15-95790PSD	Method: SW846 8260B DOE-AL	SOP Ref: GL-OA-E-038
Batch ID: 1480885	Inst: VOA6.I	Dilution: 1
Run Date: 05/27/2015 22:44	Analyst: GRB2	Purge Vol: 5 mL
Prep Date: 05/27/2015 22:44		
Data File: 052715V6\6L325.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	HU	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	HU	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	HU	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	HU	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	HU	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	HU	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	HU	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	HU	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	HU	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	HU	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	HU	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	HU	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	HU	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	HU	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	HU	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	HU	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	HU	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	HU	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	HU	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	HU	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	HU	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	HU	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	H	59.9	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	HU	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	HU	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	HU	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	HU	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	HU	5.00	ug/L	1.50	5.00
67-64-1	Acetone	HU	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	HU	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	H	214	ug/L	1.50	5.00
107-13-1	Acrylonitrile	H	263	ug/L	1.50	5.00
107-05-1	Allyl chloride	H	274	ug/L	1.50	5.00
71-43-2	Benzene	HU	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	HU	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	HU	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	HU	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	HU	1.00	ug/L	0.300	1.00

Volatile
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Sample Summary

SDG Number: 2015-1191	Date Collected: 05/12/2015 11:22	Matrix: WATER
Lab Sample ID: 1203324495	Date Received: 05/14/2015 12:00	
Client Sample: QC for batch 1480885	Client: ARSL004	Project: QC
Client ID: CAMO-15-95790PSD	Method: SW846 8260B DOE-AL	SOP Ref: GL-OA-E-038
Batch ID: 1480885	Inst: VOA6.I	Dilution: 1
Run Date: 05/27/2015 22:44	Analyst: GRB2	Purge Vol: 5 mL
Prep Date: 05/27/2015 22:44		
Data File: 052715V6\6L325.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	HU	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	HU	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	HU	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	HU	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	HU	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	HU	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	HU	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	HU	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	HU	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	HU	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	HU	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	H	256	ug/L	1.50	5.00
100-41-4	Ethylbenzene	HU	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	HU	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	HU	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	H	2590	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	HU	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	H	264	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	H	259	ug/L	1.50	5.00
75-09-2	Methylene chloride	HU	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	HU	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	H	253	ug/L	1.50	5.00
100-42-5	Styrene	HU	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	HU	1.00	ug/L	0.300	1.00
108-88-3	Toluene	HU	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	HU	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	HU	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	H	285	ug/L	2.00	5.00
108-05-4	Vinyl acetate	HU	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	HU	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	HU	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	HU	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	HU	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	HU	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	HU	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	HU	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	HU	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	HU	1.00	ug/L	0.300	1.00

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Sample Summary

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SDG Number:	2015-1191	Date Collected:	05/12/2015 11:22	Matrix:	WATER
Lab Sample ID:	1203324495	Date Received:	05/14/2015 12:00		
Client Sample:	QC for batch 1480885	Client:	ARSL004	Project:	QC
Client ID:	CAMO-15-95790PSD	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1480885	Inst:	VOA6.I	Dilution:	1
Run Date:	05/27/2015 22:44	Analyst:	GRB2	Purge Vol:	5 mL
Prep Date:	05/27/2015 22:44				
Data File:	052715V6\6L325.D	Column:	DB-624		

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.8	50.0	ug/L 106	(77%-123%)
Bromofluorobenzene	53.5	50.0	ug/L 107	(80%-120%)
Toluene-d8	51.8	50.0	ug/L 104	(80%-120%)

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Sample Summary

SDG Number: 2015-1191	Matrix: WATER	
Lab Sample ID: 1203334155		
Client Sample: QC for batch 1480885	Client: ARSL004	Project: QC
Client ID: MB for batch 1480885	Method: SW846 8260B DOE-AL	SOP Ref: GL-OA-E-038
Batch ID: 1480885	Inst: VOA6.I	Dilution: 1
Run Date: 05/27/2015 16:26	Analyst: GRB2	Purge Vol: 5 mL
Prep Date: 05/27/2015 16:26		
Data File: 052715V6\6L312BAR.D	Column: DB-624	

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

Volatile
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Sample Summary

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SDG Number: 2015-1191	Matrix: WATER
Lab Sample ID: 1203334155	
Client Sample: QC for batch 1480885	Client: ARSL004
Client ID: MB for batch 1480885	Method: SW846 8260B DOE-AL
Batch ID: 1480885	Inst: VOA6.I
Run Date: 05/27/2015 16:26	Analyst: GRB2
Prep Date: 05/27/2015 16:26	Project: QC
Data File: 052715V6\6L312BAR.D	SOP Ref: GL-OA-E-038
	Dilution: 1
	Purge Vol: 5 mL
	Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	J	1.47	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

Volatile
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Sample Summary

SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203334155		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	MB for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/27/2015 16:26	Analyst:	GRB2
Prep Date:	05/27/2015 16:26	Purge Vol:	5 mL
Data File:	052715V6\6L312BAR.D	Column:	DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.8	50.0	95.7	(77%-123%)
Bromofluorobenzene	48.4	50.0	96.7	(80%-120%)
Toluene-d8	46.8	50.0	93.7	(80%-120%)

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: 2015-1191	Matrix: WATER
Lab Sample ID: 1203334156	
Client Sample: QC for batch 1480885	Client: ARSL004
Client ID: LCS for batch 1480885	Method: SW846 8260B DOE-AL
Batch ID: 1480885	Project: QC
Run Date: 05/27/2015 12:32	SOP Ref: GL-OA-E-038
Prep Date: 05/27/2015 12:32	Dilution: 1
Data File: 052715V6\6L304LAR.D	Purge Vol: 5 mL
	Analyst: GRB2
	Column: DB-624

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		59.2	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		53.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.3	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		54.2	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		54.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		55.8	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		58.3	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		57.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		56.1	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.6	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		53.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		52.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		53.3	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		54.1	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		56.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		53.0	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		49.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		52.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		57.9	ug/L	0.300	1.00
78-93-3	2-Butanone		233	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		53.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		249	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		54.5	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		57.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		248	ug/L	1.50	5.00
67-64-1	Acetone		233	ug/L	1.50	10.0
75-05-8	Acetonitrile		1130	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		53.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		52.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		60.2	ug/L	0.300	1.00
75-25-2	Bromoform		68.6	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203334156		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	LCS for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/27/2015 12:32	Analyst:	GRB2
Prep Date:	05/27/2015 12:32	Purge Vol:	5 mL
Data File:	052715V6\6L304LAR.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		58.1	ug/L	0.300	1.00
75-15-0	Carbon disulfide		292	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		61.7	ug/L	0.300	1.00
108-90-7	Chlorobenzene		53.0	ug/L	0.300	1.00
75-00-3	Chloroethane		57.1	ug/L	0.300	1.00
67-66-3	Chloroform		55.7	ug/L	0.300	1.00
74-87-3	Chloromethane		58.6	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		64.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		53.9	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		61.3	ug/L	0.300	1.00
60-29-7	Ethyl ether		55.4	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		54.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		61.8	ug/L	0.300	1.00
74-88-4	Iodomethane		273	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		56.1	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	B	56.9	ug/L	1.00	10.0
91-20-3	Naphthalene		58.3	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		57.6	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		53.8	ug/L	0.300	1.00
108-88-3	Toluene		52.4	ug/L	0.300	1.00
79-01-6	Trichloroethylene		55.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		60.7	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		272	ug/L	1.50	5.00
75-01-4	Vinyl chloride		59.4	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		54.2	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		58.8	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		109	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5550	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		59.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		55.8	ug/L	0.300	1.00
95-47-6	o-Xylene		54.4	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		57.1	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203334156		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	LCS for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/27/2015 12:32	Analyst:	GRB2
Prep Date:	05/27/2015 12:32	Purge Vol:	5 mL
Data File:	052715V6\6L304LAR.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		53.0	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		56.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		54.9	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		59.6	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	(77%-123%)
Bromofluorobenzene		53.9	50.0	ug/L	108	(80%-120%)
Toluene-d8		53.3	50.0	ug/L	107	(80%-120%)

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203334157		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	LCS for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/27/2015 14:00	Analyst:	GRB2
Prep Date:	05/27/2015 14:00	Purge Vol:	5 mL
Data File:	052715V6\6L307SHAR.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		58.4	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	1.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		212	ug/L	1.50	5.00
107-13-1	Acrylonitrile		254	ug/L	1.50	5.00
107-05-1	Allyl chloride		263	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: 2015-1191	Matrix: WATER
Lab Sample ID: 1203334157	
Client Sample: QC for batch 1480885	Client: ARSL004
Client ID: LCS for batch 1480885	Method: SW846 8260B DOE-AL
Batch ID: 1480885	Inst: VOA6.I
Run Date: 05/27/2015 14:00	Analyst: GRB2
Prep Date: 05/27/2015 14:00	Purge Vol: 5 mL
Data File: 052715V6\6L307SHAR.D	Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		245	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2550	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		251	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		247	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile		245	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		284	ug/L	2.00	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

**Volatile
Certificate of Analysis
Sample Summary**

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SDG Number:	2015-1191	Matrix:	WATER
Lab Sample ID:	1203334157		
Client Sample:	QC for batch 1480885	Client:	ARSL004
Client ID:	LCS for batch 1480885	Method:	SW846 8260B DOE-AL
Batch ID:	1480885	Inst:	VOA6.I
Run Date:	05/27/2015 14:00	Analyst:	GRB2
Prep Date:	05/27/2015 14:00	Purge Vol:	5 mL
Data File:	052715V6\6L307SHAR.D	Column:	DB-624

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.3	50.0	94.6	(77%-123%)
Bromofluorobenzene	46.6	50.0	93.1	(80%-120%)
Toluene-d8	45.6	50.0	91.2	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr. 09-JUN-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: VOA GC/MS	Test / Method: SW846 8260B DOE-AL	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1480885	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 373005(2015-1191) Application Issues: Sample Analyzed out of Holding Failed Recovery for LCS/LCSD			
Specification and Requirements		DER Disposition:	
Exception Description:			
1. Failed Recovery for LCS/LCSD: QC 1203334156LCS 2. Sample Analyzed out of Holding: QC 1203324494MS and 1203324495MSD		1. The LCS (See Below) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. 1203334156 (LCS) Bromoform [137* (65%-132%)]. 2. Samples 1203324494 (CAMO-15-95790PS) and 1203324495 (CAMO-15-95790PSD) were not analyzed within the recommended holding. However, the samples were analyzed within two times the holding period. This satisfies the client criteria.	

Originator's Name:

Gelester Baskett 10-JUN-15

Data Validator/Group Leader:

Erin Haubert 10-JUN-15

Semi-Volatile Analysis

Case Narrative

**GC/MS Semivolatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2015-1191
Work Order #: 373005**

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:	1479033
Prep Batch Number:	1479032

Sample Analysis

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

Sample ID	Client ID
373005001	CAMO-15-95790
373005003	CAMO-15-95757
373005004	CAMO-15-95760
373005007	CAMO-15-95792
373005009	CAMO-15-95756
373005010	CAMO-15-95759
1203319535	Method Blank (MB)
1203319536	Laboratory Control Sample (LCS)
1203319537	373136002(WST16-15-97393) Matrix Spike (MS)
1203319538	373136002(WST16-15-97393) 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# 35.

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 373005001 (CAMO-15-95790), 373005003 (CAMO-15-95757), 373005004 (CAMO-15-95760), 373005007 (CAMO-15-95792), 373005009 (CAMO-15-95756) and 373005010 (CAMO-15-95759) 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 (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 373136002 (WST16-15-97393) was selected for analysis as the matrix spike and matrix spike duplicate.

Spike Recovery Statement

The MS or MSD (See Below) recovered spiked analytes outside of the established acceptance limits. As similar recoveries were displayed in the MS and MSD, the failures were attributed to sample matrix interference and the data were reported.

Sample	Analyte	Value
1203319537 (WST16-15-97393MS)	Benzidine	0* (10%-127%)
1203319538 (WST16-15-97393MSD)	Benzidine	0* (10%-127%)

MS/MSD Relative Percent Difference (RPD) Statement

The relative percent difference (RPD) between the MS and MSD (See Below) did not meet acceptance limits. As

the individual MS and MSD recoveries were within the acceptance limits, the failures had no adverse impact on the reported sample data.

Sample	Analyte	Value
1203319537MS and 1203319538MSD (WST16-15-97393)	2,4-Dinitrophenol	87.3* (0%-30%)
	2-Methyl-4,6-dinitrophenol	42.8* (0%-30%)
	Pentachlorophenol	41.4* (0%-30%)

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

The initial analysis for sample 373005010 (CAMO-15-95759) was outside of the DFTPP TUNE window. The sample was re-analyzed within a new DFTPP TUNE window. The data results are reported from the re-analysis. Sample 373005007 (CAMO-15-95792) failed ISTD acceptance criteria. The sample was re-analyzed and passed ISTD acceptance criteria. The re-analysis data were reported.

Miscellaneous Information:

Data Exception (DER) Documentation

A data exception report (DER) 1412262 was generated for samples 1203319537 (WST16-15-97393MS) and 1203319538 (WST16-15-97393MSD) in this SDG/batch.

Manual Integrations

Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment

Tentatively identified compounds (TIC) were requested for the 1203319535(MB) and samples 373005001 (CAMO-15-95790), 373005003 (CAMO-15-95757), 373005004 (CAMO-15-95760), 373005007 (CAMO-15-95792), 373005009 (CAMO-15-95756) and 373005010 (CAMO-15-95759) in this SDG. Please note that non-requested calibrated analytes detected in a client sample may be reported as TICs.

Additional Comments

The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

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
MSD4.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP6890/HP5973	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: 2015-1191 GEL Work Order: 373005

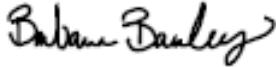
The Qualifiers in this report are defined as follows:

- * 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, or LOD.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature: 

Name: Barbara Bailey

Date: 03 JUN 2015

Title: Data Validator

Sample Data Summary

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

SDG Number: 2015-1191

Lab Sample ID: 373005001

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1479033

Inst: MSD4.I

Dilution: 1

Run Date: 05/19/2015 00:48

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 970 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1826.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.3	ug/L	3.09	10.3
120-82-1	1,2,4-Trichlorobenzene	U	10.3	ug/L	3.09	10.3
95-50-1	1,2-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
122-66-7	Azobenzene	U	10.3	ug/L	3.09	10.3
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
106-46-7	1,4-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
123-91-1	1,4-Dioxane	U	10.3	ug/L	3.09	10.3
90-12-0	1-Methylnaphthalene	U	1.03	ug/L	0.309	1.03
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.3	ug/L	3.09	10.3
95-95-4	2,4,5-Trichlorophenol	U	10.3	ug/L	3.09	10.3
88-06-2	2,4,6-Trichlorophenol	U	10.3	ug/L	3.09	10.3
120-83-2	2,4-Dichlorophenol	U	10.3	ug/L	3.09	10.3
105-67-9	2,4-Dimethylphenol	U	10.3	ug/L	3.09	10.3
51-28-5	2,4-Dinitrophenol	U	20.6	ug/L	5.15	20.6
121-14-2	2,4-Dinitrotoluene	U	10.3	ug/L	3.09	10.3
606-20-2	2,6-Dinitrotoluene	U	10.3	ug/L	3.09	10.3
91-58-7	2-Chloronaphthalene	U	1.03	ug/L	0.423	1.03
95-57-8	2-Chlorophenol	U	10.3	ug/L	3.09	10.3
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.3	ug/L	3.09	10.3
91-57-6	2-Methylnaphthalene	U	1.03	ug/L	0.309	1.03
88-75-5	2-Nitrophenol	U	10.3	ug/L	3.09	10.3
91-94-1	3,3'-Dichlorobenzidine	U	10.3	ug/L	3.09	10.3
101-55-3	4-Bromophenylphenylether	U	10.3	ug/L	3.09	10.3
59-50-7	Parachlorometa cresol	U	10.3	ug/L	3.09	10.3
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	10.3	ug/L	3.40	10.3
7005-72-3	4-Chlorophenylphenylether	U	10.3	ug/L	3.09	10.3
100-02-7	4-Nitrophenol	U	10.3	ug/L	3.09	10.3
83-32-9	Acenaphthene	U	1.03	ug/L	0.309	1.03
208-96-8	Acenaphthylene	U	1.03	ug/L	0.309	1.03
62-53-3	Aniline	U	10.3	ug/L	4.33	10.3
120-12-7	Anthracene	U	1.03	ug/L	0.309	1.03
1912-24-9	Atrazine	U	10.3	ug/L	3.09	10.3
92-87-5	Benzidine	U	10.3	ug/L	4.02	10.3
56-55-3	Benzo(a)anthracene	U	1.03	ug/L	0.309	1.03
50-32-8	Benzo(a)pyrene	U	1.03	ug/L	0.309	1.03
205-99-2	Benzo(b)fluoranthene	U	1.03	ug/L	0.309	1.03
191-24-2	Benzo(ghi)perylene	U	1.03	ug/L	0.309	1.03

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

SDG Number: 2015-1191

Lab Sample ID: 373005001

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD4.I

Dilution: 1

Batch ID: 1479033

Run Date: 05/19/2015 00:48

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 970 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1826.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	1.03	ug/L	0.309	1.03
65-85-0	Benzoic acid	U	20.6	ug/L	6.19	20.6
100-51-6	Benzyl alcohol	U	10.3	ug/L	3.09	10.3
85-68-7	Butylbenzylphthalate	U	10.3	ug/L	3.09	10.3
218-01-9	Chrysene	U	1.03	ug/L	0.309	1.03
84-74-2	Di-n-butylphthalate	U	10.3	ug/L	3.09	10.3
117-84-0	Di-n-octylphthalate	U	10.3	ug/L	3.09	10.3
53-70-3	Dibenzo(a,h)anthracene	U	1.03	ug/L	0.309	1.03
132-64-9	Dibenzofuran	U	10.3	ug/L	3.09	10.3
84-66-2	Diethylphthalate	U	10.3	ug/L	3.09	10.3
131-11-3	Dimethylphthalate	U	10.3	ug/L	3.09	10.3
88-85-7	Dinoseb	U	10.3	ug/L	3.09	10.3
122-39-4	Diphenylamine	U	10.3	ug/L	3.09	10.3
206-44-0	Fluoranthene	U	1.03	ug/L	0.309	1.03
86-73-7	Fluorene	U	1.03	ug/L	0.309	1.03
118-74-1	Hexachlorobenzene	U	10.3	ug/L	3.09	10.3
87-68-3	Hexachlorobutadiene	U	10.3	ug/L	3.09	10.3
77-47-4	Hexachlorocyclopentadiene	U	10.3	ug/L	3.09	10.3
67-72-1	Hexachloroethane	U	10.3	ug/L	3.09	10.3
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.03	ug/L	0.309	1.03
78-59-1	Isophorone	U	10.3	ug/L	3.61	10.3
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.3	ug/L	3.09	10.3
924-16-3	N-Nitrosodi-n-butylamine	U	10.3	ug/L	3.09	10.3
55-18-5	N-Nitrosodiethylamine	U	10.3	ug/L	3.09	10.3
621-64-7	N-Nitrosodi--n-propylamine	U	10.3	ug/L	3.09	10.3
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	10.3	ug/L	3.09	10.3
91-20-3	Naphthalene	U	1.03	ug/L	0.309	1.03
98-95-3	Nitrobenzene	U	10.3	ug/L	3.09	10.3
608-93-5	Pentachlorobenzene	U	10.3	ug/L	3.09	10.3
87-86-5	Pentachlorophenol	U	10.3	ug/L	3.09	10.3
85-01-8	Phenanthrene	U	1.03	ug/L	0.309	1.03
108-95-2	Phenol	U	10.3	ug/L	3.09	10.3
129-00-0	Pyrene	U	1.03	ug/L	0.309	1.03
110-86-1	Pyridine	U	10.3	ug/L	3.09	10.3
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	10.3	ug/L	3.09	10.3
111-91-1	bis(2-Chloroethoxy)methane	U	10.3	ug/L	3.09	10.3
111-44-4	bis(2-Chloroethyl) ether	U	10.3	ug/L	3.09	10.3
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.3	ug/L	3.09	10.3

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

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005001

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client ID: CAMO-15-95790

Batch ID: 1479033

Run Date: 05/19/2015 00:48

Prep Date: 05/18/2015 12:15

Data File: s051815a.B\s4e1826.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD4.I

Analyst: JMB3

Aliquot: 970 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
65794-96-9	m,p-Cresols	U	10.3	ug/L	3.81	10.3
99-09-2	3-Nitroaniline	U	10.3	ug/L	3.09	10.3
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol	U	10.3	ug/L	3.09	10.3
88-74-4	2-Nitroaniline	U	10.3	ug/L	3.09	10.3
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline	U	10.3	ug/L	3.09	10.3
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	79.8	103	ug/L	77.4	(33%-126%)
2-Fluorobiphenyl	35.3	51.5	ug/L	68.5	(35%-102%)
2-Fluorophenol	50.0	103	ug/L	48.5	(18%-84%)
Nitrobenzene-d5	38.2	51.5	ug/L	74.1	(38%-113%)
Phenol-d5	32.8	103	ug/L	31.9	(10%-110%)
p-Terphenyl-d14	41.8	51.5	ug/L	81.1	(38%-123%)

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**

SDG Number: 2015-1191

Lab Sample ID: 373005003

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD4.I

Dilution: 1

Batch ID: 1479033

Run Date: 05/19/2015 01:17

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 990 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1827.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.1	ug/L	3.03	10.1
120-82-1	1,2,4-Trichlorobenzene	U	10.1	ug/L	3.03	10.1
95-50-1	1,2-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
122-66-7	Azobenzene	U	10.1	ug/L	3.03	10.1
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
106-46-7	1,4-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
123-91-1	1,4-Dioxane	U	10.1	ug/L	3.03	10.1
90-12-0	1-Methylnaphthalene	U	1.01	ug/L	0.303	1.01
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.1	ug/L	3.03	10.1
95-95-4	2,4,5-Trichlorophenol	U	10.1	ug/L	3.03	10.1
88-06-2	2,4,6-Trichlorophenol	U	10.1	ug/L	3.03	10.1
120-83-2	2,4-Dichlorophenol	U	10.1	ug/L	3.03	10.1
105-67-9	2,4-Dimethylphenol	U	10.1	ug/L	3.03	10.1
51-28-5	2,4-Dinitrophenol	U	20.2	ug/L	5.05	20.2
121-14-2	2,4-Dinitrotoluene	U	10.1	ug/L	3.03	10.1
606-20-2	2,6-Dinitrotoluene	U	10.1	ug/L	3.03	10.1
91-58-7	2-Chloronaphthalene	U	1.01	ug/L	0.414	1.01
95-57-8	2-Chlorophenol	U	10.1	ug/L	3.03	10.1
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.1	ug/L	3.03	10.1
91-57-6	2-Methylnaphthalene	U	1.01	ug/L	0.303	1.01
88-75-5	2-Nitrophenol	U	10.1	ug/L	3.03	10.1
91-94-1	3,3'-Dichlorobenzidine	U	10.1	ug/L	3.03	10.1
101-55-3	4-Bromophenylphenylether	U	10.1	ug/L	3.03	10.1
59-50-7	Parachlorometa cresol	U	10.1	ug/L	3.03	10.1
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	10.1	ug/L	3.33	10.1
7005-72-3	4-Chlorophenylphenylether	U	10.1	ug/L	3.03	10.1
100-02-7	4-Nitrophenol	U	10.1	ug/L	3.03	10.1
83-32-9	Acenaphthene	U	1.01	ug/L	0.303	1.01
208-96-8	Acenaphthylene	U	1.01	ug/L	0.303	1.01
62-53-3	Aniline	U	10.1	ug/L	4.24	10.1
120-12-7	Anthracene	U	1.01	ug/L	0.303	1.01
1912-24-9	Atrazine	U	10.1	ug/L	3.03	10.1
92-87-5	Benzidine	U	10.1	ug/L	3.94	10.1
56-55-3	Benzo(a)anthracene	U	1.01	ug/L	0.303	1.01
50-32-8	Benzo(a)pyrene	U	1.01	ug/L	0.303	1.01
205-99-2	Benzo(b)fluoranthene	U	1.01	ug/L	0.303	1.01
191-24-2	Benzo(ghi)perylene	U	1.01	ug/L	0.303	1.01

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

SDG Number: 2015-1191

Lab Sample ID: 373005003

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD4.I

Dilution: 1

Run Date: 05/19/2015 01:17

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 990 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1827.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	1.01	ug/L	0.303	1.01
65-85-0	Benzoic acid	U	20.2	ug/L	6.06	20.2
100-51-6	Benzyl alcohol	U	10.1	ug/L	3.03	10.1
85-68-7	Butylbenzylphthalate	U	10.1	ug/L	3.03	10.1
218-01-9	Chrysene	U	1.01	ug/L	0.303	1.01
84-74-2	Di-n-butylphthalate	U	10.1	ug/L	3.03	10.1
117-84-0	Di-n-octylphthalate	U	10.1	ug/L	3.03	10.1
53-70-3	Dibenzo(a,h)anthracene	U	1.01	ug/L	0.303	1.01
132-64-9	Dibenzofuran	U	10.1	ug/L	3.03	10.1
84-66-2	Diethylphthalate	U	10.1	ug/L	3.03	10.1
131-11-3	Dimethylphthalate	U	10.1	ug/L	3.03	10.1
88-85-7	Dinoseb	U	10.1	ug/L	3.03	10.1
122-39-4	Diphenylamine	U	10.1	ug/L	3.03	10.1
206-44-0	Fluoranthene	U	1.01	ug/L	0.303	1.01
86-73-7	Fluorene	U	1.01	ug/L	0.303	1.01
118-74-1	Hexachlorobenzene	U	10.1	ug/L	3.03	10.1
87-68-3	Hexachlorobutadiene	U	10.1	ug/L	3.03	10.1
77-47-4	Hexachlorocyclopentadiene	U	10.1	ug/L	3.03	10.1
67-72-1	Hexachloroethane	U	10.1	ug/L	3.03	10.1
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.01	ug/L	0.303	1.01
78-59-1	Isophorone	U	10.1	ug/L	3.54	10.1
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.1	ug/L	3.03	10.1
924-16-3	N-Nitrosodi-n-butylamine	U	10.1	ug/L	3.03	10.1
55-18-5	N-Nitrosodiethylamine	U	10.1	ug/L	3.03	10.1
621-64-7	N-Nitrosodi--n-propylamine	U	10.1	ug/L	3.03	10.1
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	10.1	ug/L	3.03	10.1
91-20-3	Naphthalene	U	1.01	ug/L	0.303	1.01
98-95-3	Nitrobenzene	U	10.1	ug/L	3.03	10.1
608-93-5	Pentachlorobenzene	U	10.1	ug/L	3.03	10.1
87-86-5	Pentachlorophenol	U	10.1	ug/L	3.03	10.1
85-01-8	Phenanthrene	U	1.01	ug/L	0.303	1.01
108-95-2	Phenol	U	10.1	ug/L	3.03	10.1
129-00-0	Pyrene	U	1.01	ug/L	0.303	1.01
110-86-1	Pyridine	U	10.1	ug/L	3.03	10.1
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	10.1	ug/L	3.03	10.1
111-91-1	bis(2-Chloroethoxy)methane	U	10.1	ug/L	3.03	10.1
111-44-4	bis(2-Chloroethyl) ether	U	10.1	ug/L	3.03	10.1
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.1	ug/L	3.03	10.1

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

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005003

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client ID: CAMO-15-95757

Batch ID: 1479033

Run Date: 05/19/2015 01:17

Prep Date: 05/18/2015 12:15

Data File: s051815a.B\s4e1827.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD4.I

Analyst: JMB3

Aliquot: 990 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
65794-96-9	m,p-Cresols	U	10.1	ug/L	3.74	10.1
99-09-2	3-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol	U	10.1	ug/L	3.03	10.1
88-74-4	2-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	69.7	101	ug/L	69.0	(33%-126%)
2-Fluorobiphenyl	31.8	50.5	ug/L	63.0	(35%-102%)
2-Fluorophenol	41.0	101	ug/L	40.6	(18%-84%)
Nitrobenzene-d5	32.0	50.5	ug/L	63.3	(38%-113%)
Phenol-d5	27.2	101	ug/L	26.9	(10%-110%)
p-Terphenyl-d14	36.7	50.5	ug/L	72.6	(38%-123%)

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**

SDG Number: 2015-1191

Lab Sample ID: 373005004

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Client ID: CAMO-15-95760

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1479033

Inst: MSD4.I

Dilution: 1

Run Date: 05/19/2015 01:46

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 990 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1828.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.1	ug/L	3.03	10.1
120-82-1	1,2,4-Trichlorobenzene	U	10.1	ug/L	3.03	10.1
95-50-1	1,2-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
122-66-7	Azobenzene	U	10.1	ug/L	3.03	10.1
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
106-46-7	1,4-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
123-91-1	1,4-Dioxane	U	10.1	ug/L	3.03	10.1
90-12-0	1-Methylnaphthalene	U	1.01	ug/L	0.303	1.01
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.1	ug/L	3.03	10.1
95-95-4	2,4,5-Trichlorophenol	U	10.1	ug/L	3.03	10.1
88-06-2	2,4,6-Trichlorophenol	U	10.1	ug/L	3.03	10.1
120-83-2	2,4-Dichlorophenol	U	10.1	ug/L	3.03	10.1
105-67-9	2,4-Dimethylphenol	U	10.1	ug/L	3.03	10.1
51-28-5	2,4-Dinitrophenol	U	20.2	ug/L	5.05	20.2
121-14-2	2,4-Dinitrotoluene	U	10.1	ug/L	3.03	10.1
606-20-2	2,6-Dinitrotoluene	U	10.1	ug/L	3.03	10.1
91-58-7	2-Chloronaphthalene	U	1.01	ug/L	0.414	1.01
95-57-8	2-Chlorophenol	U	10.1	ug/L	3.03	10.1
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.1	ug/L	3.03	10.1
91-57-6	2-Methylnaphthalene	U	1.01	ug/L	0.303	1.01
88-75-5	2-Nitrophenol	U	10.1	ug/L	3.03	10.1
91-94-1	3,3'-Dichlorobenzidine	U	10.1	ug/L	3.03	10.1
101-55-3	4-Bromophenylphenylether	U	10.1	ug/L	3.03	10.1
59-50-7	Parachlorometa cresol	U	10.1	ug/L	3.03	10.1
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	10.1	ug/L	3.33	10.1
7005-72-3	4-Chlorophenylphenylether	U	10.1	ug/L	3.03	10.1
100-02-7	4-Nitrophenol	U	10.1	ug/L	3.03	10.1
83-32-9	Acenaphthene	U	1.01	ug/L	0.303	1.01
208-96-8	Acenaphthylene	U	1.01	ug/L	0.303	1.01
62-53-3	Aniline	U	10.1	ug/L	4.24	10.1
120-12-7	Anthracene	U	1.01	ug/L	0.303	1.01
1912-24-9	Atrazine	U	10.1	ug/L	3.03	10.1
92-87-5	Benzidine	U	10.1	ug/L	3.94	10.1
56-55-3	Benzo(a)anthracene	U	1.01	ug/L	0.303	1.01
50-32-8	Benzo(a)pyrene	U	1.01	ug/L	0.303	1.01
205-99-2	Benzo(b)fluoranthene	U	1.01	ug/L	0.303	1.01
191-24-2	Benzo(ghi)perylene	U	1.01	ug/L	0.303	1.01

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

SDG Number: 2015-1191

Lab Sample ID: 373005004

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1479033

Inst: MSD4.I

Dilution: 1

Run Date: 05/19/2015 01:46

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 990 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1828.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	1.01	ug/L	0.303	1.01
65-85-0	Benzoic acid	U	20.2	ug/L	6.06	20.2
100-51-6	Benzyl alcohol	U	10.1	ug/L	3.03	10.1
85-68-7	Butylbenzylphthalate	U	10.1	ug/L	3.03	10.1
218-01-9	Chrysene	U	1.01	ug/L	0.303	1.01
84-74-2	Di-n-butylphthalate	U	10.1	ug/L	3.03	10.1
117-84-0	Di-n-octylphthalate	U	10.1	ug/L	3.03	10.1
53-70-3	Dibenzo(a,h)anthracene	U	1.01	ug/L	0.303	1.01
132-64-9	Dibenzofuran	U	10.1	ug/L	3.03	10.1
84-66-2	Diethylphthalate	U	10.1	ug/L	3.03	10.1
131-11-3	Dimethylphthalate	U	10.1	ug/L	3.03	10.1
88-85-7	Dinoseb	U	10.1	ug/L	3.03	10.1
122-39-4	Diphenylamine	U	10.1	ug/L	3.03	10.1
206-44-0	Fluoranthene	U	1.01	ug/L	0.303	1.01
86-73-7	Fluorene	U	1.01	ug/L	0.303	1.01
118-74-1	Hexachlorobenzene	U	10.1	ug/L	3.03	10.1
87-68-3	Hexachlorobutadiene	U	10.1	ug/L	3.03	10.1
77-47-4	Hexachlorocyclopentadiene	U	10.1	ug/L	3.03	10.1
67-72-1	Hexachloroethane	U	10.1	ug/L	3.03	10.1
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.01	ug/L	0.303	1.01
78-59-1	Isophorone	U	10.1	ug/L	3.54	10.1
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.1	ug/L	3.03	10.1
924-16-3	N-Nitrosodi-n-butylamine	U	10.1	ug/L	3.03	10.1
55-18-5	N-Nitrosodiethylamine	U	10.1	ug/L	3.03	10.1
621-64-7	N-Nitrosodi--n-propylamine	U	10.1	ug/L	3.03	10.1
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	10.1	ug/L	3.03	10.1
91-20-3	Naphthalene	U	1.01	ug/L	0.303	1.01
98-95-3	Nitrobenzene	U	10.1	ug/L	3.03	10.1
608-93-5	Pentachlorobenzene	U	10.1	ug/L	3.03	10.1
87-86-5	Pentachlorophenol	U	10.1	ug/L	3.03	10.1
85-01-8	Phenanthrene	U	1.01	ug/L	0.303	1.01
108-95-2	Phenol	U	10.1	ug/L	3.03	10.1
129-00-0	Pyrene	U	1.01	ug/L	0.303	1.01
110-86-1	Pyridine	U	10.1	ug/L	3.03	10.1
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	10.1	ug/L	3.03	10.1
111-91-1	bis(2-Chloroethoxy)methane	U	10.1	ug/L	3.03	10.1
111-44-4	bis(2-Chloroethyl) ether	U	10.1	ug/L	3.03	10.1
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.1	ug/L	3.03	10.1

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

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005004

Date Collected: 05/12/2015 11:22

Date Received: 05/14/2015 12:00

Matrix: WATER

Client ID: CAMO-15-95760

Batch ID: 1479033

Run Date: 05/19/2015 01:46

Prep Date: 05/18/2015 12:15

Data File: s051815a.B\s4e1828.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD4.I

Analyst: JMB3

Aliquot: 990 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
65794-96-9	m,p-Cresols	U	10.1	ug/L	3.74	10.1
99-09-2	3-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol	U	10.1	ug/L	3.03	10.1
88-74-4	2-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	86.9	101	ug/L	86.0 (33%-126%)
2-Fluorobiphenyl	43.9	50.5	ug/L	86.9 (35%-102%)
2-Fluorophenol	62.1	101	ug/L	61.5 (18%-84%)
Nitrobenzene-d5	46.4	50.5	ug/L	91.9 (38%-113%)
Phenol-d5	40.1	101	ug/L	39.7 (10%-110%)
p-Terphenyl-d14	53.9	50.5	ug/L	107 (38%-123%)

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**

SDG Number: 2015-1191

Lab Sample ID: 373005007

Date Collected: 05/12/2015 13:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1479033

Inst: MSD4.I

Dilution: 1

Run Date: 05/19/2015 16:48

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 980 mL

Final Volume: 1 mL

Data File: s051915.B\s4e1916.D

Column: DB-5ms

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

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

SDG Number: 2015-1191

Lab Sample ID: 373005007

Date Collected: 05/12/2015 13:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD4.I

Dilution: 1

Batch ID: 1479033

Run Date: 05/19/2015 16:48

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 980 mL

Final Volume: 1 mL

Data File: s051915.B\s4e1916.D

Column: DB-5ms

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

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

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005007

Date Collected: 05/12/2015 13:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client ID: CAMO-15-95792

Batch ID: 1479033

Run Date: 05/19/2015 16:48

Prep Date: 05/18/2015 12:15

Data File: s051915.B\s4e1916.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD4.I

Analyst: JMB3

Aliquot: 980 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
65794-96-9	m,p-Cresols	U	10.2	ug/L	3.78	10.2
99-09-2	3-Nitroaniline	U	10.2	ug/L	3.06	10.2
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol	U	10.2	ug/L	3.06	10.2
88-74-4	2-Nitroaniline	U	10.2	ug/L	3.06	10.2
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline	U	10.2	ug/L	3.06	10.2
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	80.8	102	ug/L	79.2	(33%-126%)
2-Fluorobiphenyl	31.0	51.0	ug/L	60.7	(35%-102%)
2-Fluorophenol	41.9	102	ug/L	41.1	(18%-84%)
Nitrobenzene-d5	32.1	51.0	ug/L	62.9	(38%-113%)
Phenol-d5	27.8	102	ug/L	27.2	(10%-110%)
p-Terphenyl-d14	45.3	51.0	ug/L	88.8	(38%-123%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000057-10-3	n-Hexadecanoic acid	12.311	13.1	ug/L	98	NJ
000057-11-4	Octadecanoic acid	13.295	8.07	ug/L	99	NJ

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

SDG Number: 2015-1191

Lab Sample ID: 373005009

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD4.I

Dilution: 1

Batch ID: 1479033

Run Date: 05/19/2015 02:45

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 990 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1830.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.1	ug/L	3.03	10.1
120-82-1	1,2,4-Trichlorobenzene	U	10.1	ug/L	3.03	10.1
95-50-1	1,2-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
122-66-7	Azobenzene	U	10.1	ug/L	3.03	10.1
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
106-46-7	1,4-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
123-91-1	1,4-Dioxane	U	10.1	ug/L	3.03	10.1
90-12-0	1-Methylnaphthalene	U	1.01	ug/L	0.303	1.01
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.1	ug/L	3.03	10.1
95-95-4	2,4,5-Trichlorophenol	U	10.1	ug/L	3.03	10.1
88-06-2	2,4,6-Trichlorophenol	U	10.1	ug/L	3.03	10.1
120-83-2	2,4-Dichlorophenol	U	10.1	ug/L	3.03	10.1
105-67-9	2,4-Dimethylphenol	U	10.1	ug/L	3.03	10.1
51-28-5	2,4-Dinitrophenol	U	20.2	ug/L	5.05	20.2
121-14-2	2,4-Dinitrotoluene	U	10.1	ug/L	3.03	10.1
606-20-2	2,6-Dinitrotoluene	U	10.1	ug/L	3.03	10.1
91-58-7	2-Chloronaphthalene	U	1.01	ug/L	0.414	1.01
95-57-8	2-Chlorophenol	U	10.1	ug/L	3.03	10.1
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.1	ug/L	3.03	10.1
91-57-6	2-Methylnaphthalene	U	1.01	ug/L	0.303	1.01
88-75-5	2-Nitrophenol	U	10.1	ug/L	3.03	10.1
91-94-1	3,3'-Dichlorobenzidine	U	10.1	ug/L	3.03	10.1
101-55-3	4-Bromophenylphenylether	U	10.1	ug/L	3.03	10.1
59-50-7	Parachlorometa cresol	U	10.1	ug/L	3.03	10.1
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	10.1	ug/L	3.33	10.1
7005-72-3	4-Chlorophenylphenylether	U	10.1	ug/L	3.03	10.1
100-02-7	4-Nitrophenol	U	10.1	ug/L	3.03	10.1
83-32-9	Acenaphthene	U	1.01	ug/L	0.303	1.01
208-96-8	Acenaphthylene	U	1.01	ug/L	0.303	1.01
62-53-3	Aniline	U	10.1	ug/L	4.24	10.1
120-12-7	Anthracene	U	1.01	ug/L	0.303	1.01
1912-24-9	Atrazine	U	10.1	ug/L	3.03	10.1
92-87-5	Benzidine	U	10.1	ug/L	3.94	10.1
56-55-3	Benzo(a)anthracene	U	1.01	ug/L	0.303	1.01
50-32-8	Benzo(a)pyrene	U	1.01	ug/L	0.303	1.01
205-99-2	Benzo(b)fluoranthene	U	1.01	ug/L	0.303	1.01
191-24-2	Benzo(ghi)perylene	U	1.01	ug/L	0.303	1.01

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

Page 2 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005009

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1479033

Inst: MSD4.I

Dilution: 1

Run Date: 05/19/2015 02:45

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 990 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1830.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	1.01	ug/L	0.303	1.01
65-85-0	Benzoic acid	U	20.2	ug/L	6.06	20.2
100-51-6	Benzyl alcohol	U	10.1	ug/L	3.03	10.1
85-68-7	Butylbenzylphthalate	U	10.1	ug/L	3.03	10.1
218-01-9	Chrysene	U	1.01	ug/L	0.303	1.01
84-74-2	Di-n-butylphthalate	U	10.1	ug/L	3.03	10.1
117-84-0	Di-n-octylphthalate	U	10.1	ug/L	3.03	10.1
53-70-3	Dibenzo(a,h)anthracene	U	1.01	ug/L	0.303	1.01
132-64-9	Dibenzofuran	U	10.1	ug/L	3.03	10.1
84-66-2	Diethylphthalate	U	10.1	ug/L	3.03	10.1
131-11-3	Dimethylphthalate	U	10.1	ug/L	3.03	10.1
88-85-7	Dinoseb	U	10.1	ug/L	3.03	10.1
122-39-4	Diphenylamine	U	10.1	ug/L	3.03	10.1
206-44-0	Fluoranthene	U	1.01	ug/L	0.303	1.01
86-73-7	Fluorene	U	1.01	ug/L	0.303	1.01
118-74-1	Hexachlorobenzene	U	10.1	ug/L	3.03	10.1
87-68-3	Hexachlorobutadiene	U	10.1	ug/L	3.03	10.1
77-47-4	Hexachlorocyclopentadiene	U	10.1	ug/L	3.03	10.1
67-72-1	Hexachloroethane	U	10.1	ug/L	3.03	10.1
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.01	ug/L	0.303	1.01
78-59-1	Isophorone	U	10.1	ug/L	3.54	10.1
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.1	ug/L	3.03	10.1
924-16-3	N-Nitrosodi-n-butylamine	U	10.1	ug/L	3.03	10.1
55-18-5	N-Nitrosodiethylamine	U	10.1	ug/L	3.03	10.1
621-64-7	N-Nitrosodi--n-propylamine	U	10.1	ug/L	3.03	10.1
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	10.1	ug/L	3.03	10.1
91-20-3	Naphthalene	U	1.01	ug/L	0.303	1.01
98-95-3	Nitrobenzene	U	10.1	ug/L	3.03	10.1
608-93-5	Pentachlorobenzene	U	10.1	ug/L	3.03	10.1
87-86-5	Pentachlorophenol	U	10.1	ug/L	3.03	10.1
85-01-8	Phenanthrene	U	1.01	ug/L	0.303	1.01
108-95-2	Phenol	U	10.1	ug/L	3.03	10.1
129-00-0	Pyrene	U	1.01	ug/L	0.303	1.01
110-86-1	Pyridine	U	10.1	ug/L	3.03	10.1
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	10.1	ug/L	3.03	10.1
111-91-1	bis(2-Chloroethoxy)methane	U	10.1	ug/L	3.03	10.1
111-44-4	bis(2-Chloroethyl) ether	U	10.1	ug/L	3.03	10.1
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.1	ug/L	3.03	10.1

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

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005009

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client ID: CAMO-15-95756

Batch ID: 1479033

Run Date: 05/19/2015 02:45

Prep Date: 05/18/2015 12:15

Data File: s051815a.B\s4e1830.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD4.I

Analyst: JMB3

Aliquot: 990 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
65794-96-9	m,p-Cresols	U	10.1	ug/L	3.74	10.1
99-09-2	3-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol	U	10.1	ug/L	3.03	10.1
88-74-4	2-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	69.8	101	ug/L	69.1	(33%-126%)
2-Fluorobiphenyl	34.1	50.5	ug/L	67.5	(35%-102%)
2-Fluorophenol	47.7	101	ug/L	47.2	(18%-84%)
Nitrobenzene-d5	35.5	50.5	ug/L	70.2	(38%-113%)
Phenol-d5	31.0	101	ug/L	30.7	(10%-110%)
p-Terphenyl-d14	42.8	50.5	ug/L	84.8	(38%-123%)

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**

SDG Number: 2015-1191

Lab Sample ID: 373005010

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD4.I

Dilution: 1

Batch ID: 1479033

Run Date: 05/19/2015 17:17

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 990 mL

Final Volume: 1 mL

Data File: s051915.B\s4e1917.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.1	ug/L	3.03	10.1
120-82-1	1,2,4-Trichlorobenzene	U	10.1	ug/L	3.03	10.1
95-50-1	1,2-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
122-66-7	Azobenzene	U	10.1	ug/L	3.03	10.1
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
106-46-7	1,4-Dichlorobenzene	U	10.1	ug/L	3.03	10.1
123-91-1	1,4-Dioxane	U	10.1	ug/L	3.03	10.1
90-12-0	1-Methylnaphthalene	U	1.01	ug/L	0.303	1.01
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.1	ug/L	3.03	10.1
95-95-4	2,4,5-Trichlorophenol	U	10.1	ug/L	3.03	10.1
88-06-2	2,4,6-Trichlorophenol	U	10.1	ug/L	3.03	10.1
120-83-2	2,4-Dichlorophenol	U	10.1	ug/L	3.03	10.1
105-67-9	2,4-Dimethylphenol	U	10.1	ug/L	3.03	10.1
51-28-5	2,4-Dinitrophenol	U	20.2	ug/L	5.05	20.2
121-14-2	2,4-Dinitrotoluene	U	10.1	ug/L	3.03	10.1
606-20-2	2,6-Dinitrotoluene	U	10.1	ug/L	3.03	10.1
91-58-7	2-Chloronaphthalene	U	1.01	ug/L	0.414	1.01
95-57-8	2-Chlorophenol	U	10.1	ug/L	3.03	10.1
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.1	ug/L	3.03	10.1
91-57-6	2-Methylnaphthalene	U	1.01	ug/L	0.303	1.01
88-75-5	2-Nitrophenol	U	10.1	ug/L	3.03	10.1
91-94-1	3,3'-Dichlorobenzidine	U	10.1	ug/L	3.03	10.1
101-55-3	4-Bromophenylphenylether	U	10.1	ug/L	3.03	10.1
59-50-7	Parachlorometa cresol	U	10.1	ug/L	3.03	10.1
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline	U	10.1	ug/L	3.33	10.1
7005-72-3	4-Chlorophenylphenylether	U	10.1	ug/L	3.03	10.1
100-02-7	4-Nitrophenol	U	10.1	ug/L	3.03	10.1
83-32-9	Acenaphthene	U	1.01	ug/L	0.303	1.01
208-96-8	Acenaphthylene	U	1.01	ug/L	0.303	1.01
62-53-3	Aniline	U	10.1	ug/L	4.24	10.1
120-12-7	Anthracene	U	1.01	ug/L	0.303	1.01
1912-24-9	Atrazine	U	10.1	ug/L	3.03	10.1
92-87-5	Benzidine	U	10.1	ug/L	3.94	10.1
56-55-3	Benzo(a)anthracene	U	1.01	ug/L	0.303	1.01
50-32-8	Benzo(a)pyrene	U	1.01	ug/L	0.303	1.01
205-99-2	Benzo(b)fluoranthene	U	1.01	ug/L	0.303	1.01
191-24-2	Benzo(ghi)perylene	U	1.01	ug/L	0.303	1.01

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

Page 2 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005010

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client: ARSL004

Project: ESHL00114

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Inst: MSD4.I

Dilution: 1

Batch ID: 1479033

Run Date: 05/19/2015 17:17

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 990 mL

Final Volume: 1 mL

Data File: s051915.B\s4e1917.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	1.01	ug/L	0.303	1.01
65-85-0	Benzoic acid	U	20.2	ug/L	6.06	20.2
100-51-6	Benzyl alcohol	U	10.1	ug/L	3.03	10.1
85-68-7	Butylbenzylphthalate	U	10.1	ug/L	3.03	10.1
218-01-9	Chrysene	U	1.01	ug/L	0.303	1.01
84-74-2	Di-n-butylphthalate	U	10.1	ug/L	3.03	10.1
117-84-0	Di-n-octylphthalate	U	10.1	ug/L	3.03	10.1
53-70-3	Dibenzo(a,h)anthracene	U	1.01	ug/L	0.303	1.01
132-64-9	Dibenzofuran	U	10.1	ug/L	3.03	10.1
84-66-2	Diethylphthalate	U	10.1	ug/L	3.03	10.1
131-11-3	Dimethylphthalate	U	10.1	ug/L	3.03	10.1
88-85-7	Dinoseb	U	10.1	ug/L	3.03	10.1
122-39-4	Diphenylamine	U	10.1	ug/L	3.03	10.1
206-44-0	Fluoranthene	U	1.01	ug/L	0.303	1.01
86-73-7	Fluorene	U	1.01	ug/L	0.303	1.01
118-74-1	Hexachlorobenzene	U	10.1	ug/L	3.03	10.1
87-68-3	Hexachlorobutadiene	U	10.1	ug/L	3.03	10.1
77-47-4	Hexachlorocyclopentadiene	U	10.1	ug/L	3.03	10.1
67-72-1	Hexachloroethane	U	10.1	ug/L	3.03	10.1
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.01	ug/L	0.303	1.01
78-59-1	Isophorone	U	10.1	ug/L	3.54	10.1
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.1	ug/L	3.03	10.1
924-16-3	N-Nitrosodi-n-butylamine	U	10.1	ug/L	3.03	10.1
55-18-5	N-Nitrosodiethylamine	U	10.1	ug/L	3.03	10.1
621-64-7	N-Nitrosodi--n-propylamine	U	10.1	ug/L	3.03	10.1
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine	U	10.1	ug/L	3.03	10.1
91-20-3	Naphthalene	U	1.01	ug/L	0.303	1.01
98-95-3	Nitrobenzene	U	10.1	ug/L	3.03	10.1
608-93-5	Pentachlorobenzene	U	10.1	ug/L	3.03	10.1
87-86-5	Pentachlorophenol	U	10.1	ug/L	3.03	10.1
85-01-8	Phenanthrene	U	1.01	ug/L	0.303	1.01
108-95-2	Phenol	U	10.1	ug/L	3.03	10.1
129-00-0	Pyrene	U	1.01	ug/L	0.303	1.01
110-86-1	Pyridine	U	10.1	ug/L	3.03	10.1
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	10.1	ug/L	3.03	10.1
111-91-1	bis(2-Chloroethoxy)methane	U	10.1	ug/L	3.03	10.1
111-44-4	bis(2-Chloroethyl) ether	U	10.1	ug/L	3.03	10.1
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.1	ug/L	3.03	10.1

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

Page 3 of 3

SDG Number: 2015-1191

Lab Sample ID: 373005010

Date Collected: 05/12/2015 15:12

Date Received: 05/14/2015 12:00

Matrix: WATER

Client ID: CAMO-15-95759

Batch ID: 1479033

Run Date: 05/19/2015 17:17

Prep Date: 05/18/2015 12:15

Data File: s051915.B\s4e1917.D

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD4.I

Analyst: JMB3

Aliquot: 990 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
65794-96-9	m,p-Cresols	U	10.1	ug/L	3.74	10.1
99-09-2	3-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>m</i> -Nitroaniline					
95-48-7	o-Cresol	U	10.1	ug/L	3.03	10.1
88-74-4	2-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>o</i> -Nitroaniline					
100-01-6	4-Nitroaniline	U	10.1	ug/L	3.03	10.1
	<i>p</i> -Nitroaniline					

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	82.6	101	ug/L	81.8 (33%-126%)
2-Fluorobiphenyl	34.5	50.5	ug/L	68.3 (35%-102%)
2-Fluorophenol	46.0	101	ug/L	45.6 (18%-84%)
Nitrobenzene-d5	34.6	50.5	ug/L	68.4 (38%-113%)
Phenol-d5	29.8	101	ug/L	29.5 (10%-110%)
p-Terphenyl-d14	51.4	50.5	ug/L	102 (38%-123%)

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: 2015-1191

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203319535	MB for batch 1479032	52	33	83	76	91	91
1203319536	LCS for batch 1479032	58	45	84	84	89	95
1203319537	WST16-15-97393MS	58	48	63	60	67	58
1203319538	WST16-15-97393MSD	51	43	58	55	74	48
373005001	CAMO-15-95790	48	32	74	69	77	81
373005003	CAMO-15-95757	41	27	63	63	69	73
373005004	CAMO-15-95760	61	40	92	87	86	107
373005009	CAMO-15-95756	47	31	70	68	69	85
373005007	CAMO-15-95792	41	27	63	61	79	89
373005010	CAMO-15-95759	46	30	68	68	82	102

Surrogate**Acceptance Limits**

2FP	= 2-Fluorophenol	(18%-84%)
PHL	= Phenol-d5	(10%-110%)
NBZ	= Nitrobenzene-d5	(38%-113%)
FBP	= 2-Fluorobiphenyl	(35%-102%)
TBP	= 2,4,6-Tribromophenol	(33%-126%)
TPH	= p-Terphenyl-d14	(38%-123%)

* 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: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1479032

Matrix: WATER

Lab Sample ID 1203319536

Instrument: MSD4.I

Analysis Date: 05/18/2015 20:40

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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-nitrosomethylam	50.0	0.0	31.0	62	24-82
110-86-1	LCS Pyridine	50.0	0.0	29.1	58	24-97
62-53-3	LCS Aniline	50.0	0.0	39.5	79	42-120
108-95-2	LCS Phenol	50.0	0.0	22.6	45	10-114
111-44-4	LCS bis(2-Chloroethyl) ether	50.0	0.0	41.1	82	44-111
95-57-8	LCS 2-Chlorophenol	50.0	0.0	39.9	80	44-103
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	35.1	70	27-91
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	35.1	70	27-93
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	35.5	71	29-92
108-60-1	LCS bis(2-Chloro-1-methylethyl)et	50.0	0.0	41.4	83	30-113
100-51-6	LCS Benzyl alcohol	50.0	0.0	38.6	77	34-106
95-48-7	LCS o-Cresol	50.0	0.0	35.4	71	36-99
65794-96-9	LCS m,p-Cresols	50.0	0.0	35.6	71	34-106
621-64-7	LCS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	50.0	0.0	41.7	83	48-119
67-72-1	LCS Hexachloroethane	50.0	0.0	34.7	69	25-92
98-95-3	LCS Nitrobenzene	50.0	0.0	41.6	83	44-117
78-59-1	LCS Isophorone	50.0	0.0	44.5	89	49-124
88-75-5	LCS 2-Nitrophenol	50.0	0.0	42.7	85	47-110
105-67-9	LCS 2,4-Dimethylphenol	50.0	0.0	40.5	81	43-105
111-91-1	LCS bis(2-Chloroethoxy)methane	50.0	0.0	43.5	87	48-114
120-83-2	LCS 2,4-Dichlorophenol	50.0	0.0	41.4	83	47-107
65-85-0	LCS Benzoic acid	100	0.0	51.8	52	10-91

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1479032

Matrix: WATER

Lab Sample ID 1203319536

Instrument: MSD4.I

Analysis Date: 05/18/2015 20:40

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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	45.3	91	48-120
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	37.3	75	24-93
59-50-7	LCS Parachlorometa cresol 4-Chloro-3-methylphenol	50.0	0.0	41.6	83	47-113
91-57-6	LCS 2-Methylnaphthalene	50.0	0.0	36.3	73	33-96
91-20-3	LCS Naphthalene	50.0	0.0	37.2	74	33-96
90-12-0	LCS 1-Methylnaphthalene	50.0	0.0	37.1	74	34-98
77-47-4	LCS Hexachlorocyclopentadiene	50.0	0.0	21.8	44	18-87
88-06-2	LCS 2,4,6-Trichlorophenol	50.0	0.0	41.3	83	48-114
95-95-4	LCS 2,4,5-Trichlorophenol	50.0	0.0	42.2	84	50-113
91-58-7	LCS 2-Chloronaphthalene	50.0	0.0	37.7	75	37-100
88-74-4	LCS 2-Nitroaniline o-Nitroaniline	50.0	0.0	44.6	89	50-123
99-09-2	LCS 3-Nitroaniline m-Nitroaniline	50.0	0.0	46.7	93	48-126
131-11-3	LCS Dimethylphthalate	50.0	0.0	45.7	91	55-119
606-20-2	LCS 2,6-Dinitrotoluene	50.0	0.0	43.2	86	55-117
121-14-2	LCS 2,4-Dinitrotoluene	50.0	0.0	40.7	81	55-123
208-96-8	LCS Acenaphthylene	50.0	0.0	39.0	78	43-104
83-32-9	LCS Acenaphthene	50.0	0.0	39.3	79	42-101
51-28-5	LCS 2,4-Dinitrophenol	50.0	0.0	30.4	61	14-126
132-64-9	LCS Dibenzofuran	50.0	0.0	39.8	80	46-111
58-90-2	LCS 2,3,4,6-Tetrachlorophenol	50.0	0.0	37.2	74	48-117
84-66-2	LCS Diethylphthalate	50.0	0.0	45.6	91	55-121
100-02-7	LCS 4-Nitrophenol	50.0	0.0	19.2	38	15-109

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1479032

Matrix: WATER

Lab Sample ID 1203319536

Instrument: MSD4.I

Analysis Date: 05/18/2015 20:40

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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	38.6	77	47-105
7005-72-3	LCS 4-Chlorophenylphenylether	50.0	0.0	40.6	81	44-112
100-01-6	LCS 4-Nitroaniline <i>p-Nitroaniline</i>	50.0	0.0	42.3	85	46-144
534-52-1	LCS 2-Methyl-4,6-dinitrophenol	50.0	0.0	40.8	82	41-123
122-39-4	LCS Diphenylamine	50.0	0.0	41.5	83	51-111
122-66-7	LCS Azobenzene <i>1,2-Diphenylhydrazine</i>	50.0	0.0	42.2	84	43-114
101-55-3	LCS 4-Bromophenylphenylether	50.0	0.0	44.3	89	46-112
118-74-1	LCS Hexachlorobenzene	50.0	0.0	46.3	93	46-113
87-86-5	LCS Pentachlorophenol	50.0	0.0	34.3	69	33-111
85-01-8	LCS Phenanthrene	50.0	0.0	40.0	80	49-106
120-12-7	LCS Anthracene	50.0	0.0	38.1	76	49-106
84-74-2	LCS Di-n-butylphthalate	50.0	0.0	46.0	92	52-119
206-44-0	LCS Fluoranthene	50.0	0.0	37.9	76	48-114
129-00-0	LCS Pyrene	50.0	0.0	37.0	74	41-115
85-68-7	LCS Butylbenzylphthalate	50.0	0.0	41.8	84	45-121
117-81-7	LCS bis(2-Ethylhexyl)phthalate	50.0	0.0	40.3	81	43-120
56-55-3	LCS Benzo(a)anthracene	50.0	0.0	39.1	78	50-107
218-01-9	LCS Chrysene	50.0	0.0	40.6	81	48-108
117-84-0	LCS Di-n-octylphthalate	50.0	0.0	43.0	86	40-122
205-99-2	LCS Benzo(b)fluoranthene	50.0	0.0	40.6	81	48-110
207-08-9	LCS Benzo(k)fluoranthene	50.0	0.0	39.6	79	48-112
50-32-8	LCS Benzo(a)pyrene	50.0	0.0	40.3	81	47-106

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 4 of 4

SDG Number: 2015-1191

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1479032

Matrix: WATER

Lab Sample ID 1203319536

Instrument: MSD4.I

Analysis Date: 05/18/2015 20:40

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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	45.6	91	37-120
53-70-3	LCS Dibenzo(a,h)anthracene	50.0	0.0	45.4	91	36-124
191-24-2	LCS Benzo(ghi)perylene	50.0	0.0	42.7	85	34-121
123-91-1	LCS 1,4-Dioxane	50.0	0.0	25.5	51	29-74
930-55-2	LCS N-Nitrosopyrrolidine	50.0	0.0	42.2	84	46-111
95-94-3	LCS 1,2,4,5-Tetrachlorobenzene	50.0	0.0	37.0	74	33-94
1912-24-9	LCS Atrazine	50.0	0.0	21.5	43	30-122
92-87-5	LCS Benzidine	100	0.0	21.3	21	10-137
91-94-1	LCS 3,3'-Dichlorobenzidine	50.0	0.0	46.1	92	37-119
120-82-1	LCS 1,2,4-Trichlorobenzene	50.0	0.0	36.5	73	29-93

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 8

SDG Number: 2015-1191

Sample Type: Matrix Spike

Client ID: WST16-15-97393MS

Matrix: WATER

Lab Sample ID 1203319537

Instrument: MSD4.I

Analysis Date: 05/18/2015 22:42

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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-nitrosomethylam	100	0.00 U	66.4	66	26-97
110-86-1	MS Pyridine	100	0.00 U	73.4	73	20-112
62-53-3	MS Aniline	100	0.00 U	87.9	88	28-126
108-95-2	MS Phenol	100	0.00 U	51.0	51	17-77
111-44-4	MS bis(2-Chloroethyl) ether	100	0.00 U	67.0	67	37-113
95-57-8	MS 2-Chlorophenol	100	0.00 U	70.6	71	34-108
541-73-1	MS 1,3-Dichlorobenzene	100	0.00 U	53.0	53	25-89
106-46-7	MS 1,4-Dichlorobenzene	100	0.00 U	53.4	53	26-90
95-50-1	MS 1,2-Dichlorobenzene	100	0.00 U	54.9	55	26-92
108-60-1	MS bis(2-Chloro-1-methylethyl)et	100	0.00 U	66.5	67	26-114
100-51-6	MS Benzyl alcohol	100	0.00 U	67.9	68	28-119
95-48-7	MS o-Cresol	100	0.00 U	71.6	72	30-108
65794-96-9	MS m,p-Cresols	100	0.00 U	78.5	79	31-119
621-64-7	MS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	100	0.00 U	71.7	72	40-122
67-72-1	MS Hexachloroethane	100	0.00 U	51.4	51	23-89
98-95-3	MS Nitrobenzene	100	0.00 U	63.6	64	38-123
78-59-1	MS Isophorone	100	0.00 U	71.3	71	40-127
88-75-5	MS 2-Nitrophenol	100	0.00 U	66.2	66	35-116
105-67-9	MS 2,4-Dimethylphenol	100	0.00 U	71.9	72	34-109
111-91-1	MS bis(2-Chloroethoxy)methane	100	0.00 U	68.5	69	41-116
120-83-2	MS 2,4-Dichlorophenol	100	0.00 U	69.0	69	35-113
65-85-0	MS Benzoic acid	200	0.00 U	92.8	46	12-94

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 8

SDG Number: 2015-1191

Sample Type: Matrix Spike

Client ID: WST16-15-97393MS

Matrix: WATER

Lab Sample ID 1203319537

Instrument: MSD4.I

Analysis Date: 05/18/2015 22:42

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS 4-Chloroaniline	100	0.00 U	95.7	96	32-122
87-68-3	MS Hexachlorobutadiene	100	0.00 U	54.0	54	23-90
59-50-7	MS Parachlorometa cresol 4-Chloro-3-methylphenol	100	0.00 U	74.7	75	37-119
91-57-6	MS 2-Methylnaphthalene	100	0.00 U	59.4	59	28-102
91-20-3	MS Naphthalene	100	0.00 U	57.8	58	27-101
90-12-0	MS 1-Methylnaphthalene	100	0.00 U	60.4	60	28-105
77-47-4	MS Hexachlorocyclopentadiene	100	0.00 U	31.6	32	10-84
88-06-2	MS 2,4,6-Trichlorophenol	100	0.00 U	61.5	62	36-120
95-95-4	MS 2,4,5-Trichlorophenol	100	0.00 U	65.0	65	37-121
91-58-7	MS 2-Chloronaphthalene	100	0.00 U	58.0	58	32-103
88-74-4	MS 2-Nitroaniline o-Nitroaniline	100	0.00 U	75.7	76	38-126
99-09-2	MS 3-Nitroaniline m-Nitroaniline	100	0.00 U	89.2	89	30-131
131-11-3	MS Dimethylphthalate	100	0.00 U	69.1	69	45-121
606-20-2	MS 2,6-Dinitrotoluene	100	0.00 U	67.1	67	44-120
121-14-2	MS 2,4-Dinitrotoluene	100	0.00 U	65.4	65	44-127
208-96-8	MS Acenaphthylene	100	0.00 U	60.7	61	33-110
83-32-9	MS Acenaphthene	100	0.00 U	58.6	59	31-108
51-28-5	MS 2,4-Dinitrophenol	100	0.00 U	26.8	27	10-133
132-64-9	MS Dibenzofuran	100	0.00 U	63.6	64	39-114
58-90-2	MS 2,3,4,6-Tetrachlorophenol	100	0.00 U	55.6	56	34-125
84-66-2	MS Diethylphthalate	100	0.00 U	68.8	69	44-124
100-02-7	MS 4-Nitrophenol	100	0.00 U	41.3	41	10-83

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Matrix Spike

Client ID: WST16-15-97393MS

Matrix: WATER

Lab Sample ID 1203319537

Instrument: MSD4.I

Analysis Date: 05/18/2015 22:42

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	100	0.00 U	60.8	61	36-111
7005-72-3	MS	4-Chlorophenylphenylether	100	0.00 U	62.7	63	37-112
100-01-6	MS	4-Nitroaniline <i>p</i> -Nitroaniline	100	0.00 U	72.3	72	27-149
534-52-1	MS	2-Methyl-4,6-dinitrophenol	100	0.00 U	44.4	44	28-131
122-39-4	MS	Diphenylamine	100	0.00 U	59.9	60	34-117
122-66-7	MS	Azobenzene <i>1,2-Diphenylhydrazine</i>	100	0.00 U	60.6	61	36-115
101-55-3	MS	4-Bromophenylphenylether	100	0.00 U	62.9	63	39-112
118-74-1	MS	Hexachlorobenzene	100	0.00 U	63.0	63	39-114
87-86-5	MS	Pentachlorophenol	100	0.00 U	38.6	39	24-122
85-01-8	MS	Phenanthrene	100	0.00 U	59.9	60	37-112
120-12-7	MS	Anthracene	100	0.00 U	57.6	58	36-114
84-74-2	MS	Di-n-butylphthalate	100	0.800 U	64.6	64	40-122
206-44-0	MS	Fluoranthene	100	0.00 U	60.0	60	35-118
129-00-0	MS	Pyrene	100	0.00 U	51.5	51	32-121
85-68-7	MS	Butylbenzylphthalate	100	0.00 U	56.1	56	36-124
117-81-7	MS	bis(2-Ethylhexyl)phthalate	100	0.00 U	38.0	38	35-123
56-55-3	MS	Benzo(a)anthracene	100	0.00 U	54.0	54	38-113
218-01-9	MS	Chrysene	100	0.00 U	55.7	56	37-114
117-84-0	MS	Di-n-octylphthalate	100	0.00 U	41.5	42	32-124
205-99-2	MS	Benzo(b)fluoranthene	100	0.00 U	56.9	57	38-116
207-08-9	MS	Benzo(k)fluoranthene	100	0.00 U	56.5	56	39-117
50-32-8	MS	Benzo(a)pyrene	100	0.00 U	52.7	53	37-112

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Matrix Spike

Client ID: WST16-15-97393MS

Matrix: WATER

Lab Sample ID 1203319537

Instrument: MSD4.I

Analysis Date: 05/18/2015 22:42

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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	100	0.00 U	46.2	46	25-122
53-70-3	MS Dibenzo(a,h)anthracene	100	0.00 U	45.1	45	27-125
191-24-2	MS Benzo(ghi)perylene	100	0.00 U	42.3	42	24-121
123-91-1	MS 1,4-Dioxane	100	0.00 U	66.4	66	27-94
930-55-2	MS N-Nitrosopyrrolidine	100	0.00 U	83.0	83	43-117
95-94-3	MS 1,2,4,5-Tetrachlorobenzene	100	0.00 U	54.5	55	28-96
1912-24-9	MS Atrazine	100	0.00 U	31.3	31	18-119
92-87-5	MS Benzidine	200	0.00 U	0.00	0 *	10-127
91-94-1	MS 3,3'-Dichlorobenzidine	100	0.00 U	53.8	54	19-120
120-82-1	MS 1,2,4-Trichlorobenzene	100	0.00 U	54.3	54	26-92

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2015-1191

Sample Type: Matrix Spike Duplicate

Client ID: WST16-15-97393MSD

Matrix: WATER

Lab Sample ID 1203319538

Instrument: MSD4.I

Analysis Date: 05/18/2015 23:15

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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-nitrosomethylam	100	0.00	U	61.9	62	26-97	7	0-30
110-86-1	MSD Pyridine	100	0.00	U	69.8	70	20-112	5	0-30
62-53-3	MSD Aniline	100	0.00	U	85.6	86	28-126	3	0-30
108-95-2	MSD Phenol	100	0.00	U	45.7	46	17-77	11	0-30
111-44-4	MSD bis(2-Chloroethyl) ether	100	0.00	U	68.8	69	37-113	3	0-30
95-57-8	MSD 2-Chlorophenol	100	0.00	U	70.4	70	34-108	0	0-30
541-73-1	MSD 1,3-Dichlorobenzene	100	0.00	U	56.0	56	25-89	6	0-30
106-46-7	MSD 1,4-Dichlorobenzene	100	0.00	U	57.2	57	26-90	7	0-30
95-50-1	MSD 1,2-Dichlorobenzene	100	0.00	U	58.2	58	26-92	6	0-30
108-60-1	MSD bis(2-Chloro-1-methylethyl)et	100	0.00	U	69.5	69	26-114	4	0-30
100-51-6	MSD Benzyl alcohol	100	0.00	U	65.9	66	28-119	3	0-30
95-48-7	MSD o-Cresol	100	0.00	U	68.6	69	30-108	4	0-30
65794-96-9	MSD m,p-Cresols	100	0.00	U	75.9	76	31-119	3	0-30
621-64-7	MSD N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	100	0.00	U	71.6	72	40-122	0	0-30
67-72-1	MSD Hexachloroethane	100	0.00	U	54.9	55	23-89	7	0-30
98-95-3	MSD Nitrobenzene	100	0.00	U	61.5	62	38-123	3	0-30
78-59-1	MSD Isophorone	100	0.00	U	66.2	66	40-127	7	0-30
88-75-5	MSD 2-Nitrophenol	100	0.00	U	64.0	64	35-116	3	0-30
105-67-9	MSD 2,4-Dimethylphenol	100	0.00	U	66.6	67	34-109	8	0-30
111-91-1	MSD bis(2-Chloroethoxy)methane	100	0.00	U	64.0	64	41-116	7	0-30
120-83-2	MSD 2,4-Dichlorophenol	100	0.00	U	67.3	67	35-113	2	0-30
65-85-0	MSD Benzoic acid	200	0.00	U	111	55	12-94	18	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 6 of 8

SDG Number: 2015-1191

Sample Type: Matrix Spike Duplicate

Client ID: WST16-15-97393MSD

Matrix: WATER

Lab Sample ID 1203319538

Instrument: MSD4.I

Analysis Date: 05/18/2015 23:15

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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	100	0.00 U	89.2	89	32-122	7	0-30
87-68-3	MSD Hexachlorobutadiene	100	0.00 U	50.0	50	23-90	8	0-30
59-50-7	MSD Parachlorometa cresol 4-Chloro-3-methylphenol	100	0.00 U	75.6	76	37-119	1	0-30
91-57-6	MSD 2-Methylnaphthalene	100	0.00 U	57.3	57	28-102	4	0-30
91-20-3	MSD Naphthalene	100	0.00 U	56.0	56	27-101	3	0-30
90-12-0	MSD 1-Methylnaphthalene	100	0.00 U	58.3	58	28-105	4	0-30
77-47-4	MSD Hexachlorocyclopentadiene	100	0.00 U	30.0	30	10-84	5	0-30
88-06-2	MSD 2,4,6-Trichlorophenol	100	0.00 U	61.7	62	36-120	0	0-30
95-95-4	MSD 2,4,5-Trichlorophenol	100	0.00 U	68.0	68	37-121	4	0-30
91-58-7	MSD 2-Chloronaphthalene	100	0.00 U	55.5	55	32-103	4	0-30
88-74-4	MSD 2-Nitroaniline o-Nitroaniline	100	0.00 U	78.8	79	38-126	4	0-30
99-09-2	MSD 3-Nitroaniline m-Nitroaniline	100	0.00 U	90.7	91	30-131	2	0-30
131-11-3	MSD Dimethylphthalate	100	0.00 U	70.9	71	45-121	3	0-30
606-20-2	MSD 2,6-Dinitrotoluene	100	0.00 U	69.7	70	44-120	4	0-30
121-14-2	MSD 2,4-Dinitrotoluene	100	0.00 U	71.6	72	44-127	9	0-30
208-96-8	MSD Acenaphthylene	100	0.00 U	60.9	61	33-110	0	0-30
83-32-9	MSD Acenaphthene	100	0.00 U	59.1	59	31-108	1	0-30
51-28-5	MSD 2,4-Dinitrophenol	100	0.00 U	68.3	68	10-133	87 *	0-30
132-64-9	MSD Dibenzofuran	100	0.00 U	64.9	65	39-114	2	0-30
58-90-2	MSD 2,3,4,6-Tetrachlorophenol	100	0.00 U	65.9	66	34-125	17	0-30
84-66-2	MSD Diethylphthalate	100	0.00 U	71.7	72	44-124	4	0-30
100-02-7	MSD 4-Nitrophenol	100	0.00 U	43.2	43	10-83	5	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 7 of 8

SDG Number: 2015-1191

Sample Type: Matrix Spike Duplicate

Client ID: WST16-15-97393MSD

Matrix: WATER

Lab Sample ID 1203319538

Instrument: MSD4.I

Analysis Date: 05/18/2015 23:15

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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	100	0.00 U	63.2	63	36-111	4	0-30
7005-72-3	MSD 4-Chlorophenylphenylether	100	0.00 U	62.1	62	37-112	1	0-30
100-01-6	MSD 4-Nitroaniline <i>p-Nitroaniline</i>	100	0.00 U	83.7	84	27-149	15	0-30
534-52-1	MSD 2-Methyl-4,6-dinitrophenol	100	0.00 U	68.6	69	28-131	43 *	0-30
122-39-4	MSD Diphenylamine	100	0.00 U	58.6	59	34-117	2	0-30
122-66-7	MSD Azobenzene <i>1,2-Diphenylhydrazine</i>	100	0.00 U	57.5	58	36-115	5	0-30
101-55-3	MSD 4-Bromophenylphenylether	100	0.00 U	57.3	57	39-112	9	0-30
118-74-1	MSD Hexachlorobenzene	100	0.00 U	53.6	54	39-114	16	0-30
87-86-5	MSD Pentachlorophenol	100	0.00 U	58.8	59	24-122	41 *	0-30
85-01-8	MSD Phenanthrene	100	0.00 U	58.8	59	37-112	2	0-30
120-12-7	MSD Anthracene	100	0.00 U	57.3	57	36-114	1	0-30
84-74-2	MSD Di-n-butylphthalate	100	0.800 U	58.6	58	40-122	10	0-30
206-44-0	MSD Fluoranthene	100	0.00 U	57.9	58	35-118	4	0-30
129-00-0	MSD Pyrene	100	0.00 U	46.4	46	32-121	10	0-30
85-68-7	MSD Butylbenzylphthalate	100	0.00 U	48.4	48	36-124	15	0-30
117-81-7	MSD bis(2-Ethylhexyl)phthalate	100	0.00 U	35.1	35	35-123	8	0-30
56-55-3	MSD Benzo(a)anthracene	100	0.00 U	47.2	47	38-113	13	0-30
218-01-9	MSD Chrysene	100	0.00 U	48.7	49	37-114	13	0-30
117-84-0	MSD Di-n-octylphthalate	100	0.00 U	39.7	40	32-124	4	0-30
205-99-2	MSD Benzo(b)fluoranthene	100	0.00 U	49.4	49	38-116	14	0-30
207-08-9	MSD Benzo(k)fluoranthene	100	0.00 U	49.5	50	39-117	13	0-30
50-32-8	MSD Benzo(a)pyrene	100	0.00 U	45.9	46	37-112	14	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 8 of 8

SDG Number: 2015-1191

Sample Type: Matrix Spike Duplicate

Client ID: WST16-15-97393MSD

Matrix: WATER

Lab Sample ID 1203319538

Instrument: MSD4.I

Analysis Date: 05/18/2015 23:15

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1479032

Inj. Vol: 1 uL

Batch ID: 1479033

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	100	0.00	U 39.8	40	25-122	15	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	100	0.00	U 39.9	40	27-125	12	0-30
191-24-2	MSD Benzo(ghi)perylene	100	0.00	U 35.0	35	24-121	19	0-30
123-91-1	MSD 1,4-Dioxane	100	0.00	U 58.3	58	27-94	13	0-30
930-55-2	MSD N-Nitrosopyrrolidine	100	0.00	U 80.7	81	43-117	3	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	100	0.00	U 49.4	49	28-96	10	0-30
1912-24-9	MSD Atrazine	100	0.00	U 27.1	27	18-119	15	0-30
92-87-5	MSD Benzidine	200	0.00	U 0.00	0 *	10-127	0	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	100	0.00	U 40.8	41	19-120	28	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	100	0.00	U 52.3	52	26-92	4	0-30

Method Blank Summary

Page 1 of 1

SDG Number:	2015-1191	Client:	ARSL004	Matrix:	WATER
Client ID:	MB for batch 1479032	Instrument ID:	MSD4.I	Data File:	s051815a.B\s4e1817.D
Lab Sample ID:	1203319535	Prep Date:	05/18/2015 12:15	Analyzed:	05/18/15 20:08
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
03 LCS for batch 1479032	1203319536	s051815a.B\s4e1818.D	05/18/15	2040
06 WST16-15-97393MS	1203319537	s051815a.B\s4e1822.D	05/18/15	2242
09 WST16-15-97393MSD	1203319538	s051815a.B\s4e1823.D	05/18/15	2315
10 CAMO-15-95790	373005001	s051815a.B\s4e1826.D	05/19/15	0048
11 CAMO-15-95757	373005003	s051815a.B\s4e1827.D	05/19/15	0117
12 CAMO-15-95760	373005004	s051815a.B\s4e1828.D	05/19/15	0146
13 CAMO-15-95756	373005009	s051815a.B\s4e1830.D	05/19/15	0245
14 CAMO-15-95792	373005007	s051915.B\s4e1916.D	05/19/15	1648
15 CAMO-15-95759	373005010	s051915.B\s4e1917.D	05/19/15	1717

Quality Control Data

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

SDG Number: 2015-1191

Matrix: WATER

Lab Sample ID: 1203319535

Client Sample: QC for batch 1479032

Client: ARSL004

Project: QC

Client ID: MB for batch 1479032

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1479033

Inst: MSD4.I

Dilution: 1

Run Date: 05/18/2015 20:08

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1817.D

Column: DB-5ms

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

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

SDG Number: 2015-1191

Matrix: WATER

Lab Sample ID: 1203319535

Client Sample: QC for batch 1479032

Client: ARSL004

Project: QC

Client ID: MB for batch 1479032

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1479033

Inst: MSD4.I

Dilution: 1

Run Date: 05/18/2015 20:08

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 05/18/2015 12:15

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s051815a.B\s4e1817.D

Column: DB-5ms

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

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

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SDG Number: 2015-1191
Lab Sample ID: 1203319535
Client Sample: QC for batch 1479032
Client ID: MB for batch 1479032
Batch ID: 1479033
Run Date: 05/18/2015 20:08
Prep Date: 05/18/2015 12:15
Data File: s051815a.B\s4e1817.D

Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD4.I
Analyst: JMB3
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	10.0	ug/L	3.70	10.0
99-09-2	3-Nitroaniline	U	10.0	ug/L	3.00	10.0
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
88-74-4	2-Nitroaniline	U	10.0	ug/L	3.00	10.0
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	91.3	100	ug/L	91.3 (33%-126%)
2-Fluorobiphenyl	38.1	50.0	ug/L	76.2 (35%-102%)
2-Fluorophenol	52.1	100	ug/L	52.1 (18%-84%)
Nitrobenzene-d5	41.4	50.0	ug/L	82.7 (38%-113%)
Phenol-d5	33.1	100	ug/L	33.1 (10%-110%)
p-Terphenyl-d14	45.4	50.0	ug/L	90.7 (38%-123%)

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: 2015-1191

Lab Sample ID: 1203319536

Client Sample: QC for batch 1479032

Client ID: LCS for batch 1479032

Batch ID: 1479033

Run Date: 05/18/2015 20:40

Prep Date: 05/18/2015 12:15

Data File: s051815a.B\s4e1818.D

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD4.I

Analyst: JMB3

Aliquot: 1000 mL

Column: DB-5ms

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		36.5	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		35.5	ug/L	3.00	10.0
122-66-7	Azobenzene		42.2	ug/L	3.00	10.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene		35.1	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		35.1	ug/L	3.00	10.0
123-91-1	1,4-Dioxane		25.5	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene		37.1	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol		37.2	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		42.2	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		41.3	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		41.4	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		40.5	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol		30.4	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene		40.7	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		43.2	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		37.7	ug/L	0.410	1.00
95-57-8	2-Chlorophenol		39.9	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		40.8	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		36.3	ug/L	0.300	1.00
88-75-5	2-Nitrophenol		42.7	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		46.1	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether		44.3	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol		41.6	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline		45.3	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether		40.6	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		19.2	ug/L	3.00	10.0
83-32-9	Acenaphthene		39.3	ug/L	0.300	1.00
208-96-8	Acenaphthylene		39.0	ug/L	0.300	1.00
62-53-3	Aniline		39.5	ug/L	4.20	10.0
120-12-7	Anthracene		38.1	ug/L	0.300	1.00
1912-24-9	Atrazine		21.5	ug/L	3.00	10.0
92-87-5	Benzidine		21.3	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene		39.1	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		40.3	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene		40.6	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		42.7	ug/L	0.300	1.00

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Sample Summary**

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SDG Number: 2015-1191

Lab Sample ID: 1203319536

Client Sample: QC for batch 1479032

Client ID: LCS for batch 1479032

Batch ID: 1479033

Run Date: 05/18/2015 20:40

Prep Date: 05/18/2015 12:15

Data File: s051815a.B\s4e1818.D

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD4.I

Analyst: JMB3

Aliquot: 1000 mL

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		39.6	ug/L	0.300	1.00
65-85-0	Benzoic acid		51.8	ug/L	6.00	20.0
100-51-6	Benzyl alcohol		38.6	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate		41.8	ug/L	3.00	10.0
218-01-9	Chrysene		40.6	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		46.0	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate		43.0	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene		45.4	ug/L	0.300	1.00
132-64-9	Dibenzofuran		39.8	ug/L	3.00	10.0
84-66-2	Diethylphthalate		45.6	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		45.7	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine		41.5	ug/L	3.00	10.0
206-44-0	Fluoranthene		37.9	ug/L	0.300	1.00
86-73-7	Fluorene		38.6	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene		46.3	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		37.3	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene		21.8	ug/L	3.00	10.0
67-72-1	Hexachloroethane		34.7	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene		45.6	ug/L	0.300	1.00
78-59-1	Isophorone		44.5	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine		31.0	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine		41.7	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine		42.2	ug/L	3.00	10.0
91-20-3	Naphthalene		37.2	ug/L	0.300	1.00
98-95-3	Nitrobenzene		41.6	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		34.3	ug/L	3.00	10.0
85-01-8	Phenanthrene		40.0	ug/L	0.300	1.00
108-95-2	Phenol		22.6	ug/L	3.00	10.0
129-00-0	Pyrene		37.0	ug/L	0.300	1.00
110-86-1	Pyridine		29.1	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		41.4	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		43.5	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		41.1	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		40.3	ug/L	3.00	10.0

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SDG Number: 2015-1191	Matrix: WATER
Lab Sample ID: 1203319536	
Client Sample: QC for batch 1479032	Client: ARSL004
Client ID: LCS for batch 1479032	Method: SW846 3510C/8270D
Batch ID: 1479033	Inst: MSD4.I
Run Date: 05/18/2015 20:40	Analyst: JMB3
Prep Date: 05/18/2015 12:15	Aliquot: 1000 mL
Data File: s051815a.B\s4e1818.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		35.6	ug/L	3.70	10.0
99-09-2	3-Nitroaniline		46.7	ug/L	3.00	10.0
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol		35.4	ug/L	3.00	10.0
88-74-4	2-Nitroaniline		44.6	ug/L	3.00	10.0
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline		42.3	ug/L	3.00	10.0
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	88.6	100	ug/L	88.6	(33%-126%)
2-Fluorobiphenyl	42.2	50.0	ug/L	84.4	(35%-102%)
2-Fluorophenol	58.4	100	ug/L	58.4	(18%-84%)
Nitrobenzene-d5	41.8	50.0	ug/L	83.7	(38%-113%)
Phenol-d5	44.8	100	ug/L	44.8	(10%-110%)
p-Terphenyl-d14	47.4	50.0	ug/L	94.8	(38%-123%)

**Semi-Volatile
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Sample Summary**

SDG Number: 2015-1191	Date Collected: 05/13/2015 09:40	Matrix: WATER
Lab Sample ID: 1203319537	Date Received: 05/15/2015 08:50	
Client Sample: QC for batch 1479032	Client: ARSL004	Project: QC
Client ID: WST16-15-97393MS	Method: SW846 3510C/8270D	SOP Ref: GL-OA-E-009
Batch ID: 1479033	Inst: MSD4.I	Dilution: 1
Run Date: 05/18/2015 22:42	Analyst: JMB3	Inj. Vol: 1 uL
Prep Date: 05/18/2015 12:15	Aliquot: 500 mL	Final Volume: 1 mL
Data File: s051815a.B\s4e1822.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		54.5	ug/L	6.00	20.0
120-82-1	1,2,4-Trichlorobenzene		54.3	ug/L	6.00	20.0
95-50-1	1,2-Dichlorobenzene		54.9	ug/L	6.00	20.0
122-66-7	Azobenzene		60.6	ug/L	6.00	20.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene		53.0	ug/L	6.00	20.0
106-46-7	1,4-Dichlorobenzene		53.4	ug/L	6.00	20.0
123-91-1	1,4-Dioxane		66.4	ug/L	6.00	20.0
90-12-0	1-Methylnaphthalene		60.4	ug/L	0.600	2.00
58-90-2	2,3,4,6-Tetrachlorophenol		55.6	ug/L	6.00	20.0
95-95-4	2,4,5-Trichlorophenol		65.0	ug/L	6.00	20.0
88-06-2	2,4,6-Trichlorophenol		61.5	ug/L	6.00	20.0
120-83-2	2,4-Dichlorophenol		69.0	ug/L	6.00	20.0
105-67-9	2,4-Dimethylphenol		71.9	ug/L	6.00	20.0
51-28-5	2,4-Dinitrophenol	J	26.8	ug/L	10.0	40.0
121-14-2	2,4-Dinitrotoluene		65.4	ug/L	6.00	20.0
606-20-2	2,6-Dinitrotoluene		67.1	ug/L	6.00	20.0
91-58-7	2-Chloronaphthalene		58.0	ug/L	0.820	2.00
95-57-8	2-Chlorophenol		70.6	ug/L	6.00	20.0
534-52-1	2-Methyl-4,6-dinitrophenol		44.4	ug/L	6.00	20.0
91-57-6	2-Methylnaphthalene		59.4	ug/L	0.600	2.00
88-75-5	2-Nitrophenol		66.2	ug/L	6.00	20.0
91-94-1	3,3'-Dichlorobenzidine		53.8	ug/L	6.00	20.0
101-55-3	4-Bromophenylphenylether		62.9	ug/L	6.00	20.0
59-50-7	Parachlorometa cresol		74.7	ug/L	6.00	20.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline		95.7	ug/L	6.60	20.0
7005-72-3	4-Chlorophenylphenylether		62.7	ug/L	6.00	20.0
100-02-7	4-Nitrophenol		41.3	ug/L	6.00	20.0
83-32-9	Acenaphthene		58.6	ug/L	0.600	2.00
208-96-8	Acenaphthylene		60.7	ug/L	0.600	2.00
62-53-3	Aniline		87.9	ug/L	8.40	20.0
120-12-7	Anthracene		57.6	ug/L	0.600	2.00
1912-24-9	Atrazine		31.3	ug/L	6.00	20.0
92-87-5	Benzidine	U	20.0	ug/L	7.80	20.0
56-55-3	Benzo(a)anthracene		54.0	ug/L	0.600	2.00
50-32-8	Benzo(a)pyrene		52.7	ug/L	0.600	2.00
205-99-2	Benzo(b)fluoranthene		56.9	ug/L	0.600	2.00
191-24-2	Benzo(ghi)perylene		42.3	ug/L	0.600	2.00

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SDG Number: 2015-1191	Date Collected: 05/13/2015 09:40	Matrix: WATER
Lab Sample ID: 1203319537	Date Received: 05/15/2015 08:50	
Client Sample: QC for batch 1479032	Client: ARSL004	Project: QC
Client ID: WST16-15-97393MS	Method: SW846 3510C/8270D	SOP Ref: GL-OA-E-009
Batch ID: 1479033	Inst: MSD4.I	Dilution: 1
Run Date: 05/18/2015 22:42	Analyst: JMB3	Inj. Vol: 1 uL
Prep Date: 05/18/2015 12:15	Aliquot: 500 mL	Final Volume: 1 mL
Data File: s051815a.B\s4e1822.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		56.5	ug/L	0.600	2.00
65-85-0	Benzoic acid		92.8	ug/L	12.0	40.0
100-51-6	Benzyl alcohol		67.9	ug/L	6.00	20.0
85-68-7	Butylbenzylphthalate		56.1	ug/L	6.00	20.0
218-01-9	Chrysene		55.7	ug/L	0.600	2.00
84-74-2	Di-n-butylphthalate		64.6	ug/L	6.00	20.0
117-84-0	Di-n-octylphthalate		41.5	ug/L	6.00	20.0
53-70-3	Dibenzo(a,h)anthracene		45.1	ug/L	0.600	2.00
132-64-9	Dibenzofuran		63.6	ug/L	6.00	20.0
84-66-2	Diethylphthalate		68.8	ug/L	6.00	20.0
131-11-3	Dimethylphthalate		69.1	ug/L	6.00	20.0
88-85-7	Dinoseb	U	20.0	ug/L	6.00	20.0
122-39-4	Diphenylamine		59.9	ug/L	6.00	20.0
206-44-0	Fluoranthene		60.0	ug/L	0.600	2.00
86-73-7	Fluorene		60.8	ug/L	0.600	2.00
118-74-1	Hexachlorobenzene		63.0	ug/L	6.00	20.0
87-68-3	Hexachlorobutadiene		54.0	ug/L	6.00	20.0
77-47-4	Hexachlorocyclopentadiene		31.6	ug/L	6.00	20.0
67-72-1	Hexachloroethane		51.4	ug/L	6.00	20.0
193-39-5	Indeno(1,2,3-cd)pyrene		46.2	ug/L	0.600	2.00
78-59-1	Isophorone		71.3	ug/L	7.00	20.0
62-75-9	N-Methyl-N-nitrosomethylamine		66.4	ug/L	6.00	20.0
924-16-3	N-Nitrosodi-n-butylamine	U	20.0	ug/L	6.00	20.0
55-18-5	N-Nitrosodiethylamine	U	20.0	ug/L	6.00	20.0
621-64-7	N-Nitrosodi--n-propylamine		71.7	ug/L	6.00	20.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine		83.0	ug/L	6.00	20.0
91-20-3	Naphthalene		57.8	ug/L	0.600	2.00
98-95-3	Nitrobenzene		63.6	ug/L	6.00	20.0
608-93-5	Pentachlorobenzene	U	20.0	ug/L	6.00	20.0
87-86-5	Pentachlorophenol		38.6	ug/L	6.00	20.0
85-01-8	Phenanthrene		59.9	ug/L	0.600	2.00
108-95-2	Phenol		51.0	ug/L	6.00	20.0
129-00-0	Pyrene		51.5	ug/L	0.600	2.00
110-86-1	Pyridine		73.4	ug/L	6.00	20.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		66.5	ug/L	6.00	20.0
111-91-1	bis(2-Chloroethoxy)methane		68.5	ug/L	6.00	20.0
111-44-4	bis(2-Chloroethyl) ether		67.0	ug/L	6.00	20.0
117-81-7	bis(2-Ethylhexyl)phthalate		38.0	ug/L	6.00	20.0

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SDG Number: 2015-1191	Date Collected: 05/13/2015 09:40	Matrix: WATER
Lab Sample ID: 1203319537	Date Received: 05/15/2015 08:50	
Client Sample: QC for batch 1479032	Client: ARSL004	Project: QC
Client ID: WST16-15-97393MS	Method: SW846 3510C/8270D	SOP Ref: GL-OA-E-009
Batch ID: 1479033	Inst: MSD4.I	Dilution: 1
Run Date: 05/18/2015 22:42	Analyst: JMB3	Inj. Vol: 1 uL
Prep Date: 05/18/2015 12:15	Aliquot: 500 mL	Final Volume: 1 mL
Data File: s051815a.B\s4e1822.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		78.5	ug/L	7.40	20.0
99-09-2	3-Nitroaniline		89.2	ug/L	6.00	20.0
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol		71.6	ug/L	6.00	20.0
88-74-4	2-Nitroaniline		75.7	ug/L	6.00	20.0
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline		72.3	ug/L	6.00	20.0
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	134	200	ug/L	66.9	(33%-126%)
2-Fluorobiphenyl	60.1	100	ug/L	60.1	(35%-102%)
2-Fluorophenol	115	200	ug/L	57.6	(18%-84%)
Nitrobenzene-d5	62.5	100	ug/L	62.5	(38%-113%)
Phenol-d5	96.2	200	ug/L	48.1	(10%-110%)
p-Terphenyl-d14	58.1	100	ug/L	58.1	(38%-123%)

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Sample Summary**

SDG Number: 2015-1191	Date Collected: 05/13/2015 09:40	Matrix: WATER
Lab Sample ID: 1203319538	Date Received: 05/15/2015 08:50	
Client Sample: QC for batch 1479032	Client: ARSL004	Project: QC
Client ID: WST16-15-97393MSD	Method: SW846 3510C/8270D	SOP Ref: GL-OA-E-009
Batch ID: 1479033	Inst: MSD4.I	Dilution: 1
Run Date: 05/18/2015 23:15	Analyst: JMB3	Inj. Vol: 1 uL
Prep Date: 05/18/2015 12:15	Aliquot: 500 mL	Final Volume: 1 mL
Data File: s051815a.B\s4e1823.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		49.4	ug/L	6.00	20.0
120-82-1	1,2,4-Trichlorobenzene		52.3	ug/L	6.00	20.0
95-50-1	1,2-Dichlorobenzene		58.2	ug/L	6.00	20.0
122-66-7	Azobenzene		57.5	ug/L	6.00	20.0
	<i>1,2-Diphenylhydrazine</i>					
541-73-1	1,3-Dichlorobenzene		56.0	ug/L	6.00	20.0
106-46-7	1,4-Dichlorobenzene		57.2	ug/L	6.00	20.0
123-91-1	1,4-Dioxane		58.3	ug/L	6.00	20.0
90-12-0	1-Methylnaphthalene		58.3	ug/L	0.600	2.00
58-90-2	2,3,4,6-Tetrachlorophenol		65.9	ug/L	6.00	20.0
95-95-4	2,4,5-Trichlorophenol		68.0	ug/L	6.00	20.0
88-06-2	2,4,6-Trichlorophenol		61.7	ug/L	6.00	20.0
120-83-2	2,4-Dichlorophenol		67.3	ug/L	6.00	20.0
105-67-9	2,4-Dimethylphenol		66.6	ug/L	6.00	20.0
51-28-5	2,4-Dinitrophenol		68.3	ug/L	10.0	40.0
121-14-2	2,4-Dinitrotoluene		71.6	ug/L	6.00	20.0
606-20-2	2,6-Dinitrotoluene		69.7	ug/L	6.00	20.0
91-58-7	2-Chloronaphthalene		55.5	ug/L	0.820	2.00
95-57-8	2-Chlorophenol		70.4	ug/L	6.00	20.0
534-52-1	2-Methyl-4,6-dinitrophenol		68.6	ug/L	6.00	20.0
91-57-6	2-Methylnaphthalene		57.3	ug/L	0.600	2.00
88-75-5	2-Nitrophenol		64.0	ug/L	6.00	20.0
91-94-1	3,3'-Dichlorobenzidine		40.8	ug/L	6.00	20.0
101-55-3	4-Bromophenylphenylether		57.3	ug/L	6.00	20.0
59-50-7	Parachlorometa cresol		75.6	ug/L	6.00	20.0
	<i>4-Chloro-3-methylphenol</i>					
106-47-8	4-Chloroaniline		89.2	ug/L	6.60	20.0
7005-72-3	4-Chlorophenylphenylether		62.1	ug/L	6.00	20.0
100-02-7	4-Nitrophenol		43.2	ug/L	6.00	20.0
83-32-9	Acenaphthene		59.1	ug/L	0.600	2.00
208-96-8	Acenaphthylene		60.9	ug/L	0.600	2.00
62-53-3	Aniline		85.6	ug/L	8.40	20.0
120-12-7	Anthracene		57.3	ug/L	0.600	2.00
1912-24-9	Atrazine		27.1	ug/L	6.00	20.0
92-87-5	Benzidine	U	20.0	ug/L	7.80	20.0
56-55-3	Benzo(a)anthracene		47.2	ug/L	0.600	2.00
50-32-8	Benzo(a)pyrene		45.9	ug/L	0.600	2.00
205-99-2	Benzo(b)fluoranthene		49.4	ug/L	0.600	2.00
191-24-2	Benzo(ghi)perylene		35.0	ug/L	0.600	2.00

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

Page 2 of 3

SDG Number: 2015-1191	Date Collected: 05/13/2015 09:40	Matrix: WATER
Lab Sample ID: 1203319538	Date Received: 05/15/2015 08:50	
Client Sample: QC for batch 1479032	Client: ARSL004	Project: QC
Client ID: WST16-15-97393MSD	Method: SW846 3510C/8270D	SOP Ref: GL-OA-E-009
Batch ID: 1479033	Inst: MSD4.I	Dilution: 1
Run Date: 05/18/2015 23:15	Analyst: JMB3	Inj. Vol: 1 uL
Prep Date: 05/18/2015 12:15	Aliquot: 500 mL	Final Volume: 1 mL
Data File: s051815a.B\s4e1823.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		49.5	ug/L	0.600	2.00
65-85-0	Benzoic acid		111	ug/L	12.0	40.0
100-51-6	Benzyl alcohol		65.9	ug/L	6.00	20.0
85-68-7	Butylbenzylphthalate		48.4	ug/L	6.00	20.0
218-01-9	Chrysene		48.7	ug/L	0.600	2.00
84-74-2	Di-n-butylphthalate		58.6	ug/L	6.00	20.0
117-84-0	Di-n-octylphthalate		39.7	ug/L	6.00	20.0
53-70-3	Dibenzo(a,h)anthracene		39.9	ug/L	0.600	2.00
132-64-9	Dibenzofuran		64.9	ug/L	6.00	20.0
84-66-2	Diethylphthalate		71.7	ug/L	6.00	20.0
131-11-3	Dimethylphthalate		70.9	ug/L	6.00	20.0
88-85-7	Dinoseb	U	20.0	ug/L	6.00	20.0
122-39-4	Diphenylamine		58.6	ug/L	6.00	20.0
206-44-0	Fluoranthene		57.9	ug/L	0.600	2.00
86-73-7	Fluorene		63.2	ug/L	0.600	2.00
118-74-1	Hexachlorobenzene		53.6	ug/L	6.00	20.0
87-68-3	Hexachlorobutadiene		50.0	ug/L	6.00	20.0
77-47-4	Hexachlorocyclopentadiene		30.0	ug/L	6.00	20.0
67-72-1	Hexachloroethane		54.9	ug/L	6.00	20.0
193-39-5	Indeno(1,2,3-cd)pyrene		39.8	ug/L	0.600	2.00
78-59-1	Isophorone		66.2	ug/L	7.00	20.0
62-75-9	N-Methyl-N-nitrosomethylamine		61.9	ug/L	6.00	20.0
924-16-3	N-Nitrosodi-n-butylamine	U	20.0	ug/L	6.00	20.0
55-18-5	N-Nitrosodiethylamine	U	20.0	ug/L	6.00	20.0
621-64-7	N-Nitrosodi--n-propylamine		71.6	ug/L	6.00	20.0
	<i>N-Nitrosodipropylamine</i>					
930-55-2	N-Nitrosopyrrolidine		80.7	ug/L	6.00	20.0
91-20-3	Naphthalene		56.0	ug/L	0.600	2.00
98-95-3	Nitrobenzene		61.5	ug/L	6.00	20.0
608-93-5	Pentachlorobenzene	U	20.0	ug/L	6.00	20.0
87-86-5	Pentachlorophenol		58.8	ug/L	6.00	20.0
85-01-8	Phenanthrene		58.8	ug/L	0.600	2.00
108-95-2	Phenol		45.7	ug/L	6.00	20.0
129-00-0	Pyrene		46.4	ug/L	0.600	2.00
110-86-1	Pyridine		69.8	ug/L	6.00	20.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		69.5	ug/L	6.00	20.0
111-91-1	bis(2-Chloroethoxy)methane		64.0	ug/L	6.00	20.0
111-44-4	bis(2-Chloroethyl) ether		68.8	ug/L	6.00	20.0
117-81-7	bis(2-Ethylhexyl)phthalate		35.1	ug/L	6.00	20.0

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

SDG Number: 2015-1191	Date Collected: 05/13/2015 09:40	Matrix: WATER
Lab Sample ID: 1203319538	Date Received: 05/15/2015 08:50	
Client Sample: QC for batch 1479032	Client: ARSL004	Project: QC
Client ID: WST16-15-97393MSD	Method: SW846 3510C/8270D	SOP Ref: GL-OA-E-009
Batch ID: 1479033	Inst: MSD4.I	Dilution: 1
Run Date: 05/18/2015 23:15	Analyst: JMB3	Inj. Vol: 1 uL
Prep Date: 05/18/2015 12:15	Aliquot: 500 mL	Final Volume: 1 mL
Data File: s051815a.B\s4e1823.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		75.9	ug/L	7.40	20.0
99-09-2	3-Nitroaniline		90.7	ug/L	6.00	20.0
	<i>m-Nitroaniline</i>					
95-48-7	o-Cresol		68.6	ug/L	6.00	20.0
88-74-4	2-Nitroaniline		78.8	ug/L	6.00	20.0
	<i>o-Nitroaniline</i>					
100-01-6	4-Nitroaniline		83.7	ug/L	6.00	20.0
	<i>p-Nitroaniline</i>					

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	149	200	ug/L	74.4	(33%-126%)
2-Fluorobiphenyl	55.2	100	ug/L	55.2	(35%-102%)
2-Fluorophenol	101	200	ug/L	50.6	(18%-84%)
Nitrobenzene-d5	57.9	100	ug/L	57.9	(38%-113%)
Phenol-d5	85.2	200	ug/L	42.6	(10%-110%)
p-Terphenyl-d14	47.8	100	ug/L	47.8	(38%-123%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr. 20-MAY-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: SEMIVOA GC/MS	Test / Method: SW846 3510C/8270D	Matrix Type: Liquid	Client Code: ARCA, ARSL(ESHL), SESI,
Batch ID: 1479033	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 373005(2015-1191),373093,373136(2015-1202),373138(2015-1201),373141(2015-1200) Application Issues: Failed Recovery for MS/MSD, or PS/PSD Failed RPD for MS/MSD, or PS/PSD Failed Yield for Surrogates			
Specification and Requirements		DER Disposition:	
Exception Description:			
1. SESI sample 373093001 failed surrogate recovery. 2. The 1203319537MS and 1203319538MSD failed spike recovery. 3. The RPD values between the 1203319537MS and 1203319538MSD were not within the acceptance limits.		1. Sample (See Below) did not meet surrogate recovery acceptance criteria. The sample was analyzed at a dilution. As a result, one or more surrogates were diluted out of the acceptance limits. 373093001 (CTF TK-2) 2,4,6-Tribromophenol [417* (33%-126%)], 2-Fluorobiphenyl [120* (35%-102%)], 2-Fluorophenol [95* (18%-84%)], Nitrobenzene-d5 [148* (38%-113%)], Phenol-d5 [0* (10%-110%)] and p-Terphenyl-d14 [132* (38%-123%)]. 2. The MS or MSD (See Below) recovered spiked analytes outside of the established acceptance limits. As similar recoveries were displayed in the MS and MSD, the failures were attributed to sample matrix interference and the data were reported. 1203319537 (WST16-15-97393MS) Benzidine [0* (10%-127%)]. 1203319538 (WST16-15-97393MSD) Benzidine [0* (10%-127%)]. 3. The relative percent difference (RPD) between the MS and MSD (See Below) did not meet acceptance limits. As the individual MS and MSD recoveries were within the acceptance limits, the failures had no adverse impact on the reported sample data. 1203319537MS and 1203319538MSD (WST16-15-97393) 2,4-Dinitrophenol [87.3* (0%-30%)], 2-Methyl-4,6-dinitrophenol [42.8* (0%-30%)] and Pentachlorophenol [41.4* (0%-30%)].	

Originator's Name:

Josh Brooks 20-MAY-15

Data Validator/Group Leader:

Herbert Maier 20-MAY-15

Perchlorates by LCMSMS Analysis

Case Narrative

**Perchlorates by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2015-1191
Work Order #: 373005**

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: SW846 6850 Modified

Prep Method: SW846 6850 Modified

Analytical Batch Number: 1480135

Prep Batch Number: 1480134

Sample Analysis

Sample ID	Client ID
373005002	CAMO-15-95812
373005005	CAMO-15-95763
373005008	CAMO-15-95814
373005011	CAMO-15-95762
1203322528	Interference Check Sample (ICS)
1203322524	Method Blank (MB)
1203322525	Laboratory Control Sample (LCS)
1203322526	373005005(CAMO-15-95763) Matrix Spike (MS)
1203322527	373005005(CAMO-15-95763) 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# 11.

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.

Interference Check Sample (ICS)

The ICS spike recoveries met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Client sample 373005005 (CAMO-15-95763) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement

The MS recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

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

Retention Time Standard Area Acceptance

The retention time 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 Method 332.0, 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

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

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 not internally corrected for using Perchlorate-O (18). They are external calibrations.

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

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: 2015-1191 GEL Work Order: 373005

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, 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: Patricia Steele

Date: 05 JUN 2015

Title: Data Validator

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1480134Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAMO-15-95812Date Received: 14-MAY-15GEL Job No (SDG): 2015-1191GEL Sample ID: 373005002Date Filtered: 21-MAY-15Injection 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	0.328	ug/L		1	26-MAY-15 16:21	per0526017a
	Perchlorate Isotope Ratio			2.87			1	26-MAY-15 16:21	per0526017a
14797-73-0	Perchlorate-101	.05	.2	0.336	ug/L		1	26-MAY-15 16:21	per0526017a
	Perchlorate-O(18)			0.482	ug/L		1	26-MAY-15 16:21	per0526017a

^ 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: 1480134Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAMO-15-95763Date Received: 14-MAY-15GEL Job No (SDG): 2015-1191GEL Sample ID: 373005005Date Filtered: 21-MAY-15Injection 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	0.333	ug/L		1	26-MAY-15 16:29	per0526018a
	Perchlorate Isotope Ratio			3.13			1	26-MAY-15 16:29	per0526018a
14797-73-0	Perchlorate-101	.05	.2	0.313	ug/L		1	26-MAY-15 16:29	per0526018a
	Perchlorate-O(18)			0.486	ug/L		1	26-MAY-15 16:29	per0526018a

^ 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: 1480134Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAMO-15-95814Date Received: 14-MAY-15GEL Job No (SDG): 2015-1191GEL Sample ID: 373005008Date Filtered: 21-MAY-15Injection 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	0.794	ug/L		1	26-MAY-15 16:52	per0526021a
	Perchlorate Isotope Ratio			2.93			1	26-MAY-15 16:52	per0526021a
14797-73-0	Perchlorate-101	.05	.2	0.795	ug/L		1	26-MAY-15 16:52	per0526021a
	Perchlorate-O(18)			0.520	ug/L		1	26-MAY-15 16:52	per0526021a

^ 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: 1480134Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAMO-15-95762Date Received: 14-MAY-15GEL Job No (SDG): 2015-1191GEL Sample ID: 373005011Date Filtered: 21-MAY-15Injection 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	0.778	ug/L		1	26-MAY-15 17:24	per0526025a
	Perchlorate Isotope Ratio			2.95			1	26-MAY-15 17:24	per0526025a
14797-73-0	Perchlorate-101	.05	.2	0.773	ug/L		1	26-MAY-15 17:24	per0526025a
	Perchlorate-O(18)			0.516	ug/L		1	26-MAY-15 17:24	per0526025a

^ 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): 2015-1191

Extract Batch Code: 1480134

Date Filtered: 21-MAY-15

Matrix: WATER

Sample ID: 1203322525

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.201	ug/L	101		85 - 115
Perchlorate Isotope Ratio		2.99				-
Perchlorate-101	0.200	.198	ug/L	98.8		85 - 115
Perchlorate-O(18)		.473	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): 2015-1191

Extract Batch Code: 1480134

Date Extracted: 21-MAY-15

GEL MS/PS ID: 1203322526

Client ID: CAMO-15-95763

GEL MSD/PSD ID: 1203322527

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	0.333	ug/L	0.516	91.4	.518	92.3	.324	30	75 - 125
Perchlorate Isotope Ratio	0	3.13		2.98		3.01		1.1		-
Perchlorate-101	0.200	0.313	ug/L	0.508	97.6	.504	95.7	.779	30	75 - 125
Perchlorate-O(18)	0	0.486	ug/L	0.476		.483		1.44		-

^ 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: 1480134Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

MBDate Received: 21-MAY-15GEL Job No (SDG): 2015-1191GEL Sample ID: 1203322524Date Filtered: 21-MAY-15Injection 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	0.200	ug/L	U	1	26-MAY-15 15:41	per0526012a
	Perchlorate Isotope Ratio						1	26-MAY-15 15:41	per0526012a
14797-73-0	Perchlorate-101	.05	.2	0.200	ug/L	U	1	26-MAY-15 15:41	per0526012a
	Perchlorate-O(18)			0.482	ug/L		1	26-MAY-15 15:41	per0526012a

^ 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: 1480134Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

LCSDate Received: 21-MAY-15GEL Job No (SDG): 2015-1191GEL Sample ID: 1203322525Date Filtered: 21-MAY-15Injection 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	0.201	ug/L		1	26-MAY-15 15:49	per0526013a
	Perchlorate Isotope Ratio			2.99			1	26-MAY-15 15:49	per0526013a
14797-73-0	Perchlorate-101	.05	.2	0.198	ug/L	J	1	26-MAY-15 15:49	per0526013a
	Perchlorate-O(18)			0.473	ug/L		1	26-MAY-15 15:49	per0526013a

^ 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: 1480134Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

ICS

Date Received:

GEL Job No (SDG): 2015-1191GEL Sample ID: 1203322528Date Filtered: 21-MAY-15Injection 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	0.211	ug/L		1	26-MAY-15 15:57	per0526014a
	Perchlorate Isotope Ratio			3.07			1	26-MAY-15 15:57	per0526014a
14797-73-0	Perchlorate-101	.05	.2	0.201	ug/L		1	26-MAY-15 15:57	per0526014a
	Perchlorate-O(18)			0.511	ug/L		1	26-MAY-15 15:57	per0526014a

^ 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: 1480134Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAMO-15-95763MSDate Received: 14-MAY-15GEL Job No (SDG): 2015-1191GEL Sample ID: 1203322526Date Filtered: 21-MAY-15Injection 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	0.516	ug/L		1	26-MAY-15 16:37	per0526019a
	Perchlorate Isotope Ratio			2.98			1	26-MAY-15 16:37	per0526019a
14797-73-0	Perchlorate-101	.05	.2	0.508	ug/L		1	26-MAY-15 16:37	per0526019a
	Perchlorate-O(18)			0.476	ug/L		1	26-MAY-15 16:37	per0526019a

^ 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: 1480134Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAMO-15-95763MSDDate Received: 14-MAY-15GEL Job No (SDG): 2015-1191GEL Sample ID: 1203322527Date Filtered: 21-MAY-15Injection 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	0.518	ug/L		1	26-MAY-15 16:44	per0526020a
	Perchlorate Isotope Ratio			3.01			1	26-MAY-15 16:44	per0526020a
14797-73-0	Perchlorate-101	.05	.2	0.504	ug/L		1	26-MAY-15 16:44	per0526020a
	Perchlorate-O(18)			0.483	ug/L		1	26-MAY-15 16:44	per0526020a

^ 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 =

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

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2015-1191
Work Order #: 373005

Sample ID	Client ID
373005001	CAMO-15-95790
373005002	CAMO-15-95812
373005004	CAMO-15-95760
373005005	CAMO-15-95763
373005007	CAMO-15-95792
373005008	CAMO-15-95814
373005010	CAMO-15-95759
373005011	CAMO-15-95762
1203318520	Method Blank (MB) ICP
1203318521	Laboratory Control Sample (LCS)
1203318524	373005002(CAMO-15-95812L) Serial Dilution (SD)
1203318522	373005002(CAMO-15-95812D) Sample Duplicate (DUP)
1203318523	373005002(CAMO-15-95812S) Matrix Spike (MS)
1203318541	Method Blank (MB) ICP-MS
1203318542	Laboratory Control Sample (LCS)
1203318545	373004002(CAMO-15-95801L) Serial Dilution (SD)
1203318543	373004002(CAMO-15-95801D) Sample Duplicate (DUP)
1203318544	373004002(CAMO-15-95801S) Matrix Spike (MS)
1203329209	Method Blank (MB) CVAA
1203329210	Laboratory Control Sample (LCS)
1203329213	373136001(WST16-15-97392L) Serial Dilution (SD)
1203329211	373136001(WST16-15-97392D) Sample Duplicate (DUP)
1203329212	373136001(WST16-15-97392S) Matrix Spike (MS)

Sample Analysis

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

Method/Analysis Information

Analytical Batch:	1478643, 1478651 and 1482657
Prep Batch :	1478642, 1478650 and 1482655
Standard Operating Procedures:	GL-MA-E-013 REV# 23, GL-MA-E-006 REV# 12, GL-MA-E-013 REV# 24, GL-MA-E-014 REV# 26 and GL-MA-E-010 REV# 29
Analytical Method:	SW846 3005A/6010C, SW846 3005A/6020A and EPA 245.1/245.2
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 Metals analysis-ICP was performed on a P E 5300 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.

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 (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: 373005002 (CAMO-15-95812)-ICP, 373004002 (CAMO-15-95801)-ICP-MS and 373136001 (WST16-15-97392)-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

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

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 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.

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

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: 2015-1191 GEL Work Order: 373005

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, 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: Patricia Steele

Date: 08 JUN 2015

Title: Data Validator

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 373005001**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95790**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/03/15 14:53	060315W1-4	1482657

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1482657	1482655	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/15	MTM1

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 373005002**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95812**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/03/15 14:55	060315W1-4	1482657

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 373005002

BASIS: As Received

DATE COLLECTED 12-MAY-15

CLIENT ID: CAMO-15-95812

LEVEL: Low

DATE RECEIVED 14-MAY-15

MATRIX: Water

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7440-39-3	Barium	25.1	ug/L		1	5	5	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7440-70-2	Calcium	10900	ug/L		50	200	200	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-47-3	Chromium	4.9	ug/L	J	2	10	10	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/18/15 14:16	051815-1	1478643
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	05/19/15 07:32	051915-2	1478643
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7439-95-4	Magnesium	3850	ug/L		110	300	300	1	P	HSC	05/18/15 14:16	051815-1	1478643
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/18/15 14:16	051815-1	1478643
7439-98-7	Molybdenum	0.975	ug/L		0.165	0.5	0.5	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7440-02-0	Nickel	2	ug/L	U	0.5	2	2	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7440-09-7	Potassium	1810	ug/L		50	150	150	1	P	HSC	05/19/15 07:32	051915-2	1478643
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7631-86-9	Silica	73000	ug/L		53	213	213	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7440-23-5	Sodium	9970	ug/L		100	300	300	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-24-6	Strontium	51.9	ug/L		1	5	5	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-61-1	Uranium	0.537	ug/L		0.067	0.2	0.2	1	MS	BAJ	05/29/15 20:35	150529-3	1478651
7440-62-2	Vanadium	8.14	ug/L		1	5	5	1	P	HSC	05/18/15 14:16	051815-1	1478643
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/18/15 14:16	051815-1	1478643

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 373005002**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95812**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	42.9	mg/L		0.453	1.24	1.24	1		JJ2	06/03/15 13:54		1483075

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1478643	1478642	SW846 3005A	50	mL	50	mL	05/15/15	JXM5
1478651	1478650	SW846 3005A	50	mL	50	mL	05/15/15	JXM5
1482657	1482655	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/15	MTM1

Analytical Methods:*P** SW846 3005A/6010C**MS** SW846 3005A/6020A**AV** EPA 245.1/245.2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 373005004**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95760**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/03/15 14:57	060315W1-4	1482657

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1482657	1482655	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/15	MTM1

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 373005005**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95763**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/03/15 14:59	060315W1-4	1482657

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 373005005

BASIS: As Received

DATE COLLECTED 12-MAY-15

CLIENT ID: CAMO-15-95763

LEVEL: Low

DATE RECEIVED 14-MAY-15

MATRIX: Water

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7440-39-3	Barium	25.5	ug/L		1	5	5	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7440-70-2	Calcium	11100	ug/L		50	200	200	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-47-3	Chromium	5.06	ug/L	J	2	10	10	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/18/15 14:43	051815-1	1478643
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	05/19/15 07:59	051915-2	1478643
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7439-95-4	Magnesium	3890	ug/L		110	300	300	1	P	HSC	05/18/15 14:43	051815-1	1478643
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/18/15 14:43	051815-1	1478643
7439-98-7	Molybdenum	0.977	ug/L		0.165	0.5	0.5	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7440-02-0	Nickel	0.591	ug/L	J	0.5	2	2	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7440-09-7	Potassium	1790	ug/L		50	150	150	1	P	HSC	05/19/15 07:59	051915-2	1478643
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7631-86-9	Silica	74100	ug/L		53	213	213	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7440-23-5	Sodium	9990	ug/L		100	300	300	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-24-6	Strontium	50.4	ug/L		1	5	5	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-61-1	Uranium	0.547	ug/L		0.067	0.2	0.2	1	MS	BAJ	05/29/15 20:39	150529-3	1478651
7440-62-2	Vanadium	8.29	ug/L		1	5	5	1	P	HSC	05/18/15 14:43	051815-1	1478643
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/18/15 14:43	051815-1	1478643

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 373005005**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95763**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	43.6	mg/L		0.453	1.24	1.24	1		JJ2	06/03/15 13:54		1483075

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1478643	1478642	SW846 3005A	50	mL	50	mL	05/15/15	JXM5
1478651	1478650	SW846 3005A	50	mL	50	mL	05/15/15	JXM5
1482657	1482655	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/15	MTM1

Analytical Methods:*P** SW846 3005A/6010C**MS** SW846 3005A/6020A**AV** EPA 245.1/245.2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 373005007**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95792**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	1.89	ug/L		0.067	0.2	0.2	1	AV	MTM1	06/03/15 15:00	060315W1-4	1482657

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1482657	1482655	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/15	MTM1

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 373005008**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95814**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/03/15 15:05	060315W1-4	1482657

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 373005008

BASIS: As Received

DATE COLLECTED 12-MAY-15

CLIENT ID: CAMO-15-95814

LEVEL: Low

DATE RECEIVED 14-MAY-15

MATRIX: Water

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7440-39-3	Barium	28.1	ug/L		1	5	5	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7440-70-2	Calcium	20200	ug/L		50	200	200	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-47-3	Chromium	134	ug/L		2	10	10	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/18/15 14:46	051815-1	1478643
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	05/19/15 08:02	051915-2	1478643
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7439-95-4	Magnesium	5660	ug/L		110	300	300	1	P	HSC	05/18/15 14:46	051815-1	1478643
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/18/15 14:46	051815-1	1478643
7439-98-7	Molybdenum	0.699	ug/L		0.165	0.5	0.5	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7440-02-0	Nickel	1.99	ug/L	J	0.5	2	2	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7440-09-7	Potassium	1280	ug/L		50	150	150	1	P	HSC	05/19/15 08:02	051915-2	1478643
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7631-86-9	Silica	65200	ug/L		53	213	213	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7440-23-5	Sodium	10900	ug/L		100	300	300	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-24-6	Strontium	90.1	ug/L		1	5	5	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-61-1	Uranium	0.884	ug/L		0.067	0.2	0.2	1	MS	BAJ	05/29/15 20:42	150529-3	1478651
7440-62-2	Vanadium	3.31	ug/L	J	1	5	5	1	P	HSC	05/18/15 14:46	051815-1	1478643
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/18/15 14:46	051815-1	1478643

METALS
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INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 373005008**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95814**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	73.7	mg/L		0.453	1.24	1.24	1		JJ2	06/03/15 13:54		1483075

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1478643	1478642	SW846 3005A	50	mL	50	mL	05/15/15	JXM5
1478651	1478650	SW846 3005A	50	mL	50	mL	05/15/15	JXM5
1482657	1482655	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/15	MTM1

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV EPA 245.1/245.2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 373005010**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95759**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	1.89	ug/L		0.067	0.2	0.2	1	AV	MTM1	06/03/15 15:07	060315W1-4	1482657

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1482657	1482655	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/15	MTM1

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 373005011**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95762**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/03/15 15:09	060315W1-4	1482657

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191

CONTRACT: ESHL00114

METHOD TYPE: SW846

SAMPLE ID: 373005011

BASIS: As Received

DATE COLLECTED 12-MAY-15

CLIENT ID: CAMO-15-95762

LEVEL: Low

DATE RECEIVED 14-MAY-15

MATRIX: Water

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7440-39-3	Barium	28.8	ug/L		1	5	5	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7440-70-2	Calcium	20300	ug/L		50	200	200	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-47-3	Chromium	132	ug/L		2	10	10	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/18/15 14:49	051815-1	1478643
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	05/19/15 08:05	051915-2	1478643
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7439-95-4	Magnesium	5670	ug/L		110	300	300	1	P	HSC	05/18/15 14:49	051815-1	1478643
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/18/15 14:49	051815-1	1478643
7439-98-7	Molybdenum	0.707	ug/L		0.165	0.5	0.5	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7440-02-0	Nickel	1.89	ug/L	J	0.5	2	2	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7440-09-7	Potassium	1280	ug/L		50	150	150	1	P	HSC	05/19/15 08:05	051915-2	1478643
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7631-86-9	Silica	65300	ug/L		53	213	213	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7440-23-5	Sodium	10800	ug/L		100	300	300	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-24-6	Strontium	89.6	ug/L		1	5	5	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-61-1	Uranium	0.879	ug/L		0.067	0.2	0.2	1	MS	BAJ	05/29/15 20:46	150529-3	1478651
7440-62-2	Vanadium	3.46	ug/L	J	1	5	5	1	P	HSC	05/18/15 14:49	051815-1	1478643
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/18/15 14:49	051815-1	1478643

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191**CONTRACT:** ESHL00114**METHOD TYPE:****SAMPLE ID:** 373005011**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95762**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	73.9	mg/L		0.453	1.24	1.24	1		JJ2	06/03/15 13:54		1483075

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1478643	1478642	SW846 3005A	50	mL	50	mL	05/15/15	JXM5
1478651	1478650	SW846 3005A	50	mL	50	mL	05/15/15	JXM5
1482657	1482655	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/15	MTM1

Analytical Methods:*P** SW846 3005A/6010C**MS** SW846 3005A/6020A**AV** EPA 245.1/245.2

Quality Control Summary

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 2015-1191

Contract: ESHL00114

Matrix: Water

<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>
1203318520	Aluminum	68	ug/L	+/-200	U	P	68	200
	Barium	1	ug/L	+/-5	U	P	1	5
	Boron	15	ug/L	+/-50	U	P	15	50
	Beryllium	1	ug/L	+/-5	U	P	1	5
	Copper	3	ug/L	+/-10	U	P	3	10
	Magnesium	110	ug/L	+/-300	U	P	110	300
	Potassium	50	ug/L	+/-150	U	P	50	150
	Sodium	-174	ug/L	+/-300	J	P	100	300
	Tin	2.5	ug/L	+/-10	U	P	2.5	10
	Zinc	3.3	ug/L	+/-10	U	P	3.3	10
	Vanadium	1	ug/L	+/-5	U	P	1	5
	Strontium	1	ug/L	+/-5	U	P	1	5
	Silica	53	ug/L	+/-213	U	P	53	213
	Manganese	2	ug/L	+/-10	U	P	2	10
	Iron	30	ug/L	+/-100	U	P	30	100
	Cobalt	1	ug/L	+/-5	U	P	1	5
	Calcium	50	ug/L	+/-200	U	P	50	200
1203318541	Chromium	2	ug/L	+/-10	U	MS	2	10
	Lead	0.5	ug/L	+/-2	U	MS	0.5	2
	Cadmium	0.11	ug/L	+/-1	U	MS	0.11	1
	Arsenic	1.7	ug/L	+/-5	U	MS	1.7	5
	Antimony	1	ug/L	+/-3	U	MS	1	3
	Molybdenum	0.165	ug/L	+/-0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/-2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/-5	U	MS	1.5	5
	Silver	0.2	ug/L	+/-1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/-2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/-0.2	U	MS	0.067	0.2
1203329209	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. 2015-1191

Client ID: CAMO-15-95812S

Contract: ESHL00114

Level: Low

Matrix: WATER

% Solids:

Sample ID: 373005002

Spike ID: 1203318523

<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>
Vanadium	ug/L	75-125	527		8.14		500	104		P
Zinc	ug/L	75-125	490		3.3	U	500	97.9		P
Aluminum	ug/L	75-125	5160		68	U	5000	103		P
Barium	ug/L	75-125	528		25.1		500	100		P
Beryllium	ug/L	75-125	516		1	U	500	103		P
Boron	ug/L	75-125	531		15	U	500	103		P
Calcium	ug/L	75-125	16000		10900		5000	104		P
Cobalt	ug/L	75-125	500		1	U	500	99.9		P
Copper	ug/L	75-125	514		3	U	500	103		P
Iron	ug/L	75-125	5240		30	U	5000	105		P
Magnesium	ug/L	75-125	9200		3850		5000	107		P
Manganese	ug/L	75-125	496		2	U	500	99.2		P
Potassium	ug/L	75-125	6990		1810		5000	104		P
Silica	ug/L		83400		73000		10700	97.3	N/A	P
Sodium	ug/L	75-125	15000		9970		5000	99.7		P
Strontium	ug/L	75-125	575		51.9		500	105		P
Tin	ug/L	75-125	511		2.5	U	500	102		P

*Analytical Methods:

P SW846 3005A/6010C

METALS

-5a-

Matrix Spike Summary

SDG NO. 2015-1191 Client ID CAMO-15-95801S

Contract: ESHL00114 Level: Low

Matrix: WATER % Solids:

Sample ID: 373004002 Spike ID: 1203318544

<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	51.1		1	U	50	102		MS
Arsenic	ug/L	75-125	51		1.7	U	50	100		MS
Cadmium	ug/L	75-125	52.6		0.11	U	50	105		MS
Chromium	ug/L	75-125	56.4		4.77	J	50	103		MS
Lead	ug/L	75-125	50.1		0.5	U	50	100		MS
Molybdenum	ug/L	75-125	51.3		1.1		50	100		MS
Nickel	ug/L	75-125	52.4		1.57	J	50	102		MS
Selenium	ug/L	75-125	52.1		1.5	U	50	103		MS
Silver	ug/L	75-125	51.6		0.2	U	50	103		MS
Thallium	ug/L	75-125	49.3		0.45	U	50	98.5		MS
Uranium	ug/L	75-125	54		0.826		50	106		MS

*Analytical Methods:

MS SW846 3005A/6020A

METALS

-5a-

Matrix Spike Summary

SDG NO. 2015-1191

Client ID: WST16-15-97392S

Contract: ESHL00114

Level: Low

Matrix: WATER

% Solids:

Sample ID: 373136001

Spike ID: 1203329212

<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	1.87		0.067	U	2	93.5		AV

*Analytical Methods:

AV EPA 245.1/245.2

Metals
-6-
Duplicate Sample Summary

SDG No.: 2015-1191

Lab Code: GEL

Contract: ESHL00114

Client ID: CAMO-15-95812D

Matrix: WATER

Level: Low

Sample ID: 373005002

Duplicate ID: 1203318522

Percent Solids for Dup: N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68 U		68 U				P
Barium	ug/L	+/-20%	25.1		25.2		.508		P
Beryllium	ug/L		1 U		1 U				P
Boron	ug/L		15 U		15 U				P
Calcium	ug/L	+/-20%	10900		10900		.57		P
Cobalt	ug/L		1 U		1 U				P
Copper	ug/L		3 U		3 U				P
Iron	ug/L		30 U		30 U				P
Magnesium	ug/L	+/-20%	3850		3830		.474		P
Manganese	ug/L		2 U		2 U				P
Potassium	ug/L	+/-20%	1810		1840		1.64		P
Silica	ug/L	+/-20%	73000		73500		.623		P
Sodium	ug/L	+/-20%	9970		9670		3.01		P
Strontium	ug/L	+/-20%	51.9		49.1		5.59		P
Tin	ug/L		2.5 U		2.5 U				P
Vanadium	ug/L	+/-5	8.14		8.09		.606		P
Zinc	ug/L		3.3 U		3.3 U				P

*Analytical Methods:

P SW846 3005A/6010C

Metals
-6-
Duplicate Sample Summary

SDG No.: 2015-1191

Lab Code: GEL

Contract: ESHL00114

Client ID: CAMO-15-95801D

Matrix: WATER

Level: Low

Sample ID: 373004002

Duplicate ID: 1203318543

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		1.7 U		1.7 U				MS
Cadmium	ug/L		0.11 U		0.11 U				MS
Chromium	ug/L	+/-10	4.77 J		4.86 J		1.83		MS
Lead	ug/L		0.5 U		0.5 U				MS
Molybdenum	ug/L	+/- .5	1.1		1.12		1.08		MS
Nickel	ug/L	+/-2	1.57 J		1.6 J		2.02		MS
Selenium	ug/L		1.5 U		1.5 U				MS
Silver	ug/L		0.2 U		0.2 U				MS
Thallium	ug/L		0.45 U		0.45 U				MS
Uranium	ug/L	+/- .2	0.826		0.838		1.44		MS

*Analytical Methods:

MS SW846 3005A/6020A

Metals
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Duplicate Sample Summary

SDG No.: 2015-1191**Lab Code:** GEL**Contract:** ESHL00114**Client ID:** WST16-15-97392D**Matrix:** WATER**Level:** Low**Sample ID:** 373136001**Duplicate ID:** 1203329211**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. 2015-1191

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>
1203318521								
	Aluminum	ug/L	5000	5210		104	80-120	P
	Barium	ug/L	500	511		102	80-120	P
	Beryllium	ug/L	500	514		103	80-120	P
	Boron	ug/L	500	522		104	80-120	P
	Calcium	ug/L	5000	5280		106	80-120	P
	Cobalt	ug/L	500	510		102	80-120	P
	Copper	ug/L	500	504		101	80-120	P
	Iron	ug/L	5000	5160		103	80-120	P
	Magnesium	ug/L	5000	5440		109	80-120	P
	Manganese	ug/L	500	502		100	80-120	P
	Potassium	ug/L	5000	5090		102	80-120	P
	Silica	ug/L	10700	10500		97.6	80-120	P
	Sodium	ug/L	5000	5140		103	80-120	P
	Strontium	ug/L	500	542		108	80-120	P
	Tin	ug/L	500	517		103	80-120	P
	Vanadium	ug/L	500	525		105	80-120	P
	Zinc	ug/L	500	493		98.6	80-120	P

*Analytical Methods:

P SW846 3005A/6010C

METALS

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Laboratory Control Sample Summary

SDG NO. 2015-1191

Contract: ESHL00114

Aqueous LCS Source:O2Si

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>
1203318542								
	Antimony	ug/L	50	50		100	80-120	MS
	Arsenic	ug/L	50	51.1		102	80-120	MS
	Cadmium	ug/L	50	51.9		104	80-120	MS
	Chromium	ug/L	50	51.2		102	80-120	MS
	Molybdenum	ug/L	50	51.8		104	80-120	MS
	Nickel	ug/L	50	51.7		103	80-120	MS
	Selenium	ug/L	50	50.5		101	80-120	MS
	Silver	ug/L	50	54		108	80-120	MS
	Thallium	ug/L	50	50.3		101	80-120	MS
	Uranium	ug/L	50	51.5		103	80-120	MS
	Lead	ug/L	50	50.9		102	80-120	MS

*Analytical Methods:

MS SW846 3005A/6020A

METALS

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Laboratory Control Sample Summary

SDG NO. 2015-1191

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>
1203329210	Mercury	ug/L	2	1.95		97.6	85-115	AV

*Analytical Methods:

AV EPA 245.1/245.2

METALS

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Serial Dilution Sample Summary

SDG NO. 2015-1191

Client ID: CAMO-15-95812L

Contract: ESHL00114

Matrix: LIQUID

Level: Low

Sample ID: 373005002

Serial Dilution ID: 1203318524

<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	68	U	340	U				P
Barium	25.1		25.5		1.43			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	10900		10700		1.12		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3850		3750		2.53			P
Manganese	2	U	10	U				P
Potassium	1810		1830		1.21			P
Silica	73000		73000		.00822		10	P
Sodium	9970		9340		6.28		10	P
Strontium	51.9		48.5		6.49		10	P
Tin	2.5	U	12.5	U				P
Vanadium	8.14		7.61	J	6.5			P
Zinc	3.3	U	16.5	U				P

*Analytical Methods:

P SW846 3005A/6010C

METALS

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Serial Dilution Sample Summary

SDG NO. 2015-1191

Client ID: CAMO-15-95801L

Contract: ESHL00114

Matrix: LIQUID

Level: Low

Sample ID: 373004002

Serial Dilution ID: 1203318545

<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	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	4.77	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.1		1.13	J	2.45			MS
Nickel	1.57	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.826		.915	J	10.8			MS

*Analytical Methods:

MS SW846 3005A/6020A

METALS

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Serial Dilution Sample Summary

SDG NO. 2015-1191 **Client ID:** WST16-15-97392L**Contract:** ESHL00114**Matrix:** LIQUID **Level:** Low**Sample ID:** 373136001 **Serial Dilution ID:** 1203329213

<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 #: 2015-1191
Work Order #: 373005**

Method/Analysis Information

Product: Carbon and Total Organic

Analytical Batch: 1478944

Method: SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
373005001	CAMO-15-95790
373005004	CAMO-15-95760
373005007	CAMO-15-95792
373005010	CAMO-15-95759
1203320061	Method Blank (MB)
1203320062	Laboratory Control Sample (LCS)
1203320063	373004003(CAMO-15-95780) Sample Duplicate (DUP)
1203320064	373004003(CAMO-15-95780) 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# 12.

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 (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample373004003 (CAMO-15-95780) 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.

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**Data Exception (DER) Documentation**

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

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:	1478627	Method:	WSP-CN(T)
Prep Batch :	1478626	Method:	EPA 335.4

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 335.4:

Sample ID	Client ID
373005001	CAMO-15-95790
373005004	CAMO-15-95760
373005007	CAMO-15-95792
373005010	CAMO-15-95759
1203318471	Method Blank (MB)
1203318472	Laboratory Control Sample (LCS)
1203318473	373004001(CAMO-15-95779) Sample Duplicate (DUP)
1203319954	373004003(CAMO-15-95780) Sample Duplicate (DUP)
1203318474	373004001(CAMO-15-95779) Matrix Spike (MS)
1203319955	373004003(CAMO-15-95780) 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# 17.

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 MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 373004001 (CAMO-15-95779) and 373004003 (CAMO-15-95780) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The matrix spike recovered outside of the established acceptance limits due to matrix interference.

Analyte	Sample	Value
Cyanide, Total	1203318474 (CAMO-15-95779MS)	112* (90%-110%)

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**Data Exception (DER) Documentation**

A data exception report (DER) 1411501 was generated for sample 1203318474 (CAMO-15-95779MS) in this SDG/batch.

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: Ion Chromatography

Analytical Batch: 1479153

Method: EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
373005002	CAMO-15-95812
373005005	CAMO-15-95763
373005008	CAMO-15-95814
373005011	CAMO-15-95762
1203319811	Method Blank (MB)
1203319812	Laboratory Control Sample (LCS)
1203319813	372884002(CAMO-15-95811) Sample Duplicate (DUP)
1203319814	372884002(CAMO-15-95811) 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# 24.

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 (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample372884002 (CAMO-15-95811) 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.

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**Data Exception (DER) Documentation**

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Samples 1203319813 (CAMO-15-95811DUP), 1203319814 (CAMO-15-95811PS), 373005002 (CAMO-15-95812), 373005005 (CAMO-15-95763), 373005008 (CAMO-15-95814) and 373005011 (CAMO-15-95762) 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:	1479222	Method:	EPA 350.1 Nitrogen, Ammonia L
Prep Batch :	1479221	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
373005002	CAMO-15-95812
373005005	CAMO-15-95763
373005008	CAMO-15-95814
373005011	CAMO-15-95762
1203320011	Method Blank (MB)
1203320012	Laboratory Control Sample (LCS)
1203320013	373004002(CAMO-15-95801) Sample Duplicate (DUP)
1203320015	373004002(CAMO-15-95801) 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# 9.

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 (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample373004002 (CAMO-15-95801) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The matrix spike recovered outside of the established acceptance limits due to matrix interference.

Analyte	Sample	Value
Nitrogen, Ammonia	1203320015 (CAMO-15-95801MS)	126* (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, Ammonia	1203320013 (CAMO-15-95801DUP)	57.2* (0.0%-20.0%)

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 samples were diluted because target analyte concentrations exceeded the calibration range. **Sample Re-analysis**

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

A data exception report (DER) 1415073 was generated for samples 1203320013 (CAMO-15-95801DUP) and 1203320015 (CAMO-15-95801MS) in this SDG/batch.

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:	1479224	Method:	Nitrogen, Total Kjeldahl (TKN)
Prep Batch :	1479223	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
373005001	CAMO-15-95790
373005004	CAMO-15-95760
373005007	CAMO-15-95792
373005010	CAMO-15-95759
1203320017	Method Blank (MB)
1203320018	Laboratory Control Sample (LCS)
1203320019	373004001(CAMO-15-95779) Sample Duplicate (DUP)
1203320021	373004001(CAMO-15-95779) 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# 14.

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.

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 (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample373004001 (CAMO-15-95779) 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.

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 samples were diluted because target analyte concentrations exceeded the calibration range. **Sample Re-analysis**

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

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: 1477965

Method: NO3NO2

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
373005002	CAMO-15-95812
373005005	CAMO-15-95763
373005008	CAMO-15-95814
373005011	CAMO-15-95762
1203316520	Method Blank (MB)
1203316521	Laboratory Control Sample (LCS)
1203316522	372533002(CAMO-15-95795) Sample Duplicate (DUP)
1203316523	372533002(CAMO-15-95795) 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# 8.

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.

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 (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample372533002 (CAMO-15-95795) 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.

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 samples were diluted because target analyte concentrations exceeded the calibration range.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information**Data Exception (DER) Documentation**

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

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:	1478376	Method:	EPA 365.4 Phosphorus, Total in
Prep Batch :	1478375	Method:	EPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
373005002	CAMO-15-95812
373005005	CAMO-15-95763
373005008	CAMO-15-95814
373005011	CAMO-15-95762
1203317740	Method Blank (MB)
1203317741	Laboratory Control Sample (LCS)
1203317742	372883002(CAMO-15-95800) Sample Duplicate (DUP)
1203317743	372883002(CAMO-15-95800) 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# 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.

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 (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample372883002 (CAMO-15-95800) 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.

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 samples were diluted because target analyte concentrations exceeded the calibration range. **Sample Re-analysis**

Samples373005008 (CAMO-15-95814) and 373005011 (CAMO-15-95762) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported. Samples1203317740 (MB) and 1203317741 (LCS) were re-analyzed due to (its) proximity to an overrange sample. The results from the reanalysis are reported.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

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: 1478821

Method: EPA 160.1 Solids, Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
373005002	CAMO-15-95812
373005005	CAMO-15-95763
373005008	CAMO-15-95814
373005011	CAMO-15-95762
1203318961	Method Blank (MB)
1203318962	Laboratory Control Sample (LCS)
1203318963	373004002(CAMO-15-95801) 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.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample373004002 (CAMO-15-95801) was selected for QC analysis.

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
Total Dissolved Solids	1203318963 (CAMO-15-95801DUP)	5.33* (0%-5%)

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.

Sample Aliquot

A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation

A data exception report (DER) 1412669 was generated for sample 1203318963 (CAMO-15-95801DUP) in this SDG/batch.

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: 1479616

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
373005002	CAMO-15-95812
373005005	CAMO-15-95763
373005008	CAMO-15-95814
373005011	CAMO-15-95762
1203321145	Laboratory Control Sample (LCS)
1203321147	373143002(CAWA-15-95855) 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# 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 Titration and Ion analysis was performed on a ManSci PC-Titrate Titrator System.

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 (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 373143002 (CAWA-15-95855) 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**Data Exception (DER) Documentation**

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

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: 1478981 **Method:** PH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
373005002	CAMO-15-95812
373005005	CAMO-15-95763
373005008	CAMO-15-95814
373005011	CAMO-15-95762
1203319403	Laboratory Control Sample (LCS)
1203319405	372883002(CAMO-15-95800) Sample Duplicate (DUP)
1203319428	373005002(CAMO-15-95812) 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# 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 Titration and Ion analysis was performed on a ManSci PC-Titrate TitrSip System.

Initial Standardization

The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 372883002 (CAMO-15-95800) and 373005002 (CAMO-15-95812) were 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.

Sample	Analyte	Value
373005002 (CAMO-15-95812)		Received 14-MAY-15, out of holding 12-MAY-15
373005005 (CAMO-15-95763)		Received 14-MAY-15, out of holding 12-MAY-15
373005008 (CAMO-15-95814)		Received 14-MAY-15, out of holding 12-MAY-15
373005011 (CAMO-15-95762)		Received 14-MAY-15, out of holding 12-MAY-15

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

Data Exception (DER) Documentation

A data exception report (DER) 1412377 was generated for samples 373005002 (CAMO-15-95812), 373005005 (CAMO-15-95763), 373005008 (CAMO-15-95814) and 373005011 (CAMO-15-95762) in this SDG/batch.

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: 1478898 **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
373005002	CAMO-15-95812
373005005	CAMO-15-95763
373005008	CAMO-15-95814
373005011	CAMO-15-95762
1203319206	Method Blank (MB)
1203319208	Laboratory Control Sample (LCS)
1203319210	372759005(CAMO-15-95809) Sample Duplicate (DUP)
1203319211	373005005(CAMO-15-95763) Sample Duplicate (DUP)
1203319212	372759005(CAMO-15-95809) Matrix Spike (MS)
1203319213	373005005(CAMO-15-95763) 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# 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 Titration and Ion analysis was performed on a manually operated buret.

Initial Standardization

The titrant was properly standardized

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 recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 372759005 (CAMO-15-95809) and 373005005 (CAMO-15-95763) 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.

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

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

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

Certificate of Analysis Report for

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

Client SDG: 2015-1191 GEL Work Order: 373005

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
- ** Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, 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: Jamie Johnson

Date: 08 JUN 2015

Title: Group Leader

Sample Data Summary

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: June 9, 2015

Company : Los Alamos National Laboratory
Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95790
Sample ID: 373005001
Matrix: Water
Collect Date: 12-MAY-15 11:22
Receive Date: 14-MAY-15
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	05/21/15	0559	1478944	1
Flow Injection Analysis											
WSP-CN(T) "As Received"											
Cyanide, Total	U	ND	1.67	5.00	ug/L	1	AXH3	05/18/15	1307	1478627	2
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	05/19/15	1210	1479224	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	05/18/15	1059	1478626
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	05/18/15	1600	1479223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 335.4	
3	EPA 351.2	

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: June 9, 2015

Company : Los Alamos National Laboratory
Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95812
Sample ID: 373005002
Matrix: Water
Collect Date: 12-MAY-15 11:22
Receive Date: 14-MAY-15
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	RXB5	05/16/15	0451	1479153	1
Chloride		1.99	0.067	0.200	mg/L	1					
Fluoride		0.129	0.033	0.100	mg/L	1					
Sulfate		2.05	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.311	0.017	0.050	mg/L	1	KLP1	05/28/15	1232	1479222	2
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0456	0.017	0.050	mg/L	1	KLP1	05/19/15	1429	1478376	3
NO3NO2 "As Received"											
Nitrogen, Nitrate/Nitrite		0.436	0.017	0.050	mg/L	1	AXH3	05/26/15	1231	1477965	4
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		94.3	3.40	14.3	mg/L		MXB3	05/15/15	1022	1478821	5
Titration and Ion Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		58.1	0.725	1.00	mg/L		PXO1	05/19/15	2151	1478898	6
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						
EPA120.1 Specific Conductivity "As Received"											
Conductivity		118	3.63	14.5	umhos/cm	1	PXO1	05/19/15	1605	1479616	7
PH "As Received"											
pH at Temp 22.8C	H	8.17	0.010	0.100	SU	1	PXO1	05/19/15	2322	1478981	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	05/28/15	0945	1479221
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	05/18/15	1600	1478375

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Report Date: June 9, 2015

Company : Los Alamos National Laboratory
Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95812
Sample ID: 373005002

Project: ESHL00114
Client ID: ARSL004

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 350.1	
3	EPA 365.4	
4	EPA 353.2	
5	EPA 160.1	
6	EPA 310.1	
7	EPA 120.1	
8	EPA 150.1	

Notes:

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Report Date: June 9, 2015

Company : Los Alamos National Laboratory
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Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95760
Sample ID: 373005004
Matrix: Water
Collect Date: 12-MAY-15 11:22
Receive Date: 14-MAY-15
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	05/21/15	0641	1478944	1
Flow Injection Analysis											
WSP-CN(T) "As Received"											
Cyanide, Total	U	ND	1.67	5.00	ug/L	1	AXH3	05/18/15	1308	1478627	2
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	05/19/15	1211	1479224	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	05/18/15	1059	1478626
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	05/18/15	1600	1479223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 335.4	
3	EPA 351.2	

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Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95763
Sample ID: 373005005
Matrix: Water
Collect Date: 12-MAY-15 11:22
Receive Date: 14-MAY-15
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	RXB5	05/16/15	0522	1479153	1
Chloride		1.86	0.067	0.200	mg/L	1					
Fluoride		0.134	0.033	0.100	mg/L	1					
Sulfate		2.04	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.758	0.017	0.050	mg/L	1	KLP1	05/28/15	1233	1479222	2
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0474	0.017	0.050	mg/L	1	KLP1	05/19/15	1430	1478376	3
NO3NO2 "As Received"											
Nitrogen, Nitrate/Nitrite		0.474	0.017	0.050	mg/L	1	AXH3	05/26/15	1232	1477965	4
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		104	3.40	14.3	mg/L		MXB3	05/15/15	1022	1478821	5
Titration and Ion Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		57.6	0.725	1.00	mg/L		PXO1	05/19/15	2153	1478898	6
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						
EPA120.1 Specific Conductivity "As Received"											
Conductivity		119	3.63	14.5	umhos/cm	1	PXO1	05/19/15	1607	1479616	7
PH "As Received"											
pH at Temp 22.9C	H	8.08	0.010	0.100	SU	1	PXO1	05/19/15	2332	1478981	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	05/28/15	0945	1479221
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	05/18/15	1600	1478375

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Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95763
Sample ID: 373005005

Project: ESHL00114
Client ID: ARSL004

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 350.1	
3	EPA 365.4	
4	EPA 353.2	
5	EPA 160.1	
6	EPA 310.1	
7	EPA 120.1	
8	EPA 150.1	

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Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95792
Sample ID: 373005007
Matrix: Water
Collect Date: 12-MAY-15 13:12
Receive Date: 14-MAY-15
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	05/21/15	0750	1478944	1
Flow Injection Analysis											
WSP-CN(T) "As Received"											
Cyanide, Total	U	ND	1.67	5.00	ug/L	1	AXH3	05/18/15	1309	1478627	2
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0403	0.033	0.100	mg/L	1	KLP1	05/19/15	1212	1479224	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	05/18/15	1059	1478626
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	05/18/15	1600	1479223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 335.4	
3	EPA 351.2	

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Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95814
Sample ID: 373005008
Matrix: Water
Collect Date: 12-MAY-15 15:12
Receive Date: 14-MAY-15
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.0944	0.067	0.200	mg/L	1	RXB5	05/16/15	0553	1479153	1
Chloride		8.52	0.067	0.200	mg/L	1					
Fluoride		0.171	0.033	0.100	mg/L	1					
Sulfate		14.8	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.136	0.017	0.050	mg/L	1	KLP1	05/28/15	1234	1479222	2
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0509	0.017	0.050	mg/L	1	KLP1	05/19/15	1456	1478376	3
NO3NO2 "As Received"											
Nitrogen, Nitrate/Nitrite		1.17	0.017	0.050	mg/L	1	AXH3	05/26/15	1238	1477965	4
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		140	3.40	14.3	mg/L		MXB3	05/15/15	1022	1478821	5
Titration and Ion Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		62.3	0.725	1.00	mg/L		PXO1	05/19/15	2159	1478898	6
Carbonate alkalinity (CaCO3)		1.05	0.725	1.00	mg/L						
EPA120.1 Specific Conductivity "As Received"											
Conductivity		181	3.63	14.5	umhos/cm	1	PXO1	05/19/15	1609	1479616	7
PH "As Received"											
pH at Temp 22.9C	H	8.23	0.010	0.100	SU	1	PXO1	05/19/15	2335	1478981	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	05/28/15	0945	1479221
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	05/18/15	1600	1478375

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Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95814
Sample ID: 373005008

Project: ESHL00114
Client ID: ARSL004

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 350.1	
3	EPA 365.4	
4	EPA 353.2	
5	EPA 160.1	
6	EPA 310.1	
7	EPA 120.1	
8	EPA 150.1	

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Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95759
Sample ID: 373005010
Matrix: Water
Collect Date: 12-MAY-15 15:12
Receive Date: 14-MAY-15
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	05/21/15	0832	1478944	1
Flow Injection Analysis											
WSP-CN(T) "As Received"											
Cyanide, Total	U	ND	1.67	5.00	ug/L	1	AXH3	05/18/15	1310	1478627	2
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0424	0.033	0.100	mg/L	1	KLP1	05/19/15	1212	1479224	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	05/18/15	1059	1478626
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	05/18/15	1600	1479223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 335.4	
3	EPA 351.2	

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Report Date: June 9, 2015

Company : Los Alamos National Laboratory
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Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95762
Sample ID: 373005011
Matrix: Water
Collect Date: 12-MAY-15 13:12
Receive Date: 14-MAY-15
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.0928	0.067	0.200	mg/L	1	RXB5	05/16/15	0624	1479153	1
Chloride		8.52	0.067	0.200	mg/L	1					
Fluoride		0.175	0.033	0.100	mg/L	1					
Sulfate		14.8	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.132	0.017	0.050	mg/L	1	KLP1	05/28/15	1234	1479222	2
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0407	0.017	0.050	mg/L	1	KLP1	05/19/15	1457	1478376	3
NO3NO2 "As Received"											
Nitrogen, Nitrate/Nitrite		1.16	0.017	0.050	mg/L	1	AXH3	05/26/15	1239	1477965	4
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		120	3.40	14.3	mg/L		MXB3	05/15/15	1022	1478821	5
Titration and Ion Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		62.3	0.725	1.00	mg/L		PXO1	05/19/15	2201	1478898	6
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						
EPA120.1 Specific Conductivity "As Received"											
Conductivity		183	3.63	14.5	umhos/cm	1	PXO1	05/19/15	1610	1479616	7
PH "As Received"											
pH at Temp 22.9C	H	8.25	0.010	0.100	SU	1	PXO1	05/19/15	2338	1478981	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	05/28/15	0945	1479221
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	05/18/15	1600	1478375

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Certificate of Analysis

Report Date: June 9, 2015

Company : Los Alamos National Laboratory
Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL- WQH Water Samples

Client SDG: 2015-1191

Client Sample ID: CAMO-15-95762
Sample ID: 373005011

Project: ESHL00114
Client ID: ARSL004

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 350.1	
3	EPA 365.4	
4	EPA 353.2	
5	EPA 160.1	
6	EPA 310.1	
7	EPA 120.1	
8	EPA 150.1	

Notes:

Quality Control Summary

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QC Summary

Report Date: June 9, 2015

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

Contact: Mr. Keith Greene

Workorder: 373005

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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Carbon Analysis

Batch	1478944										
QC1203320063	373004003	DUP									
Total Organic Carbon Average		U	ND	U	ND	mg/L	N/A		TSM	05/21/15	04:35
QC1203320062	LCS										
Total Organic Carbon Average	10.0				10.2	mg/L	102	(85%-115%)		05/21/15	02:54
QC1203320061	MB										
Total Organic Carbon Average			U		ND	mg/L				05/21/15	02:39
QC1203320064	373004003	PS									
Total Organic Carbon Average	10.0	U	ND		10.3	mg/L	100	(65%-120%)		05/21/15	05:17

Flow Injection Analysis

Batch	1478627										
QC1203318473	373004001	DUP									
Cyanide, Total		U	ND	U	ND	ug/L	N/A		AXH3	05/18/15	12:59
QC1203319954	373004003	DUP									
Cyanide, Total		U	ND	U	ND	ug/L	N/A			05/18/15	13:06
QC1203318472	LCS										
Cyanide, Total	50.0				51.9	ug/L	104	(90%-110%)		05/18/15	12:57
QC1203318471	MB										
Cyanide, Total			U		ND	ug/L				05/18/15	12:57
QC1203318474	373004001	MS									
Cyanide, Total	100	U	ND		112	ug/L	112*	(90%-110%)		05/18/15	13:04
QC1203319955	373004003	MS									
Cyanide, Total	100	U	ND		108	ug/L	108	(90%-110%)		05/18/15	13:06

Ion Chromatography

Batch	1479153										
QC1203319813	372884002	DUP									
Bromide		U	ND	U	ND	mg/L	N/A		RXB5	05/16/15	01:45
Chloride			2.08		2.09	mg/L	0.0575	(0%-20%)			
Fluoride			0.362		0.355	mg/L	1.84 ^	(+/-0.100)			
Sulfate			2.44		2.42	mg/L	0.778	(0%-20%)			

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QC Summary

Workorder: 373005

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1479153										
QC1203319812	LCS										
Bromide	1.25			1.27	mg/L		102	(90%-110%)	RXB5	05/16/15	00:12
Chloride	5.00			4.69	mg/L		93.8	(90%-110%)			
Fluoride	2.50			2.47	mg/L		98.8	(90%-110%)			
Sulfate	10.0			9.72	mg/L		97.2	(90%-110%)			
QC1203319811	MB										
Bromide			U	ND	mg/L					05/15/15	23:41
Chloride			U	ND	mg/L						
Fluoride			U	ND	mg/L						
Sulfate			U	ND	mg/L						
QC1203319814	372884002	PS									
Bromide	1.25	U	ND	1.29	mg/L		99.8	(90%-110%)		05/16/15	02:16
Chloride	5.00		2.08	7.17	mg/L		102	(90%-110%)			
Fluoride	2.50		0.362	2.86	mg/L		99.9	(90%-110%)			
Sulfate	10.0		2.44	12.6	mg/L		101	(90%-110%)			
Nutrient Analysis											
Batch	1477965										
QC1203316522	372533002	DUP									
Nitrogen, Nitrate/Nitrite			8.10	8.03	mg/L	0.930		(0%-20%)	AXH3	05/26/15	12:05
QC1203316521	LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.05	mg/L		105	(90%-110%)		05/26/15	11:52
QC1203316520	MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					05/26/15	11:51
QC1203316523	372533002	PS									
Nitrogen, Nitrate/Nitrite	1.00		0.324	1.38	mg/L		106	(90%-110%)		05/26/15	12:06
Batch	1478376										
QC1203317742	372883002	DUP									
Phosphorus, Total as P			0.0658	0.0657	mg/L	0.152 ^		(+/-0.050)	KLP1	05/19/15	14:17
QC1203317741	LCS										

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QC Summary

Workorder: 373005

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Nutrient Analysis											
Batch	1478376										
Phosphorus, Total as P	1.00			0.949	mg/L		94.9	(83%-123%)		05/19/15	14:23
QC1203317740 MB											
Phosphorus, Total as P			J	0.0413	mg/L				KLP1	05/19/15	14:22
QC1203317743 372883002 MS											
Phosphorus, Total as P	1.00	0.0658		0.880	mg/L		81.4	(59%-141%)		05/19/15	14:24
Batch	1479222										
QC1203320013 373004002 DUP											
Nitrogen, Ammonia		0.0899		0.162	mg/L	57.2* ^		(+/-0.050)	KLP1	05/28/15	12:30
QC1203320012 LCS											
Nitrogen, Ammonia	1.00			1.08	mg/L		108	(90%-110%)		05/28/15	12:28
QC1203320011 MB											
Nitrogen, Ammonia			J	0.0431	mg/L					05/28/15	12:27
QC1203320015 373004002 MS											
Nitrogen, Ammonia	1.00	0.0899		1.35	mg/L		126*	(90%-110%)		05/28/15	12:30
Batch	1479224										
QC1203320019 373004001 DUP											
Nitrogen, Total Kjeldahl		U	ND	U	ND	mg/L	N/A		KLP1	05/19/15	12:07
QC1203320018 LCS											
Nitrogen, Total Kjeldahl	1.00			1.04	mg/L		104	(90%-110%)		05/19/15	12:01
QC1203320017 MB											
Nitrogen, Total Kjeldahl			U	ND	mg/L					05/19/15	12:00
QC1203320021 373004001 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND	1.05	mg/L		105	(90%-110%)		05/19/15	12:08
Solids Analysis											
Batch	1478821										
QC1203318963 373004002 DUP											
Total Dissolved Solids		104		110	mg/L	5.33*		(0%-5%)	MXB3	05/15/15	10:22
QC1203318962 LCS											
Total Dissolved Solids	300			291	mg/L		97.1	(95%-105%)		05/15/15	10:22
QC1203318961 MB											
Total Dissolved Solids			U	ND	mg/L					05/15/15	10:22
Titration and Ion Analysis											
Batch	1478898										

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QC Summary

Workorder: 373005

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Titration and Ion Analysis											
Batch	1478898										
QC1203319210	372759005	DUP									
Alkalinity, Total as CaCO3		53.9		54.5	mg/L	0.966		(0%-20%)	PXO1	05/19/15	21:24
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A					
QC1203319211	373005005	DUP									
Alkalinity, Total as CaCO3		57.6		57.6	mg/L	0.00		(0%-20%)		05/19/15	21:55
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A					
QC1203319208	LCS										
Alkalinity, Total as CaCO3	50.0			51.9	mg/L		104	(90%-110%)		05/19/15	21:02
QC1203319206	MB										
Alkalinity, Total as CaCO3			U	ND	mg/L					05/19/15	21:02
Carbonate alkalinity (CaCO3)			U	ND	mg/L						
QC1203319212	372759005	MS									
Alkalinity, Total as CaCO3	50.0	53.9		105	mg/L		102	(80%-120%)		05/19/15	21:26
QC1203319213	373005005	MS									
Alkalinity, Total as CaCO3	50.0	57.6		107	mg/L		99.5	(80%-120%)		05/19/15	21:57
Batch	1478981										
QC1203319405	372883002	DUP									
pH		H	7.89	H	7.92	SU	0.279	(0%-5%)	PXO1	05/19/15	22:57
QC1203319428	373005002	DUP									
pH		H	8.17	H	8.18	SU	0.0471	(0%-5%)		05/19/15	23:25
QC1203319403	LCS										
pH	7.00			7.02	SU		100	(99%-101%)		05/19/15	22:48
Batch	1479616										
QC1203321147	373143002	DUP									
Conductivity		111		109	umhos/cm	1.54		(0%-10%)	PXO1	05/19/15	16:24
QC1203321145	LCS										
Conductivity	1410			1400	umhos/cm		99	(95%-105%)		05/19/15	15:52

Notes:

- < Result is less than value reported
- > Result is greater than value reported

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QC Summary

Workorder: 373005

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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											
U											
Analyte was analyzed for, but not detected above the MDL, MDA, 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.

Miscellaneous

DATA EXCEPTION REPORT			
Mo.Day Yr. 18-MAY-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: LACHAT Flow Injection Analyzer	Test / Method: EPA 335.4, EPA 335.4 SC	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1478627	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 373004(2015-1190),373005(2015-1191),373136(2015-1202),373138(2015-1201),373141(2015-1200),373143(2015-1204) Application Issues: Failed Recovery for MS/MSD, or PS/PSD			
Specification and Requirements		DER Disposition:	
Exception Description:			
1. Failed Recovery for MS/MSD, or PS/PSD: QC 1203318474MS		1. The matrix spike recovered outside of the established acceptance limits due to matrix interference. Cyanide, Total 1203318474 (CAMO-15-95779MS) [112* (90%-110%)].	

Originator's Name:
Aubrey Kingsbury 18-MAY-15

Data Validator/Group Leader:
Kristen Mizzell 19-MAY-15

DATA EXCEPTION REPORT

Mo.Day Yr. 20-MAY-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: PC-Titrate TitraSip System	Test / Method: EPA 150.1, SM 4500-H B, SW846 9040C	Matrix Type: Liquid	Client Code: AVAN, ESHL, NFSR, WRPS
Batch ID: 1478981	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 372883(2015-1184),372884(2015-1183),372932,372936(CAH-15-041),373004(2015-1190),373005(2015-1191),373029 Application Issues: Sample received out of holding			
Specification and Requirements Exception Description:		DER Disposition:	
1. Sample received out of holding: 372883 002 372884 002 372932 001 372936 001 373004 002,004 373005 002,005,008,011 373029 001,002,003,004		1. Samples (See Below) were received by the laboratory outside of the method specified holding time. 372883002 (CAMO-15-95800) [See applicable report]. 372884002 (CAMO-15-95811) [See applicable report]. 372932001 (PCEC01-02) [See applicable report]. 372936001 (Bi-Annual NFS Sewer) [See applicable report]. 373004002 (CAMO-15-95801) [See applicable report]. 373004004 (CAMO-15-95802) [See applicable report]. 373005002 (CAMO-15-95812) [See applicable report]. 373005005 (CAMO-15-95763) [See applicable report]. 373005008 (CAMO-15-95814) [See applicable report]. 373005011 (CAMO-15-95762) [See applicable report]. 373029001 (T54 Well Wk 7) [See applicable report]. 373029002 (Bioreactor 1 Wk 7) [See applicable report]. 373029003 (Bioreactor 2 Wk 7) [See applicable report]. 373029004 (Bioreactor 3 Wk 7) [See applicable report].	

Originator's Name:

Patrick Orgel 20-MAY-15

Data Validator/Group Leader:

Elzbieta Szulc 21-MAY-15

DATA EXCEPTION REPORT			
Mo.Day Yr. 20-MAY-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: BALANCE	Test / Method: EPA 160.1, SM 2540C	Matrix Type: Liquid	Client Code: AVAN, ESHL, INEL, PPLS,
Batch ID: 1478821	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 373004(2015-1190),373005(2015-1191),373029,373081 Application Issues: Failed RPD for DUP			
Specification and Requirements		DER Disposition:	
Exception Description:			
1. Failed RPD for DUP: QC 1203318963DUP		1. 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: Total Dissolved Solids 1203318963 (CAMO-15-95801DUP) [5.33* (0%-5%)].	

Originator's Name:
Morgan Buckner 20-MAY-15

Data Validator/Group Leader:
Elzbieta Szulc 21-MAY-15

DATA EXCEPTION REPORT

Mo.Day Yr. 28-MAY-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: LACHAT Flow Injection Analyzer	Test / Method: EPA 350.1, EPA 350.1 SC	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1479222	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 373004(2015-1190),373005(2015-1191),373141(2015-1200),373143(2015-1204),373278(2015-1213),373795(2015-1271),373803(2015-1270) Application Issues: Failed Recovery for MS/MSD, or PS/PSD Failed RPD for DUP			
Specification and Requirements		DER Disposition:	
Exception Description:			
1. Failed RPD for DUP: QC 1203320013DUP 2. Failed Recovery for MS/MSD, or PS/PSD: QC 1203320015MS		1. 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: Nitrogen, Ammonia 1203320013 (CAMO-15-95801DUP) [57.2* (0.0%-20.0%)]. 2. The matrix spike recovered outside of the established acceptance limits due to matrix interference. Nitrogen, Ammonia 1203320015 (CAMO-15-95801MS) [126* (90%-110%)].	

Originator's Name:

Kristen Mizzell 28-MAY-15

Data Validator/Group Leader:

Aubrey Kingsbury 28-MAY-15

Radiological Analysis

**Radiochemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2015-1191
Work Order #: 373005**

Method/Analysis Information

Product: Alphaspec Am241 Liquid
Analytical Method: DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number: 1479690

Sample ID	Client ID
373005007	CAMO-15-95792
373005010	CAMO-15-95759
1203321333	Method Blank (MB)
1203321335	Laboratory Control Sample (LCS)
1203321334	373005007(CAMO-15-95792) 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# 25.

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 May 2015.

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 1203321333 (MB) and 1203321335 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 373005007 (CAMO-15-95792). The QC was from ARSL work order

373005.

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: Refer to Data Exception Report (DER).

CSU

The blank result is less than 1.65 times the CSU.

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.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1418594 was generated due to RDL less than MDA and Failed Yield for Surrogates. 1. Sample 373138002 did not meet the client's tracer yield requirement due to the matrix of the sample. 2. Sample 373138002 did not meet the Am-241 detection limit due to the reduced aliquot and the lower tracer yield. 3. The duplicate, 1203321334, did not meet the Am-241 detection limit due to the high standard deviation. 1. The sample is a brownish and soapy liquid. The sample does meet GEL's standard tracer yield requirement and has over 400 tracer counts. Reporting results. 2. The aliquot was reduced due to the matrix of the sample. The sample is a brownish and soapy liquid. The sample was counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDC. Reporting results. 3. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDAs. Reporting results.

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 MDCs (and Lc if requested) are calculated using a blank population.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: Alphaspec Pu, Liquid
Analytical Method: DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number: 1479697

Sample ID	Client ID
373005007	CAMO-15-95792
373005010	CAMO-15-95759
1203321341	Method Blank (MB)
1203321343	Laboratory Control Sample (LCS)
1203321342	373005007(CAMO-15-95792) 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# 25.

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 May 2015.

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 1203321341 (MB) and 1203321343 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 373005007 (CAMO-15-95792). The QC was from ARSL work order 373005.

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: Refer to Data Exception Report (DER).

CSU

The blank result is less than 1.65 times the CSU.

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

Sample 373005010 (CAMO-15-95759) was recounted due to low carrier/tracer yield. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1419164 was generated due to RDL less than MDA and Failed Yield for Surrogates. 1. Sample 373005010 does not meet the client's tracer yield recovery requirement of 50 to 105 percent. 2. Samples 373005007, 373136002, 373278003, and 1203321342 did not meet the Pu-239/240 detection limit due to the high standard deviation. 3. Sample 373005010 does not meet the Pu-238 and Pu-239/240 detection limits due to the lower tracer yield and the high standard deviations. 4. Sample 373138002 does not meet the Pu-238 and Pu-239/240 detection limits due to the reduced sample volume and the high standard deviations. 5. Sample 373278003 does not meet the resolution requirement of having a full width half maximum of 100 keV or less for the Pu-242 tracer. 1. The sample does meet GEL's standard tracer yield requirement and has over 400 tracer counts. Reporting results. 2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDAs. Reporting results. 3. The sample does meet GEL's standard tracer yield requirement and has over 400 tracer counts. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDAs. Reporting results. 4. The volume was reduced due to the matrix of the sample. The sample is a brownish soapy liquid. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDAs. Reporting results. 5. The sample does meet the tracer yield requirement and its tracer peak is within the Pu-242 region of interest. Reporting results.

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 MDCs (and Lc if requested) are calculated using a blank population.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:

Iso U

Analytical Method: DOE EML HASL-300, U-02-RC Modified

Analytical Batch Number: 1479699

Sample ID	Client ID
373005007	CAMO-15-95792
373005010	CAMO-15-95759
1203321347	Method Blank (MB)
1203321349	Laboratory Control Sample (LCS)
1203321348	373005007(CAMO-15-95792) 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# 25.

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 May 2015.

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 1203321347 (MB) and 1203321349 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 373005007 (CAMO-15-95792). The QC was from ARSL work order 373005.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. The initial Calibrations were performed in August 2014, July 2014, June 2014 and September 2014.

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.

Designated QC

The following sample was used for QC: 373004001 (CAMO-15-95779). The QC was from ARSL work order 373004.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is less than 1.65 times the CSU.

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.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

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.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: GFPC, Sr90, liquid
Analytical Method: EPA 905.0 Modified
Analytical Batch Number: 1481040

Sample ID	Client ID
373005007	CAMO-15-95792
373005010	CAMO-15-95759
1203324898	Method Blank (MB)
1203324901	Laboratory Control Sample (LCS)
1203324899	373138002(WST16-15-97389) Sample Duplicate (DUP)
1203324900	373138002(WST16-15-97389) 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# 17.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. The initial Calibration was performed in March 2013.

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 1203324898 (MB) and 1203324901 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 373138002 (WST16-15-97389). The QC was from ARSL work order 373138.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is less than 1.65 times the CSU.

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.

Chemical Recoveries

All chemical recoveries meet the required acceptance limits for this sample set.

Recounts

Sample 373005010 (CAMO-15-95759) was recounted due to results more negative than the three sigma TPU. The second count is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

The matrix spike, 1203324900 (WST16-15-97389MS), aliquot was reduced to conserve sample volume.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	WSP-GrossA/B
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1481041

Sample ID	Client ID
373005007	CAMO-15-95792
373005010	CAMO-15-95759

1203324902	Method Blank (MB)
1203324906	Laboratory Control Sample (LCS)
1203324903	373278003(CAMO-15-95791) Sample Duplicate (DUP)
1203324904	373278003(CAMO-15-95791) Matrix Spike (MS)
1203324905	373278003(CAMO-15-95791) 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# 18.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. The initial Calibration was performed in October 2013.

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 1203324902 (MB) and 1203324906 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 373278003 (CAMO-15-95791). The QC was from ARSL work order 373278.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is less than 1.65 times the CSU.

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.

Chemical Recoveries

All chemical recoveries meet the required acceptance limits for this sample set.

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:**Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

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, 1203324904 (CAMO-15-95791MS) and 1203324905 (CAMO-15-95791MSD), aliquots were reduced to conserve sample volume.

Blank Decision Level

The blank result is less than the decision level.

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.

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Qualifier Definition Report for

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

Client SDG: 2015-1191 GEL Work Order: 373005

The Qualifiers in this report are defined as follows:

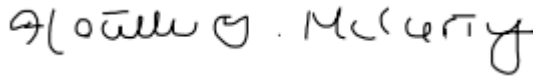
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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: Heather McCarty

Date: 10 JUN 2015

Title: Analyst II

DATA EXCEPTION REPORT

Mo.Day Yr. 08-JUN-15	Division: Radiochemistry	Quality Criteria: Specifications	Type: Process
Instrument Type: ALPHA SPECTROMETER	Test / Method: DOE EML HASL-300, Am-05-RC Modified	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1479690	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 373005(2015-1191),373136(2015-1202),373138(2015-1201),373278(2015-1213) Application Issues: RDL less than MDA Failed Yield for Surrogates			
Specification and Requirements Exception Description:		DER Disposition:	
1. Sample 373138002 did not meet the client's tracer yield requirement due to the matrix of the sample. 2. Sample 373138002 did not meet the Am-241 detection limit due to the reduced aliquot and the lower tracer yield. 3. The duplicate, 1203321334, did not meet the Am-241 detection limit due to the high standard deviation.		1. The sample is a brownish and soapy liquid. The sample does meet GEL's standard tracer yield requirement and has over 400 tracer counts. Reporting results. 2. The aliquot was reduced due to the matrix of the sample. The sample is a brownish and soapy liquid. The sample was counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDC. Reporting results. 3. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDAs. Reporting results.	

Originator's Name:
Melanie Aycock 08-JUN-15

Data Validator/Group Leader:
Jessica Davis 10-JUN-15

DATA EXCEPTION REPORT

Mo.Day Yr. 10-JUN-15	Division: Radiochemistry	Quality Criteria: Specifications	Type: Process
Instrument Type: ALPHA SPECTROMETER	Test / Method: DOE EML HASL-300, Pu-11-RC Modified	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1479697	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 373005(2015-1191),373136(2015-1202),373138(2015-1201),373278(2015-1213) Application Issues: RDL less than MDA Failed Yield for Surrogates			
Specification and Requirements Exception Description:		DER Disposition:	
1. Sample 373005010 does not meet the client's tracer yield recovery requirement of 50 to 105 percent. 2. Samples 373005007, 373136002, 373278003, and 1203321342 did not meet the Pu-239/240 detection limit due to the high standard deviation. 3. Sample 373005010 does not meet the Pu-238 and Pu-239/240 detection limits due to the lower tracer yield and the high standard deviations. 4. Sample 373138002 does not meet the Pu-238 and Pu-239/240 detection limits due to the reduced sample volume and the high standard deviations. 5. Sample 373278003 does not meet the resolution requirement of having a full width half maximum of 100 keV or less for the Pu-242 tracer.		1. The sample does meet GEL's standard tracer yield requirement and has over 400 tracer counts. Reporting results. 2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDAs. Reporting results. 3. The sample does meet GEL's standard tracer yield requirement and has over 400 tracer counts. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDAs. Reporting results. 4. The volume was reduced due to the matrix of the sample. The sample is a brownish soapy liquid. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDAs. Reporting results. 5. The sample does meet the tracer yield requirement and its tracer peak is within the Pu-242 region of interest. Reporting results.	

Originator's Name:

Melanie Aycock 10-JUN-15

Data Validator/Group Leader:

Jessica Davis 10-JUN-15

Sample Data Summary

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545

Report Date: June 10, 2015

Contact: Mr. Keith Greene

Project: LANL- WQH Water Samples

Client Sample ID: CAMO-15-95792
Sample ID: 373005007
Matrix: Water
Collect Date: 12-MAY-15
Receive Date: 14-MAY-15
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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Rad Alpha Spec Analysis

Alphaspec Am241 Liquid "As Received"

Americium-241	U	0.00264	+/-0.00458	0.0488	0.0208	+/-0.00458	0.050	pCi/L		MXS2	06/06/15	1237	1479690	1
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Alphaspec Pu, Liquid "As Received"

Plutonium-238	U	-0.00739	+/-0.00739	0.0336	0.0135	+/-0.00739	0.050	pCi/L		MXS2	06/07/15	1701	1479697	2
Plutonium-239/240	U	-2.46E-09	+/-0.00921	0.0613	0.0273	+/-0.00921	0.050	pCi/L						

Iso U "As Received"

Uranium-234		0.540	+/-0.0425	0.0692	0.0305	+/-0.0555	1.00	pCi/L		MXS2	06/06/15	1127	1479699	3
Uranium-235/236	U	0.0188	+/-0.0145	0.0444	0.0171	+/-0.0146	1.00	pCi/L						
Uranium-238		0.270	+/-0.0293	0.0584	0.0251	+/-0.0343	0.500	pCi/L						

Rad Gamma Spec Analysis

Gammasespec "As Received"

Cesium-137	U	1.87	+/-1.44	5.96	2.65	+/-1.51	8.00	pCi/L		MJH1	05/20/15	1134	1479268	4
Cobalt-60	U	0.510	+/-1.28	5.48	2.25	+/-1.28	8.00	pCi/L						
Neptunium-237	U	9.26	+/-4.50	10.7	4.93	+/-5.00	10.0	pCi/L						
Potassium-40	U	-36.3	+/-18.9	63.4	26.8	+/-20.7	10.0	pCi/L						
Sodium-22	U	-0.436	+/-1.18	4.70	1.87	+/-1.18	10.0	pCi/L						

Rad Gas Flow Proportional Counting

GFPC, Sr90, liquid "As Received"

Strontium-90	U	-0.224	+/-0.119	0.478	0.218	+/-0.119	0.500	pCi/L		KSD1	06/02/15	1503	1481040	5
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WSP-GrossA/B "As Received"

Beta	U	0.172	+/-0.516	1.73	0.845	+/-0.517	3.00	pCi/L		KXB2	06/01/15	1747	1481041	6
Alpha	U	0.687	+/-0.572	1.91	0.908	+/-0.575	3.00	pCi/L		KXB2	06/02/15	1748	1481041	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
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"	1479690	84.4	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1479697	68.7	(50%-105%)
Uranium-232 Tracer	Iso U "As Received"	1479699	75.4	(50%-105%)

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545

Report Date: June 10, 2015

Contact: Mr. Keith Greene

Project: LANL- WQH Water Samples

Client Sample ID: CAMO-15-95792

Project: ESHL00114

Sample ID: 373005007

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test							Batch ID	Recovery%	Acceptable Limits				
Strontium Carrier		GFPC, Sr90, liquid "As Received"						1481040	77.8	(50%-105%)				

Notes:

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545

Report Date: June 10, 2015

Contact: Mr. Keith Greene

Project: LANL- WQH Water Samples

Client Sample ID: CAMO-15-95759

Sample ID: 373005010

Matrix: Water

Collect Date: 12-MAY-15

Receive Date: 14-MAY-15

Collector: Client

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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Rad Alpha Spec Analysis

Alphaspec Am241 Liquid "As Received"

Americium-241	U	0.00977	+/-0.00598	0.0451	0.0192	+/-0.006	0.050	pCi/L		MXS2	06/06/15	1237	1479690	1
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Alphaspec Pu, Liquid "As Received"

Plutonium-238	U	-0.0246	+/-0.0148	0.0671	0.0269	+/-0.0148	0.050	pCi/L		MXS2	06/09/15	1009	1479697	2
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Plutonium-239/240	U	-0.0246	+/-0.0163	0.122	0.0546	+/-0.0163	0.050	pCi/L						
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Iso U "As Received"

Uranium-234		0.496	+/-0.0435	0.0803	0.0354	+/-0.0549	1.00	pCi/L		MXS2	06/06/15	1127	1479699	3
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Uranium-235/236	U	0.0131	+/-0.0115	0.0515	0.0198	+/-0.0115	1.00	pCi/L						
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Uranium-238		0.271	+/-0.0317	0.0677	0.0291	+/-0.0365	0.500	pCi/L						
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Rad Gamma Spec Analysis

Gammaspex "As Received"

Cesium-137	U	-0.896	+/-1.62	5.73	2.61	+/-1.63	8.00	pCi/L		MJH1	05/20/15	1135	1479268	4
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Cobalt-60	U	2.56	+/-0.854	5.76	2.50	+/-1.04	8.00	pCi/L						
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Neptunium-237	U	3.30	+/-2.55	9.67	4.48	+/-2.66	10.0	pCi/L						
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Potassium-40	U	-4.59	+/-16.1	63.9	28.1	+/-16.2	10.0	pCi/L						
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Sodium-22	U	-1.16	+/-1.31	4.66	1.96	+/-1.33	10.0	pCi/L						
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Rad Gas Flow Proportional Counting

GFPC, Sr90, liquid "As Received"

Strontium-90	U	-0.236	+/-0.0797	0.325	0.150	+/-0.0797	0.500	pCi/L		KSD1	06/03/15	1140	1481040	5
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WSP-GrossA/B "As Received"

Beta	U	1.66	+/-0.598	1.94	0.951	+/-0.615	3.00	pCi/L		KXB2	06/01/15	1714	1481041	6
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Alpha	U	1.19	+/-0.552	1.79	0.837	+/-0.562	3.00	pCi/L		KXB2	06/02/15	1748	1481041	7
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The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
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"	1479690	90.3	(50%-105%)
Plutonium-242 Tracer		Alphaspec Pu, Liquid "As Received"	1479697	49.4	* (50%-105%)
Uranium-232 Tracer		Iso U "As Received"	1479699	61.5	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1481040	74.1	(50%-105%)

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545

Report Date: June 10, 2015

Contact: Mr. Keith Greene

Project: LANL- WQH Water Samples

Client Sample ID: CAMO-15-95759

Sample ID: 373005010

Project: ESHL00114

Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery		Test									Batch ID	Recovery%	Acceptable Limits	

Notes:

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Quality Control Data

GEL LABORATORIES LLC

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QC Summary

Report Date: June 10, 2015

Page 1 of 6

Client : Los Alamos National Laboratory
TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico

Contact: Mr. Keith Greene

Workorder: 373005

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1479690										
QC1203321334	373005007	DUP									
Americium-241	U	0.00264	U	0.013	pCi/L	0.413		(0-1)	MXS2	06/06/1512:38	
	Uncert:	+/-0.00458		+/-0.00798							
	TPU:	+/-0.00458		+/-0.008							
**Americium-243 Tracer	2.67	2.26		1.86	pCi/L		69.4	(50%-105%)			
	Uncert:	+/-0.0838		+/-0.0932							
	TPU:	+/-0.141		+/-0.152							
QC1203321335	LCS										
Americium-241	1.97			1.83	pCi/L		92.9	(80%-120%)	MXS2	06/06/1512:38	
	Uncert:			+/-0.0594							
	TPU:			+/-0.096							
**Americium-243 Tracer	2.14			1.98	pCi/L		92.6	(50%-105%)			
	Uncert:			+/-0.0638							
	TPU:			+/-0.109							
QC1203321333	MB										
Americium-241			U	-0.002	pCi/L				MXS2	06/06/1512:38	
	Uncert:			+/-0.00599							
	TPU:			+/-0.00599							
**Americium-243 Tracer	2.14			1.90	pCi/L		89	(50%-105%)			
	Uncert:			+/-0.0649							
	TPU:			+/-0.110							
Batch	1479697										
QC1203321342	373005007	DUP									
Plutonium-238	U	-0.00739	U	0.00987	pCi/L	0.642		(0-1)	MXS2	06/07/1517:01	
	Uncert:	+/-0.00739		+/-0.00605							
	TPU:	+/-0.00739		+/-0.00606							
Plutonium-239/240	U	-2.46E-09	U	0.00987	pCi/L	0.267		(0-1)			
	Uncert:	+/-0.00921		+/-0.00923							
	TPU:	+/-0.00921		+/-0.00924							
**Plutonium-242 Tracer	2.46	1.69		1.68	pCi/L		68.3	(50%-105%)			
	Uncert:	+/-0.0782		+/-0.0782							
	TPU:	+/-0.130		+/-0.130							
QC1203321343	LCS										
Plutonium-238			U	0.00718	pCi/L			(80%-120%)	MXS2	06/07/1517:01	
	Uncert:			+/-0.00671							
	TPU:			+/-0.00672							
Plutonium-239/240	1.97			1.77	pCi/L		90	(80%-120%)			
	Uncert:			+/-0.0567							
	TPU:			+/-0.0928							
**Plutonium-242 Tracer	1.97			1.55	pCi/L		78.5	(50%-105%)			
	Uncert:			+/-0.060							
	TPU:			+/-0.101							

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QC Summary

Workorder: 373005

Page 2 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1479697										
QC1203321341	MB										
Plutonium-238			U	0.00	pCi/L				MXS2	06/07/1517:01	
				Uncert:							
				TPU:							
Plutonium-239/240			U	0.00556	pCi/L						
				Uncert:							
				TPU:							
**Plutonium-242 Tracer	1.97			1.41	pCi/L		71.4	(50%-105%)			
				Uncert:							
				TPU:							
Batch	1479699										
QC1203321348	373005007 DUP										
Uranium-234		0.540		0.631	pCi/L	0.378		(0-1)	MXS2	06/06/1511:28	
		Uncert:		+/-0.0425							
		TPU:		+/-0.0555							
Uranium-235/236		U	0.0188	U	0.0302	pCi/L	0.196	(0-1)			
		Uncert:		+/-0.0145							
		TPU:		+/-0.0146							
Uranium-238		0.270		0.251	pCi/L	0.137		(0-1)			
		Uncert:		+/-0.0293							
		TPU:		+/-0.0343							
**Uranium-232 Tracer	2.66	2.00		1.70	pCi/L		64.2	(50%-105%)			
		Uncert:		+/-0.0905							
		TPU:		+/-0.197							
QC1203321349	LCS										
Uranium-234				2.70	pCi/L				MXS2	06/06/1511:28	
		Uncert:		+/-0.109							
		TPU:		+/-0.224							
Uranium-235/236				0.127	pCi/L						
		Uncert:		+/-0.027							
		TPU:		+/-0.0286							
Uranium-238	2.72			3.07	pCi/L		113	(80%-120%)			
		Uncert:		+/-0.115							
		TPU:		+/-0.251							
**Uranium-232 Tracer	2.12			0.866	pCi/L		40.8 *	(50%-105%)			
		Uncert:		+/-0.0968							
		TPU:		+/-0.182							
QC1203321347	MB										
Uranium-234			U	0.0205	pCi/L				MXS2	06/06/1511:28	
		Uncert:		+/-0.0128							
		TPU:		+/-0.0129							
Uranium-235/236			U	-0.00423	pCi/L						
		Uncert:		+/-0.00945							
		TPU:		+/-0.00945							
Uranium-238			U	-0.00684	pCi/L						
		Uncert:		+/-0.00837							
		TPU:		+/-0.00838							

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QC Summary

Workorder: 373005

Page 3 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1479699										
**Uranium-232 Tracer	2.12			1.09	pCi/L		51.5	(50%-105%)			
	Uncert:			+/-0.0861							
	TPU:			+/-0.171							
Rad Gamma Spec											
Batch	1479268										
QC1203320132	373004001	DUP									
Cesium-137	U	-0.508	U	-3.09	pCi/L	0.346		(0-1)	MJH1	05/21/1509:58	
	Uncert:	+/-1.95		+/-1.62							
	TPU:	+/-1.96		+/-1.78							
Cobalt-60	U	-0.608	U	-0.585	pCi/L	0.00368		(0-1)			
	Uncert:	+/-1.66		+/-1.50							
	TPU:	+/-1.67		+/-1.50							
Neptunium-237	U	0.544	U	-1.9	pCi/L	0.198		(0-1)			
	Uncert:	+/-3.38		+/-2.75							
	TPU:	+/-3.38		+/-2.79							
Potassium-40	U	32.5	U	42.8	pCi/L	0.138		(0-1)			
	Uncert:	+/-20.6		+/-16.5							
	TPU:	+/-20.7		+/-16.6							
Sodium-22	U	3.73	U	-2.96	pCi/L	1.27		(0-1)			
	Uncert:	+/-1.08		+/-1.39							
	TPU:	+/-1.09		+/-1.55							
QC1203320133	LCS										
Americium-241	34400			36600	pCi/L		106	(80%-120%)	MJH1	05/20/1511:24	
	Uncert:			+/-533							
	TPU:			+/-2310							
Cesium-137	13800			14000	pCi/L		102	(80%-120%)			
	Uncert:			+/-156							
	TPU:			+/-631							
Cobalt-60	15600			16300	pCi/L		104	(80%-120%)			
	Uncert:			+/-186							
	TPU:			+/-665							
Neptunium-237			U	-81.2	pCi/L						
	Uncert:			+/-74.5							
	TPU:			+/-76.9							
Potassium-40			U	-75.6	pCi/L						
	Uncert:			+/-146							
	TPU:			+/-148							
Sodium-22			U	9.06	pCi/L						
	Uncert:			+/-22.9							
	TPU:			+/-23.0							
QC1203320131	MB										
Cesium-137			U	0.0818	pCi/L				MJH1	05/20/1511:36	
	Uncert:			+/-1.38							
	TPU:			+/-1.38							
Cobalt-60			U	-0.259	pCi/L						
	Uncert:			+/-1.20							

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QC Summary

Workorder: 373005

Page 4 of 6

Parname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	1479268										
Neptunium-237	TPU:			+/-1.21							
			U	2.77	pCi/L						
	Uncert:			+/-2.80							
Potassium-40	TPU:			+/-2.88							
			U	-3.1	pCi/L						
	Uncert:			+/-14.1							
Sodium-22	TPU:			+/-14.1							
			U	-0.206	pCi/L						
	Uncert:			+/-1.32							
	TPU:			+/-1.32							
Rad Gas Flow											
Batch	1481040										
QC1203324899	373138002	DUP									
Strontium-90	U	-0.281	U	-0.0779	pCi/L	0.389		(0-1)	KSD1	06/02/1515:03	
	Uncert:	+/-0.127		+/-0.134							
	TPU:	+/-0.127		+/-0.134							
**Strontium Carrier	8.10	4.10		6.40	mg		79	(50%-105%)			
QC1203324901	LCS										
Strontium-90	21.9			24.7	pCi/L		113	(80%-120%)	KSD1	06/02/1514:53	
	Uncert:			+/-0.689							
	TPU:			+/-2.08							
**Strontium Carrier	8.10			6.60	mg		81.5	(50%-105%)			
QC1203324898	MB										
Strontium-90			U	-0.252	pCi/L				KSD1	06/02/1515:03	
	Uncert:			+/-0.0806							
	TPU:			+/-0.0806							
**Strontium Carrier	8.10			6.40	mg		79	(50%-105%)			
QC1203324900	373138002	MS									
Strontium-90	219	U	-0.281	231	pCi/L		105	(75%-125%)	KSD1	06/02/1514:53	
	Uncert:		+/-0.127	+/-7.38							
	TPU:		+/-0.127	+/-20.3							
**Strontium Carrier	8.10	4.10		5.50	mg		67.9	(50%-105%)			
Batch	1481041										
QC1203324903	373278003	DUP									
Alpha	U	-0.668	U	0.160	pCi/L	0.389		(0-1)	KXB2	06/02/1516:09	
	Uncert:	+/-0.620		+/-0.443							
	TPU:	+/-0.620		+/-0.443							
Beta		4.81		3.12	pCi/L	0.696		(0-1)		06/01/1517:14	
	Uncert:	+/-0.510		+/-0.497							
	TPU:	+/-0.652		+/-0.561							
QC1203324906	LCS										
Alpha	12.2			12.8	pCi/L		105	(80%-120%)	KXB2	06/02/1516:06	
	Uncert:			+/-0.650							
	TPU:			+/-1.25							
Beta	43.8			51.5	pCi/L		118	(80%-120%)		06/01/1517:08	

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QC Summary

Workorder: 373005

Page 5 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch	1481041										
				Uncert:							
				TPU:							
QC1203324902	MB										
Alpha			U	-0.0546	pCi/L				KXB2	06/02/1516:09	
				Uncert:							
				TPU:							
Beta			U	0.103	pCi/L					06/01/1517:14	
				Uncert:							
				TPU:							
QC1203324904	373278003	MS									
Alpha		243	U	-0.668	259	pCi/L		106	(75%-125%)	KXB2	06/02/1516:06
				Uncert:							
				TPU:							
Beta		876		4.81	999	pCi/L		114	(75%-125%)		06/01/1517:08
				Uncert:							
				TPU:							
QC1203324905	373278003	MSD									
Alpha		243	U	-0.668	265	pCi/L	0.0561	109	(0-1)	KXB2	06/02/1516:06
				Uncert:							
				TPU:							
Beta		876		4.81	989	pCi/L	0.0303	112	(0-1)		06/01/1517:08
				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.

GEL LABORATORIES LLC

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QC Summary

Workorder: 373005

Page 6 of 6

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, 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.



July 14, 2015

gel.com

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

Re: LANL- WQH Water Samples
Work Order: 376718
SDG: 2015-1191-1

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 14, 2015, and analyzed for Metals. 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,

Hope Taylor for
Valerie Davis
Project Manager

Chain of Custody: 2015-1191
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 376718
SDG: 2015-1191-1

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 376718
SDG # : 2015-1191-1**

July 14, 2015

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 May 14, 2015 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
376718001	CAMO-15-95792
376718002	CAMO-15-95759

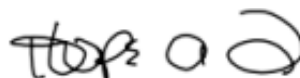
Case Narrative

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: Metals.

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.



Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 14 July 2015




State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
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	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122014-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-15-10
Utah NELAP	SC000122015-17
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

Chain of Custody/Analysis Request ADEP

[illegible]

Special Instructions:

Relinquished by: 	Print Name: <u>Shanta Mack</u>	Date/Time: <u>5-14-15</u>
Relinquished by: 	Print Name: <u>Shanta Mack</u>	Date/Time: <u>5-14-15</u>
Relinquished by: 	Print Name: <u>Shanta Mack</u>	Date/Time: <u>5-14-15</u>

SAMPLE RECEIPT & REVIEW FORM

Client: <u>LANL</u>		SDG/AR/COC/Work Order: <u>2015-1191</u>	
Received By: <u>Shantia Mack</u>		Date Received: <u>5-14-15</u> <u>12:00</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.	
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>368m</u>	
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?	
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>		
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.	
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:	
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>		

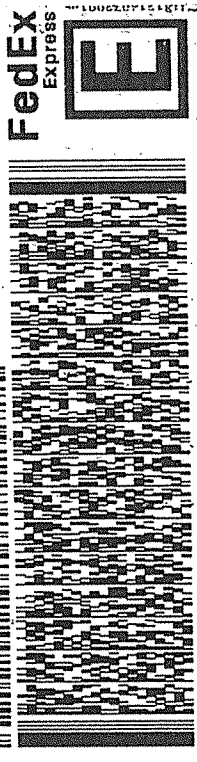
Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags <u>Blue ice</u> Dry ice None Other (describe) <u>314' 21'</u> *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <u>64092024949</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 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)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 Do Low Level Perchlorate samples (EPA 6850) have headspace as required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
8 Are Encore containers present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
9 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
10 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:
11 Date & time on COC match date & time on bottles? <u>5-14-15</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <u>CAMO-15-95762 time on Sample is 15:12</u>
12 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <u>Lab only received 1 vial for CAMO-15-95815</u>
13 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other <u>5908 1778 8040</u> <u>5908 1778 8030</u> <u>5908 1778 8029</u> <u>5908 1778 8018</u> <u>5908 1778 7993</u> <u>5908 1778 8007</u>

Comments (Use Continuation Form if needed):

ORIGIN ID: SAFA (505) 665-9966
SHIP DATE: 13MAY15
ACTWGT: 36.0 LB MAN
CAD: 0014176/CAFE2806
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
BILL SENDER
LOS ALAMOS, NM 87545
UNITED STATES US

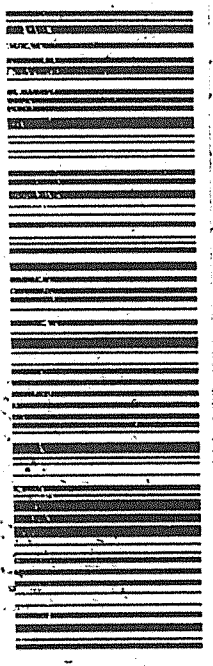
TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 568-8171



2 of 3
MPS# 5908 1778 8030
Mstr# 5908 1778 8929
THU - 14 MAY 10:30A
PRIORITY OVERNIGHT

X7 CHSA
29407
SC-US CHS



Part # 156140-434 R

5908 1778 8040

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
T800 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13 MAY 15
ACTING: 47.0 LB MAN
CAD: 0014176/CAFE2806

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 568-8171

REF: MRGW04BAGWEO



FedEx
Express



3 of 3

MPS# 5908 1778 8018

0263

Mstr# 5908 1778 7993

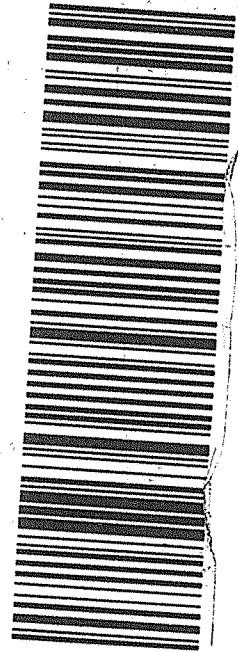
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PRIORITY OVERNIGHT

X7 CHSA

29407

SC-US CHS



Part # 156148-434 RIT2 10/11

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
T800 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13 MAY 15
ACTING: 59.0 LB MAN
CAD: 0014176/CAFE2806

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

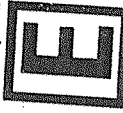
CHARLESTON SC 29407

(843) 568-8171

REF: MRGW04BAGWEO



FedEx
Express



1 of 3

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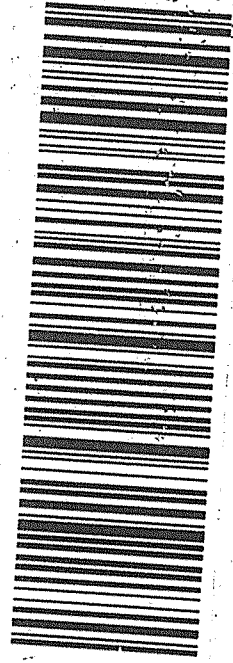
MASTER

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PRIORITY OVERNIGHT

X7 CHSA

29407

SC-US CHS



Part # 156148-434 RIT2 10/11

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KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

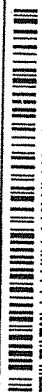
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BILL SENDER

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

CHARLESTON SC 29407

(843) 556-8171
REF: MRGW04BAGWED



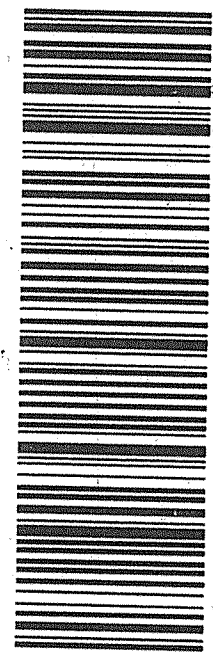
FedEx
Express



1 of 3
TRK# **5908 1778 7993**
MASTER ##
THU - 14 MAY 10:30A
PRIORITY OVERNIGHT

X7 CHSA

29407
SC-US
CHS



Part # 156146-434 R112 10/11 20

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

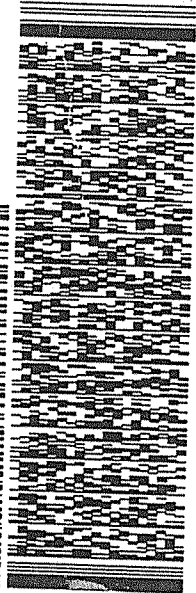
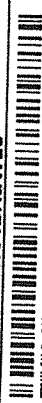
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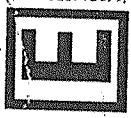
TO **VALERIE DAVIS**
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: MRGW04BAGWED



FedEx
Express

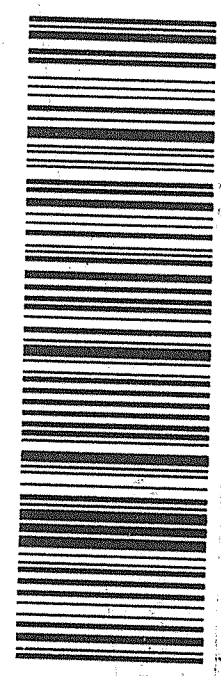


2 of 3
MPS# **5908 1778 8007**
Mstr# 5908 1778 7993
THU - 14 MAY 10:30A
PRIORITY OVERNIGHT

0201

X7 CHSA

29407
SC-US
CHS



Part # 156146-434 R112 10/11 20

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.

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2015-1191-1
Work Order #: 376718

Sample ID	Client ID
376718001	CAMO-15-95792
376718002	CAMO-15-95759
1203350605	Method Blank (MB)CVAA
1203350606	Laboratory Control Sample (LCS)
1203350609	376718001(CAMO-15-95792L) Serial Dilution (SD)
1203350607	376718001(CAMO-15-95792D) Sample Duplicate (DUP)
1203350608	376718001(CAMO-15-95792S) Matrix Spike (MS)

Sample Analysis

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

Method/Analysis Information

Analytical Batch:	1491240
Prep Batch :	1491239
Standard Operating Procedures:	GL-MA-E-010 REV# 29
Analytical Method:	EPA 245.1/245.2
Prep Method :	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 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.

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.

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 MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following sample was selected as the quality control (QC) sample for this SDG: 376718001 (CAMO-15-95792).

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

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

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. Samples 376718001 (CAMO-15-95792), 376718002 (CAMO-15-95759), 1203350607 (CAMO-15-95792DUP), 1203350608 (CAMO-15-95792MS) and 1203350609 (CAMO-15-95792SDILT) did not meet holding time requirements due to insufficient time remaining to meet the hold times. The data has been qualified.

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 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.

Data Exception (DER) Documentation

A Data exception report (DER) was generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) 1429009 was generated for samples 1203350607 (CAMO-15-95792DUP), 1203350608 (CAMO-15-95792MS), 1203350609 (CAMO-15-95792SDILT), 376718001 (CAMO-15-95792) and 376718002 (CAMO-15-95759) in this SDG/batch.

Additional Comments

Additional comments were not required for this SDG.

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

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Qualifier Definition Report for

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

Client SDG: 2015-1191-1 GEL Work Order: 376718

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
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- h Preparation or preservation holding time was exceeded

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: 14 JUL 2015

Title: Data Validator

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191-1**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 376718001**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95792**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	07/10/15 09:39	071015W1-1	1491240

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1491240	1491239	EPA 245.1/245.2 Prep	20	mL	20	mL	07/09/15	AXS5

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015-1191-1**CONTRACT:** ESHL00114**METHOD TYPE:** EPA**SAMPLE ID:** 376718002**BASIS:** As Received**DATE COLLECTED** 12-MAY-15**CLIENT ID:** CAMO-15-95759**LEVEL:** Low**DATE RECEIVED** 14-MAY-15**MATRIX:** Water**%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	07/10/15 09:48	071015W1-1	1491240

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1491240	1491239	EPA 245.1/245.2 Prep	20	mL	20	mL	07/09/15	AXS5

***Analytical Methods:**

AV EPA 245.1/245.2

Quality Control Summary

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 2015-1191-1

Contract: ESHL00114

Matrix: Water

<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>
1203350605	Mercury	0.067	ug/L	+/-0.2	U	AV	0.067	0.2

***Analytical Methods:**

AV EPA 245.1/245.2

METALS

-5a-

Matrix Spike Summary

SDG NO. 2015-1191-1 **Client ID:** CAMO-15-95792S**Contract:** ESHL00114 **Level:** Low**Matrix:** WATER **% Solids:****Sample ID:** 376718001 **Spike ID:** 1203350608

<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	2.05		0.067	U	2	102		AV

*Analytical Methods:

AV EPA 245.1/245.2

Metals
-6-
Duplicate Sample Summary

SDG No.: 2015-1191-1**Lab Code:** GEL**Contract:** ESHL00114**Client ID:** CAMO-15-95792D**Matrix:** WATER**Level:** Low**Sample ID:** 376718001**Duplicate ID:** 1203350607**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. 2015-1191-1

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>
1203350606	Mercury	ug/L	2	2.03		101	85-115	AV

*Analytical Methods:

AV EPA 245.1/245.2

METALS

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Serial Dilution Sample Summary

SDG NO. 2015-1191-1 Client ID CAMO-15-95792L

Contract: ESHL00114

Matrix: LIQUID Level: Low

Sample ID: 376718001 Serial Dilution ID: 1203350609

<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

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr. 10-JUL-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: MERCURY	Test / Method: EPA 245.1/245.2	Matrix Type: Liquid	Client Code: ESHL, MATL, WRPS
Batch ID: 1491240	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 376297,376614,376718(2015-1191-1),376719(2015-1183-1) Application Issues: Sample Analyzed out of Holding Sample Logged out of Holding			
Specification and Requirements		DER Disposition:	
Exception Description: 1. Sample Analyzed out of Holding: QC 1203350607DUP,1203350608MS, 1203350609SDILT 2. Sample Logged out of Holding: 376718 001,002 376719 001 QC 1203350607DUP, 1203350608MS, 1203350609SDILT		1. Samples 1203350607 (CAMO-15-95792DUP), 1203350608 (CAMO-15-95792MS) and 1203350609 (CAMO-15-95792SDILT) did not meet holding time requirements due to insufficient time remaining to meet the hold times. The data has been qualified. 2. Samples 376718001 (CAMO-15-95792), 376718002 (CAMO-15-95759), 376719001 (CAMO-15-95789), 1203350607 (CAMO-15-95792DUP), 1203350608 (CAMO-15-95792MS) and 1203350609 (CAMO-15-95792SDILT) did not meet holding time requirements due to insufficient time remaining to meet the hold times. The data has been qualified.	

Originator's Name:

Monifa Basdeo 13-JUL-15

Data Validator/Group Leader:

Alan Stanley 14-JUL-15