General Engineering

Charleston SC

Chain of Custody/Analysis Request AOEP

COC/Lab Request #: 2015-1176

Page 1 of 1

Client Contact:

Lab Agreement #:

Project Number:

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐

7 Days - ☐

14 Days - ☐

21 Days - ☐

28 Days - ☒

Rad Screening Info:

Lab Reporting Limit Type: Sample Quantitation Limit

Field Sample ID	Sample Date	Sample Time	Sample Matrix	MSGP-Hg	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-All Metals	WSP-CN(T)	WSP-GENINORG+PerChlorate	WSP-NH3+NO3/NO2+PO4	WSP-TKN+TOC
CAMO-15-95776	May 7 2015	15:09	W		2	2					
CAMO-15-95769	May 7 2015	15:09	W		~~2~~ 1						
CAMO-15-95787	May 7 2015	11:38	W	1	2	2		1			1
CAMO-15-95809	May 7 2015	11:38	W				1		1	1	
CAMO-15-95770	May 7 2015	11:38	W		~~2~~ 1						

Special Instructions:

Relinquished by: Sherri Sherwood	Print Name: Sherri Sherwood	Date/Time: 5/8/15 3pm	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 9200

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

SAMPLE ID: CAMO-15-95769

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	05/07/2015	ok	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):	1509		MEDIA:	UA	
PRS ID:	ok		SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-14 S1		FIELD PREP:	UF	ok
LOCATION TYPE:	ok		FIELD QC TYPE:	FTB	
TOP DEPTH:			SAMPLE USAGE:	QC	
BOTTOM DEPTH:			EXCAVATED:		YES / (NO) / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	AS 5/7/15 HCL	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

AS 5/7/15

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

COLLECTED BY (PRINT): D. Jaramillo

RELINQUISHED BY (Printed Name) (Signature) Andrew Foka	**Date/Time** 5/7/15 1545	**RECEIVED BY (Printed Name) (Signature)** M. Martin	**Date/Time** 5/7/15 1545
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date: 04/30/2015

Los Alamos National Laboratory

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-15-95770

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	05/07/2015	ok	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):	1138		MEDIA:	UA	↓
PRS ID:	ok		SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-46		FIELD PREP:	UF	ok
LOCATION TYPE:	ok		FIELD QC TYPE:	FTB	
TOP DEPTH:			SAMPLE USAGE:	QC	↓
BOTTOM DEPTH:	↓	↓	EXCAVATED:		YES / ~~NO~~ / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
ok	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2 / 1	AS 5/7/15 HCL	Y	MA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS: fs 5/7/15

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

COLLECTED BY (PRINT): D. Joramillo

RELINQUISHED BY (Printed Name) (Signature) Rodney Stokes	Date/Time 5/7/15 1545	RECEIVED BY (Printed Name) (Signature) M. Martin	Date/Time 5/7/15 1545
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-15-95776

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	05/07/2015	ok	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):	1509		MEDIA:	UA	
PRS ID:	ok		SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-14 S1		FIELD PREP:	UF	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:	ok		SAMPLE USAGE:	INV	
BOTTOM DEPTH:			EXCAVATED:		YES / (NO) / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NS	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NS
	WSP-8270C-SVOA	1 LITER AMBER GLASS	2	ICE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		

SAMPLE COMMENTS: NS

LOCATION COMMENTS: sampled 40' within diesel generator

FIELD PARAMETERS:

Dissolved Oxygen	5.59	mg/L	Flow (in gpm)	6.98	GPM	Oxidation-Reduction Potential	85.2	mV
pH	8.13	SU	Specific Conductance	130	uS/cm	Temperature	23.72	deg C
Turbidity	0.6	NTU						

COLLECTED BY (PRINT): D. Jaramillo

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrew Stocker	5/7/15 1545	A. Martinez	5/7/15 1545
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-15-95787

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	05/07/2015	ok	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):	1139		MEDIA:	UA	
PRS ID:	ok		SAMPLE TECH CODE:	UA	GSI
LOCATION ID:	R-46		FIELD PREP:	UF	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:	ok		SAMPLE USAGE:	INV	
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: sampled within 30' of running diesel generator and 40'-50' of forklift

FIELD PARAMETERS:

Dissolved Oxygen	6.59	mg/L	Flow (in gpm)	4.84	GPM	Oxidation-Reduction Potential	145.4	mV
pH	7.92	SU	Specific Conductance	122	uS/cm	Temperature	21.80	deg C
Turbidity	0.8	NTU						

COLLECTED BY (PRINT): D. Jaramillo

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Jodey Stoker	5/7/15 1545		5/7/15 1545
	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-15-95809

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	05/07/2015	ok	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):	1138		MEDIA:	UA	
PRS ID:	ok		SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46		FIELD PREP:	F	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:	ok		SAMPLE USAGE:	INV	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
MS	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	MS
	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE		
	WSP-NH3+NO3/NO2	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

JS 5/7/15

FIELD PARAMETERS:

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

COLLECTED BY (PRINT): D. Jaramillo

RELINQUISHED BY (Printed Name) (Signature)	**Date/Time** 5/7/15 1545	**RECEIVED BY (Printed Name) (Signature)** M. Martinez	**Date/Time** 5/7/15 1545
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

DATA VALIDATION REPORT

Chain Of Custody No. 2015-1176

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
372759	EPA:120.1	1				
372759	EPA:150.1	1				
372759	EPA:160.1	1				
372759	EPA:245.2	2				
372759	EPA:300.0	1				
372759	EPA:310.1	1				
372759	EPA:335.4	1				
372759	EPA:350.1	1				
372759	EPA:351.2	1				
372759	EPA:353.2	1				
372759	EPA:365.4	1				
372759	SM:A2340B	1				
372759	SW-846:6010C	1				
372759	SW-846:6020	1				
372759	SW-846:6850	1				
372759	SW-846:8260B	2		2		
372759	SW-846:8270D	2				
372759	SW-846:9060	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
372759	EPA:120.1	1478342	1478342	1										1				2			
372759	EPA:150.1	1478315	1478315	1										1				1			
372759	EPA:160.1	1478239	1478239	1					1					1				1			
372759	EPA:245.2	1481367	1481365	2					1	1				1				1			
372759	EPA:300.0	1478266	1478266	1					1					1				1			
372759	EPA:310.1	1478898	1478898	1					1	2				1				2			

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
372759	EPA:335.4	1477731	1477730	1					1	2				1				2			
372759	EPA:350.1	1477783	1477781	1					1	2				1				2			
372759	EPA:351.2	1478249	1478248	1					1	1				1				1			
372759	EPA:353.2	1477965	1477965	1					1					1				1			
372759	EPA:365.4	1478252	1478251	1					1	1				1				1			
372759	SM:A2340B	1481930	1481930	1																	
372759	SW-846:6010C	1478081	1478079	1					1	1				1				1			
372759	SW-846:6020	1478072	1478071	1					1	1				1				1			
372759	SW-846:6850	1477985	1477983	1					1	1	1			1							
372759	SW-846:8260B	1479801	1479801	2		2			1					2							
372759	SW-846:8270D	1478225	1478224	2					1	1	1			1							
372759	SW-846:9060	1478317	1478317	1					1					1				2			

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-15-95805	1203317639	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-15-95809	372759005	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAWA-15-95853	1203317640	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1203317638	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-15-95761	1203317550	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-15-95809	372759005	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1203317546	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-15-95809	372759005	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-15-95833	1203317368	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1203317367	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1203317366	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95787	372759004	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-15-95809	372759005	REG	1	0	0	0
EPA:245.2	INORGANIC	CAWA-15-95848	1203325756	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAWA-15-95848	1203325757	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1203325755	LCS	0	0	1	0

DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:245.2	INORGANIC	MB	1203325754	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-15-95809	372759005	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-15-95833	1203317448	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1203317447	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1203317446	MB	4	0	0	0
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-15-95809	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-15-95809	372759005	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1203319208	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1203319206	MB	2	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95783	1203318092	DUP	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95783	1203318093	MS	0	0	1	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-15-95787	372759004	REG	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CASA-15-95819	1203315867	DUP	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CASA-15-95819	1203315868	MS	0	0	1	0
EPA:335.4	GENERAL CHEMISTRY	LCS	1203315866	LCS	0	0	1	0
EPA:335.4	GENERAL CHEMISTRY	MB	1203315865	MB	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95805	1203316057	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95805	1203316059	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95806	1203316058	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95806	1203316060	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-15-95809	372759005	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1203316056	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1203316055	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-15-95782	1203317401	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-15-95782	1203317402	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-15-95787	372759004	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1203317400	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1203317399	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-15-95795	1203316522	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-15-95809	372759005	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-15-95804	1203317408	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-15-95804	1203317409	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-15-95809	372759005	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1203317407	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1203317406	MB	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
SM:A2340B	INORGANIC	CAMO-15-95809	372759005	REG	1	0	0	0
SW-846:6010C	INORGANIC	CAMO-15-95804	1203316925	DUP	17	0	0	0
SW-846:6010C	INORGANIC	CAMO-15-95804	1203316926	MS	0	0	17	0
SW-846:6010C	INORGANIC	CAMO-15-95809	372759005	REG	17	0	0	0
SW-846:6010C	INORGANIC	LCS	1203316924	LCS	0	0	17	0
SW-846:6010C	INORGANIC	MB	1203316923	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-15-95804	1203316901	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-15-95804	1203316902	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-15-95809	372759005	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1203316900	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1203316899	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-15-95809	372759005	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-15-95829	1203316583	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-15-95829	1203316584	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1203316582	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1203316581	MB	1	0	0	0
SW-846:8260B	VOC	CAMO-15-95769	372759002	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-15-95770	372759006	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-15-95776	372759001	REG	80	3	0	0
SW-846:8260B	VOC	CAMO-15-95787	372759003	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1203329445	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203329446	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203329444	MB	80	3	0	0
SW-846:8270D	SVOC	CAMO-15-95776	1203317336	MS	0	6	76	0
SW-846:8270D	SVOC	CAMO-15-95776	1203317337	MSD	0	6	76	0
SW-846:8270D	SVOC	CAMO-15-95776	372759001	REG	80	6	0	0
SW-846:8270D	SVOC	CAMO-15-95787	372759003	REG	80	6	0	0
SW-846:8270D	SVOC	LCS	1203317335	LCS	0	6	76	0
SW-846:8270D	SVOC	MB	1203317334	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-15-95787	372759004	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-15-95824	1203318247	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAWA-15-95848	1203318248	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1203318245	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1203318244	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Blank FS ID	Blank Lab Sample	Blank Type	Analytical Method	Sample	Parameter Name	Blank Lab Result	Lab Qualifier	Blank Lab Units	Blank Lab Detection Limit
MB	1203316055	METHOD BLANK	EPA:350.1	W	Ammonia as Nitrogen	0.028	J	mg/L	0.050
MB	1203317406	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0475	J	mg/L	0.050

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-15-95809	1203316055	METHOD BLANK	EPA:350.1	Ammonia as Nitrogen	0.028	mg/L	0.0343	J	0.050	Y	5	100	Y
CAMO-15-95809	1203317406	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	0.0475	mg/L	0.0586		0.050	Y	5	100	Y

6. Any surrogate recoveries outside the control limits?

No.

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

DATA VALIDATION REPORT

Field Sample ID	MS Lab Sample ID	MSD Lab Sample ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS Spike Recovery	MSD Spike Recovery	MS Upper Limit	MS Lower Limit	MS Reject Limit	RPD	RPD Limit
CAWA-15-95848	1203325757		EPA:245.2	Mercury	1481365	05-28-2015	W	68.1		125	75	10		
CAMO-15-95804	1203316902		SW-846:6020	Chromium	1478071	05-28-2015	W	134		125	75	10		

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.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

13. Display Flagged Data.

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Paramter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
R-46	2015-1176	CAMO-15-95809	REG	INIT	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	J	U	I4	N	0.0343	mg/L	0.0343	mg/L			W	05/07/2015		1477783	VAL	Y
R-46	2015-1176	CAMO-15-95809	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus		U	I4	N	0.0586	mg/L	0.0586	mg/L			W	05/07/2015		1478252	VAL	Y

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
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 qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Usable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAMO-15-95769	R-14 S1	FTB	SW-846:8260B	0	80
CAMO-15-95770	R-46	FTB	SW-846:8260B	0	80
CAMO-15-95776	R-14 S1	REG	SW-846:8260B	0	80
CAMO-15-95776	R-14 S1	REG	SW-846:8270D	0	80
CAMO-15-95787	R-46	REG	EPA:245.2	0	1
CAMO-15-95787	R-46	REG	EPA:335.4	0	1
CAMO-15-95787	R-46	REG	EPA:351.2	0	1
CAMO-15-95787	R-46	REG	SW-846:8260B	0	80
CAMO-15-95787	R-46	REG	SW-846:8270D	0	80
CAMO-15-95787	R-46	REG	SW-846:9060	0	1
CAMO-15-95809	R-46	REG	EPA:120.1	0	1
CAMO-15-95809	R-46	REG	EPA:150.1	0	1
CAMO-15-95809	R-46	REG	EPA:160.1	0	1
CAMO-15-95809	R-46	REG	EPA:245.2	0	1
CAMO-15-95809	R-46	REG	EPA:300.0	0	4
CAMO-15-95809	R-46	REG	EPA:310.1	0	2
CAMO-15-95809	R-46	REG	EPA:350.1	0	1
CAMO-15-95809	R-46	REG	EPA:353.2	0	1
CAMO-15-95809	R-46	REG	EPA:365.4	0	1
CAMO-15-95809	R-46	REG	SM:A2340B	0	1
CAMO-15-95809	R-46	REG	SW-846:6010C	0	17
CAMO-15-95809	R-46	REG	SW-846:6020	0	11
CAMO-15-95809	R-46	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

June 03, 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: 372759
SDG: 2015-1176

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 09, 2015, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Perchlorates by LCMSMS. 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: 2015-1176
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 372759
SDG: 2015-1176

Table of Contents

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 372759
SDG # : 2015-1176

June 03, 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 09, 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:

Laboratory ID	Client ID
372759001	CAMO-15-95776
372759002	CAMO-15-95769
372759003	CAMO-15-95787
372759004	CAMO-15-95787
372759005	CAMO-15-95809
372759006	CAMO-15-95770

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 and Perchlorates by LCMSMS.

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 03 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

372759

General Engineering
Charleston SC

Chain of Custody/Analysis Request AOEP

COC/Lab Request #: 2015-1176
Page 1 of 1

Client Contact:

Lab Agreement #:

Project Number:

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Days - ☐
14 Days - ☐
21 Days - ☐
28 Days - ☒

Rad Screening Info:

Lab Reporting Limit Type: Sample Quantitation Limit

Field Sample ID	Sample Date	Sample Time	Sample Matrix	MSGP-Hg	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-All Metals	WSP-CN(T)	WSP-GENINORG+PerChlorate	WSP-NH3+NO3/NO2+PO4	WSP-TKN+TOC
CAMO-15-95776	May 7 2015	15:09	W		2	2					
CAMO-15-95769	May 7 2015	15:09	W		~~2~~ 1						
CAMO-15-95787	May 7 2015	11:38	W	1	2	2		1			1
CAMO-15-95809	May 7 2015	11:38	W				1		1	1	
CAMO-15-95770	May 7 2015	11:38	W		~~2~~ 1						

Special Instructions:

Relinquished by: Sherwood	Print Name: Sherri Sherwood	Date/Time: 5/8/15 3pm	Received by: P. Vent	Print Name: Patricia Vent	Date/Time: 5.9.15 0900
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

GEL | Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	SDG/AR/COC/Work Order: 2015-1176
Received By: P. Klent	Date Received: 5.9.15

Suspected Hazard Information	Yes	No
COC/Samples marked as radioactive?		X
Classified Radioactive II or III by RSO?		X
COC/Samples marked containing PCBs?		X
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X
Shipped as a DOT Hazardous?		X
Samples identified as Foreign Soil?		X

*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.

Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 61cpm

If yes, Were swipes taken of sample containers < action levels?

If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.

Hazard Class Shipped: UN#:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) 2.3 *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 201404336
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	X			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples (EPA 6850) have headspace as required?	X			Sample ID's and containers affected:
7	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
8	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
9	Samples received within holding time?	X			ID's and tests affected:
10	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
11	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
12	Number of containers received match number indicated on COC?			X	Sample ID's affected: SEE Continuation Sheet
13	Are sample containers identifiable as GEL provided?			X	
14	COC form is properly signed in relinquished/received sections?	X			
15	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5908 1778 7835 5908 1778 7824 } 2c 5908 1778 7813-3c

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials VSO Date 5/11/15 Page 1 of 2 GL-CHL-SR-001 Rev 1

GEL Laboratories LLC **SAMPLE RECEIPT & REVIEW CONTINUATION FORM**

Client: LANL Received By: P. Vlent Date Received: 5.9.15 SDG/AR/COC/Work Order: 2015-1176

The Following Samples Not Rec'd in

CAMO-15-95776, 95787 For 8270C/SVOA

CAMO-15-95787 MSGP-Hg, CN(T) TKN+TOC

CAMO-15-95809 Metals, Gen-Inorganic+Perchlorate+NH3+NO3/NO2+PO4

PM (or PMA) review: Initials VSO Date 5/11/15 Page 2 of 2

Subject: RE: Sample receipt issue from 05/09/15
From: "Greene, Keith Robert" <kgreene@lanl.gov>
Date: 5/11/2015 2:13 PM
To: Pat Dent <Pat.Dent@gel.com>, "team.davis" <team.davis@gel.com>, "LANL@amrad.com" <LANL@amrad.com>

You will receive these tomorrow they are still here, txs

-----Original Message-----
From: Pat Dent [mailto:Pat.Dent@gel.com]
Sent: Saturday, May 09, 2015 12:17 PM
To: Greene, Keith Robert; team.davis; LANL@amrad.com
Subject: Sample receipt issue from 05/09/15

Good afternoon all, The following sample containers were not received.

RN#2015-1176

CAMO-15-95776,95787 for 8270C SVOA

CAMO-15-95787 for MSGP-Hg,CN(T),TKN+TOC

CAMO-15-95809 for All Metals,GENINORG+Perchlorate,NH3+NO3/NO2+PO4

Thanks!!

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08MAY15
ACTWGT: 34.0 LB MAN
CAD: 0014176/CAFE2806

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MRGW04BAGWE0

2c

FedEx Express

3 of 3
MPS# 5908 1778 7835
Mstr# 5908 1778 7813

SATURDAY 12:00
PRIORITY OVERNIGHT

0201

XO CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 10/11

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08MAY15
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2806

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MRGW04BAGWE0

2c

FedEx Express

2 of 3
MPS# 0263 5908 1778 7824
Mstr# 5908 1778 7813

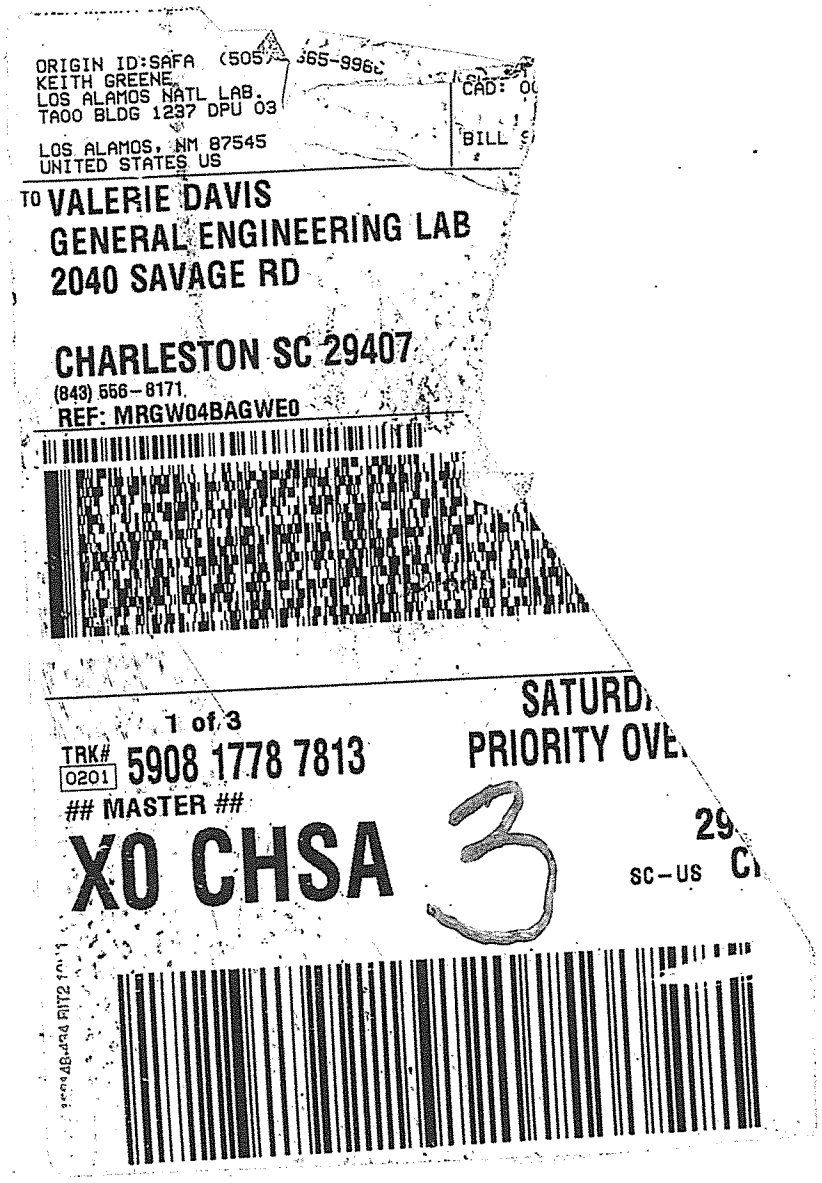
SATURDAY 12:00
PRIORITY OVERNIGHT

0201

XO CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 10/11


ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US
CAD: 0
BILL S
TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD
CHARLESTON SC 29407
(843) 556-8171
REF: MRGW04BAGWE0
1 of 3
TRK# 0201 5908 1778 7813
SATURD
PRIORITY OVE
MASTER
XO CHSA
3
29
SC-US

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 #: 2015-1176
Work Order #: 372759

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1479801

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
372759001	CAMO-15-95776
372759002	CAMO-15-95769
372759003	CAMO-15-95787
372759006	CAMO-15-95770
1203321653	372533001(CAMO-15-95773) Post Spike (PS)
1203321654	372533001(CAMO-15-95773) Post Spike Duplicate (PSD)
1203321677	372533001(CAMO-15-95773) Post Spike (PS)
1203321678	372533001(CAMO-15-95773) Post Spike Duplicate (PSD)
1203329444	Method Blank (MB)
1203329445	Laboratory Control Sample (LCS)
1203329446	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
The blank analyzed with this SDG met the acceptance criteria.

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

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 372533001 (CAMO-15-95773) 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 1203321653 (CAMO-15-95773PS), 1203321653 (CAMO-15-95773PS), 1203321654 (CAMO-15-95773PSD), 1203321654 (CAMO-15-95773PSD), 1203321677 (CAMO-15-95773PS), 1203321677 (CAMO-15-95773PS), 1203321678 (CAMO-15-95773PSD) and 1203321678 (CAMO-15-95773PSD) 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
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Data Exception (DER) Documentation
A data exception report (DER) 1416593 was generated for samples 1203321653 (CAMO-15-95773PS), 1203321654 (CAMO-15-95773PSD), 1203321677 (CAMO-15-95773PS) and 1203321678

(CAMO-15-95773PSD) 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 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
VOA4.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

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

Client SDG: 2015-1176 GEL Work Order: 372759

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

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: Erin Haubert **Name: Erin Haubert**

Date: 03 JUN 2015 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**372759001**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95776**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 03:16**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 03:16**				
Data File:	**052015V4\4J340.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:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**372759001**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95776**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 03:16**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 03:16**				
Data File:	**052015V4\4J340.D**	**Column:**	**DB-624**		

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**372759001**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95776**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 03:16**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 03:16**				
Data File:	**052015V4\4J340.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.6	50.0	ug/L	99.3	(77%-123%)
Bromofluorobenzene	52.9	50.0	ug/L	106	(80%-120%)
Toluene-d8	49.2	50.0	ug/L	98.3	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.82	7.74	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**372759002**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95769**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 03:44**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 03:44**				
Data File:	**052015V4\4J341.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:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**372759002**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95769**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 03:44**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 03:44**				
Data File:	**052015V4\4J341.D**	**Column:**	**DB-624**		

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**372759002**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95769**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 03:44**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 03:44**				
Data File:	**052015V4\4J341.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	50.8	50.0	ug/L	102	(77%-123%)
Bromofluorobenzene	54.5	50.0	ug/L	109	(80%-120%)
Toluene-d8	50.2	50.0	ug/L	100	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.82	7.61	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 11:38**	**Matrix:**	**W**
Lab Sample ID:	**372759003**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95787**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 04:12**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 04:12**				
Data File:	**052015V4\4J342.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	J	2.84	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:	**2015-1176**	**Date Collected:**	**05/07/2015 11:38**	**Matrix:**	**W**
Lab Sample ID:	**372759003**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95787**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 04:12**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 04:12**				
Data File:	**052015V4\4J342.D**	**Column:**	**DB-624**		

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 11:38**	**Matrix:**	**W**
Lab Sample ID:	**372759003**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95787**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 04:12**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 04:12**				
Data File:	**052015V4\4J342.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.9	50.0	ug/L	99.7	(77%-123%)
Bromofluorobenzene	52.2	50.0	ug/L	104	(80%-120%)
Toluene-d8	49.2	50.0	ug/L	98.4	(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:	**2015-1176**	**Date Collected:**	**05/07/2015 11:38**	**Matrix:**	**W**
Lab Sample ID:	**372759006**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95770**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 04:40**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 04:40**				
Data File:	**052015V4\4J343.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:	**2015-1176**	**Date Collected:**	**05/07/2015 11:38**	**Matrix:**	**W**
Lab Sample ID:	**372759006**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95770**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 04:40**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 04:40**				
Data File:	**052015V4\4J343.D**	**Column:**	**DB-624**		

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 11:38**	**Matrix:**	**W**
Lab Sample ID:	**372759006**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95770**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 04:40**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 04:40**				
Data File:	**052015V4\4J343.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.4	50.0	ug/L	98.7	(77%-123%)
Bromofluorobenzene	52.6	50.0	ug/L	105	(80%-120%)
Toluene-d8	47.8	50.0	ug/L	95.5	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.82	14.8	ug/L	0	J

Quality Control Summary

Surrogate Recovery Report

SDG Number: 2015-1176

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203329445	LCS for batch 1479801	94	98	92
1203329446	LCS for batch 1479801	95	99	93
1203329444	MB for batch 1479801	94	98	104
372759001	CAMO-15-95776	99	98	106
372759002	CAMO-15-95769	102	100	109
372759003	CAMO-15-95787	100	98	104
372759006	CAMO-15-95770	99	96	105
1203321653	CAMO-15-95773PS	93	98	92
1203321654	CAMO-15-95773PSD	96	97	90
1203321677	CAMO-15-95773PS	98	99	95
1203321678	CAMO-15-95773PSD	95	101	97

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

SDG Number: 2015-1176 **Sample Type:** Post Spike
Client ID: CAMO-15-95773PS **Matrix:** WATER
Lab Sample ID 1203321653
Instrument: VOA4.I **Analysis Date:** 05/21/2015 06:05 **Dilution:** 1
Analyst: ACJ
Purge Vol: 5 mL **Batch ID:** 1479801

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	HU	92.0	92	69-122
75-05-8	PS	Acetonitrile	1250	0.00	HU	1190	95	54-130
67-64-1	PS	Acetone	250	0.00	HU	119	47	27-155
74-88-4	PS	Iodomethane	250	0.00	HU	242	97	69-128
75-15-0	PS	Carbon disulfide	250	0.00	HU	223	89	68-138
108-05-4	PS	Vinyl acetate	250	0.00	HU	182	73	50-137
78-93-3	PS	2-Butanone	250	0.00	HU	163	65	30-145
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	HU	235	94	60-132
591-78-6	PS	2-Hexanone	250	0.00	HU	183	73	38-144
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	HU	35.6	71	37-143
74-87-3	PS	Chloromethane	50.0	0.00	HU	41.2	82	48-132
75-01-4	PS	Vinyl chloride	50.0	0.00	HU	43.3	87	53-132
74-83-9	PS	Bromomethane	50.0	0.00	HU	43.7	87	60-132
75-00-3	PS	Chloroethane	50.0	0.00	HU	41.1	82	66-120
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	HU	42.1	84	64-131
60-29-7	PS	Ethyl ether	50.0	0.00	HU	44.6	89	69-119
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	HU	39.5	79	65-129
75-09-2	PS	Methylene chloride	50.0	0.00	HU	46.0	92	68-119
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	HU	47.2	94	70-123
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	HU	42.8	86	68-123
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	HU	45.0	90	71-122
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	HU	46.8	94	72-122

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176 **Sample Type:** Post Spike

Client ID: CAMO-15-95773PS **Matrix:** WATER

Lab Sample ID 1203321653

Instrument: VOA4.I **Analysis Date:** 05/21/2015 06:05 **Dilution:** 1

Analyst: ACJ

Purge Vol: 5 mL **Batch ID:** 1479801

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	HU	41.2	82	69-131
74-97-5	PS	Bromochloromethane	50.0	0.00	HU	50.5	101	74-123
67-66-3	PS	Chloroform	50.0	0.00	HU	45.8	92	72-123
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	HU	44.1	88	71-133
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	HU	44.0	88	68-125
56-23-5	PS	Carbon tetrachloride	50.0	0.00	HU	42.6	85	70-139
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	HU	47.4	95	67-123
71-43-2	PS	Benzene	50.0	0.00	HU	44.3	89	71-118
79-01-6	PS	Trichloroethylene	50.0	0.00	HU	44.6	89	68-130
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	HU	46.2	92	72-118
74-95-3	PS	Dibromomethane	50.0	0.00	HU	49.6	99	74-122
75-27-4	PS	Bromodichloromethane	50.0	0.00	HU	46.1	92	75-129
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	HU	44.9	90	73-125
108-88-3	PS	Toluene	50.0	0.00	HU	45.0	90	69-119
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	HU	47.0	94	73-125
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	HU	47.9	96	73-118
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	HU	49.7	99	71-116
127-18-4	PS	Tetrachloroethylene	50.0	0.00	HU	46.4	93	65-128
124-48-1	PS	Dibromochloromethane	50.0	0.00	HU	49.5	99	68-133
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	HU	51.0	102	76-122
108-90-7	PS	Chlorobenzene	50.0	0.00	HU	48.1	96	71-119
100-41-4	PS	Ethylbenzene	50.0	0.00	HU	45.4	91	70-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176 **Sample Type:** Post Spike
Client ID: CAMO-15-95773PS **Matrix:** WATER
Lab Sample ID 1203321653
Instrument: VOA4.I **Analysis Date:** 05/21/2015 06:05 **Dilution:** 1
Analyst: ACJ
Purge Vol: 5 mL **Batch ID:** 1479801

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	HU	45.8	92	70-123
100-42-5	PS	Styrene	50.0	0.00	HU	47.1	94	72-127
75-25-2	PS	Bromoform	50.0	0.00	HU	49.6	99	60-133
98-82-8	PS	Isopropylbenzene	50.0	0.00	HU	43.0	86	67-127
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	HU	48.6	97	67-125
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	HU	49.7	99	68-123
108-86-1	PS	Bromobenzene	50.0	0.00	HU	48.6	97	69-120
103-65-1	PS	n-Propylbenzene	50.0	0.00	HU	42.2	84	65-125
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	HU	42.7	85	67-126
95-49-8	PS	2-Chlorotoluene	50.0	0.00	HU	45.9	92	67-122
106-43-4	PS	4-Chlorotoluene	50.0	0.00	HU	41.9	84	66-121
98-06-6	PS	tert-Butylbenzene	50.0	0.00	HU	45.5	91	67-130
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	HU	42.8	86	66-124
135-98-8	PS	sec-Butylbenzene	50.0	0.00	HU	43.2	86	67-128
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	HU	43.4	87	66-129
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	HU	45.6	91	67-120
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	HU	45.6	91	66-118
104-51-8	PS	n-Butylbenzene	50.0	0.00	HU	41.4	83	63-131
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	HU	54.8	110	55-131
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	HU	44.4	89	55-138
91-20-3	PS	Naphthalene	50.0	0.00	HU	56.6	113	61-131
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	HU	49.6	99	56-133

Quality Control Summary
Spike Recovery Report

SDG Number: **2015-1176**
Sample Type: **Post Spike**
Client ID: **CAMO-15-95773PS**
Matrix: **WATER**
Lab Sample ID **1203321653**
Instrument: **VOA4.I**
Analysis Date: **05/21/2015 06:05**
Dilution: **1**
Analyst: **ACJ**
Purge Vol: **5 mL**
Batch ID: **1479801**

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	HU	46.6	93	56-131
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	HU	49.8	100	76-129
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	HU	48.3	97	69-119
71-36-3	PS	n-Butyl alcohol	5000	0.00	HU	5690	114	55-141

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Post Spike Duplicate
Client ID: CAMO-15-95773PSD
Matrix: WATER
Lab Sample ID 1203321654
Instrument: VOA4.I
Analysis Date: 05/21/2015 06:33
Dilution: 1
Analyst: ACJ
Purge Vol: 5 mL
Batch ID: 1479801

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	HU	94.4	94	69-122	3	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	HU	1350	108	54-130	12	0-20
67-64-1	PSD	Acetone	250	0.00	HU	135	54	27-155	13	0-20
74-88-4	PSD	Iodomethane	250	0.00	HU	253	101	69-128	4	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	HU	237	95	68-138	6	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	HU	189	76	50-137	4	0-20
78-93-3	PSD	2-Butanone	250	0.00	HU	184	73	30-145	12	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	HU	259	104	60-132	10	0-20
591-78-6	PSD	2-Hexanone	250	0.00	HU	204	82	38-144	11	0-20
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	HU	39.3	79	37-143	10	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	HU	44.0	88	48-132	7	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	HU	46.7	93	53-132	8	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	HU	46.0	92	60-132	5	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	HU	43.8	88	66-120	6	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	HU	44.4	89	64-131	5	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	HU	45.8	92	69-119	3	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	HU	42.5	85	65-129	7	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	HU	46.8	94	68-119	2	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	HU	49.3	99	70-123	4	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	HU	43.5	87	68-123	2	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	HU	45.8	92	71-122	2	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	HU	47.1	94	72-122	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Post Spike Duplicate
Client ID: CAMO-15-95773PSD
Matrix: WATER
Lab Sample ID 1203321654
Instrument: VOA4.I
Analysis Date: 05/21/2015 06:33
Dilution: 1
Analyst: ACJ
Purge Vol: 5 mL
Batch ID: 1479801

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	HU	42.2	84	69-131	2	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	HU	51.7	103	74-123	2	0-20
67-66-3	PSD	Chloroform	50.0	0.00	HU	46.3	93	72-123	1	0-20
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	HU	46.8	94	71-133	6	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	HU	46.5	93	68-125	5	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	HU	45.1	90	70-139	6	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	HU	48.0	96	67-123	1	0-20
71-43-2	PSD	Benzene	50.0	0.00	HU	45.6	91	71-118	3	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	HU	46.6	93	68-130	4	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	HU	47.1	94	72-118	2	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	HU	51.2	102	74-122	3	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	HU	46.6	93	75-129	1	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	HU	45.9	92	73-125	2	0-20
108-88-3	PSD	Toluene	50.0	0.00	HU	45.5	91	69-119	1	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	HU	47.1	94	73-125	0	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	HU	48.8	98	73-118	2	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	HU	50.2	100	71-116	1	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	HU	47.3	95	65-128	2	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	HU	49.4	99	68-133	0	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	HU	52.5	105	76-122	3	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	HU	48.6	97	71-119	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	HU	46.5	93	70-121	2	0-20

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Post Spike Duplicate
Client ID: CAMO-15-95773PSD
Matrix: WATER
Lab Sample ID 1203321654
Instrument: VOA4.I
Analysis Date: 05/21/2015 06:33
Dilution: 1
Analyst: ACJ
Purge Vol: 5 mL
Batch ID: 1479801

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	HU	46.7	93	70-123	2	0-20
100-42-5	PSD	Styrene	50.0	0.00	HU	47.7	95	72-127	1	0-20
75-25-2	PSD	Bromoform	50.0	0.00	HU	50.9	102	60-133	3	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	HU	43.4	87	67-127	1	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	HU	50.3	101	67-125	3	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	HU	52.2	104	68-123	5	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	HU	48.3	97	69-120	1	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	HU	42.9	86	65-125	2	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	HU	43.7	87	67-126	2	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	HU	46.4	93	67-122	1	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	HU	42.3	85	66-121	1	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	HU	46.5	93	67-130	2	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	HU	43.1	86	66-124	1	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	HU	44.8	90	67-128	4	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	HU	44.4	89	66-129	2	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	HU	45.4	91	67-120	0	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	HU	45.3	91	66-118	1	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	HU	42.2	84	63-131	2	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	HU	58.4	117	55-131	6	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	HU	45.2	90	55-138	2	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	HU	59.4	119	61-131	5	0-20
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	HU	50.2	100	56-133	1	0-20

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Post Spike Duplicate
Client ID: CAMO-15-95773PSD
Matrix: WATER
Lab Sample ID 1203321654
Instrument: VOA4.I
Analysis Date: 05/21/2015 06:33
Dilution: 1
Analyst: ACJ
Purge Vol: 5 mL
Batch ID: 1479801

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	HU	46.8	94	56-131	0	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	HU	50.3	101	76-129	1	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	HU	47.5	95	69-119	2	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	HU	6540	131	55-141	14	0-20

Quality Control Summary
Spike Recovery Report

SDG Number: **2015-1176**
Sample Type: **Post Spike**
Client ID: **CAMO-15-95773PS**
Matrix: **WATER**
Lab Sample ID **1203321677**
Instrument: **VOA4.I**
Analysis Date: **05/21/2015 07:01**
Dilution: **1**
Analyst: **ACJ**
Purge Vol: **5 mL**
Batch ID: **1479801**

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	HU	213	85	48-138
76-13-1	PS	Trichlorotrifluoroethane	250	0.00	HU	185	74	63-146
107-05-1	PS	Allyl chloride	250	0.00	HU	166	67	61-126
107-13-1	PS	Acrylonitrile	250	0.00	HU	200	80	62-128
107-12-0	PS	Propionitrile	250	0.00	HU	200	80	63-133
126-98-7	PS	Methacrylonitrile	250	0.00	HU	205	82	61-131
80-62-6	PS	Methyl methacrylate	250	0.00	HU	209	84	69-127
97-63-2	PS	Ethyl methacrylate	250	0.00	HU	209	84	70-126
78-83-1	PS	Isobutyl alcohol	2500	0.00	HU	2150	86	57-139
126-99-8	PS	2-Chloro-1,3-butadiene	50.0	0.00	HU	39.2	78	56-140

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Post Spike Duplicate
Client ID: CAMO-15-95773PSD
Matrix: WATER
Lab Sample ID 1203321678
Instrument: VOA4.I
Analysis Date: 05/21/2015 07:29
Dilution: 1
Analyst: ACJ
Purge Vol: 5 mL
Batch ID: 1479801

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	HU	209	84	48-138	2	0-20
76-13-1	PSD	Trichlorotrifluoroethane	250	0.00	HU	180	72	63-146	3	0-20
107-05-1	PSD	Allyl chloride	250	0.00	HU	162	65	61-126	3	0-20
107-13-1	PSD	Acrylonitrile	250	0.00	HU	195	78	62-128	2	0-20
107-12-0	PSD	Propionitrile	250	0.00	HU	193	77	63-133	3	0-20
126-98-7	PSD	Methacrylonitrile	250	0.00	HU	197	79	61-131	4	0-20
80-62-6	PSD	Methyl methacrylate	250	0.00	HU	200	80	69-127	4	0-20
97-63-2	PSD	Ethyl methacrylate	250	0.00	HU	206	82	70-126	1	0-20
78-83-1	PSD	Isobutyl alcohol	2500	0.00	HU	2010	81	57-139	7	0-20
126-99-8	PSD	2-Chloro-1,3-butadiene	50.0	0.00	HU	38.8	78	56-140	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1479801
Matrix: WATER
Lab Sample ID 1203329445
Instrument: VOA4.I
Analysis Date: 05/20/2015 22:04
Dilution: 1
Analyst: ACJ
Purge Vol: 5 mL
Batch ID: 1479801

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	91.2	91	78-120
75-05-8	LCS	Acetonitrile	1250	0.0	1210	97	60-124
67-64-1	LCS	Acetone	250	0.0	183	73	55-147
74-88-4	LCS	Iodomethane	250	0.0	246	98	72-126
75-15-0	LCS	Carbon disulfide	250	0.0	226	90	73-135
108-05-4	LCS	Vinyl acetate	250	0.0	215	86	61-133
78-93-3	LCS	2-Butanone	250	0.0	201	80	57-145
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	237	95	67-128
591-78-6	LCS	2-Hexanone	250	0.0	190	76	59-147
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	38.2	76	52-134
74-87-3	LCS	Chloromethane	50.0	0.0	41.1	82	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	42.8	86	62-126
74-83-9	LCS	Bromomethane	50.0	0.0	45.2	90	63-127
75-00-3	LCS	Chloroethane	50.0	0.0	42.3	85	69-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	43.2	86	69-129
60-29-7	LCS	Ethyl ether	50.0	0.0	47.2	94	72-120
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	40.3	81	70-127
75-09-2	LCS	Methylene chloride	50.0	0.0	45.2	90	70-120
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	48.2	96	74-120
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	42.0	84	73-120
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	43.8	88	75-120
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	46.2	92	76-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1479801
Matrix: WATER
Lab Sample ID 1203329445
Instrument: VOA4.I
Analysis Date: 05/20/2015 22:04
Dilution: 1
Analyst: ACJ
Purge Vol: 5 mL
Batch ID: 1479801

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	41.8	84	76-131
74-97-5	LCS	Bromochloromethane	50.0	0.0	51.7	103	76-122
67-66-3	LCS	Chloroform	50.0	0.0	44.5	89	76-120
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	43.9	88	76-131
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	45.0	90	73-123
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	43.4	87	76-135
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	45.6	91	71-120
71-43-2	LCS	Benzene	50.0	0.0	44.0	88	75-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	45.5	91	77-123
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	45.5	91	76-120
74-95-3	LCS	Dibromomethane	50.0	0.0	48.9	98	77-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	45.0	90	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	44.4	89	75-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	47.6	95	78-124
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	46.8	94	76-120
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	47.8	96	73-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	46.0	92	73-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	48.0	96	72-131
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	50.3	101	79-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	47.1	94	77-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	44.4	89	77-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1479801
Matrix: WATER
Lab Sample ID 1203329445
Instrument: VOA4.I
Analysis Date: 05/20/2015 22:04
Dilution: 1
Analyst: ACJ
Purge Vol: 5 mL
Batch ID: 1479801

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	44.2	88	78-120
100-42-5	LCS	Styrene	50.0	0.0	46.5	93	79-124
75-25-2	LCS	Bromoform	50.0	0.0	49.2	98	65-132
98-82-8	LCS	Isopropylbenzene	50.0	0.0	42.7	85	76-123
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	47.2	94	72-122
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	48.8	98	71-120
108-86-1	LCS	Bromobenzene	50.0	0.0	47.6	95	76-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	41.9	84	75-121
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	42.9	86	77-122
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	45.4	91	76-120
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	42.1	84	76-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	45.8	92	77-127
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	42.8	86	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	43.9	88	77-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	44.6	89	77-126
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	45.6	91	76-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	46.5	93	76-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	43.4	87	76-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	55.3	111	60-130
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	47.8	96	69-133
91-20-3	LCS	Naphthalene	50.0	0.0	61.1	122	67-129
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	54.2	108	66-131

Quality Control Summary
Spike Recovery Report

SDG Number: **2015-1176**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1479801**
Matrix: **WATER**
Lab Sample ID **1203329445**
Instrument: **VOA4.I**
Analysis Date: **05/20/2015 22:04**
Dilution: **1**
Analyst: **ACJ**
Purge Vol: **5 mL**
Batch ID: **1479801**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	51.8	104	68-132
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	48.7	97	80-126
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	47.9	96	77-120
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5810	116	61-135

Quality Control Summary
Spike Recovery Report

SDG Number: **2015-1176**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1479801**
Matrix: **WATER**
Lab Sample ID **1203329446**
Instrument: **VOA4.I**
Analysis Date: **05/20/2015 22:33**
Dilution: **1**
Analyst: **ACJ**
Purge Vol: **5 mL**
Batch ID: **1479801**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	225	90	61-132
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	186	74	67-139
107-05-1	LCS	Allyl chloride	250	0.0	160	64	64-124
107-13-1	LCS	Acrylonitrile	250	0.0	192	77	68-123
107-12-0	LCS	Propionitrile	250	0.0	195	78	69-128
126-98-7	LCS	Methacrylonitrile	250	0.0	193	77	66-124
80-62-6	LCS	Methyl methacrylate	250	0.0	200	80	73-123
97-63-2	LCS	Ethyl methacrylate	250	0.0	199	80	75-122
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2040	82	64-132
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	39.3	79	60-137

Method Blank Summary

SDG Number:	**2015-1176**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1479801**	**Instrument ID:**	**VOA4.I**	**Data File:**	**052015V4\4J331BAR.D**
Lab Sample ID:	**1203329444**	**Prep Date:**	**05/20/2015 23:01**	**Analyzed:**	**05/20/15 23:01**
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 1479801	1203329445	052015V4\4J329LAR.D	05/20/15	2204
04	LCS for batch 1479801	1203329446	052015V4\4J330SHAR.D	05/20/15	2233
05	CAMO-15-95776	372759001	052015V4\4J340.D	05/21/15	0316
06	CAMO-15-95769	372759002	052015V4\4J341.D	05/21/15	0344
07	CAMO-15-95787	372759003	052015V4\4J342.D	05/21/15	0412
08	CAMO-15-95770	372759006	052015V4\4J343.D	05/21/15	0440
10	CAMO-15-95773PS	1203321653	052015V4\4J346.D	05/21/15	0605
12	CAMO-15-95773PSD	1203321654	052015V4\4J347.D	05/21/15	0633
14	CAMO-15-95773PS	1203321677	052015V4\4J348.D	05/21/15	0701
16	CAMO-15-95773PSD	1203321678	052015V4\4J349.D	05/21/15	0729

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321653**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 06:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 06:05**				
Data File:	**052015V4\4J346.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	H	49.8	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	H	44.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	H	48.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	H	47.9	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	H	45.0	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	H	39.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	H	44.0	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	H	49.6	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	H	49.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	H	46.6	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	H	42.8	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	H	54.8	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	H	51.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	H	48.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	H	47.4	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	H	46.2	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	H	42.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	H	45.6	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	H	49.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	H	45.6	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	H	41.2	ug/L	0.300	1.00
78-93-3	2-Butanone	H	163	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	HU	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	H	45.9	ug/L	0.300	1.00
591-78-6	2-Hexanone	H	183	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	H	41.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	H	43.4	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	H	235	ug/L	1.50	5.00
67-64-1	Acetone	H	119	ug/L	1.50	10.0
75-05-8	Acetonitrile	H	1190	ug/L	8.00	25.0
107-02-8	Acrolein	HU	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	HU	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	HU	5.00	ug/L	1.50	5.00
71-43-2	Benzene	H	44.3	ug/L	0.300	1.00
108-86-1	Bromobenzene	H	48.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane	H	50.5	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	H	46.1	ug/L	0.300	1.00
75-25-2	Bromoform	H	49.6	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321653**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 06:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 06:05**				
Data File:	**052015V4\4J346.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	H	43.7	ug/L	0.300	1.00
75-15-0	Carbon disulfide	H	223	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	H	42.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene	H	48.1	ug/L	0.300	1.00
75-00-3	Chloroethane	H	41.1	ug/L	0.300	1.00
67-66-3	Chloroform	H	45.8	ug/L	0.300	1.00
74-87-3	Chloromethane	H	41.2	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	H	49.5	ug/L	0.300	1.00
74-95-3	Dibromomethane	H	49.6	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	H	35.6	ug/L	0.300	1.00
60-29-7	Ethyl ether	H	44.6	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	HU	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	H	45.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	H	44.4	ug/L	0.300	1.00
74-88-4	Iodomethane	H	242	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	HU	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	H	43.0	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	HU	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	HU	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	H	46.0	ug/L	1.00	10.0
91-20-3	Naphthalene	H	56.6	ug/L	0.300	1.00
107-12-0	Propionitrile	HU	5.00	ug/L	1.50	5.00
100-42-5	Styrene	H	47.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	H	46.4	ug/L	0.300	1.00
108-88-3	Toluene	H	45.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene	H	44.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	H	42.1	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	HU	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	H	182	ug/L	1.50	5.00
75-01-4	Vinyl chloride	H	43.3	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	H	46.8	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	H	44.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	H	92.0	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	H	5690	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	H	41.4	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	H	42.2	ug/L	0.300	1.00
95-47-6	o-Xylene	H	45.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	H	43.2	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321653**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 06:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 06:05**				
Data File:	**052015V4\4J346.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	H	47.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	H	45.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	H	42.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	H	47.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.7	50.0	ug/L	93.5	(77%-123%)
Bromofluorobenzene	46.0	50.0	ug/L	91.9	(80%-120%)
Toluene-d8	49.1	50.0	ug/L	98.2	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321654**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 06:33**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 06:33**				
Data File:	**052015V4\4J347.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	H	50.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	H	46.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	H	50.3	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	H	48.8	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	H	45.8	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	H	42.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	H	46.5	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	H	50.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	H	52.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	H	46.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	H	43.1	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	H	58.4	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	H	52.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	H	47.5	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	H	48.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	H	47.1	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	H	43.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	H	45.4	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	H	50.2	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	H	45.3	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	H	42.2	ug/L	0.300	1.00
78-93-3	2-Butanone	H	184	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	HU	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	H	46.4	ug/L	0.300	1.00
591-78-6	2-Hexanone	H	204	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene	H	42.3	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	H	44.4	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	H	259	ug/L	1.50	5.00
67-64-1	Acetone	H	135	ug/L	1.50	10.0
75-05-8	Acetonitrile	H	1350	ug/L	8.00	25.0
107-02-8	Acrolein	HU	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	HU	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	HU	5.00	ug/L	1.50	5.00
71-43-2	Benzene	H	45.6	ug/L	0.300	1.00
108-86-1	Bromobenzene	H	48.3	ug/L	0.300	1.00
74-97-5	Bromochloromethane	H	51.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	H	46.6	ug/L	0.300	1.00
75-25-2	Bromoform	H	50.9	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321654**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 06:33**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 06:33**				
Data File:	**052015V4\4J347.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	H	46.0	ug/L	0.300	1.00
75-15-0	Carbon disulfide	H	237	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	H	45.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene	H	48.6	ug/L	0.300	1.00
75-00-3	Chloroethane	H	43.8	ug/L	0.300	1.00
67-66-3	Chloroform	H	46.3	ug/L	0.300	1.00
74-87-3	Chloromethane	H	44.0	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	H	49.4	ug/L	0.300	1.00
74-95-3	Dibromomethane	H	51.2	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	H	39.3	ug/L	0.300	1.00
60-29-7	Ethyl ether	H	45.8	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	HU	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	H	46.5	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	H	45.2	ug/L	0.300	1.00
74-88-4	Iodomethane	H	253	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	HU	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	H	43.4	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	HU	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	HU	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	H	46.8	ug/L	1.00	10.0
91-20-3	Naphthalene	H	59.4	ug/L	0.300	1.00
107-12-0	Propionitrile	HU	5.00	ug/L	1.50	5.00
100-42-5	Styrene	H	47.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	H	47.3	ug/L	0.300	1.00
108-88-3	Toluene	H	45.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene	H	46.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	H	44.4	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	HU	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate	H	189	ug/L	1.50	5.00
75-01-4	Vinyl chloride	H	46.7	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	H	47.1	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	H	45.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	H	94.4	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	H	6540	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	H	42.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	H	42.9	ug/L	0.300	1.00
95-47-6	o-Xylene	H	46.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	H	44.8	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321654**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 06:33**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 06:33**				
Data File:	**052015V4\4J347.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	H	49.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	H	46.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	H	43.5	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	H	47.1	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.2	50.0	ug/L	96.4	(77%-123%)
Bromofluorobenzene	45.1	50.0	ug/L	90.2	(80%-120%)
Toluene-d8	48.7	50.0	ug/L	97.4	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321677**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 07:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 07:01**				
Data File:	**052015V4\4J348.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	39.2	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	213	ug/L	1.50	5.00
107-13-1	Acrylonitrile	H	200	ug/L	1.50	5.00
107-05-1	Allyl chloride	H	166	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:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321677**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 07:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 07:01**				
Data File:	**052015V4\4J348.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	209	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	2150	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	HU	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	H	205	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	H	209	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	200	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	185	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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321677**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 07:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 07:01**				
Data File:	**052015V4\4J348.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	48.8	50.0	ug/L	97.6	(77%-123%)
Bromofluorobenzene	47.3	50.0	ug/L	94.5	(80%-120%)
Toluene-d8	49.4	50.0	ug/L	98.7	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321678**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 07:29**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 07:29**				
Data File:	**052015V4\4J349.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	38.8	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	209	ug/L	1.50	5.00
107-13-1	Acrylonitrile	H	195	ug/L	1.50	5.00
107-05-1	Allyl chloride	H	162	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:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321678**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 07:29**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 07:29**				
Data File:	**052015V4\4J349.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	206	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	2010	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	HU	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	H	197	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	H	200	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	193	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	180	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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/05/2015 11:20**	**Matrix:**	**WATER**
Lab Sample ID:	**1203321678**	**Date Received:**	**05/07/2015 08:45**		
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95773PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/21/2015 07:29**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/21/2015 07:29**				
Data File:	**052015V4\4J349.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	47.6	50.0	ug/L	95.2	(77%-123%)
Bromofluorobenzene	48.7	50.0	ug/L	97.3	(80%-120%)
Toluene-d8	50.4	50.0	ug/L	101	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203329444**				
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1479801**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/20/2015 23:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/20/2015 23:01**				
Data File:	**052015V4\4J331BAR.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:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203329444**				
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1479801**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/20/2015 23:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/20/2015 23:01**				
Data File:	**052015V4\4J331BAR.D**	**Column:**	**DB-624**		

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203329444**				
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1479801**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/20/2015 23:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/20/2015 23:01**				
Data File:	**052015V4\4J331BAR.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	46.9	50.0	ug/L	93.9	(77%-123%)
Bromofluorobenzene	52.0	50.0	ug/L	104	(80%-120%)
Toluene-d8	49.0	50.0	ug/L	97.9	(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:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203329445**				
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1479801**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/20/2015 22:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/20/2015 22:04**				
Data File:	**052015V4\4J329LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		48.7	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		43.9	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.8	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		43.8	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		40.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		45.0	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		54.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		48.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		51.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		42.8	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		55.3	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		50.3	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.9	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.6	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.5	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		42.9	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		45.6	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		47.8	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.5	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		41.8	ug/L	0.300	1.00
78-93-3	2-Butanone		201	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		45.4	ug/L	0.300	1.00
591-78-6	2-Hexanone		190	ug/L	1.50	5.00
106-43-4	4-Chlorotoluene		42.1	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		44.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		237	ug/L	1.50	5.00
67-64-1	Acetone		183	ug/L	1.50	10.0
75-05-8	Acetonitrile		1210	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		44.0	ug/L	0.300	1.00
108-86-1	Bromobenzene		47.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane		51.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		45.0	ug/L	0.300	1.00
75-25-2	Bromoform		49.2	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203329445**				
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1479801**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/20/2015 22:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/20/2015 22:04**				
Data File:	**052015V4\4J329LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		45.2	ug/L	0.300	1.00
75-15-0	Carbon disulfide		226	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		43.4	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.1	ug/L	0.300	1.00
75-00-3	Chloroethane		42.3	ug/L	0.300	1.00
67-66-3	Chloroform		44.5	ug/L	0.300	1.00
74-87-3	Chloromethane		41.1	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		48.0	ug/L	0.300	1.00
74-95-3	Dibromomethane		48.9	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		38.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.2	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		44.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		47.8	ug/L	0.300	1.00
74-88-4	Iodomethane		246	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		42.7	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		45.2	ug/L	1.00	10.0
91-20-3	Naphthalene		61.1	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		46.5	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		46.0	ug/L	0.300	1.00
108-88-3	Toluene		44.4	ug/L	0.300	1.00
79-01-6	Trichloroethylene		45.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		43.2	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	2.00	5.00
108-05-4	Vinyl acetate		215	ug/L	1.50	5.00
75-01-4	Vinyl chloride		42.8	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		46.2	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		91.2	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		5810	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		43.4	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		41.9	ug/L	0.300	1.00
95-47-6	o-Xylene		44.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		43.9	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203329445**				
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1479801**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/20/2015 22:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/20/2015 22:04**				
Data File:	**052015V4\4J329LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		48.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		45.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		42.0	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.0	50.0	ug/L	94.1	(77%-123%)
Bromofluorobenzene	46.1	50.0	ug/L	92.2	(80%-120%)
Toluene-d8	49.2	50.0	ug/L	98.3	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203329446**				
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1479801**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/20/2015 22:33**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/20/2015 22:33**				
Data File:	**052015V4\4J330SHAR.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		39.3	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		225	ug/L	1.50	5.00
107-13-1	Acrylonitrile		192	ug/L	1.50	5.00
107-05-1	Allyl chloride		160	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:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203329446**				
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1479801**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/20/2015 22:33**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/20/2015 22:33**				
Data File:	**052015V4\4J330SHAR.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		199	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		2040	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		193	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		200	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		195	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		186	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:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203329446**				
Client Sample:	**QC for batch 1479801**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1479801**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1479801**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**05/20/2015 22:33**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**05/20/2015 22:33**				
Data File:	**052015V4\4J330SHAR.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	47.4	50.0	ug/L	94.9	(77%-123%)
Bromofluorobenzene	46.6	50.0	ug/L	93.1	(80%-120%)
Toluene-d8	49.6	50.0	ug/L	99.2	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
02-JUN-15	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1479801	See Below		

Potentially affected work order(s)(SDG): 372401(2015-1152),372528(2015-1163),372533(2015-1158),372759(2015-1176),372807(2015-1177)

Application Issues:

Sample Analyzed out of Holding

Specification and Requirements Exception Description:	**DER Disposition:**
Sample Analyzed out of Holding: 372533001; 372533003; 372533004; and 372533006 along with QC 1203321653MS and 1203321654MSD also with 1203321677MS and 1203321678MSD	Samples 372533001 (CAMO-15-95773), 372533003 (CAMO-15-95755), 372533004 (CAMO-15-95758), 372533006 (CAMO-15-95766), 1203321653 (CAMO-15-95773PS), 1203321654 (CAMO-15-95773PSD), 1203321677 (CAMO-15-95773PS) and 1203321678 (CAMO-15-95773PSD) 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 02-JUN-15

Data Validator/Group Leader:

Erin Haubert 02-JUN-15

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2015-1176
Work Order #: 372759

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:	1478225
Prep Batch Number:	1478224

Sample Analysis

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

Sample ID	Client ID
372759001	CAMO-15-95776
372759003	CAMO-15-95787
1203317334	Method Blank (MB)
1203317335	Laboratory Control Sample (LCS)
1203317336	372759001(CAMO-15-95776) Matrix Spike (MS)
1203317337	372759001(CAMO-15-95776) 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 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 372759001 (CAMO-15-95776) was selected for analysis as the matrix spike and matrix spike duplicate.

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

MS/MSD Relative Percent Difference (RPD) Statement
The RPD values between the MS and MSD met the acceptance limits.

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

Technical Information:

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

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

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

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

Miscellaneous Information:

Data Exception (DER) Documentation
A data exception report (DER) was not generated for sample(s) in this SDG in this batch. A data exception report (DER) was not generated for this SDG.

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 not required for the samples in this SDG for this batch.

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

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

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

Client SDG: 2015-1176 GEL Work Order: 372759

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, 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: Barbara Bailey **Name: Barbara Bailey**

Date: 03 JUN 2015 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**372759001**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95776**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 19:53**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1319.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
	1,2-Diphenylhydrazine					
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
	4-Chloro-3-methylphenol					
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:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**372759001**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95776**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 19:53**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1319.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 *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
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

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**372759001**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95776**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 19:53**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1319.D**	**Column:**	**DB-5ms**		

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 *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline *p-Nitroaniline*	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	94.3	100	ug/L	94.3	(33%-126%)
2-Fluorobiphenyl	31.2	50.0	ug/L	62.5	(35%-102%)
2-Fluorophenol	42.8	100	ug/L	42.8	(18%-84%)
Nitrobenzene-d5	37.7	50.0	ug/L	75.3	(38%-113%)
Phenol-d5	28.1	100	ug/L	28.1	(10%-110%)
p-Terphenyl-d14	48.8	50.0	ug/L	97.5	(38%-123%)

Tentatively Identified Compound Summary

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 11:38**	**Matrix:**	**W**
Lab Sample ID:	**372759003**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95787**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 21:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**860 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1322.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	11.6	ug/L	3.49	11.6
120-82-1	1,2,4-Trichlorobenzene	U	11.6	ug/L	3.49	11.6
95-50-1	1,2-Dichlorobenzene	U	11.6	ug/L	3.49	11.6
122-66-7	Azobenzene	U	11.6	ug/L	3.49	11.6
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene	U	11.6	ug/L	3.49	11.6
106-46-7	1,4-Dichlorobenzene	U	11.6	ug/L	3.49	11.6
123-91-1	1,4-Dioxane	U	11.6	ug/L	3.49	11.6
90-12-0	1-Methylnaphthalene	U	1.16	ug/L	0.349	1.16
58-90-2	2,3,4,6-Tetrachlorophenol	U	11.6	ug/L	3.49	11.6
95-95-4	2,4,5-Trichlorophenol	U	11.6	ug/L	3.49	11.6
88-06-2	2,4,6-Trichlorophenol	U	11.6	ug/L	3.49	11.6
120-83-2	2,4-Dichlorophenol	U	11.6	ug/L	3.49	11.6
105-67-9	2,4-Dimethylphenol	U	11.6	ug/L	3.49	11.6
51-28-5	2,4-Dinitrophenol	U	23.3	ug/L	5.81	23.3
121-14-2	2,4-Dinitrotoluene	U	11.6	ug/L	3.49	11.6
606-20-2	2,6-Dinitrotoluene	U	11.6	ug/L	3.49	11.6
91-58-7	2-Chloronaphthalene	U	1.16	ug/L	0.477	1.16
95-57-8	2-Chlorophenol	U	11.6	ug/L	3.49	11.6
534-52-1	2-Methyl-4,6-dinitrophenol	U	11.6	ug/L	3.49	11.6
91-57-6	2-Methylnaphthalene	U	1.16	ug/L	0.349	1.16
88-75-5	2-Nitrophenol	U	11.6	ug/L	3.49	11.6
91-94-1	3,3'-Dichlorobenzidine	U	11.6	ug/L	3.49	11.6
101-55-3	4-Bromophenylphenylether	U	11.6	ug/L	3.49	11.6
59-50-7	Parachlorometa cresol	U	11.6	ug/L	3.49	11.6
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline	U	11.6	ug/L	3.84	11.6
7005-72-3	4-Chlorophenylphenylether	U	11.6	ug/L	3.49	11.6
100-02-7	4-Nitrophenol	U	11.6	ug/L	3.49	11.6
83-32-9	Acenaphthene	U	1.16	ug/L	0.349	1.16
208-96-8	Acenaphthylene	U	1.16	ug/L	0.349	1.16
62-53-3	Aniline	U	11.6	ug/L	4.88	11.6
120-12-7	Anthracene	U	1.16	ug/L	0.349	1.16
1912-24-9	Atrazine	U	11.6	ug/L	3.49	11.6
92-87-5	Benzidine	U	11.6	ug/L	4.53	11.6
56-55-3	Benzo(a)anthracene	U	1.16	ug/L	0.349	1.16
50-32-8	Benzo(a)pyrene	U	1.16	ug/L	0.349	1.16
205-99-2	Benzo(b)fluoranthene	U	1.16	ug/L	0.349	1.16
191-24-2	Benzo(ghi)perylene	U	1.16	ug/L	0.349	1.16

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 11:38**	**Matrix:**	**W**
Lab Sample ID:	**372759003**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95787**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 21:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**860 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1322.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	1.16	ug/L	0.349	1.16
65-85-0	Benzoic acid	U	23.3	ug/L	6.98	23.3
100-51-6	Benzyl alcohol	U	11.6	ug/L	3.49	11.6
85-68-7	Butylbenzylphthalate	U	11.6	ug/L	3.49	11.6
218-01-9	Chrysene	U	1.16	ug/L	0.349	1.16
84-74-2	Di-n-butylphthalate	U	11.6	ug/L	3.49	11.6
117-84-0	Di-n-octylphthalate	U	11.6	ug/L	3.49	11.6
53-70-3	Dibenzo(a,h)anthracene	U	1.16	ug/L	0.349	1.16
132-64-9	Dibenzofuran	U	11.6	ug/L	3.49	11.6
84-66-2	Diethylphthalate	U	11.6	ug/L	3.49	11.6
131-11-3	Dimethylphthalate	U	11.6	ug/L	3.49	11.6
88-85-7	Dinoseb	U	11.6	ug/L	3.49	11.6
122-39-4	Diphenylamine	U	11.6	ug/L	3.49	11.6
206-44-0	Fluoranthene	U	1.16	ug/L	0.349	1.16
86-73-7	Fluorene	U	1.16	ug/L	0.349	1.16
118-74-1	Hexachlorobenzene	U	11.6	ug/L	3.49	11.6
87-68-3	Hexachlorobutadiene	U	11.6	ug/L	3.49	11.6
77-47-4	Hexachlorocyclopentadiene	U	11.6	ug/L	3.49	11.6
67-72-1	Hexachloroethane	U	11.6	ug/L	3.49	11.6
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.16	ug/L	0.349	1.16
78-59-1	Isophorone	U	11.6	ug/L	4.07	11.6
62-75-9	N-Methyl-N-nitrosomethylamine	U	11.6	ug/L	3.49	11.6
924-16-3	N-Nitrosodi-n-butylamine	U	11.6	ug/L	3.49	11.6
55-18-5	N-Nitrosodiethylamine	U	11.6	ug/L	3.49	11.6
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	11.6	ug/L	3.49	11.6
930-55-2	N-Nitrosopyrrolidine	U	11.6	ug/L	3.49	11.6
91-20-3	Naphthalene	U	1.16	ug/L	0.349	1.16
98-95-3	Nitrobenzene	U	11.6	ug/L	3.49	11.6
608-93-5	Pentachlorobenzene	U	11.6	ug/L	3.49	11.6
87-86-5	Pentachlorophenol	U	11.6	ug/L	3.49	11.6
85-01-8	Phenanthrene	U	1.16	ug/L	0.349	1.16
108-95-2	Phenol	U	11.6	ug/L	3.49	11.6
129-00-0	Pyrene	U	1.16	ug/L	0.349	1.16
110-86-1	Pyridine	U	11.6	ug/L	3.49	11.6
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	11.6	ug/L	3.49	11.6
111-91-1	bis(2-Chloroethoxy)methane	U	11.6	ug/L	3.49	11.6
111-44-4	bis(2-Chloroethyl) ether	U	11.6	ug/L	3.49	11.6
117-81-7	bis(2-Ethylhexyl)phthalate	U	11.6	ug/L	3.49	11.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 11:38**	**Matrix:**	**W**
Lab Sample ID:	**372759003**	**Date Received:**	**05/09/2015 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-15-95787**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 21:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**860 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1322.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	11.6	ug/L	4.30	11.6
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	11.6	ug/L	3.49	11.6
95-48-7	o-Cresol	U	11.6	ug/L	3.49	11.6
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	11.6	ug/L	3.49	11.6
100-01-6	4-Nitroaniline *p-Nitroaniline*	U	11.6	ug/L	3.49	11.6

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	108	116	ug/L	93.1	(33%-126%)
2-Fluorobiphenyl	40.9	58.1	ug/L	70.3	(35%-102%)
2-Fluorophenol	47.8	116	ug/L	41.1	(18%-84%)
Nitrobenzene-d5	46.4	58.1	ug/L	79.7	(38%-113%)
Phenol-d5	31.4	116	ug/L	27.0	(10%-110%)
p-Terphenyl-d14	57.6	58.1	ug/L	99.0	(38%-123%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000080-05-7	Phenol, 4,4'-(1-methylethylidene)b	13.686	10.5	ug/L	98	NJ

Quality Control Summary

Surrogate Recovery Report

SDG Number: 2015-1176

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203317334	MB for batch 1478224	50	34	94	78	108	108
1203317335	LCS for batch 1478224	42	27	80	74	95	86
372759001	CAMO-15-95776	43	28	75	62	94	98
1203317336	CAMO-15-95776MS	61	50	81	75	106	92
1203317337	CAMO-15-95776MSD	69	59	84	80	94	102
372759003	CAMO-15-95787	41	27	80	70	93	99

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

SDG Number: 2015-1176
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1478224
Matrix: WATER
Lab Sample ID 1203317335
Instrument: MSD3.I
Analvsis Date: 05/13/2015 16:18
Dilution: 1
Analvst: JLD1
Prep Batch ID: 1478224
Inj. Vol: 1 uL
Batch ID: 1478225

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	22.1	44	24-82
110-86-1	LCS	Pyridine	50.0	0.0	20.7	41	24-97
62-53-3	LCS	Aniline	50.0	0.0	37.1	74	42-120
108-95-2	LCS	Phenol	50.0	0.0	14.1	28	10-114
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	37.2	74	44-111
95-57-8	LCS	2-Chlorophenol	50.0	0.0	35.1	70	44-103
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	30.2	60	27-91
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	30.7	61	27-93
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	31.3	63	29-92
108-60-1	LCS	bis(2-Chloro-1-methylethyl)et	50.0	0.0	35.9	72	30-113
100-51-6	LCS	Benzyl alcohol	50.0	0.0	32.8	66	34-106
95-48-7	LCS	o-Cresol	50.0	0.0	28.1	56	36-99
65794-96-9	LCS	m,p-Cresols	50.0	0.0	30.3	61	34-106
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	34.3	69	48-119
67-72-1	LCS	Hexachloroethane	50.0	0.0	30.8	62	25-92
98-95-3	LCS	Nitrobenzene	50.0	0.0	38.4	77	44-117
78-59-1	LCS	Isophorone	50.0	0.0	39.6	79	49-124
88-75-5	LCS	2-Nitrophenol	50.0	0.0	47.2	94	47-110
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	34.5	69	43-105
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	39.5	79	48-114
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	39.4	79	47-107
65-85-0	LCS	Benzoic acid	100	0.0	30.9	31	10-91

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1478224
Matrix: WATER
Lab Sample ID 1203317335
Instrument: MSD3.I
Analysis Date: 05/13/2015 16:18
Dilution: 1
Analyst: JLD1
Prep Batch ID: 1478224
Inj. Vol: 1 uL
Batch ID: 1478225

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	53.3	107	48-120
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	29.8	60	24-93
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	38.6	77	47-113
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	33.3	67	33-96
91-20-3	LCS	Naphthalene	50.0	0.0	33.4	67	33-96
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	34.6	69	34-98
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	23.4	47	18-87
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	41.8	84	48-114
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	42.4	85	50-113
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	35.5	71	37-100
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	47.2	94	50-123
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	54.4	109	48-126
131-11-3	LCS	Dimethylphthalate	50.0	0.0	44.2	88	55-119
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	44.5	89	55-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	44.0	88	55-123
208-96-8	LCS	Acenaphthylene	50.0	0.0	37.5	75	43-104
83-32-9	LCS	Acenaphthene	50.0	0.0	37.1	74	42-101
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	42.0	84	14-126
132-64-9	LCS	Dibenzofuran	50.0	0.0	38.9	78	46-111
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	38.9	78	48-117
84-66-2	LCS	Diethylphthalate	50.0	0.0	45.1	90	55-121
100-02-7	LCS	4-Nitrophenol	50.0	0.0	14.0	28	15-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1478224
Matrix: WATER
Lab Sample ID 1203317335
Instrument: MSD3.I
Analysis Date: 05/13/2015 16:18
Dilution: 1
Analyst: JLD1
Prep Batch ID: 1478224
Inj. Vol: 1 uL
Batch ID: 1478225

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	38.5	77	47-105
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	40.1	80	44-112
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	46.9	94	46-144
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	43.2	86	41-123
122-39-4	LCS	Diphenylamine	50.0	0.0	38.1	76	51-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	35.0	70	43-114
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	39.6	79	46-112
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	41.1	82	46-113
87-86-5	LCS	Pentachlorophenol	50.0	0.0	35.4	71	33-111
85-01-8	LCS	Phenanthrene	50.0	0.0	39.5	79	49-106
120-12-7	LCS	Anthracene	50.0	0.0	38.6	77	49-106
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	42.9	86	52-119
206-44-0	LCS	Fluoranthene	50.0	0.0	39.7	79	48-114
129-00-0	LCS	Pyrene	50.0	0.0	34.1	68	41-115
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	35.6	71	45-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	36.3	73	43-120
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	37.2	74	50-107
218-01-9	LCS	Chrysene	50.0	0.0	39.0	78	48-108
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	37.0	74	40-122
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	37.7	75	48-110
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	37.4	75	48-112
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	38.9	78	47-106

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1478224
Matrix: WATER
Lab Sample ID 1203317335
Instrument: MSD3.I
Analysis Date: 05/13/2015 16:18
Dilution: 1
Analyst: JLD1
Prep Batch ID: 1478224
Inj. Vol: 1 uL
Batch ID: 1478225

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	41.7	83	37-120
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	41.9	84	36-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	38.0	76	34-121
123-91-1	LCS	1,4-Dioxane	50.0	0.0	21.3	43	29-74
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	34.8	70	46-111
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	31.9	64	33-94
1912-24-9	LCS	Atrazine	50.0	0.0	18.1	36	30-122
92-87-5	LCS	Benzidine	100	0.0	63.5	64	10-137
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	42.9	86	37-119
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	32.2	64	29-93

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176 **Sample Type:** Matrix Spike

Client ID: CAMO-15-95776MS **Matrix:** W

Lab Sample ID 1203317336

Instrument: MSD3.I **Analysis Date:** 05/13/2015 20:23 **Dilution:** 1

Analyst: JLD1 **Prep Batch ID:** 1478224

Inj. Vol: 1 uL **Batch ID:** 1478225

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	111	0.00	U	66.6	60	26-97
110-86-1	MS	Pyridine	111	0.00	U	51.1	46	20-112
62-53-3	MS	Aniline	111	0.00	U	86.3	78	28-126
108-95-2	MS	Phenol	111	0.00	U	57.6	52	17-77
111-44-4	MS	bis(2-Chloroethyl) ether	111	0.00	U	85.1	77	37-113
95-57-8	MS	2-Chlorophenol	111	0.00	U	89.1	80	34-108
541-73-1	MS	1,3-Dichlorobenzene	111	0.00	U	68.9	62	25-89
106-46-7	MS	1,4-Dichlorobenzene	111	0.00	U	69.7	63	26-90
95-50-1	MS	1,2-Dichlorobenzene	111	0.00	U	70.8	64	26-92
108-60-1	MS	bis(2-Chloro-1-methylethyl)et	111	0.00	U	88.0	79	26-114
100-51-6	MS	Benzyl alcohol	111	0.00	U	89.6	81	28-119
95-48-7	MS	o-Cresol	111	0.00	U	82.5	74	30-108
65794-96-9	MS	m,p-Cresols	111	0.00	U	94.2	85	31-119
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	111	0.00	U	86.5	78	40-122
67-72-1	MS	Hexachloroethane	111	0.00	U	71.0	64	23-89
98-95-3	MS	Nitrobenzene	111	0.00	U	87.9	79	38-123
78-59-1	MS	Isophorone	111	0.00	U	90.1	81	40-127
88-75-5	MS	2-Nitrophenol	111	0.00	U	108	97	35-116
105-67-9	MS	2,4-Dimethylphenol	111	0.00	U	85.4	77	34-109
111-91-1	MS	bis(2-Chloroethoxy)methane	111	0.00	U	91.7	83	41-116
120-83-2	MS	2,4-Dichlorophenol	111	0.00	U	95.2	86	35-113
65-85-0	MS	Benzoic acid	222	0.00	U	121	55	12-94

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Matrix Spike
Client ID: CAMO-15-95776MS
Matrix: W
Lab Sample ID 1203317336
Instrument: MSD3.I
Analysis Date: 05/13/2015 20:23
Dilution: 1
Analyst: JLD1
Prep Batch ID: 1478224
Inj. Vol: 1 uL
Batch ID: 1478225

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	111	0.00	U	121	109	32-122
87-68-3	MS	Hexachlorobutadiene	111	0.00	U	69.8	63	23-90
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	111	0.00	U	99.4	89	37-119
91-57-6	MS	2-Methylnaphthalene	111	0.00	U	77.8	70	28-102
91-20-3	MS	Naphthalene	111	0.00	U	77.6	70	27-101
90-12-0	MS	1-Methylnaphthalene	111	0.00	U	80.4	72	28-105
77-47-4	MS	Hexachlorocyclopentadiene	111	0.00	U	50.2	45	10-84
88-06-2	MS	2,4,6-Trichlorophenol	111	0.00	U	98.5	89	36-120
95-95-4	MS	2,4,5-Trichlorophenol	111	0.00	U	103	93	37-121
91-58-7	MS	2-Chloronaphthalene	111	0.00	U	81.6	73	32-103
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	111	0.00	U	112	101	38-126
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	111	0.00	U	133	120	30-131
131-11-3	MS	Dimethylphthalate	111	0.00	U	103	93	45-121
606-20-2	MS	2,6-Dinitrotoluene	111	0.00	U	104	94	44-120
121-14-2	MS	2,4-Dinitrotoluene	111	0.00	U	104	94	44-127
208-96-8	MS	Acenaphthylene	111	0.00	U	85.7	77	33-110
83-32-9	MS	Acenaphthene	111	0.00	U	85.4	77	31-108
51-28-5	MS	2,4-Dinitrophenol	111	0.00	U	110	99	10-133
132-64-9	MS	Dibenzofuran	111	0.00	U	89.8	81	39-114
58-90-2	MS	2,3,4,6-Tetrachlorophenol	111	0.00	U	95.2	86	34-125
84-66-2	MS	Diethylphthalate	111	0.00	U	104	94	44-124
100-02-7	MS	4-Nitrophenol	111	0.00	U	71.4	64	10-83

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Client ID: CAMO-15-95776MS
Lab Sample ID 1203317336
Instrument: MSD3.I
Analyst: JLD1
Inj. Vol: 1 uL

Sample Type: Matrix Spike
Matrix: W
Analysis Date: 05/13/2015 20:23
Prep Batch ID: 1478224
Batch ID: 1478225
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	111	0.00	U	88.8	80	36-111
7005-72-3	MS	4-Chlorophenylphenylether	111	0.00	U	90.8	82	37-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	111	0.00	U	123	111	27-149
534-52-1	MS	2-Methyl-4,6-dinitrophenol	111	0.00	U	105	95	28-131
122-39-4	MS	Diphenylamine	111	0.00	U	82.1	74	34-117
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	111	0.00	U	76.6	69	36-115
101-55-3	MS	4-Bromophenylphenylether	111	0.00	U	86.3	78	39-112
118-74-1	MS	Hexachlorobenzene	111	0.00	U	88.1	79	39-114
87-86-5	MS	Pentachlorophenol	111	0.00	U	89.0	80	24-122
85-01-8	MS	Phenanthrene	111	0.00	U	89.2	80	37-112
120-12-7	MS	Anthracene	111	0.00	U	86.9	78	36-114
84-74-2	MS	Di-n-butylphthalate	111	0.00	U	94.3	85	40-122
206-44-0	MS	Fluoranthene	111	0.00	U	91.0	82	35-118
129-00-0	MS	Pyrene	111	0.00	U	79.4	71	32-121
85-68-7	MS	Butylbenzylphthalate	111	0.00	U	83.2	75	36-124
117-81-7	MS	bis(2-Ethylhexyl)phthalate	111	0.00	U	82.8	75	35-123
56-55-3	MS	Benzo(a)anthracene	111	0.00	U	83.0	75	38-113
218-01-9	MS	Chrysene	111	0.00	U	88.6	80	37-114
117-84-0	MS	Di-n-octylphthalate	111	0.00	U	83.6	75	32-124
205-99-2	MS	Benzo(b)fluoranthene	111	0.00	U	88.4	80	38-116
207-08-9	MS	Benzo(k)fluoranthene	111	0.00	U	91.9	83	39-117
50-32-8	MS	Benzo(a)pyrene	111	0.00	U	85.9	77	37-112

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Client ID: CAMO-15-95776MS
Lab Sample ID 1203317336
Instrument: MSD3.I
Analyst: JLD1
Inj. Vol: 1 uL

Sample Type: Matrix Spike
Matrix: W
Analysis Date: 05/13/2015 20:23
Prep Batch ID: 1478224
Batch ID: 1478225
Dilution: 1

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	111	0.00	U	81.1	73	25-122
53-70-3	MS	Dibenzo(a,h)anthracene	111	0.00	U	81.1	73	27-125
191-24-2	MS	Benzo(ghi)perylene	111	0.00	U	73.9	67	24-121
123-91-1	MS	1,4-Dioxane	111	0.00	U	63.6	57	27-94
930-55-2	MS	N-Nitrosopyrrolidine	111	0.00	U	87.5	79	43-117
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	111	0.00	U	72.9	66	28-96
1912-24-9	MS	Atrazine	111	0.00	U	40.4	36	18-119
92-87-5	MS	Benzidine	222	0.00	U	124	56	10-127
91-94-1	MS	3,3'-Dichlorobenzidine	111	0.00	U	85.3	77	19-120
120-82-1	MS	1,2,4-Trichlorobenzene	111	0.00	U	74.4	67	26-92

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Matrix Spike Duplicate
Client ID: CAMO-15-95776MSD
Matrix: W
Lab Sample ID 1203317337
Instrument: MSD3.I
Analysis Date: 05/13/2015 20:54
Dilution: 1
Analyst: JLD1
Prep Batch ID: 1478224
Inj. Vol: 1 uL
Batch ID: 1478225

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	111	0.00	U	72.3	65	26-97	8	0-30
110-86-1	MSD	Pyridine	111	0.00	U	55.8	50	20-112	9	0-30
62-53-3	MSD	Aniline	111	0.00	U	87.8	79	28-126	2	0-30
108-95-2	MSD	Phenol	111	0.00	U	67.4	61	17-77	16	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	111	0.00	U	86.8	78	37-113	2	0-30
95-57-8	MSD	2-Chlorophenol	111	0.00	U	92.8	84	34-108	4	0-30
541-73-1	MSD	1,3-Dichlorobenzene	111	0.00	U	70.6	64	25-89	2	0-30
106-46-7	MSD	1,4-Dichlorobenzene	111	0.00	U	71.6	64	26-90	3	0-30
95-50-1	MSD	1,2-Dichlorobenzene	111	0.00	U	73.1	66	26-92	3	0-30
108-60-1	MSD	bis(2-Chloro-1-methylethyl)et	111	0.00	U	85.6	77	26-114	3	0-30
100-51-6	MSD	Benzyl alcohol	111	0.00	U	94.7	85	28-119	6	0-30
95-48-7	MSD	o-Cresol	111	0.00	U	86.6	78	30-108	5	0-30
65794-96-9	MSD	m,p-Cresols	111	0.00	U	99.6	90	31-119	6	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	111	0.00	U	84.8	76	40-122	2	0-30
67-72-1	MSD	Hexachloroethane	111	0.00	U	73.2	66	23-89	3	0-30
98-95-3	MSD	Nitrobenzene	111	0.00	U	91.4	82	38-123	4	0-30
78-59-1	MSD	Isophorone	111	0.00	U	89.2	80	40-127	1	0-30
88-75-5	MSD	2-Nitrophenol	111	0.00	U	115	103	35-116	6	0-30
105-67-9	MSD	2,4-Dimethylphenol	111	0.00	U	87.6	79	34-109	2	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	111	0.00	U	93.6	84	41-116	2	0-30
120-83-2	MSD	2,4-Dichlorophenol	111	0.00	U	98.4	89	35-113	3	0-30
65-85-0	MSD	Benzoic acid	222	0.00	U	161	73	12-94	28	0-30

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Matrix Spike Duplicate
Client ID: CAMO-15-95776MSD
Matrix: W
Lab Sample ID 1203317337
Instrument: MSD3.I
Analysis Date: 05/13/2015 20:54
Dilution: 1
Analyst: JLD1
Prep Batch ID: 1478224
Inj. Vol: 1 uL
Batch ID: 1478225

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	111	0.00	U	119	107	32-122	2	0-30
87-68-3	MSD	Hexachlorobutadiene	111	0.00	U	72.8	65	23-90	4	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	111	0.00	U	96.6	87	37-119	3	0-30
91-57-6	MSD	2-Methylnaphthalene	111	0.00	U	77.8	70	28-102	0	0-30
91-20-3	MSD	Naphthalene	111	0.00	U	78.3	70	27-101	1	0-30
90-12-0	MSD	1-Methylnaphthalene	111	0.00	U	79.0	71	28-105	2	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	111	0.00	U	61.8	56	10-84	21	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	111	0.00	U	103	93	36-120	5	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	111	0.00	U	105	95	37-121	2	0-30
91-58-7	MSD	2-Chloronaphthalene	111	0.00	U	85.8	77	32-103	5	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	111	0.00	U	109	98	38-126	3	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	111	0.00	U	117	106	30-131	13	0-30
131-11-3	MSD	Dimethylphthalate	111	0.00	U	96.6	87	45-121	7	0-30
606-20-2	MSD	2,6-Dinitrotoluene	111	0.00	U	97.6	88	44-120	7	0-30
121-14-2	MSD	2,4-Dinitrotoluene	111	0.00	U	91.3	82	44-127	13	0-30
208-96-8	MSD	Acenaphthylene	111	0.00	U	86.2	78	33-110	1	0-30
83-32-9	MSD	Acenaphthene	111	0.00	U	84.0	76	31-108	2	0-30
51-28-5	MSD	2,4-Dinitrophenol	111	0.00	U	103	92	10-133	7	0-30
132-64-9	MSD	Dibenzofuran	111	0.00	U	86.3	78	39-114	4	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	111	0.00	U	88.8	80	34-125	7	0-30
84-66-2	MSD	Diethylphthalate	111	0.00	U	92.8	84	44-124	12	0-30
100-02-7	MSD	4-Nitrophenol	111	0.00	U	66.8	60	10-83	7	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Sample Type: Matrix Spike Duplicate
Client ID: CAMO-15-95776MSD
Matrix: W
Lab Sample ID 1203317337
Instrument: MSD3.I
Analysis Date: 05/13/2015 20:54
Dilution: 1
Analyst: JLD1
Prep Batch ID: 1478224
Inj. Vol: 1 uL
Batch ID: 1478225

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	111	0.00	U	82.8	75	36-111	7	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	111	0.00	U	84.9	76	37-112	7	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	111	0.00	U	98.9	89	27-149	22	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	111	0.00	U	105	95	28-131	0	0-30
122-39-4	MSD	Diphenylamine	111	0.00	U	86.8	78	34-117	6	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	111	0.00	U	80.9	73	36-115	5	0-30
101-55-3	MSD	4-Bromophenylphenylether	111	0.00	U	88.4	80	39-112	2	0-30
118-74-1	MSD	Hexachlorobenzene	111	0.00	U	91.4	82	39-114	4	0-30
87-86-5	MSD	Pentachlorophenol	111	0.00	U	86.8	78	24-122	2	0-30
85-01-8	MSD	Phenanthrene	111	0.00	U	88.0	79	37-112	1	0-30
120-12-7	MSD	Anthracene	111	0.00	U	86.6	78	36-114	0	0-30
84-74-2	MSD	Di-n-butylphthalate	111	0.00	U	93.5	84	40-122	1	0-30
206-44-0	MSD	Fluoranthene	111	0.00	U	83.6	75	35-118	8	0-30
129-00-0	MSD	Pyrene	111	0.00	U	93.7	84	32-121	17	0-30
85-68-7	MSD	Butylbenzylphthalate	111	0.00	U	86.7	78	36-124	4	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	111	0.00	U	84.2	76	35-123	2	0-30
56-55-3	MSD	Benzo(a)anthracene	111	0.00	U	82.5	74	38-113	1	0-30
218-01-9	MSD	Chrysene	111	0.00	U	88.7	80	37-114	0	0-30
117-84-0	MSD	Di-n-octylphthalate	111	0.00	U	81.0	73	32-124	3	0-30
205-99-2	MSD	Benzo(b)fluoranthene	111	0.00	U	83.2	75	38-116	6	0-30
207-08-9	MSD	Benzo(k)fluoranthene	111	0.00	U	84.2	76	39-117	9	0-30
50-32-8	MSD	Benzo(a)pyrene	111	0.00	U	84.8	76	37-112	1	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2015-1176
Client ID: CAMO-15-95776MSD
Lab Sample ID 1203317337
Instrument: MSD3.I
Analyst: JLD1
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: W
Analysis Date: 05/13/2015 20:54
Prep Batch ID: 1478224
Batch ID: 1478225
Dilution: 1

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	111	0.00	U	94.2	85	25-122	15	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	111	0.00	U	95.7	86	27-125	17	0-30
191-24-2	MSD Benzo(ghi)perylene	111	0.00	U	88.6	80	24-121	18	0-30
123-91-1	MSD 1,4-Dioxane	111	0.00	U	68.8	62	27-94	8	0-30
930-55-2	MSD N-Nitrosopyrrolidine	111	0.00	U	87.6	79	43-117	0	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	111	0.00	U	78.0	70	28-96	7	0-30
1912-24-9	MSD Atrazine	111	0.00	U	40.7	37	18-119	1	0-30
92-87-5	MSD Benzidine	222	0.00	U	124	56	10-127	0	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	111	0.00	U	88.3	80	19-120	3	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	111	0.00	U	76.1	69	26-92	2	0-30

Method Blank Summary

SDG Number:	**2015-1176**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1478224**	**Instrument ID:**	**MSD3.I**	**Data File:**	**s051315.B\s3e1311.D**
Lab Sample ID:	**1203317334**	**Prep Date:**	**05/13/2015 06:50**	**Analyzed:**	**05/13/15 15:48**
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 1478224	1203317335	s051315.B\s3e1312.D	05/13/15	1618
04	CAMO-15-95776	372759001	s051315.B\s3e1319.D	05/13/15	1953
07	CAMO-15-95776MS	1203317336	s051315.B\s3e1320.D	05/13/15	2023
10	CAMO-15-95776MSD	1203317337	s051315.B\s3e1321.D	05/13/15	2054
11	CAMO-15-95787	372759003	s051315.B\s3e1322.D	05/13/15	2124

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203317334**				
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1478224**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 15:48**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1311.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
	1,2-Diphenylhydrazine					
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
	4-Chloro-3-methylphenol					
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:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203317334**				
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1478224**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 15:48**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1311.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 *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
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

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203317334**				
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1478224**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 15:48**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1311.D**	**Column:**	**DB-5ms**		

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 *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline *p-Nitroaniline*	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	108	100	ug/L	108	(33%-126%)
2-Fluorobiphenyl	39.0	50.0	ug/L	77.9	(35%-102%)
2-Fluorophenol	50.1	100	ug/L	50.1	(18%-84%)
Nitrobenzene-d5	47.0	50.0	ug/L	94.1	(38%-113%)
Phenol-d5	34.1	100	ug/L	34.1	(10%-110%)
p-Terphenyl-d14	54.0	50.0	ug/L	108	(38%-123%)

Tentatively Identified Compound Summary

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203317335**				
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1478224**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 16:18**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1312.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		31.9	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		32.2	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		31.3	ug/L	3.00	10.0
122-66-7	Azobenzene		35.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		30.2	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		30.7	ug/L	3.00	10.0
123-91-1	1,4-Dioxane		21.3	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene		34.6	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol		38.9	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		42.4	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		41.8	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		39.4	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		34.5	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol		42.0	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene		44.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		44.5	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		35.5	ug/L	0.410	1.00
95-57-8	2-Chlorophenol		35.1	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		43.2	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		33.3	ug/L	0.300	1.00
88-75-5	2-Nitrophenol		47.2	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		42.9	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether		39.6	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol		38.6	ug/L	3.00	10.0
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		53.3	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether		40.1	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		14.0	ug/L	3.00	10.0
83-32-9	Acenaphthene		37.1	ug/L	0.300	1.00
208-96-8	Acenaphthylene		37.5	ug/L	0.300	1.00
62-53-3	Aniline		37.1	ug/L	4.20	10.0
120-12-7	Anthracene		38.6	ug/L	0.300	1.00
1912-24-9	Atrazine		18.1	ug/L	3.00	10.0
92-87-5	Benzidine		63.5	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene		37.2	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		38.9	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene		37.7	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		38.0	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203317335**				
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1478224**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 16:18**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1312.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		37.4	ug/L	0.300	1.00
65-85-0	Benzoic acid		30.9	ug/L	6.00	20.0
100-51-6	Benzyl alcohol		32.8	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate		35.6	ug/L	3.00	10.0
218-01-9	Chrysene		39.0	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		42.9	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate		37.0	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene		41.9	ug/L	0.300	1.00
132-64-9	Dibenzofuran		38.9	ug/L	3.00	10.0
84-66-2	Diethylphthalate		45.1	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		44.2	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine		38.1	ug/L	3.00	10.0
206-44-0	Fluoranthene		39.7	ug/L	0.300	1.00
86-73-7	Fluorene		38.5	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene		41.1	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		29.8	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene		23.4	ug/L	3.00	10.0
67-72-1	Hexachloroethane		30.8	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene		41.7	ug/L	0.300	1.00
78-59-1	Isophorone		39.6	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine		22.1	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 *N-Nitrosodipropylamine*		34.3	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		34.8	ug/L	3.00	10.0
91-20-3	Naphthalene		33.4	ug/L	0.300	1.00
98-95-3	Nitrobenzene		38.4	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		35.4	ug/L	3.00	10.0
85-01-8	Phenanthrene		39.5	ug/L	0.300	1.00
108-95-2	Phenol		14.1	ug/L	3.00	10.0
129-00-0	Pyrene		34.1	ug/L	0.300	1.00
110-86-1	Pyridine		20.7	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		35.9	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		39.5	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		37.2	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		36.3	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**			**Matrix:**	**WATER**
Lab Sample ID:	**1203317335**				
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1478224**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 16:18**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1312.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		30.3	ug/L	3.70	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		54.4	ug/L	3.00	10.0
95-48-7	o-Cresol		28.1	ug/L	3.00	10.0
88-74-4	2-Nitroaniline *o-Nitroaniline*		47.2	ug/L	3.00	10.0
100-01-6	4-Nitroaniline *p-Nitroaniline*		46.9	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	95.1	100	ug/L	95.1	(33%-126%)
2-Fluorobiphenyl	37.1	50.0	ug/L	74.2	(35%-102%)
2-Fluorophenol	42.1	100	ug/L	42.1	(18%-84%)
Nitrobenzene-d5	40.1	50.0	ug/L	80.3	(38%-113%)
Phenol-d5	27.4	100	ug/L	27.4	(10%-110%)
p-Terphenyl-d14	43.1	50.0	ug/L	86.2	(38%-123%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**1203317336**	**Date Received:**	**05/09/2015 09:00**		
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95776MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 20:23**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		72.9	ug/L	6.67	22.2
120-82-1	1,2,4-Trichlorobenzene		74.4	ug/L	6.67	22.2
95-50-1	1,2-Dichlorobenzene		70.8	ug/L	6.67	22.2
122-66-7	Azobenzene		76.6	ug/L	6.67	22.2
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		68.9	ug/L	6.67	22.2
106-46-7	1,4-Dichlorobenzene		69.7	ug/L	6.67	22.2
123-91-1	1,4-Dioxane		63.6	ug/L	6.67	22.2
90-12-0	1-Methylnaphthalene		80.4	ug/L	0.667	2.22
58-90-2	2,3,4,6-Tetrachlorophenol		95.2	ug/L	6.67	22.2
95-95-4	2,4,5-Trichlorophenol		103	ug/L	6.67	22.2
88-06-2	2,4,6-Trichlorophenol		98.5	ug/L	6.67	22.2
120-83-2	2,4-Dichlorophenol		95.2	ug/L	6.67	22.2
105-67-9	2,4-Dimethylphenol		85.4	ug/L	6.67	22.2
51-28-5	2,4-Dinitrophenol		110	ug/L	11.1	44.4
121-14-2	2,4-Dinitrotoluene		104	ug/L	6.67	22.2
606-20-2	2,6-Dinitrotoluene		104	ug/L	6.67	22.2
91-58-7	2-Chloronaphthalene		81.6	ug/L	0.911	2.22
95-57-8	2-Chlorophenol		89.1	ug/L	6.67	22.2
534-52-1	2-Methyl-4,6-dinitrophenol		105	ug/L	6.67	22.2
91-57-6	2-Methylnaphthalene		77.8	ug/L	0.667	2.22
88-75-5	2-Nitrophenol		108	ug/L	6.67	22.2
91-94-1	3,3'-Dichlorobenzidine		85.3	ug/L	6.67	22.2
101-55-3	4-Bromophenylphenylether		86.3	ug/L	6.67	22.2
59-50-7	Parachlorometa cresol		99.4	ug/L	6.67	22.2
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		121	ug/L	7.33	22.2
7005-72-3	4-Chlorophenylphenylether		90.8	ug/L	6.67	22.2
100-02-7	4-Nitrophenol		71.4	ug/L	6.67	22.2
83-32-9	Acenaphthene		85.4	ug/L	0.667	2.22
208-96-8	Acenaphthylene		85.7	ug/L	0.667	2.22
62-53-3	Aniline		86.3	ug/L	9.33	22.2
120-12-7	Anthracene		86.9	ug/L	0.667	2.22
1912-24-9	Atrazine		40.4	ug/L	6.67	22.2
92-87-5	Benzidine		124	ug/L	8.67	22.2
56-55-3	Benzo(a)anthracene		83.0	ug/L	0.667	2.22
50-32-8	Benzo(a)pyrene		85.9	ug/L	0.667	2.22
205-99-2	Benzo(b)fluoranthene		88.4	ug/L	0.667	2.22
191-24-2	Benzo(ghi)perylene		73.9	ug/L	0.667	2.22

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**1203317336**	**Date Received:**	**05/09/2015 09:00**		
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95776MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 20:23**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		91.9	ug/L	0.667	2.22
65-85-0	Benzoic acid		121	ug/L	13.3	44.4
100-51-6	Benzyl alcohol		89.6	ug/L	6.67	22.2
85-68-7	Butylbenzylphthalate		83.2	ug/L	6.67	22.2
218-01-9	Chrysene		88.6	ug/L	0.667	2.22
84-74-2	Di-n-butylphthalate		94.3	ug/L	6.67	22.2
117-84-0	Di-n-octylphthalate		83.6	ug/L	6.67	22.2
53-70-3	Dibenzo(a,h)anthracene		81.1	ug/L	0.667	2.22
132-64-9	Dibenzofuran		89.8	ug/L	6.67	22.2
84-66-2	Diethylphthalate		104	ug/L	6.67	22.2
131-11-3	Dimethylphthalate		103	ug/L	6.67	22.2
88-85-7	Dinoseb	U	22.2	ug/L	6.67	22.2
122-39-4	Diphenylamine		82.1	ug/L	6.67	22.2
206-44-0	Fluoranthene		91.0	ug/L	0.667	2.22
86-73-7	Fluorene		88.8	ug/L	0.667	2.22
118-74-1	Hexachlorobenzene		88.1	ug/L	6.67	22.2
87-68-3	Hexachlorobutadiene		69.8	ug/L	6.67	22.2
77-47-4	Hexachlorocyclopentadiene		50.2	ug/L	6.67	22.2
67-72-1	Hexachloroethane		71.0	ug/L	6.67	22.2
193-39-5	Indeno(1,2,3-cd)pyrene		81.1	ug/L	0.667	2.22
78-59-1	Isophorone		90.1	ug/L	7.78	22.2
62-75-9	N-Methyl-N-nitrosomethylamine		66.6	ug/L	6.67	22.2
924-16-3	N-Nitrosodi-n-butylamine	U	22.2	ug/L	6.67	22.2
55-18-5	N-Nitrosodiethylamine	U	22.2	ug/L	6.67	22.2
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		86.5	ug/L	6.67	22.2
930-55-2	N-Nitrosopyrrolidine		87.5	ug/L	6.67	22.2
91-20-3	Naphthalene		77.6	ug/L	0.667	2.22
98-95-3	Nitrobenzene		87.9	ug/L	6.67	22.2
608-93-5	Pentachlorobenzene	U	22.2	ug/L	6.67	22.2
87-86-5	Pentachlorophenol		89.0	ug/L	6.67	22.2
85-01-8	Phenanthrene		89.2	ug/L	0.667	2.22
108-95-2	Phenol		57.6	ug/L	6.67	22.2
129-00-0	Pyrene		79.4	ug/L	0.667	2.22
110-86-1	Pyridine		51.1	ug/L	6.67	22.2
108-60-1	bis(2-Chloro-1-methylethyl)ether		88.0	ug/L	6.67	22.2
111-91-1	bis(2-Chloroethoxy)methane		91.7	ug/L	6.67	22.2
111-44-4	bis(2-Chloroethyl) ether		85.1	ug/L	6.67	22.2
117-81-7	bis(2-Ethylhexyl)phthalate		82.8	ug/L	6.67	22.2

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**1203317336**	**Date Received:**	**05/09/2015 09:00**		
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95776MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 20:23**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		94.2	ug/L	8.22	22.2
99-09-2	3-Nitroaniline *m-Nitroaniline*		133	ug/L	6.67	22.2
95-48-7	o-Cresol		82.5	ug/L	6.67	22.2
88-74-4	2-Nitroaniline *o-Nitroaniline*		112	ug/L	6.67	22.2
100-01-6	4-Nitroaniline *p-Nitroaniline*		123	ug/L	6.67	22.2

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	236	222	ug/L	106	(33%-126%)
2-Fluorobiphenyl	83.5	111	ug/L	75.2	(35%-102%)
2-Fluorophenol	137	222	ug/L	61.5	(18%-84%)
Nitrobenzene-d5	89.7	111	ug/L	80.7	(38%-113%)
Phenol-d5	111	222	ug/L	49.8	(10%-110%)
p-Terphenyl-d14	102	111	ug/L	92.0	(38%-123%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**1203317337**	**Date Received:**	**05/09/2015 09:00**		
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95776MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 20:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		78.0	ug/L	6.67	22.2
120-82-1	1,2,4-Trichlorobenzene		76.1	ug/L	6.67	22.2
95-50-1	1,2-Dichlorobenzene		73.1	ug/L	6.67	22.2
122-66-7	Azobenzene		80.9	ug/L	6.67	22.2
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		70.6	ug/L	6.67	22.2
106-46-7	1,4-Dichlorobenzene		71.6	ug/L	6.67	22.2
123-91-1	1,4-Dioxane		68.8	ug/L	6.67	22.2
90-12-0	1-Methylnaphthalene		79.0	ug/L	0.667	2.22
58-90-2	2,3,4,6-Tetrachlorophenol		88.8	ug/L	6.67	22.2
95-95-4	2,4,5-Trichlorophenol		105	ug/L	6.67	22.2
88-06-2	2,4,6-Trichlorophenol		103	ug/L	6.67	22.2
120-83-2	2,4-Dichlorophenol		98.4	ug/L	6.67	22.2
105-67-9	2,4-Dimethylphenol		87.6	ug/L	6.67	22.2
51-28-5	2,4-Dinitrophenol		103	ug/L	11.1	44.4
121-14-2	2,4-Dinitrotoluene		91.3	ug/L	6.67	22.2
606-20-2	2,6-Dinitrotoluene		97.6	ug/L	6.67	22.2
91-58-7	2-Chloronaphthalene		85.8	ug/L	0.911	2.22
95-57-8	2-Chlorophenol		92.8	ug/L	6.67	22.2
534-52-1	2-Methyl-4,6-dinitrophenol		105	ug/L	6.67	22.2
91-57-6	2-Methylnaphthalene		77.8	ug/L	0.667	2.22
88-75-5	2-Nitrophenol		115	ug/L	6.67	22.2
91-94-1	3,3'-Dichlorobenzidine		88.3	ug/L	6.67	22.2
101-55-3	4-Bromophenylphenylether		88.4	ug/L	6.67	22.2
59-50-7	Parachlorometa cresol		96.6	ug/L	6.67	22.2
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		119	ug/L	7.33	22.2
7005-72-3	4-Chlorophenylphenylether		84.9	ug/L	6.67	22.2
100-02-7	4-Nitrophenol		66.8	ug/L	6.67	22.2
83-32-9	Acenaphthene		84.0	ug/L	0.667	2.22
208-96-8	Acenaphthylene		86.2	ug/L	0.667	2.22
62-53-3	Aniline		87.8	ug/L	9.33	22.2
120-12-7	Anthracene		86.6	ug/L	0.667	2.22
1912-24-9	Atrazine		40.7	ug/L	6.67	22.2
92-87-5	Benzidine		124	ug/L	8.67	22.2
56-55-3	Benzo(a)anthracene		82.5	ug/L	0.667	2.22
50-32-8	Benzo(a)pyrene		84.8	ug/L	0.667	2.22
205-99-2	Benzo(b)fluoranthene		83.2	ug/L	0.667	2.22
191-24-2	Benzo(ghi)perylene		88.6	ug/L	0.667	2.22

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**1203317337**	**Date Received:**	**05/09/2015 09:00**		
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95776MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 20:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		84.2	ug/L	0.667	2.22
65-85-0	Benzoic acid		161	ug/L	13.3	44.4
100-51-6	Benzyl alcohol		94.7	ug/L	6.67	22.2
85-68-7	Butylbenzylphthalate		86.7	ug/L	6.67	22.2
218-01-9	Chrysene		88.7	ug/L	0.667	2.22
84-74-2	Di-n-butylphthalate		93.5	ug/L	6.67	22.2
117-84-0	Di-n-octylphthalate		81.0	ug/L	6.67	22.2
53-70-3	Dibenzo(a,h)anthracene		95.7	ug/L	0.667	2.22
132-64-9	Dibenzofuran		86.3	ug/L	6.67	22.2
84-66-2	Diethylphthalate		92.8	ug/L	6.67	22.2
131-11-3	Dimethylphthalate		96.6	ug/L	6.67	22.2
88-85-7	Dinoseb	U	22.2	ug/L	6.67	22.2
122-39-4	Diphenylamine		86.8	ug/L	6.67	22.2
206-44-0	Fluoranthene		83.6	ug/L	0.667	2.22
86-73-7	Fluorene		82.8	ug/L	0.667	2.22
118-74-1	Hexachlorobenzene		91.4	ug/L	6.67	22.2
87-68-3	Hexachlorobutadiene		72.8	ug/L	6.67	22.2
77-47-4	Hexachlorocyclopentadiene		61.8	ug/L	6.67	22.2
67-72-1	Hexachloroethane		73.2	ug/L	6.67	22.2
193-39-5	Indeno(1,2,3-cd)pyrene		94.2	ug/L	0.667	2.22
78-59-1	Isophorone		89.2	ug/L	7.78	22.2
62-75-9	N-Methyl-N-nitrosomethylamine		72.3	ug/L	6.67	22.2
924-16-3	N-Nitrosodi-n-butylamine	U	22.2	ug/L	6.67	22.2
55-18-5	N-Nitrosodiethylamine	U	22.2	ug/L	6.67	22.2
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		84.8	ug/L	6.67	22.2
930-55-2	N-Nitrosopyrrolidine		87.6	ug/L	6.67	22.2
91-20-3	Naphthalene		78.3	ug/L	0.667	2.22
98-95-3	Nitrobenzene		91.4	ug/L	6.67	22.2
608-93-5	Pentachlorobenzene	U	22.2	ug/L	6.67	22.2
87-86-5	Pentachlorophenol		86.8	ug/L	6.67	22.2
85-01-8	Phenanthrene		88.0	ug/L	0.667	2.22
108-95-2	Phenol		67.4	ug/L	6.67	22.2
129-00-0	Pyrene		93.7	ug/L	0.667	2.22
110-86-1	Pyridine		55.8	ug/L	6.67	22.2
108-60-1	bis(2-Chloro-1-methylethyl)ether		85.6	ug/L	6.67	22.2
111-91-1	bis(2-Chloroethoxy)methane		93.6	ug/L	6.67	22.2
111-44-4	bis(2-Chloroethyl) ether		86.8	ug/L	6.67	22.2
117-81-7	bis(2-Ethylhexyl)phthalate		84.2	ug/L	6.67	22.2

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2015-1176**	**Date Collected:**	**05/07/2015 15:09**	**Matrix:**	**W**
Lab Sample ID:	**1203317337**	**Date Received:**	**05/09/2015 09:00**		
Client Sample:	**QC for batch 1478224**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-15-95776MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1478225**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**05/13/2015 20:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/13/2015 06:50**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051315.B\s3e1321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		99.6	ug/L	8.22	22.2
99-09-2	3-Nitroaniline *m-Nitroaniline*		117	ug/L	6.67	22.2
95-48-7	o-Cresol		86.6	ug/L	6.67	22.2
88-74-4	2-Nitroaniline *o-Nitroaniline*		109	ug/L	6.67	22.2
100-01-6	4-Nitroaniline *p-Nitroaniline*		98.9	ug/L	6.67	22.2

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	208	222	ug/L	93.6	(33%-126%)
2-Fluorobiphenyl	89.0	111	ug/L	80.1	(35%-102%)
2-Fluorophenol	153	222	ug/L	68.8	(18%-84%)
Nitrobenzene-d5	93.2	111	ug/L	83.9	(38%-113%)
Phenol-d5	130	222	ug/L	58.7	(10%-110%)
p-Terphenyl-d14	114	111	ug/L	102	(38%-123%)

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorates by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2015-1176
Work Order #: 372759

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:	1477985
Prep Batch Number:	1477983

Sample Analysis

Sample ID	Client ID
372759005	CAMO-15-95809
1203316585	Interference Check Sample (ICS)
1203316581	Method Blank (MB)
1203316582	Laboratory Control Sample (LCS)
1203316583	372532002(CASA-15-95829) Matrix Spike (MS)
1203316584	372532002(CASA-15-95829) 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 standards (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 372532002 (CASA-15-95829) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD 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
QC samples 1203316583 (MS) and 1203316584 (MSD) were re-analyzed the following day since the parent sample, 372532002 (CASA-15-95829), required re-analysis due to possible carryover. The re-analysis data are reported.

It was necessary to analyze the samples in this batch over three days. In addition to re-analyzing samples for dilutions or to confirm possible carryover, the instrument would shut down over night due to instrument error.

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: 2015-1176 GEL Work Order: 372759

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: Michael A. Penny Jr. **Name: Michael Penny**

Date: 26 MAY 2015 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1477983

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-15-95809

Date Received: 09-MAY-15

GEL Job No (SDG): 2015-1176

GEL Sample ID: 372759005

Date Filtered: 15-MAY-15

Injection 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	0.327	ug/L		1	20-MAY-15 13:30	per0520019a
	Perchlorate Isotope Ratio			2.9			1	20-MAY-15 13:30	per0520019a
14797-73-0	Perchlorate-101	.05	.2	0.325	ug/L		1	20-MAY-15 13:30	per0520019a
	Perchlorate-O(18)			0.508	ug/L		1	20-MAY-15 13:30	per0520019a

^ 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 = Instrument Value X $\frac{\text{Concentrated Extract Volume}}{\text{Aliquot}}$ X $\frac{1}{\%\text{Solids}}$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2015-1176

Extract Batch Code: 1477983

Date Filtered: 15-MAY-15

Matrix: WATER

Sample ID: 1203316582

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.2	ug/L	99.9		85 - 115
Perchlorate Isotope Ratio		2.89				-
Perchlorate-101	0.200	.204	ug/L	102		85 - 115
Perchlorate-O(18)		.488	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): 2015-1176

Extract Batch Code: 1477983

Date Extracted: 15-MAY-15

GEL MS/PS ID: 1203316583

Client ID: CASA-15-95829

GEL MSD/PSD ID: 1203316584

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	0.572	ug/L	0.759	93.8	.749	88.7	1.35	30	75 - 125
Perchlorate Isotope Ratio	0	3.01		3.02		2.94		2.52		-
Perchlorate-101	0.200	0.551	ug/L	0.730	89.6	.739	93.9	1.18	30	75 - 125
Perchlorate-O(18)	0	0.485	ug/L	0.492		.49		.389		-

^ 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 LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1477983

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 15-MAY-15

GEL Job No (SDG): 2015-1176

GEL Sample ID: 1203316581

Date Filtered: 15-MAY-15

Injection 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	18-MAY-15 16:14	per0518033a
	Perchlorate Isotope Ratio						1	18-MAY-15 16:14	per0518033a
14797-73-0	Perchlorate-101	.05	.2	0.200	ug/L	U	1	18-MAY-15 16:14	per0518033a
	Perchlorate-O(18)			0.475	ug/L		1	18-MAY-15 16:14	per0518033a

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

*Concentration =

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1477983

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 15-MAY-15

GEL Job No (SDG): 2015-1176

GEL Sample ID: 1203316582

Date Filtered: 15-MAY-15

Injection 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	J	1	18-MAY-15 16:22	per0518034a
	Perchlorate Isotope Ratio			2.89			1	18-MAY-15 16:22	per0518034a
14797-73-0	Perchlorate-101	.05	.2	0.204	ug/L		1	18-MAY-15 16:22	per0518034a
	Perchlorate-O(18)			0.488	ug/L		1	18-MAY-15 16:22	per0518034a

^ 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 = Instrument Value X $\frac{\text{Concentrated Extract Volume}}{\text{Aliquot}}$ X $\frac{1}{\%\text{Solids}}$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1477983

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2015-1176

GEL Sample ID: 1203316585

Date Filtered: 15-MAY-15

Injection 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	0.214	ug/L		1	18-MAY-15 16:30	per0518035a
	Perchlorate Isotope Ratio			3.02			1	18-MAY-15 16:30	per0518035a
14797-73-0	Perchlorate-101	.05	.2	0.209	ug/L		1	18-MAY-15 16:30	per0518035a
	Perchlorate-O(18)			0.496	ug/L		1	18-MAY-15 16:30	per0518035a

^ 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 = Instrument Value X $\frac{\text{Concentrated Extract Volume}}{\text{Aliquot}}$ X $\frac{1}{\%\text{Solids}}$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1477983

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-15-95829MS

Date Received: 07-MAY-15

GEL Job No (SDG): 2015-1176

GEL Sample ID: 1203316583

Date Filtered: 15-MAY-15

Injection 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	0.759	ug/L		1	19-MAY-15 17:09	per0519017a
	Perchlorate Isotope Ratio			3.02			1	19-MAY-15 17:09	per0519017a
14797-73-0	Perchlorate-101	.05	.2	0.730	ug/L		1	19-MAY-15 17:09	per0519017a
	Perchlorate-O(18)			0.492	ug/L		1	19-MAY-15 17:09	per0519017a

^ 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 = Instrument Value X $\frac{\text{Concentrated Extract Volume}}{\text{Aliquot}}$ X $\frac{1}{\%\text{Solids}}$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1477983

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-15-95829MSD

Date Received: 07-MAY-15

GEL Job No (SDG): 2015-1176

GEL Sample ID: 1203316584

Date Filtered: 15-MAY-15

Injection 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	0.749	ug/L		1	19-MAY-15 17:17	per0519018a
	Perchlorate Isotope Ratio			2.94			1	19-MAY-15 17:17	per0519018a
14797-73-0	Perchlorate-101	.05	.2	0.739	ug/L		1	19-MAY-15 17:17	per0519018a
	Perchlorate-O(18)			0.490	ug/L		1	19-MAY-15 17:17	per0519018a

^ 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 #: 2015-1176
Work Order #: 372759

Sample ID	Client ID
372759004	CAMO-15-95787
372759005	CAMO-15-95809
1203316923	Method Blank (MB)**ICP**
1203316924	Laboratory Control Sample (LCS)
1203316927	372804002(CAMO-15-95804L) Serial Dilution (SD)
1203316925	372804002(CAMO-15-95804D) Sample Duplicate (DUP)
1203316926	372804002(CAMO-15-95804S) Matrix Spike (MS)
1203316899	Method Blank (MB)**ICP-MS**
1203316900	Laboratory Control Sample (LCS)
1203316903	372804002(CAMO-15-95804L) Serial Dilution (SD)
1203316901	372804002(CAMO-15-95804D) Sample Duplicate (DUP)
1203316902	372804002(CAMO-15-95804S) Matrix Spike (MS)
1203325754	Method Blank (MB)**CVAA**
1203325755	Laboratory Control Sample (LCS)
1203325758	372807002(CAWA-15-95848L) Serial Dilution (SD)
1203325756	372807002(CAWA-15-95848D) Sample Duplicate (DUP)
1203325757	372807002(CAWA-15-95848S) Matrix Spike (MS)
1203325763	372807002(CAWA-15-95848PS) Post Spike (PS)

Sample Analysis

Method/Analysis Information

Analytical Batch:	1478081, 1478072, 1481367 and 1481930
Prep Batch :	1478079, 1478071 and 1481365
Standard Operating Procedures:	GL-MA-E-013 REV# 23, GL-MA-E-006 REV# 12, GL-MA-E-014 REV# 26, GL-MA-E-010 REV# 29 and GL-GC-E-107 REV# 9
Analytical Method:	SW846 3005A/6010C, SW846 3005A/6020A, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

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

System Configuration

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

The Metals analysis-ICP was performed on a 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: 372804002 (CAMO-15-95804)-ICP and ICP-MS and 372807002 (CAWA-15-95848)-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 MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike recovery was within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recovery may be attributed to possible sample matrix interference and/or non-homogeneity.

Sample	Analyte	Value
1203325757 (Non SDG 372807002MS)	Mercury	68.1* (75%-125%)

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.

Post Spike (PS) Recovery Statement
The PS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes and verifies the absence of matrix interferences in the post-digested sample.

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 (DER) was generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) 1415232 was generated for sample 1203325757 (Non SDG 372807002MS)-CVAA in this SDG/batch.

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

Hardness = 2.497 (Ca) + 4.118 (Mg)

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

Certification Statement

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

GEL LABORATORIES LLC

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Qualifier Definition Report
for

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

Client SDG: 2015-1176 GEL Work Order: 372759

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

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: Nik-Cole Elmore**

Date: 04 JUN 2015 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015−1176 **CONTRACT:** ESHL00114 **METHOD TYPE:** EPA

SAMPLE ID: 372759004 **BASIS:** As Received **DATE COLLECTED** 07−MAY−15

CLIENT ID: CAMO−15−95787 **LEVEL:** Low **DATE RECEIVED** 09−MAY−15

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439−97−6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	05/28/15 15:13	052815W1−4	1481367

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1481367	1481365	EPA 245.1/245.2 Prep	20	mL	20	mL	05/27/15	AXS5

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015−1176 **CONTRACT:** ESHL00114 **METHOD TYPE:** EPA

SAMPLE ID: 372759005 **BASIS:** As Received **DATE COLLECTED** 07−MAY−15

CLIENT ID: CAMO−15−95809 **LEVEL:** Low **DATE RECEIVED** 09−MAY−15

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439−97−6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	05/28/15 15:15	052815W1−4	1481367

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015−1176 **CONTRACT:** ESHL00114 **METHOD TYPE:** SW846

SAMPLE ID: 372759005 **BASIS:** As Received **DATE COLLECTED** 07−MAY−15

CLIENT ID: CAMO−15−95809 **LEVEL:** Low **DATE RECEIVED** 09−MAY−15

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	68	ug/L	U	68	200	200	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7440−36−0	Antimony	2.69	ug/L	J	1	3	3	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7440−38−2	Arsenic	1.7	ug/L	U	1.7	5	5	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7440−39−3	Barium	21.4	ug/L		1	5	5	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7440−41−7	Beryllium	1	ug/L	U	1	5	5	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7440−43−9	Cadmium	0.110	ug/L	U	0.11	1	1	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7440−70−2	Calcium	9770	ug/L		50	200	200	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7440−47−3	Chromium	5.02	ug/L	J	2	10	10	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7440−48−4	Cobalt	1	ug/L	U	1	5	5	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7440−50−8	Copper	3	ug/L	U	3	10	10	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7439−92−1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7439−95−4	Magnesium	3190	ug/L		110	300	300	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7439−96−5	Manganese	2	ug/L	U	2	10	10	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7439−98−7	Molybdenum	0.983	ug/L		0.165	0.5	0.5	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7440−02−0	Nickel	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7440−09−7	Potassium	1780	ug/L		50	150	150	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7782−49−2	Selenium	1.5	ug/L	U	1.5	5	5	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7631−86−9	Silica	70600	ug/L		53	213	213	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7440−22−4	Silver	0.20	ug/L	U	0.2	1	1	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7440−23−5	Sodium	9240	ug/L		100	300	300	1	P	HSC	05/15/15 14:15	051515−1	1478081
7440−24−6	Strontium	41.2	ug/L		1	5	5	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7440−28−0	Thallium	0.450	ug/L	U	0.45	2	2	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7440−31−5	Tin	2.5	ug/L	U	2.5	10	10	1	P	HSC	05/15/15 14:15	051515−1	1478081
7440−61−1	Uranium	0.478	ug/L		0.067	0.2	0.2	1	MS	BAJ	05/28/15 12:17	150528−3	1478072
7440−62−2	Vanadium	7.57	ug/L		1	5	5	1	P	HSC	05/14/15 15:21	051415A−2	1478081
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	P	HSC	05/14/15 15:21	051415A−2	1478081

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2015−1176 **CONTRACT:** ESHL00114 **METHOD TYPE:**

SAMPLE ID: 372759005 **BASIS:** As Received **DATE COLLECTED** 07−MAY−15

CLIENT ID: CAMO−15−95809 **LEVEL:** Low **DATE RECEIVED** 09−MAY−15

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	37.5	mg/L		0.453	1.24	1.24	1		JJ2	05/28/15 16:28		1481930

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1478072	1478071	SW846 3005A	50	mL	50	mL	05/12/15	JP1
1478081	1478079	SW846 3005A	50	mL	50	mL	05/12/15	JP1
1481367	1481365	EPA 245.1/245.2 Prep	20	mL	20	mL	05/27/15	AXS5

***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. 2015−1176
Contract: ESHL00114
Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1203316899								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
1203316923								
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Barium	1	ug/L	+/−5	U	P	1	5
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1203325754								
	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. 2015−1176 **Client ID** CAMO−15−95804S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 372804002 **Spike ID:** 1203316902

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	50.3		1	U	50	99.3		MS
Arsenic	ug/L	75−125	50.7		1.7	U	50	99.3		MS
Cadmium	ug/L	75−125	49.6		0.11	U	50	99.1		MS
Chromium	ug/L		920		853		50	134	N/A	MS
Lead	ug/L	75−125	48.5		0.5	U	50	96.8		MS
Molybdenum	ug/L	75−125	51.2		0.545		50	101		MS
Nickel	ug/L	75−125	75.6		27.8		50	95.6		MS
Selenium	ug/L	75−125	48.1		1.5	U	50	95.6		MS
Thallium	ug/L	75−125	48.1		0.45	U	50	96.2		MS
Uranium	ug/L	75−125	51.4		0.92		50	101		MS
Silver	ug/L	75−125	49		0.2	U	50	97.9		MS

***Analytical Methods:**

MS SW846 3005A/6020A

METALS
−5a−

Matrix Spike Summary

SDG NO. 2015−1176 **Client ID** CAMO−15−95804S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 372804002 **Spike ID:** 1203316926

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	4960		68	U	5000	98.9		P
Barium	ug/L	75−125	599		96.3		500	101		P
Beryllium	ug/L	75−125	499		1	U	500	99.8		P
Boron	ug/L	75−125	547		20.2	J	500	105		P
Calcium	ug/L		59600		54300		5000	107	N/A	P
Cobalt	ug/L	75−125	479		1	U	500	95.7		P
Copper	ug/L	75−125	507		3	U	500	101		P
Iron	ug/L	75−125	5210		30	U	5000	104		P
Magnesium	ug/L	75−125	20400		15200		5000	104		P
Manganese	ug/L	75−125	491		2	U	500	98		P
Potassium	ug/L	75−125	7340		2320		5000	100		P
Silica	ug/L		82100		72400		10700	90.5	N/A	P
Sodium	ug/L	75−125	22600		17400		5000	104		P
Strontium	ug/L	75−125	693		196		500	99.2		P
Tin	ug/L	75−125	495		12.5	U	500	99.1		P
Vanadium	ug/L	75−125	525		5.1		500	104		P
Zinc	ug/L	75−125	488		6.89	J	500	96.2		P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2015−1176 **Client ID** CAWA−15−95848S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 372807002 **Spike ID:** 1203325757

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.36		0.067	U	2	68.1	N	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−5a−

Spike Summary

SDG NO. 2015−1176 **Client ID** CAWA−15−95848PS

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 372807002 **Spike ID:** 1203325763

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	80−120	1.96		0.067	U	2	97.8		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2015−1176 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−15−95804D

Matrix: WATER **Level:** Low

Sample ID: 372804002 **Duplicate ID:** 1203316901 **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	+/−20%	853		828		2.9		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	0.545		0.5		8.61		MS
Nickel	ug/L	+/−20%	27.8		27		3.11		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	0.92		0.92		0		MS

***Analytical Methods:**

MS SW846 3005A/6020A

Metals
−6−
Duplicate Sample Summary

SDG No.: 2015−1176 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−15−95804D

Matrix: WATER **Level:** Low

Sample ID: 372804002 **Duplicate ID:** 1203316925 **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%	96.3		93		3.39		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L	+/−50	20.2	J	18.8	J	7.07		P
Calcium	ug/L	+/−20%	54300		52400		3.55		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%	15200		14800		2.76		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	2320		2280		2.07		P
Silica	ug/L	+/−20%	72400		70000		3.47		P
Sodium	ug/L	+/−20%	17400		17200		1.24		P
Strontium	ug/L	+/−20%	196		194		1.04		P
Tin	ug/L		12.5	U	12.5	U			P
Vanadium	ug/L	+/−5	5.1		4.83	J	5.39		P
Zinc	ug/L	+/−10	6.89	J	8.71	J	23.4		P

***Analytical Methods:**

P SW846 3005A/6010C

Metals
−6−
Duplicate Sample Summary

SDG No.: 2015−1176 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAWA−15−95848D

Matrix: WATER **Level:** Low

Sample ID: 372807002 **Duplicate ID:** 1203325756 **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
−7−
Laboratory Control Sample Summary

SDG NO. 2015−1176

Contract: ESHL00114

Aqueous LCS Source: O2Si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203316900								
	Antimony	ug/L	50	49.3		98.7	80−120	MS
	Arsenic	ug/L	50	50.6		101	80−120	MS
	Cadmium	ug/L	50	51.1		102	80−120	MS
	Chromium	ug/L	50	50.5		101	80−120	MS
	Lead	ug/L	50	49.5		99	80−120	MS
	Molybdenum	ug/L	50	49.4		98.8	80−120	MS
	Nickel	ug/L	50	49.9		99.9	80−120	MS
	Selenium	ug/L	50	49.7		99.5	80−120	MS
	Silver	ug/L	50	50		100	80−120	MS
	Thallium	ug/L	50	49		98	80−120	MS
	Uranium	ug/L	50	50.3		101	80−120	MS

***Analytical Methods:**

MS **SW846 3005A/6020A**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2015−1176

Contract: ESHL00114

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203316924								
	Aluminum	ug/L	5000	5130		103	80−120	P
	Barium	ug/L	500	507		101	80−120	P
	Beryllium	ug/L	500	509		102	80−120	P
	Boron	ug/L	500	516		103	80−120	P
	Calcium	ug/L	5000	5200		104	80−120	P
	Cobalt	ug/L	500	505		101	80−120	P
	Copper	ug/L	500	501		100	80−120	P
	Iron	ug/L	5000	5320		106	80−120	P
	Magnesium	ug/L	5000	5320		106	80−120	P
	Manganese	ug/L	500	507		101	80−120	P
	Potassium	ug/L	5000	5160		103	80−120	P
	Silica	ug/L	10700	10400		97.1	80−120	P
	Sodium	ug/L	5000	5280		106	80−120	P
	Strontium	ug/L	500	502		100	80−120	P
	Tin	ug/L	500	523		105	80−120	P
	Vanadium	ug/L	500	520		104	80−120	P
	Zinc	ug/L	500	488		97.7	80−120	P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2015−1176

Contract: ESHL00114

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203325755								
	Mercury	ug/L	2	2		100	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2015−1176 **Client ID** CAMO−15−95804L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 372804002 **Serial Dilution ID:** 1203316903

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	853		829		2.79		10	MS
Lead	.5	U	2.5	U				MS
Molybdenum	.545		.825	U	100			MS
Nickel	27.8		26.7		3.93			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.92		.98	J	6.52			MS

***Analytical Methods:**

MS **SW846 3005A/6020A**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2015−1176 **Client ID** CAMO−15−95804L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 372804002 **Serial Dilution ID:** 1203316927

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	96.3		97.4		1.19		10	P
Beryllium	1	U	5	U				P
Boron	20.2	J	75	U	100			P
Calcium	54300		54500		.367		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	15200		15300		.676		10	P
Manganese	2	U	10	U				P
Potassium	2320		2430		4.66			P
Silica	72400		71900		.791		10	P
Sodium	17400		17500		.944		10	P
Strontium	196		195		.463		10	P
Tin	2.5	U	12.5	U				P
Vanadium	5.1		5.44	J	6.68			P
Zinc	6.89	J	16.5	U	100			P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2015−1176 **Client ID** CAWA−15−95848L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 372807002 **Serial Dilution ID:** 1203325758

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
28-MAY-15	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
MERCURY	EPA 245.1/245.2	Liquid	ESHL, WRPS
Batch ID:	**Sample Numbers:**		
1481367	See Below		

Potentially affected work order(s)(SDG): 372711(2015-1168),372712(2015-1167),372754(2015-1175),372759(2015-1176),372807(2015-1177)

Application Issues:

Failed Recovery for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/MSD, or PS/PSD: QC 1203325757MS	1. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike recovery was within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recovery may be attributed to possible sample matrix interference and/or non-homogeneity. 1203325757 (CAWA-15-95848MS) Mercury [68.1* (75%-125%)].

Originator's Name:

Monifa Basdeo 29-MAY-15

Data Validator/Group Leader:

Alan Stanley 02-JUN-15

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2015-1176
Work Order #: 372759

Method/Analysis Information

Product:	**Carbon and Total Organic**		
Analytical Batch:	1478317	**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
372759004	CAMO-15-95787
1203318244	Method Blank (MB)
1203318245	Laboratory Control Sample (LCS)
1203318247	372754001(CASA-15-95824) Sample Duplicate (DUP)
1203318248	372807002(CAWA-15-95848) Sample Duplicate (DUP)
1203318249	372754001(CASA-15-95824) Post Spike (PS)
1203318250	372807002(CAWA-15-95848) 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
Samples372754001 (CASA-15-95824) and 372807002 (CAWA-15-95848) 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 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
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Cyanide and Total**		
Analytical Batch:	1477731	**Method:**	WSP-CN(T)
Prep Batch :	1477730	**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
372759004	CAMO-15-95787
1203315865	Method Blank (MB)
1203315866	Laboratory Control Sample (LCS)
1203315867	372711001(CASA-15-95819) Sample Duplicate (DUP)
1203318092	372712001(CAMO-15-95783) Sample Duplicate (DUP)
1203315868	372711001(CASA-15-95819) Matrix Spike (MS)
1203318093	372712001(CAMO-15-95783) 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
Samples372711001 (CASA-15-95819) and 372712001 (CAMO-15-95783) 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 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
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:	1478266	**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
372759005	CAMO-15-95809
1203317446	Method Blank (MB)
1203317447	Laboratory Control Sample (LCS)
1203317448	372754002(CASA-15-95833) Sample Duplicate (DUP)
1203317449	372754002(CASA-15-95833) 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
Sample372754002 (CASA-15-95833) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The following samples were diluted because target analyte concentrations exceeded the calibration range. 1203317448 (CASA-15-95833DUP) and 1203317449 (CASA-15-95833PS).
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 1203317448 (CASA-15-95833DUP), 1203317449 (CASA-15-95833PS) and 372759005 (CAMO-15-95809) 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:	1477783	**Method:**	EPA 350.1 Nitrogen, Ammonia L
Prep Batch :	1477781	**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
372759005	CAMO-15-95809
1203316055	Method Blank (MB)
1203316056	Laboratory Control Sample (LCS)
1203316057	372712002(CAMO-15-95805) Sample Duplicate (DUP)
1203316058	372712004(CAMO-15-95806) Sample Duplicate (DUP)
1203316059	372712002(CAMO-15-95805) Matrix Spike (MS)
1203316060	372712004(CAMO-15-95806) 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
Samples372712002 (CAMO-15-95805) and 372712004 (CAMO-15-95806) 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 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
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:	1478249	**Method:**	Nitrogen, Total Kjeldahl (TKN)
Prep Batch :	1478248	**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
372759004	CAMO-15-95787
1203317399	Method Blank (MB)
1203317400	Laboratory Control Sample (LCS)
1203317401	372804001(CAMO-15-95782) Sample Duplicate (DUP)
1203317402	372804001(CAMO-15-95782) 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
Sample372804001 (CAMO-15-95782) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

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**
Sample1203317400 (LCS) was re-analyzed due to instrument failure. 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:	**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
372759005	CAMO-15-95809
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:	1478252	**Method:**	EPA 365.4 Phosphorus, Total in
Prep Batch :	1478251	**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
372759005	CAMO-15-95809
1203317406	Method Blank (MB)
1203317407	Laboratory Control Sample (LCS)
1203317408	372804002(CAMO-15-95804) Sample Duplicate (DUP)
1203317409	372804002(CAMO-15-95804) 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
Sample372804002 (CAMO-15-95804) 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:	**Solids and Total Dissolved**		
Analytical Batch:	1478239	**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
372759005	CAMO-15-95809
1203317366	Method Blank (MB)
1203317367	Laboratory Control Sample (LCS)
1203317368	372754002(CASA-15-95833) 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
Sample372754002 (CASA-15-95833) 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.

Sample Aliquot
A sufficient amount of sample was provided by the client for 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:	**Specific Conductivity**		
Analytical Batch:	1478342	**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
372759005	CAMO-15-95809
1203317638	Laboratory Control Sample (LCS)
1203317639	372712002(CAMO-15-95805) Sample Duplicate (DUP)
1203317640	372807006(CAWA-15-95853) 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 TitraSip 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
Samples372712002 (CAMO-15-95805) and 372807006 (CAWA-15-95853) 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
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: 1478315 **Method:** PH

Sample Analysis

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

Sample ID	Client ID
372759005	CAMO-15-95809
1203317546	Laboratory Control Sample (LCS)
1203317550	372533005(CAMO-15-95761) 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 Thermo Orion Star A111. Immediates

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
Sample372533005 (CAMO-15-95761) was selected for QC analysis.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
Samples (See Below) were received by the laboratory outside of the method specified holding time.

Sample	Analyte	Value
1203317550 (CAMO-15-95761DUP)		Received 07-MAY-15, out of holding 05-MAY-15
372759005 (CAMO-15-95809)		Received 09-MAY-15, out of holding 07-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) 1411246 was generated for samples 1203317550 (CAMO-15-95761DUP) and 372759005 (CAMO-15-95809) 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
372759005	CAMO-15-95809
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

Samples372759005 (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: 2015-1176 GEL Work Order: 372759

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

N Metals--The Matrix spike sample recovery is not within specified control limits

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: Thomas Lewis**

Date: 03 JUN 2015 **Title: Data Validator**

Sample Data Summary

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

Certificate of Analysis

Report Date: June 3, 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: 2015-1176

Client Sample ID: CAMO-15-95787
Sample ID: 372759004
Matrix: W
Collect Date: 07-MAY-15 11:38
Receive Date: 09-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		1.01	0.330	1.00	mg/L	1	TSM	05/15/15	0428	1478317	1
Flow Injection Analysis											
WSP-CN(T) "As Received"											
Cyanide, Total	U	ND	1.67	5.00	ug/L	1	AXH3	05/18/15	1234	1477731	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	1133	1478249	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	1042	1477730
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	05/18/15	1600	1478248

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 3, 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: 2015-1176

Client Sample ID: CAMO-15-95809
Sample ID: 372759005
Matrix: W
Collect Date: 07-MAY-15 11:38
Receive Date: 09-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	MXL2	05/13/15	0711	1478266	1
Chloride		1.71	0.067	0.200	mg/L	1					
Fluoride		0.118	0.033	0.100	mg/L	1					
Sulfate		1.74	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0343	0.017	0.050	mg/L	1	KLP1	05/14/15	1430	1477783	2
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0586	0.017	0.050	mg/L	1	KLP1	05/19/15	1349	1478252	3
NO3NO2 "As Received"											
Nitrogen, Nitrate/Nitrite		0.380	0.017	0.050	mg/L	1	AXH3	05/26/15	1213	1477965	4
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		97.1	3.40	14.3	mg/L		MXB3	05/13/15	0956	1478239	5
Titration and Ion Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		53.9	0.725	1.00	mg/L		PXO1	05/19/15	2122	1478898	6
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						
EPA120.1 Specific Conductivity "As Received"											
Conductivity		117	3.63	14.5	umhos/cm	1	PXO1	05/13/15	1154	1478342	7
PH "As Received"											
pH at Temp 19.5C	H	7.81	0.010	0.100	SU	1	JXO1	05/13/15	1148	1478315	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	05/14/15	1043	1477781
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	05/18/15	1600	1478251

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: June 3, 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: 2015-1176

Client Sample ID:	CAMO-15-95809	Project:	ESHL00114
Sample ID:	372759005	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

QC Summary

Report Date: June 3, 2015

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

Contact: **Mr. Keith Greene**

Workorder: **372759**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1478317											
QC1203318247 372754001 DUP											
Total Organic Carbon Average			1.30		1.29	mg/L	1.47 ^		(+/-1.00)	TSM	05/15/15 01:55
QC1203318248 372807002 DUP											
Total Organic Carbon Average		J	0.916	J	0.908	mg/L	0.877 ^		(+/-1.00)		05/15/15 07:19
QC1203318245 LCS											
Total Organic Carbon Average	10.0				10.1	mg/L		101	(85%-115%)		05/14/15 23:38
QC1203318244 MB											
Total Organic Carbon Average				U	ND	mg/L					05/14/15 23:23
QC1203318249 372754001 PS											
Total Organic Carbon Average	10.0		1.30		11.7	mg/L		104	(65%-120%)		05/15/15 02:37
QC1203318250 372807002 PS											
Total Organic Carbon Average	10.0	J	0.916		11.6	mg/L		107	(65%-120%)		05/15/15 08:01
Flow Injection Analysis											
Batch 1477731											
QC1203315867 372711001 DUP											
Cyanide, Total		U	ND	U	ND	ug/L	N/A			AXH3	05/18/15 12:27
QC1203318092 372712001 DUP											
Cyanide, Total		U	ND	U	ND	ug/L	N/A				05/18/15 12:30
QC1203315866 LCS											
Cyanide, Total	50.0				50.5	ug/L		101	(90%-110%)		05/18/15 12:21
QC1203315865 MB											
Cyanide, Total				U	ND	ug/L					05/18/15 12:21
QC1203315868 372711001 MS											
Cyanide, Total	100	U	ND		107	ug/L		107	(90%-110%)		05/18/15 12:28
QC1203318093 372712001 MS											
Cyanide, Total	100	U	ND		97.4	ug/L		97.4	(90%-110%)		05/18/15 12:30
Ion Chromatography											
Batch 1478266											
QC1203317448 372754002 DUP											
Bromide			0.663		0.678	mg/L	2.19 ^		(+/-0.200)	MXL2	05/13/15 05:35

QC Summary

Workorder: **372759**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1478266										
Chloride		112		112	mg/L	0.0286		(0%-20%)		05/14/15 10:38
Fluoride		0.160		0.157	mg/L	1.90 ^		(+/-0.100)	MXL2	05/13/15 05:35
Sulfate		47.6		47.7	mg/L	0.084		(0%-20%)		05/14/15 10:38
QC1203317447 LCS										
Bromide	1.25			1.30	mg/L		104	(90%-110%)		05/13/15 04:31
Chloride	5.00			4.85	mg/L		96.9	(90%-110%)		
Fluoride	2.50			2.54	mg/L		102	(90%-110%)		
Sulfate	10.0			10.1	mg/L		101	(90%-110%)		
QC1203317446 MB										
Bromide			U	ND	mg/L					05/13/15 03:59
Chloride			U	ND	mg/L					
Fluoride			U	ND	mg/L					
Sulfate			U	ND	mg/L					
QC1203317449 372754002 PS										
Bromide	1.25	0.663		1.93	mg/L		101	(90%-110%)		05/13/15 06:07
Chloride	5.00	5.60		11.0	mg/L		109	(90%-110%)		05/14/15 11:10
Fluoride	2.50	0.160		2.54	mg/L		95.4	(90%-110%)		05/13/15 06:07
Sulfate	10.0	2.38		12.3	mg/L		99.6	(90%-110%)		05/14/15 11:10
Nutrient Analysis										
Batch 1477783										
QC1203316057 372712002 DUP										
Nitrogen, Ammonia		J	0.0381	0.0731	mg/L	62.9 ^		(+/-0.050)	KLP1	05/14/15 14:11
QC1203316058 372712004 DUP										
Nitrogen, Ammonia		J	0.0388	0.0568	mg/L	37.7 ^		(+/-0.050)		05/14/15 14:13
QC1203316056 LCS										
Nitrogen, Ammonia	1.00			1.10	mg/L		110	(90%-110%)		05/14/15 14:05
QC1203316055 MB										
Nitrogen, Ammonia			J	0.028	mg/L					05/14/15 14:04

QC Summary

Workorder: **372759**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1477783											
QC1203316059 372712002 MS											
Nitrogen, Ammonia	1.00	J	0.0381		1.03	mg/L		99.2	(90%-110%)	KLP1	05/14/15 14:12
QC1203316060 372712004 MS											
Nitrogen, Ammonia	1.00	J	0.0388		1.07	mg/L		103	(90%-110%)		05/14/15 14:14
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 1478249											
QC1203317401 372804001 DUP											
Nitrogen, Total Kjeldahl		U	ND	J	0.0388	mg/L	200			KLP1	05/19/15 11:34
QC1203317400 LCS											
Nitrogen, Total Kjeldahl	1.00				1.00	mg/L		100	(90%-110%)		05/19/15 11:42
QC1203317399 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					05/19/15 11:29
QC1203317402 372804001 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		0.925	mg/L		90.8	(90%-110%)		05/19/15 11:35
Batch 1478252											
QC1203317408 372804002 DUP											
Phosphorus, Total as P		J	0.0395	J	0.0381	mg/L	3.61 ^		(+/-0.050)	KLP1	05/19/15 13:51
QC1203317407 LCS											
Phosphorus, Total as P	1.00				0.942	mg/L		94.2	(83%-123%)		05/19/15 13:46
QC1203317406 MB											
Phosphorus, Total as P				J	0.0475	mg/L					05/19/15 13:46
QC1203317409 372804002 MS											
Phosphorus, Total as P	1.00	J	0.0395		0.913	mg/L		87.4	(59%-141%)		05/19/15 13:51

QC Summary

Workorder: **372759**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis											
Batch 1478239											
QC1203317368 372754002 DUP											
Total Dissolved Solids			424		424	mg/L	0.00		(0%-5%)	MXB3	05/13/15 09:56
QC1203317367 LCS											
Total Dissolved Solids	300				290	mg/L		96.7	(95%-105%)		05/13/15 09:56
QC1203317366 MB											
Total Dissolved Solids				U	ND	mg/L					05/13/15 09:56
Titration and Ion Analysis											
Batch 1478315											
QC1203317550 372533005 DUP											
pH		H	7.42	H	7.45	SU	0.403		(0%-5%)	JXO1	05/13/15 11:35
QC1203317546 LCS											
pH	7.00				7.02	SU		100	(99%-101%)		05/13/15 11:30
Batch 1478342											
QC1203317639 372712002 DUP											
Conductivity			125		126	umhos/cm	0.396		(0%-10%)	PXO1	05/13/15 11:48
QC1203317640 372807006 DUP											
Conductivity			169		170	umhos/cm	0.647		(0%-10%)		05/13/15 11:58
QC1203317638 LCS											
Conductivity	1410				1430	umhos/cm		101	(95%-105%)		05/13/15 11:32
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											

QC Summary

Workorder: **372759**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Titration and Ion Analysis										
Batch 1478898										
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%)	PXO1	05/19/15 21:57

Notes:

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
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.	**Division:**	**Quality Criteria:**	**Type:**
16-MAY-15	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1, SM 4500-H B, SW846 9040C	Liquid	AVAN, ESHL, UCOR, WRPS
Batch ID:	**Sample Numbers:**		
1478315	See Below		

Potentially affected work order(s)(SDG): 372533(2015-1158),372711(2015-1168),372712(2015-1167),372741,372754(2015-1175),372759(2015-1176),372804(2015-1179),372807(2015-1177),372813,372820

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	**DER Disposition:**
1. Sample received out of holding: 372533 005 372711 002 372712 004 372741 001,002 372754 002,004 372759 005 372804 002,004 372807 006 372813 001,002,003,004 372820 004,007,010	1. Samples (See Below) were received by the laboratory outside of the method specified holding time. 1203317549 (EMWSW5146DUP) [See applicable report]. 1203317550 (CAMO-15-95761DUP) [See applicable report]. 372533005 (CAMO-15-95761) [See applicable report]. 372711002 (CASA-15-95828) [See applicable report]. 372712004 (CAMO-15-95806) [See applicable report]. 372741001 (PCEC01-01FB) [See applicable report]. 372741002 (PCEC01-01) [See applicable report]. 372754002 (CASA-15-95833) [See applicable report]. 372754004 (CASA-15-95834) [See applicable report]. 372759005 (CAMO-15-95809) [See applicable report]. 372804002 (CAMO-15-95804) [See applicable report]. 372804004 (CAMO-15-95810) [See applicable report]. 372807006 (CAWA-15-95853) [See applicable report]. 372813001 (T54 Well W6S1) [See applicable report]. 372813002 (Bioreactor 1 W6S1) [See applicable report]. 372813003 (Bioreactor 2 W6S1) [See applicable report]. 372813004 (Bioreactor 3 W6S1) [See applicable report]. 372820004 (EMWSW5146) [See applicable report]. 372820007 (EMWSW5152) [See applicable report]. 372820010 (EMWSW5157) [See applicable report].

Originator's Name:
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Data Validator/Group Leader:
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