General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

ADEP

COC/Lab Request #: 2014-3375

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Lab Reporting Limit Type: Sample Quantitation Limit

Special Instructions:

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-14-75544	May 9 2014	12:41	W	1				1			1
CAMO-14-75548	May 9 2014	12:41	W				1		1	1	
CAMO-14-75545	May 9 2014	11:20	W	1	2	3		1			1
CAMO-14-75549	May 9 2014	11:20	W				1		1	1	
CAMO-14-75541	May 9 2014	11:20	W		2						

Special Instructions:

Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
	Melissa Martyn	5/12/14 3:00			
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: 4642 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Investigation) MY2014 Q3 Watershed Sampling

SAMPLE ID: CAMO-14-75541 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		05/09/2014	**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):		1120	**MEDIA:**	UA	
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	DC
LOCATION ID:	R-46		**FIELD PREP:**	UF	ok
LOCATION TYPE:			**FIELD QC TYPE:**	FTB	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
MS	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL 5/9/14	Y	MA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS: AS 5/9/14

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) A Vigil

RELINQUISHED BY (Printed Name) Andrew Stokes **(Signature)**	**Date/Time** 5/9/14 1410	**RECEIVED BY (Printed Name)** K. Greene **(Signature)**	**Date/Time** 5/9/14 12:10
RELINQUISHED BY (Printed Name) (Signature) AS 5/9/14	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 05/01/2014

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4642

EVENT NAME: Mortandad/Sandia (MDA C and GS Investigation) MY2014 Q3 Watershed Sampling

SAMPLE ID: CAMO-14-75544

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		05/09/2014	**FIELD MATRIX:** WG		OK
TIME COLLECTED (HH:MM):		1241	**MEDIA:** UA		↓
PRS ID:		OK	**SAMPLE TECH CODE:** UA		GSP
LOCATION ID: R-34		↓	**FIELD PREP:** UF		OK
LOCATION TYPE: MON		↓	**FIELD QC TYPE:** REG		↓
PORT: SINGLE COMPLETION		↓	**SAMPLE USAGE:** INV		↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.11 mg/L Flow (in gpm) 2.86 GPM Oxidation-Reduction Potential -17.8 mV

pH 8.31 SU Specific Conductance 155 uS/cm Temperature 22.22 deg C

Turbidity 1.4 NTU

COLLECTED BY (PRINT) J. Romero

RELINQUISHED BY (Printed Name) Julie Mapp **(Signature)**	**Date/Time** 05/09/2014 1335	**RECEIVED BY (Printed Name)** M. Green **(Signature)**	**Date/Time** 05/09/2014 1335
RELINQUISHED BY (Printed Name) **(Signature)**	**Date/Time**	**RECEIVED BY (Printed Name)** **(Signature)**	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4642

EVENT NAME: Mortandad/Sandia (MDA C and GS Investigation) MY2014 Q3 Watershed Sampling

SAMPLE ID: CAMO-14-75545

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		05/09/2014	**FIELD MATRIX:**	WG	ok
TIME COLLECTED (HH:MM):		1120	**MEDIA:**	UA	
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	BSP
LOCATION ID:	R-46		**FIELD PREP:**	UF	ok
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

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 5/9/14		
	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: diesel generator running 40' downward

FIELD PARAMETERS:

Dissolved Oxygen 6.49 mg/L Flow (in gpm) 4.69 GPM Oxidation-Reduction Potential 46.6 mV

pH 7.83 SU Specific Conductance 126 uS/cm Temperature 21.08 deg C

Turbidity 0.65 NTU

COLLECTED BY (PRINT) A. Vigil

RELINQUISHED BY (Printed Name) Andrew Stokes	**Date/Time** 5/9/14 1210	**RECEIVED BY (Printed Name)** K. Greene	**Date/Time** 5/9/14 1210
(Signature)		**(Signature)**	
RELINQUISHED BY (Printed Name)	**Date/Time**	**RECEIVED BY (Printed Name)**	**Date/Time**
(Signature)		**(Signature)**	

Report Date 05/01/2014

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4642 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Investigation) MY2014 Q3 Watershed Sampling

SAMPLE ID: CAMO-14-75548 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		05/09/2014	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1241	**MEDIA:**	UA	↓
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-34		**FIELD PREP:**	F	OK
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

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

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) Julie Maze **(Signature)**	**Date/Time** 05/09/2014 1335	**RECEIVED BY (Printed Name)** K. Vicente **(Signature)**	**Date/Time** 05/09/2014 1335
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 05/01/2014

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4642 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Investigation) MY2014 Q3 Watershed Sampling

SAMPLE ID: CAMO-14-75549 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		05/09/2014	**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):		1120	**MEDIA:**	UA	
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	GSI
LOCATION ID:	R-46		**FIELD PREP:**	F	ok
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

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

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS: AJ 5/9/14

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) A. Utgl

RELINQUISHED BY (Printed Name) (Signature) Andrea Starkey	**Date/Time** 5/9/14 1610	**RECEIVED BY (Printed Name) (Signature)** K. Greene	**Date/Time** 5/9/14 1210
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 05/01/2014

DATA VALIDATION REPORT

Chain Of Custody No. 2014-3375

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
350826	SW-846:6010C	1				
350826	SW-846:6020	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
350826	SW-846:6010C	1396634	1396633	1					1	1				1				1			
350826	SW-846:6020	1396636	1396635	1					1	1				1				1			

2. Distribution Of Analytes In EDD.

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
SW-846:6010C	INORGANIC	CAMO-14-75549	1203110994	DUP	16	0	0	0
SW-846:6010C	INORGANIC	CAMO-14-75549	1203110995	MS	0	0	16	0
SW-846:6010C	INORGANIC	CAMO-14-75549	350826001	REG	16	0	0	0
SW-846:6010C	INORGANIC	LCS	1203110993	LCS	0	0	16	0
SW-846:6010C	INORGANIC	MB	1203110992	MB	16	0	0	0
SW-846:6020	INORGANIC	CAMO-14-75549	1203110999	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-14-75549	1203111000	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-14-75549	350826001	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1203110998	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1203110997	MB	11	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

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

No.

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

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

13. Display Flagged Data.

None.

Reason Code	Description
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-14-75549	R-46	REG	SW-846:6010C	0	16
CAMO-14-75549	R-46	REG	SW-846:6020	0	11

DATA VALIDATION REPORT

Chain Of Custody No. 2014-3375

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
348530	EPA:120.1	2				
348530	EPA:150.1	2				
348530	EPA:160.1	2				
348530	EPA:245.2	4				
348530	EPA:300.0	2				
348530	EPA:310.1	2				
348530	EPA:335.4	2				
348530	EPA:350.1	2				
348530	EPA:351.2	2				
348530	EPA:353.2	2				
348530	EPA:365.4	2				
348530	SM:A2340B	2				
348530	SW-846:6010C	2				
348530	SW-846:6020	2				
348530	SW-846:6850	2				
348530	SW-846:8260B	1		1		
348530	SW-846:8270D	1				
348530	SW-846:9060	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
348530	EPA:120.1	1391989	1391989	2										1				1			
348530	EPA:150.1	1390573	1390573	2										1				1			
348530	EPA:160.1	1387730	1387730	2					1					1				1			
348530	EPA:245.2	1391688	1391687	4					1	1				1				1			
348530	EPA:300.0	1387241	1387241	2					1					1				2			
348530	EPA:310.1	1390102	1390102	2					2	1				2				1			

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
348530	EPA:335.4	1387858	1387857	2					1	1				1				1			
348530	EPA:350.1	1387647	1387646	2					1	1				1				1			
348530	EPA:351.2	1387649	1387648	2					1	1				1				1			
348530	EPA:353.2	1387667	1387667	2					1					1				1			
348530	EPA:365.4	1386914	1386913	2					1	2				1				2			
348530	SM:A2340B	1392496	1392496	2																	
348530	SW-846:6010C	1387760	1387759	2					1	1	1			1				1			
348530	SW-846:6020	1387803	1387802	2					1	1				1				1			
348530	SW-846:6850	1388153	1388152	2					1	1	1			1							
348530	SW-846:8260B	1390101	1390101	1		1			2					4							
348530	SW-846:8270D	1387889	1387888	1					1	1	1			1							
348530	SW-846:9060	1387445	1387445	2					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-14-75548	348530002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-14-75549	348530004	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-14-75532	1203098766	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1203098768	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-14-75548	348530002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-14-75549	348530004	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-14-75550	1203095300	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1203095299	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-14-75548	348530002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-14-75549	348530004	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-14-75863	1203087965	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1203087967	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1203087964	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-14-75544	348530001	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-14-75545	348530003	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-14-75548	348530002	REG	1	0	0	0

DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:245.2	INORGANIC	CAMO-14-75549	348530004	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-14-75863	1203097983	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-14-75863	1203097984	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1203097982	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1203097981	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-14-75548	348530002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-14-75549	348530004	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-14-75550	1203088764	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-14-75534	1203086677	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1203086679	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1203086676	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-14-75548	348530002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-14-75549	348530004	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-14-75550	1203094010	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-14-75550	1203094011	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1203094009	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1203094423	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1203094012	MB	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1203094422	MB	2	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-14-75544	348530001	REG	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-14-75545	348530003	REG	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	LCS	1203088229	LCS	0	0	1	0
EPA:335.4	GENERAL CHEMISTRY	MB	1203088224	MB	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	WSTMO-14-75608	1203088225	DUP	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	WSTMO-14-75608	1203088227	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-14-75548	348530002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-14-75549	348530004	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-14-75532	1203087752	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-14-75532	1203087754	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1203087755	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1203087750	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-14-75502	1203087758	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-14-75502	1203087760	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-14-75544	348530001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-14-75545	348530003	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1203087761	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1203087756	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-14-75517	1203087805	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-14-75548	348530002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-14-75549	348530004	REG	1	0	0	0

DATA VALIDATION REPORT

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:353.2	GENERAL CHEMISTRY	LCS	1203087810	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1203087801	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-14-75517	1203085715	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-14-75517	1203085718	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-14-75548	348530002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-14-75549	348530004	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1203085719	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1203085712	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	NP160-14-74443	1203087746	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	NP160-14-74443	1203087747	MS	0	0	1	0
SM:A2340B	INORGANIC	CAMO-14-75548	348530002	REG	1	0	0	0
SM:A2340B	INORGANIC	CAMO-14-75549	348530004	REG	1	0	0	0
SW-846:6010C	INORGANIC	CAMO-14-75548	348530002	REG	17	0	0	0
SW-846:6010C	INORGANIC	CAMO-14-75549	348530004	REG	17	0	0	0
SW-846:6010C	INORGANIC	CAMO-14-75863	1203088027	DUP	17	0	0	0
SW-846:6010C	INORGANIC	CAMO-14-75863	1203088028	MS	0	0	17	0
SW-846:6010C	INORGANIC	CAMO-14-75863	1203088029	MSD	0	0	17	0
SW-846:6010C	INORGANIC	LCS	1203088026	LCS	0	0	17	0
SW-846:6010C	INORGANIC	MB	1203088025	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-14-75548	348530002	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-14-75549	348530004	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-14-75863	1203088107	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-14-75863	1203088108	MS	0	0	11	0
SW-846:6020	INORGANIC	LCS	1203088106	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1203088105	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-14-75548	348530002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-14-75549	348530004	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-14-75538	1203088980	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-14-75538	1203088981	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1203088979	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1203088978	MB	1	0	0	0
SW-846:8260B	VOC	CAMO-14-75541	348530005	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-14-75545	348530003	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1203094005	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203094006	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1203099706	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1203099707	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1203094002	MB	80	3	0	0
SW-846:8260B	VOC	MB	1203099705	MB	80	3	0	0
SW-846:8270D	SVOC	CAMO-14-75494	1203088331	MS	0	6	76	0

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
SW-846:8270D	SVOC	CAMO-14-75494	1203088332	MSD	0	6	76	0
SW-846:8270D	SVOC	CAMO-14-75545	348530003	REG	80	6	0	0
SW-846:8270D	SVOC	LCS	1203088330	LCS	0	6	76	0
SW-846:8270D	SVOC	MB	1203088329	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-14-75544	348530001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-14-75545	348530003	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-14-75526	1203087254	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-14-75528	1203087253	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1203087257	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1203087252	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	1203088025	METHOD BLANK	SW-846:6010C	W	Potassium	97.1	J	ug/L	150

No.

6. Any surrogate recoveries outside the control limits?

No.

DATA VALIDATION REPORT

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

Field Sample ID	MS Lab Sample ID	MSD Lab Sample ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS Spike Recovery	MSD Spike Recovery	MS Upper Limit	MS Lower Limit	MS Reject Limit	RPD	RPD Limit
WSTMO-14-75608	1203088227		EPA:335.4	Cyanide (Total)	1387857	05-15-2014	W	84.2		110	90	10		

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

LCS Lab Sample	LCSD Lab	Analytical Method	Parameter Name	Lab Lot ID	Analysis	Sample Matrix	LCS Spike Recovery	LCSD Spike Recovery	Upper Limit	Lower Limit	Upper Rejection Limit	Lower Rejection Limit	RPD	RPD Limit
1203094005		SW-846:8260B	Hexachlorobutadiene	1390101	05-23-2014	W	130		128	71		10		
1203099706		SW-846:8260B	Trichlorofluoromethane	1390101	05-24-2014	W	137		123	73		10		
1203099706		SW-846:8260B	Vinyl acetate	1390101	05-24-2014	W	131		130	78		10		
1203099707		SW-846:8260B	Acrolein	1390101	05-24-2014	W	131		126	65		10		

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

DATA VALIDATION REPORT

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	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Aluminum	U	R	I19	N	200	ug/L	200	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Antimony	U	R	I19	N	3.00	ug/L	3.00	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Arsenic		R	I19	Y	5.44	ug/L	5.44	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Barium		R	I19	Y	97.2	ug/L	97.2	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Beryllium	U	R	I19	N	5.00	ug/L	5.00	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Boron	J	R	I19	Y	16.3	ug/L	16.3	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Cadmium	U	R	I19	N	1.00	ug/L	1.00	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Calcium		R	I19	Y	53600	ug/L	53.6	mg/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Chromium		R	I19	Y	923	ug/L	923	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Cobalt	U	R	I19	N	5.00	ug/L	5.00	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Copper	U	R	I19	N	10.0	ug/L	10.0	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SM:A2340B	Hardness		R	I19	Y	196	mg/L	196	mg/L			W	05/09/2014		1392496	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Iron	U	R	I19	N	100	ug/L	100	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Lead	U	R	I19	N	2.00	ug/L	2.00	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Magnesium		R	I19	Y	15100	ug/L	15.1	mg/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Manganese	U	R	I19	N	10.0	ug/L	10.0	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Molybdenum		R	I19	Y	.628	ug/L	.628	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Nickel		R	I19	Y	24.5	ug/L	24.5	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Potassium		R	I19	Y	2370	ug/L	2.37	mg/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Selenium	U	R	I19	N	5.00	ug/L	5.00	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Silicon Dioxide		R	I19	Y	73500	ug/L	73.5	mg/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Silver	U	R	I19	N	1.00	ug/L	1.00	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Sodium		R	I19	Y	17400	ug/L	17.4	mg/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Strontium		R	I19	Y	201	ug/L	201	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Thallium	U	R	I19	N	2.00	ug/L	2.00	ug/L			W	05/09/2014		1387803	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Tin	U	R	I19	N	100	ug/L	100	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6020	Uranium		R	I19	Y	1.04	ug/L	1.04	ug/L			W	05/09/2014		1387803	VAL	Y

DATA VALIDATION REPORT

Location ID	COC Number	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Paramter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detect Flag	Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent	Analysis Lot ID	Validation Status Code	Use Flag
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Vanadium	J	R	I19	Y	4.97	ug/L	4.97	ug/L			W	05/09/2014		1387760	VAL	Y
R-46	2014-3375	CAMO-14-75549	REG	INIT	INORGANIC	SW-846:6010C	Zinc	U	R	I19	N	10.0	ug/L	10.0	ug/L			W	05/09/2014		1387760	VAL	Y

Reason Code	Description
I19	the LANL project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used under advisement by the LANL project chemist.
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-14-75541	R-46	FTB	SW-846:8260B	0	80
CAMO-14-75544	R-34	REG	EPA:245.2	0	1
CAMO-14-75544	R-34	REG	EPA:335.4	0	1
CAMO-14-75544	R-34	REG	EPA:351.2	0	1
CAMO-14-75544	R-34	REG	SW-846:9060	0	1
CAMO-14-75545	R-46	REG	EPA:245.2	0	1
CAMO-14-75545	R-46	REG	EPA:335.4	0	1
CAMO-14-75545	R-46	REG	EPA:351.2	0	1
CAMO-14-75545	R-46	REG	SW-846:8260B	0	80
CAMO-14-75545	R-46	REG	SW-846:8270D	0	80
CAMO-14-75545	R-46	REG	SW-846:9060	0	1
CAMO-14-75548	R-34	REG	EPA:120.1	0	1
CAMO-14-75548	R-34	REG	EPA:150.1	0	1
CAMO-14-75548	R-34	REG	EPA:160.1	0	1
CAMO-14-75548	R-34	REG	EPA:245.2	0	1
CAMO-14-75548	R-34	REG	EPA:300.0	0	4
CAMO-14-75548	R-34	REG	EPA:310.1	0	2
CAMO-14-75548	R-34	REG	EPA:350.1	0	1
CAMO-14-75548	R-34	REG	EPA:353.2	0	1

DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAMO-14-75548	R-34	REG	EPA:365.4	0	1
CAMO-14-75548	R-34	REG	SM:A2340B	0	1
CAMO-14-75548	R-34	REG	SW-846:6010C	0	17
CAMO-14-75548	R-34	REG	SW-846:6020	0	11
CAMO-14-75548	R-34	REG	SW-846:6850	0	1
CAMO-14-75549	R-46	REG	EPA:120.1	0	1
CAMO-14-75549	R-46	REG	EPA:150.1	0	1
CAMO-14-75549	R-46	REG	EPA:160.1	0	1
CAMO-14-75549	R-46	REG	EPA:245.2	0	1
CAMO-14-75549	R-46	REG	EPA:300.0	0	4
CAMO-14-75549	R-46	REG	EPA:310.1	0	2
CAMO-14-75549	R-46	REG	EPA:350.1	0	1
CAMO-14-75549	R-46	REG	EPA:353.2	0	1
CAMO-14-75549	R-46	REG	EPA:365.4	0	1
CAMO-14-75549	R-46	REG	SM:A2340B	0	1
CAMO-14-75549	R-46	REG	SW-846:6010C	0	17
CAMO-14-75549	R-46	REG	SW-846:6020	0	11
CAMO-14-75549	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

www.gel.com

June 03, 2014

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: 348530
SDG: 2014-3375

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 13, 2014, 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: 2014-3375
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 348530
SDG: 2014-3375

Table of Contents

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 348530
SDG # : 2014-3375

June 09, 2014

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 13, 2014 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
348530001	CAMO-14-75544
348530002	CAMO-14-75548
348530003	CAMO-14-75545
348530004	CAMO-14-75549
348530005	CAMO-14-75541

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 2014

State	Certification
Alaska	UST−110
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
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	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA130005
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
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−14−9
Utah NELAP	SC000122014−12
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

348530

ADEP

COC/Lab Request #: 2014-3375

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Rad Screening Info: Yes, Below Background

Lab Reporting Limit Type: Sample Quantitation Limit

Special Instructions:

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-14-75544	May 9 2014	12:41	W	1				1			1
CAMO-14-75548	May 9 2014	12:41	W				1		1	1	
CAMO-14-75545	May 9 2014	11:20	W	1	2	3		1			1
CAMO-14-75549	May 9 2014	11:20	W				1		1	1	
CAMO-14-75541	May 9 2014	11:20	W		2						

Special Instructions:

Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
	Melissa Martin	5/12/14 3:00		H. Taylor CSBLV	5/9/20
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

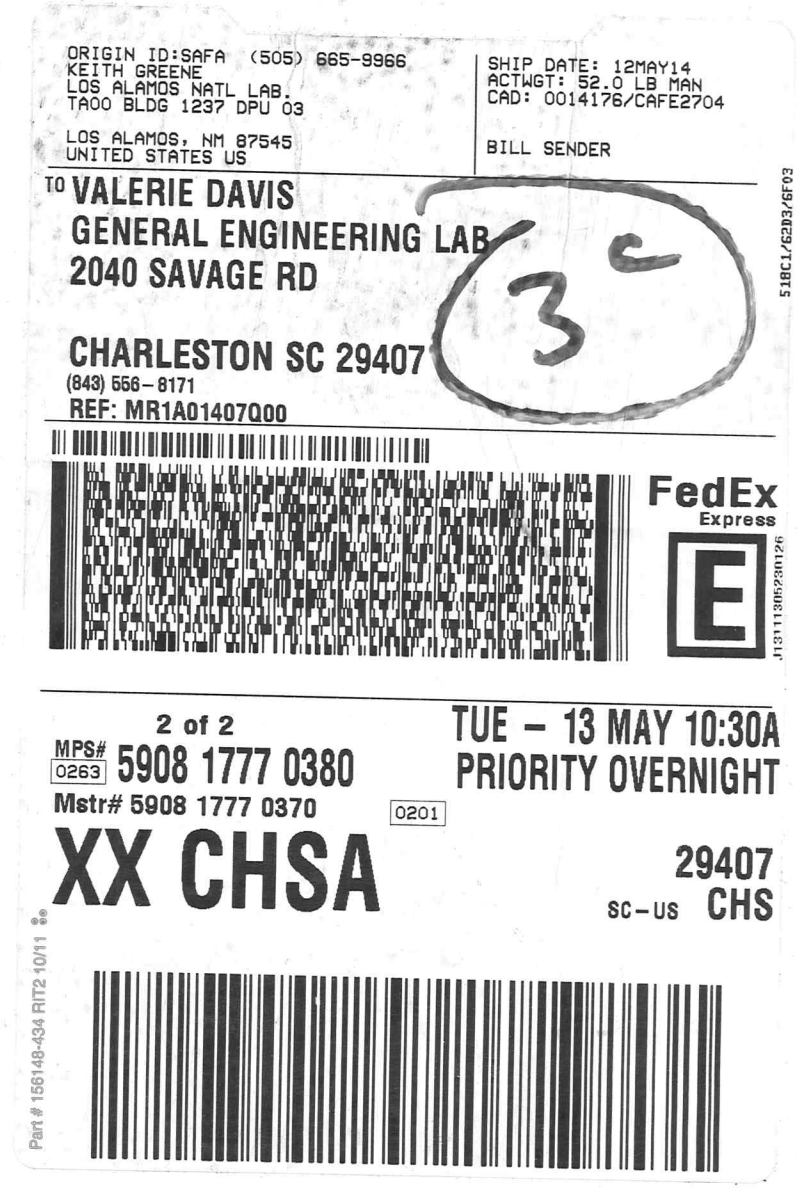
Client: LANL	**SDG/AR/COC/Work Order:** 2014-3375
Received By: H Taylor	**Date Received:** 051314

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) 3.4 *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 130462960 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	✓			Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected: CAMO-14-75541 received 1 vial, chain indicates 2 CAMO-14-75545 received 2 containers, chain indicates 3
11	Number of containers received match number indicated on COC?			✓	Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5908 1777 0380-3 0417-4 0404-3 0391-4 0370-3

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HTaylor Date 051314 Page 1 of 1


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: 12MAY14
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2704
BILL SENDER
TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD
CHARLESTON SC 29407
(843) 556-8171
REF: MR1A01407Q00
3c
518C1/6293/6F03
FedEx
Express
J131113052811126
2 of 2
MPS# 0263 5908 1777 0380
Mstr# 5908 1777 0370
0201
TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT
XX 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: 12MAY14
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2704

BILL SENDER

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

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWLO

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TRK# 0201 **5908 1777 0417**

TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT

XX 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: 12MAY14
ACTWGT: 50.0 LB MAN
CAD: 0014176/CAFE2704

BILL SENDER

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

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

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FedEx Express

J131113052301 26

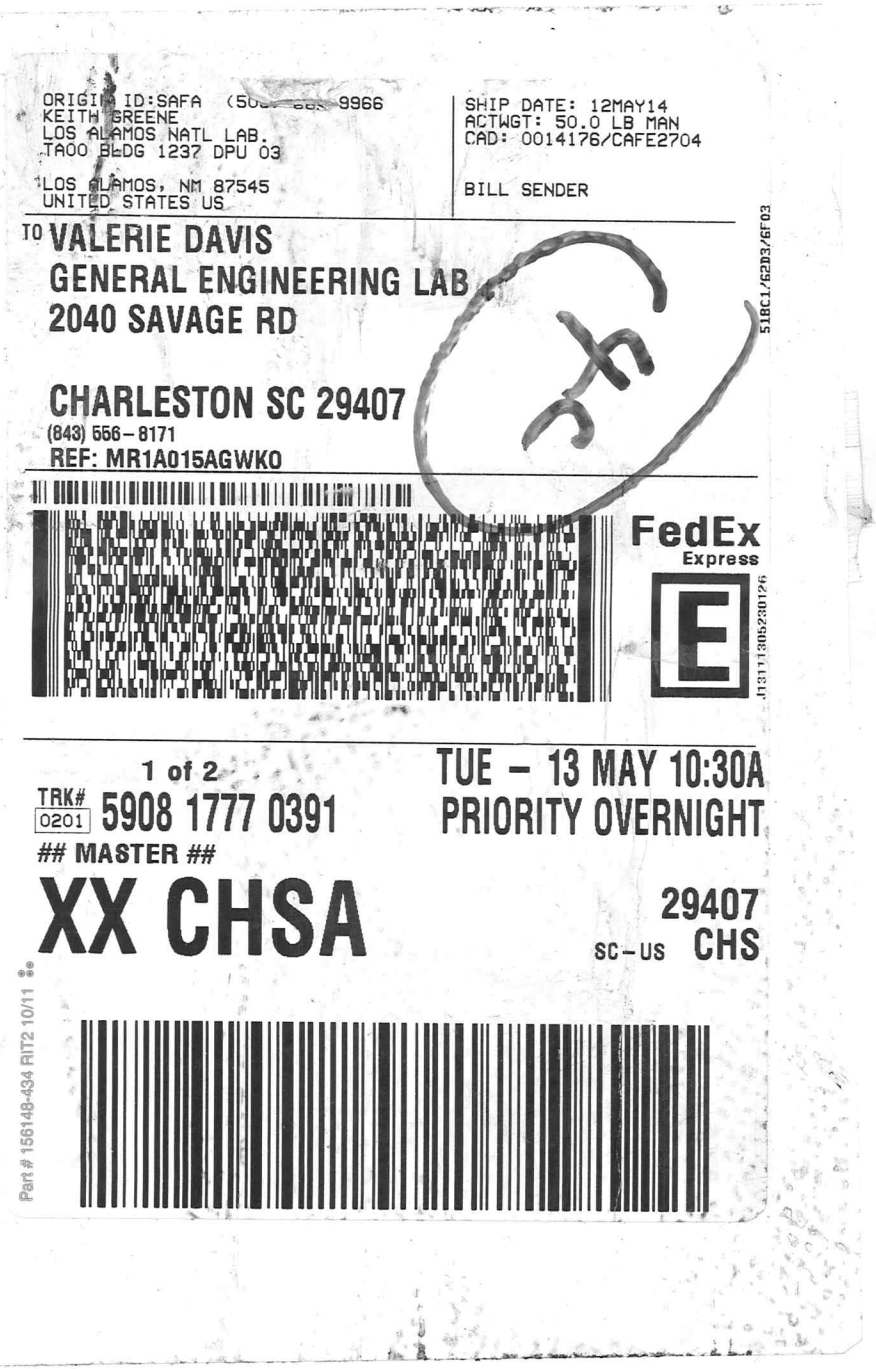
2 of 2
MPS# 0263 **5908 1777 0406**
Mstr# 5908 1777 0391 0201

TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT

XX 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: 12MAY14
ACTWGT: 50.0 LB MAN
CAD: 0014176/CAFE2704

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

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1 of 2

TRK# 0201 5908 1777 0391

TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT

MASTER

XX 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: 12MAY14
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2704

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A01407Q00

518C1/62D3/6F03

FedEx Express

J131130523012G

1 of 2

TRK# 0201 5908 1777 0370

TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT

MASTER

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 10/11

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

ChemStation Case Narrative
ARS International, LLC (ARSL)
SDG 2014-3375

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1390101

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
348530003	CAMO-14-75545
348530005	CAMO-14-75541
1203094002	Method Blank (MB)
1203094003	348269001(CAMO-14-75543) Post Spike (PS)
1203094004	348269001(CAMO-14-75543) Post Spike Duplicate (PSD)
1203094005	Laboratory Control Sample (LCS)
1203094006	Laboratory Control Sample (LCS)
1203094007	348269001(CAMO-14-75543) Post Spike (PS)
1203094008	348269001(CAMO-14-75543) Post Spike Duplicate (PSD)
1203099705	Method Blank (MB)
1203099706	Laboratory Control Sample (LCS)
1203099707	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 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-038 REV# 21.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

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

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blanks analyzed with this SDG met the acceptance criteria.

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

Laboratory Control Sample (LCS) Recovery
The LCS 1203094005 (LCS), 1203099706 (LCS) and 1203099707 (LCS) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. See the Data Exception Report in the miscellaneous section of the data package.

QC Sample Designation
Sample 348269001 (CAMO-14-75543) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike 1203094007 (CAMO-14-75543) recoveries were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the data package.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate 1203094004 (CAMO-14-75543) recoveries were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the data package.

Relative Percent Difference (RPD) Statement
The RPD between the matrix spike pair were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the deliverable.

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 1203094003 (CAMO-14-75543), 1203094004 (CAMO-14-75543), 1203094007 (CAMO-14-75543), 1203094008 (CAMO-14-75543) and 348530003 (CAMO-14-75545) 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
Sample 348530003 (CAMO-14-75545) was re-analyzed due to unacceptable surrogate or internal standard recoveries in the initial analysis.

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
The following DER was generated for this SDG: 1299231.

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) were requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data are included on the Sample Data Summary (Form I).

Additional Comments
Additional comments were not required for this SDG.

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

System Configuration

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap

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

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all 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: 2014-3375 GEL Work Order: 348530

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

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 2014 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/09/2014 11:20**	**Matrix:**	**W**
Lab Sample ID:	**348530003**	**Date Received:**	**05/13/2014 09:20**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75545**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 15:52**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 15:52**				
Data File:	**052414V6\6J611.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	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	HU	1.00	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	2.20	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	2.50	10.0
75-05-8	Acetonitrile	HU	25.0	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	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:	**2014-3375**	**Date Collected:**	**05/09/2014 11:20**	**Matrix:**	**W**
Lab Sample ID:	**348530003**	**Date Received:**	**05/13/2014 09:20**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75545**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 15:52**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 15:52**				
Data File:	**052414V6\6J611.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	HU	5.00	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	HU	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	HU	1.00	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	HU	10.0	ug/L	1.70	10.0
91-20-3	Naphthalene	HU	1.00	ug/L	0.600	1.00
107-12-0	Propionitrile	HU	5.00	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	HU	5.00	ug/L	1.50	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:	**2014-3375**	**Date Collected:**	**05/09/2014 11:20**	**Matrix:**	**W**
Lab Sample ID:	**348530003**	**Date Received:**	**05/13/2014 09:20**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75545**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 15:52**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 15:52**				
Data File:	**052414V6\6J611.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	97.7	(78%-124%)
Bromofluorobenzene	50.7	50.0	ug/L	101	(80%-120%)
Toluene-d8	50.4	50.0	ug/L	101	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	11.452	8.73	ug/L	0	J
	unknown siloxane	13.848	5.42	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/09/2014 11:20**	**Matrix:**	**W**
Lab Sample ID:	**348530005**	**Date Received:**	**05/13/2014 09:20**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75541**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 19:42**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 19:42**				
Data File:	**052314V6\6J516.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	2.00	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	2.20	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	2.50	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:	**2014-3375**	**Date Collected:**	**05/09/2014 11:20**	**Matrix:**	**W**
Lab Sample ID:	**348530005**	**Date Received:**	**05/13/2014 09:20**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75541**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 19:42**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 19:42**				
Data File:	**052314V6\6J516.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	1.70	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.600	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	1.50	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:	**2014-3375**	**Date Collected:**	**05/09/2014 11:20**	**Matrix:**	**W**
Lab Sample ID:	**348530005**	**Date Received:**	**05/13/2014 09:20**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75541**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 19:42**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 19:42**				
Data File:	**052314V6\6J516.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	53.0	50.0	ug/L	106	(78%-124%)
Bromofluorobenzene	50.9	50.0	ug/L	102	(80%-120%)
Toluene-d8	49.7	50.0	ug/L	99.5	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	13.848	7.6	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2014-3375

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203094005	LCS for batch 1390101	102	102	95
1203094006	LCS for batch 1390101	96	96	93
1203094002	MB for batch 1390101	102	99	100
348530005	CAMO-14-75541	106	99	102
1203094003	CAMO-14-75543PS	107	110	95
1203094004	CAMO-14-75543PSD	100	100	93
1203094007	CAMO-14-75543PS	107	103	98
1203094008	CAMO-14-75543PSD	107	98	98
1203099706	LCS for batch 1390101	100	105	92
1203099707	LCS for batch 1390101	97	99	107
1203099705	MB for batch 1390101	101	100	97
348530003	CAMO-14-75545	98	101	101

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(78%-124%)
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: 2014-3375 **Sample Type:** Post Spike
Client ID: CAMO-14-75543PS **Matrix:** W
Lab Sample ID 1203094003
Instrument: VOA6.I **Analysis Date:** 05/23/2014 22:06 **Dilution:** 1
Analyst: GRB2
Purge Vol: 5 mL **Batch ID:** 1390101

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	96.3	96	72-120
75-05-8	PS	Acetonitrile	1250	0.00	HU	881	70	61-135
67-64-1	PS	Acetone	250	0.00	HU	88.3	35	29-144
74-88-4	PS	Iodomethane	250	0.00	HU	259	104	73-120
75-15-0	PS	Carbon disulfide	250	0.00	HU	231	93	79-138
108-05-4	PS	Vinyl acetate	250	0.00	HU	249	100	60-136
78-93-3	PS	2-Butanone	250	0.00	HU	124	50	38-136
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	HU	209	84	70-132
591-78-6	PS	2-Hexanone	250	0.00	HU	146	58	48-137
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	HU	54.7	109	51-133
74-87-3	PS	Chloromethane	50.0	0.00	HU	51.6	103	54-135
75-01-4	PS	Vinyl chloride	50.0	0.00	HU	55.5	111	52-129
74-83-9	PS	Bromomethane	50.0	0.00	HU	51.5	103	67-128
75-00-3	PS	Chloroethane	50.0	0.00	HU	47.2	94	69-120
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	HU	58.3	117	66-126
60-29-7	PS	Ethyl ether	50.0	0.00	HU	43.2	86	69-120
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	HU	43.2	86	74-130
75-09-2	PS	Methylene chloride	50.0	0.00	HU	46.2	92	73-120
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	HU	48.7	97	71-124
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	HU	43.1	86	75-124
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	HU	44.5	89	76-122
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	HU	45.2	90	77-121

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375 **Sample Type:** Post Spike
Client ID: CAMO-14-75543PS **Matrix:** W
Lab Sample ID 1203094003
Instrument: VOA6.I **Analysis Date:** 05/23/2014 22:06 **Dilution:** 1
Analyst: GRB2
Purge Vol: 5 mL **Batch ID:** 1390101

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	49.8	100	72-129
74-97-5	PS	Bromochloromethane	50.0	0.00	HU	50.9	102	78-122
67-66-3	PS	Chloroform	50.0	0.00	HU	49.3	99	75-123
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	HU	52.2	104	76-129
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	HU	44.1	88	76-125
56-23-5	PS	Carbon tetrachloride	50.0	0.00	HU	55.2	110	76-132
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	HU	48.9	98	68-128
71-43-2	PS	Benzene	50.0	0.00	HU	44.5	89	75-120
79-01-6	PS	Trichloroethylene	50.0	0.00	HU	47.6	95	75-125
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	HU	49.1	98	75-120
74-95-3	PS	Dibromomethane	50.0	0.00	HU	53.0	106	77-122
75-27-4	PS	Bromodichloromethane	50.0	0.00	HU	58.4	117	76-129
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	HU	52.8	106	75-127
108-88-3	PS	Toluene	50.0	0.00	HU	48.6	97	72-120
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	HU	47.5	95	73-123
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	HU	43.2	86	77-120
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	HU	43.2	86	73-120
127-18-4	PS	Tetrachloroethylene	50.0	0.00	HU	50.8	102	67-124
124-48-1	PS	Dibromochloromethane	50.0	0.00	HU	54.4	109	70-130
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	HU	47.2	94	79-122
108-90-7	PS	Chlorobenzene	50.0	0.00	HU	47.4	95	74-120
100-41-4	PS	Ethylbenzene	50.0	0.00	HU	46.6	93	72-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375 **Sample Type:** Post Spike
Client ID: CAMO-14-75543PS **Matrix:** W
Lab Sample ID 1203094003
Instrument: VOA6.I **Analysis Date:** 05/23/2014 22:06 **Dilution:** 1
Analyst: GRB2
Purge Vol: 5 mL **Batch ID:** 1390101

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	47.8	96	72-120
100-42-5	PS	Styrene	50.0	0.00	HU	50.2	100	74-124
75-25-2	PS	Bromoform	50.0	0.00	HU	49.6	99	61-135
98-82-8	PS	Isopropylbenzene	50.0	0.00	HU	45.7	91	71-124
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	HU	43.7	87	74-124
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	HU	43.7	87	71-125
108-86-1	PS	Bromobenzene	50.0	0.00	HU	47.3	95	72-120
103-65-1	PS	n-Propylbenzene	50.0	0.00	HU	45.2	90	69-121
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	HU	48.2	96	71-123
95-49-8	PS	2-Chlorotoluene	50.0	0.00	HU	46.6	93	71-120
106-43-4	PS	4-Chlorotoluene	50.0	0.00	HU	46.1	92	70-120
98-06-6	PS	tert-Butylbenzene	50.0	0.00	HU	48.9	98	72-124
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	HU	46.7	93	71-122
135-98-8	PS	sec-Butylbenzene	50.0	0.00	HU	46.3	93	71-124
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	HU	48.3	97	70-124
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	HU	49.0	98	70-120
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	HU	45.2	90	70-120
104-51-8	PS	n-Butylbenzene	50.0	0.00	HU	47.2	94	69-125
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	HU	45.3	91	60-130
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	HU	52.8	106	60-129
91-20-3	PS	Naphthalene	50.0	0.00	HU	41.4	83	58-134
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	HU	48.9	98	52-132

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Post Spike**
Client ID: **CAMO-14-75543PS**
Matrix: **W**
Lab Sample ID **1203094003**
Instrument: **VOA6.I**
Analysis Date: **05/23/2014 22:06**
Dilution: **1**
Analyst: **GRB2**
Purge Vol: **5 mL**
Batch ID: **1390101**

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	48.6	97	59-126
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	HU	54.3	109	78-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	HU	47.7	95	72-120
71-36-3	PS	n-Butyl alcohol	5000	0.00	HU	3750	75	64-138

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Post Spike Duplicate
Client ID: CAMO-14-75543PSD
Matrix: W
Lab Sample ID 1203094004
Instrument: VOA6.I
Analysis Date: 05/23/2014 22:35
Dilution: 1
Analyst: GRB2
Purge Vol: 5 mL
Batch ID: 1390101

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	96.7	97	72-120	0	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	HU	847	68	61-135	4	0-20
67-64-1	PSD	Acetone	250	0.00	HU	81.5	33	29-144	8	0-20
74-88-4	PSD	Iodomethane	250	0.00	HU	252	101	73-120	3	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	HU	237	95	79-138	2	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	HU	240	96	60-136	3	0-20
78-93-3	PSD	2-Butanone	250	0.00	HU	113	45	38-136	10	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	HU	168	67 *	70-132	22 *	0-20
591-78-6	PSD	2-Hexanone	250	0.00	HU	132	53	48-137	10	0-20
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	HU	46.4	93	51-133	16	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	HU	44.9	90	54-135	14	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	HU	48.8	98	52-129	13	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	HU	54.0	108	67-128	5	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	HU	50.9	102	69-120	8	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	HU	57.3	115	66-126	2	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	HU	44.9	90	69-120	4	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	HU	43.5	87	74-130	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	HU	48.9	98	73-120	6	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	HU	44.5	89	71-124	9	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	HU	43.5	87	75-124	1	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	HU	45.2	90	76-122	1	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	HU	44.7	89	77-121	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375 **Sample Type:** Post Spike Duplicate
Client ID: CAMO-14-75543PSD **Matrix:** W
Lab Sample ID 1203094004
Instrument: VOA6.I **Analysis Date:** 05/23/2014 22:35 **Dilution:** 1
Analyst: GRB2
Purge Vol: 5 mL **Batch ID:** 1390101

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	48.4	97	72-129	3	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	HU	48.7	97	78-122	4	0-20
67-66-3	PSD	Chloroform	50.0	0.00	HU	48.4	97	75-123	2	0-20
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	HU	50.0	100	76-129	4	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	HU	44.1	88	76-125	0	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	HU	52.3	105	76-132	5	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	HU	45.0	90	68-128	8	0-20
71-43-2	PSD	Benzene	50.0	0.00	HU	44.2	88	75-120	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	HU	46.0	92	75-125	3	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	HU	36.9	74 *	75-120	28 *	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	HU	38.9	78	77-122	31 *	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	HU	43.7	87	76-129	29 *	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	HU	40.0	80	75-127	28 *	0-20
108-88-3	PSD	Toluene	50.0	0.00	HU	44.6	89	72-120	9	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	HU	46.3	93	73-123	3	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	HU	41.4	83	77-120	4	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	HU	41.9	84	73-120	3	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	HU	51.0	102	67-124	0	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	HU	52.0	104	70-130	4	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	HU	45.2	90	79-122	4	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	HU	47.8	96	74-120	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	HU	46.0	92	72-120	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Post Spike Duplicate
Client ID: CAMO-14-75543PSD
Matrix: W
Lab Sample ID 1203094004
Instrument: VOA6.I
Analysis Date: 05/23/2014 22:35
Dilution: 1
Analyst: GRB2
Purge Vol: 5 mL
Batch ID: 1390101

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	48.8	98	72-120	2	0-20
100-42-5	PSD	Styrene	50.0	0.00	HU	51.3	103	74-124	2	0-20
75-25-2	PSD	Bromoform	50.0	0.00	HU	51.4	103	61-135	4	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	HU	46.3	93	71-124	1	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	HU	39.4	79	74-124	10	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	HU	41.7	83	71-125	5	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	HU	48.9	98	72-120	3	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	HU	45.5	91	69-121	1	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	HU	49.7	99	71-123	3	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	HU	46.9	94	71-120	1	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	HU	44.1	88	70-120	4	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	HU	49.7	99	72-124	2	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	HU	50.3	101	71-122	7	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	HU	46.4	93	71-124	0	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	HU	49.0	98	70-124	1	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	HU	46.7	93	70-120	5	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	HU	45.0	90	70-120	0	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	HU	46.4	93	69-125	2	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	HU	44.8	90	60-130	1	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	HU	58.5	117	60-129	10	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	HU	46.1	92	58-134	11	0-20
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	HU	53.1	106	52-132	8	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Post Spike Duplicate
Client ID: CAMO-14-75543PSD
Matrix: W
Lab Sample ID 1203094004
Instrument: VOA6.I
Analysis Date: 05/23/2014 22:35
Dilution: 1
Analyst: GRB2
Purge Vol: 5 mL
Batch ID: 1390101

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	53.5	107	59-126	10	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	HU	53.5	107	78-128	2	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	HU	47.5	95	72-120	1	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	HU	3350	67	64-138	11	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1390101
Matrix: WATER
Lab Sample ID 1203094005
Instrument: VOA6.I
Analysis Date: 05/23/2014 14:52
Dilution: 1
Analyst: GRB2
Purge Vol: 5 mL
Batch ID: 1390101

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	97.5	98	80-120
75-05-8	LCS	Acetonitrile	1250	0.0	1070	86	63-131
67-64-1	LCS	Acetone	250	0.0	278	111	50-149
74-88-4	LCS	Iodomethane	250	0.0	258	103	75-120
75-15-0	LCS	Carbon disulfide	250	0.0	253	101	80-136
108-05-4	LCS	Vinyl acetate	250	0.0	304	122	78-130
78-93-3	LCS	2-Butanone	250	0.0	271	108	57-148
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	229	91	75-130
591-78-6	LCS	2-Hexanone	250	0.0	266	106	64-149
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	49.2	98	58-129
74-87-3	LCS	Chloromethane	50.0	0.0	47.6	95	59-131
75-01-4	LCS	Vinyl chloride	50.0	0.0	52.2	104	59-127
74-83-9	LCS	Bromomethane	50.0	0.0	53.1	106	70-125
75-00-3	LCS	Chloroethane	50.0	0.0	54.1	108	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	60.3	121	73-123
60-29-7	LCS	Ethyl ether	50.0	0.0	47.3	95	73-120
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	46.6	93	80-128
75-09-2	LCS	Methylene chloride	50.0	0.0	47.5	95	75-120
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	48.3	97	74-122
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	45.7	91	80-121
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	46.5	93	79-120
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	46.5	93	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1390101
Matrix: WATER
Lab Sample ID 1203094005
Instrument: VOA6.I
Analysis Date: 05/23/2014 14:52
Dilution: 1
Analyst: GRB2
Purge Vol: 5 mL
Batch ID: 1390101

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	52.0	104	79-130
74-97-5	LCS	Bromochloromethane	50.0	0.0	50.1	100	80-121
67-66-3	LCS	Chloroform	50.0	0.0	48.2	96	79-120
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	51.3	103	80-128
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	46.7	93	80-123
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	53.2	106	80-131
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	45.5	91	73-120
71-43-2	LCS	Benzene	50.0	0.0	45.5	91	78-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	46.4	93	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	42.3	85	79-120
74-95-3	LCS	Dibromomethane	50.0	0.0	44.1	88	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	42.6	85	80-126
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	40.8	82	80-125
108-88-3	LCS	Toluene	50.0	0.0	45.3	91	78-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	48.1	96	79-121
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	44.0	88	78-120
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	43.1	86	75-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	52.4	105	74-123
124-48-1	LCS	Dibromochloromethane	50.0	0.0	52.7	105	73-129
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	48.3	97	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	47.8	96	79-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	47.0	94	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1390101
Matrix: WATER
Lab Sample ID 1203094005
Instrument: VOA6.I
Analysis Date: 05/23/2014 14:52
Dilution: 1
Analyst: GRB2
Purge Vol: 5 mL
Batch ID: 1390101

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	LCS	o-Xylene	50.0	0.0	47.7	95	80-123
100-42-5	LCS	Styrene	50.0	0.0	50.7	101	80-121
75-25-2	LCS	Bromoform	50.0	0.0	54.7	109	65-135
98-82-8	LCS	Isopropylbenzene	50.0	0.0	47.6	95	79-121
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	44.5	89	76-123
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	45.0	90	76-120
108-86-1	LCS	Bromobenzene	50.0	0.0	47.5	95	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	46.6	93	80-123
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	49.4	99	80-120
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	47.0	94	79-120
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	45.4	91	79-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	51.5	103	79-122
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	48.1	96	80-120
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	49.1	98	80-121
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	51.7	103	80-121
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	47.5	95	76-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	46.3	93	78-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	50.5	101	80-123
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	54.9	110	66-125
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	65.0	130 *	71-128
91-20-3	LCS	Naphthalene	50.0	0.0	53.6	107	64-132
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	60.7	121	61-132

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1390101**
Matrix: **WATER**
Lab Sample ID **1203094005**
Instrument: **VOA6.I**
Analysis Date: **05/23/2014 14:52**
Dilution: **1**
Analyst: **GRB2**
Purge Vol: **5 mL**
Batch ID: **1390101**

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	60.3	121	66-130
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	52.5	105	80-125
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	48.1	96	78-120
71-36-3	LCS	n-Butyl alcohol	5000	0.0	4760	95	67-137

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1390101**
Matrix: **WATER**
Lab Sample ID **1203094006**
Instrument: **VOA6.I**
Analysis Date: **05/23/2014 16:19**
Dilution: **1**
Analyst: **GRB2**
Purge Vol: **5 mL**
Batch ID: **1390101**

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	300	120	65-126
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	270	108	73-132
107-05-1	LCS	Allyl chloride	250	0.0	231	92	67-127
107-13-1	LCS	Acrylonitrile	250	0.0	216	86	74-122
107-12-0	LCS	Propionitrile	250	0.0	216	87	73-124
126-98-7	LCS	Methacrylonitrile	250	0.0	223	89	68-123
80-62-6	LCS	Methyl methacrylate	250	0.0	235	94	79-120
97-63-2	LCS	Ethyl methacrylate	250	0.0	241	96	77-120
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2000	80	72-133
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	51.6	103	57-142

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Post Spike**
Client ID: **CAMO-14-75543PS**
Matrix: **W**
Lab Sample ID **1203094007**
Instrument: **VOA6.I**
Analysis Date: **05/23/2014 23:03**
Dilution: **1**
Analyst: **GRB2**
Purge Vol: **5 mL**
Batch ID: **1390101**

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	350	140 *	57-131
76-13-1	PS	Trichlorotrifluoroethane	250	0.00	HU	295	118	76-133
107-05-1	PS	Allyl chloride	250	0.00	HU	266	107	65-130
107-13-1	PS	Acrylonitrile	250	0.00	HU	256	102	70-128
107-12-0	PS	Propionitrile	250	0.00	HU	207	83	68-131
126-98-7	PS	Methacrylonitrile	250	0.00	HU	220	88	64-129
80-62-6	PS	Methyl methacrylate	250	0.00	HU	229	91	76-120
97-63-2	PS	Ethyl methacrylate	250	0.00	HU	246	99	72-122
78-83-1	PS	Isobutyl alcohol	2500	0.00	HU	1870	75	72-134
126-99-8	PS	2-Chloro-1,3-butadiene	50.0	0.00	HU	56.0	112	46-140

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375 **Sample Type:** Post Spike Duplicate

Client ID: CAMO-14-75543PSD **Matrix:** W

Lab Sample ID 1203094008

Instrument: VOA6.I **Analysis Date:** 05/23/2014 23:32 **Dilution:** 1

Analyst: GRB2

Purge Vol: 5 mL **Batch ID:** 1390101

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	273	109	57-131	25 *	0-20
76-13-1	PSD	Trichlorotrifluoroethane	250	0.00	HU	253	101	76-133	16	0-20
107-05-1	PSD	Allyl chloride	250	0.00	HU	221	89	65-130	19	0-20
107-13-1	PSD	Acrylonitrile	250	0.00	HU	204	81	70-128	23 *	0-20
107-12-0	PSD	Propionitrile	250	0.00	HU	203	81	68-131	2	0-20
126-98-7	PSD	Methacrylonitrile	250	0.00	HU	230	92	64-129	4	0-20
80-62-6	PSD	Methyl methacrylate	250	0.00	HU	239	96	76-120	5	0-20
97-63-2	PSD	Ethyl methacrylate	250	0.00	HU	222	89	72-122	11	0-20
78-83-1	PSD	Isobutyl alcohol	2500	0.00	HU	1930	77	72-134	3	0-20
126-99-8	PSD	2-Chloro-1,3-butadiene	50.0	0.00	HU	49.6	99	46-140	12	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1390101
Matrix: WATER
Lab Sample ID 1203099706
Instrument: VOA6.I
Analysis Date: 05/24/2014 12:00
Dilution: 1
Analyst: GRB2
Purge Vol: 5 mL
Batch ID: 1390101

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	94.2	94	80-120
75-05-8	LCS	Acetonitrile	1250	0.0	1130	90	63-131
67-64-1	LCS	Acetone	250	0.0	271	108	50-149
74-88-4	LCS	Iodomethane	250	0.0	285	114	75-120
75-15-0	LCS	Carbon disulfide	250	0.0	277	111	80-136
108-05-4	LCS	Vinyl acetate	250	0.0	328	131 *	78-130
78-93-3	LCS	2-Butanone	250	0.0	268	107	57-148
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	204	82	75-130
591-78-6	LCS	2-Hexanone	250	0.0	232	93	64-149
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	56.8	114	58-129
74-87-3	LCS	Chloromethane	50.0	0.0	53.3	107	59-131
75-01-4	LCS	Vinyl chloride	50.0	0.0	58.3	117	59-127
74-83-9	LCS	Bromomethane	50.0	0.0	59.5	119	70-125
75-00-3	LCS	Chloroethane	50.0	0.0	59.6	119	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	68.5	137 *	73-123
60-29-7	LCS	Ethyl ether	50.0	0.0	50.9	102	73-120
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	51.0	102	80-128
75-09-2	LCS	Methylene chloride	50.0	0.0	52.4	105	75-120
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	52.3	105	74-122
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	49.8	100	80-121
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	50.9	102	79-120
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	50.4	101	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1390101
Matrix: WATER
Lab Sample ID 1203099706
Instrument: VOA6.I
Analysis Date: 05/24/2014 12:00
Dilution: 1
Analyst: GRB2
Purge Vol: 5 mL
Batch ID: 1390101

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	57.1	114	79-130
74-97-5	LCS	Bromochloromethane	50.0	0.0	53.7	107	80-121
67-66-3	LCS	Chloroform	50.0	0.0	52.6	105	79-120
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	54.9	110	80-128
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	44.2	88	80-123
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	53.3	107	80-131
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	44.2	88	73-120
71-43-2	LCS	Benzene	50.0	0.0	42.4	85	78-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	46.5	93	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	41.3	83	79-120
74-95-3	LCS	Dibromomethane	50.0	0.0	45.1	90	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	48.6	97	80-126
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	46.1	92	80-125
108-88-3	LCS	Toluene	50.0	0.0	46.5	93	78-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	45.7	91	79-121
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	41.8	84	78-120
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	40.8	82	75-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	51.0	102	74-123
124-48-1	LCS	Dibromochloromethane	50.0	0.0	50.6	101	73-129
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	45.9	92	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	47.9	96	79-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	49.5	99	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1390101
Matrix: WATER
Lab Sample ID 1203099706
Instrument: VOA6.I
Analysis Date: 05/24/2014 12:00
Dilution: 1
Analyst: GRB2
Purge Vol: 5 mL
Batch ID: 1390101

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	46.4	93	80-123
100-42-5	LCS	Styrene	50.0	0.0	49.1	98	80-121
75-25-2	LCS	Bromoform	50.0	0.0	52.3	105	65-135
98-82-8	LCS	Isopropylbenzene	50.0	0.0	45.9	92	79-121
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	42.0	84	76-123
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	43.9	88	76-120
108-86-1	LCS	Bromobenzene	50.0	0.0	45.6	91	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	45.4	91	80-123
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	49.7	99	80-120
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	46.0	92	79-120
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	44.1	88	79-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	49.6	99	79-122
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	49.8	100	80-120
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	47.4	95	80-121
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	50.5	101	80-121
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	46.5	93	76-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	44.4	89	78-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	49.2	98	80-123
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	53.6	107	66-125
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	63.5	127	71-128
91-20-3	LCS	Naphthalene	50.0	0.0	50.9	102	64-132
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	63.3	127	61-132

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1390101**
Matrix: **WATER**
Lab Sample ID **1203099706**
Instrument: **VOA6.I**
Analysis Date: **05/24/2014 12:00**
Dilution: **1**
Analyst: **GRB2**
Purge Vol: **5 mL**
Batch ID: **1390101**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	57.6	115	66-130
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	54.3	109	80-125
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	46.6	93	78-120
71-36-3	LCS	n-Butyl alcohol	5000	0.0	4140	83	67-137

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1390101**
Matrix: **WATER**
Lab Sample ID **1203099707**
Instrument: **VOA6.I**
Analysis Date: **05/24/2014 13:27**
Dilution: **1**
Analyst: **GRB2**
Purge Vol: **5 mL**
Batch ID: **1390101**

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	328	131 *	65-126
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	269	108	73-132
107-05-1	LCS	Allyl chloride	250	0.0	239	96	67-127
107-13-1	LCS	Acrylonitrile	250	0.0	236	94	74-122
107-12-0	LCS	Propionitrile	250	0.0	236	94	73-124
126-98-7	LCS	Methacrylonitrile	250	0.0	238	95	68-123
80-62-6	LCS	Methyl methacrylate	250	0.0	243	97	79-120
97-63-2	LCS	Ethyl methacrylate	250	0.0	257	103	77-120
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2190	88	72-133
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	51.9	104	57-142

Method Blank Summary

SDG Number:	**2014-3375**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1390101**	**Instrument ID:**	**VOA6.I**	**Data File:**	**052314V6\6J511BAR.D**
Lab Sample ID:	**1203094002**	**Prep Date:**	**05/23/2014 17:17**	**Analyzed:**	**05/23/14 17:17**
Column:	**DB-624**				

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

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1390101	1203094005	052314V6\6J506LAR.D	05/23/14	1452
02	LCS for batch 1390101	1203094006	052314V6\6J509SHAR.D	05/23/14	1619
03	CAMO-14-75541	348530005	052314V6\6J516.D	05/23/14	1942
04	CAMO-14-75543PS	1203094003	052314V6\6J521.D	05/23/14	2206
05	CAMO-14-75543PSD	1203094004	052314V6\6J522.D	05/23/14	2235
06	CAMO-14-75543PS	1203094007	052314V6\6J523.D	05/23/14	2303
07	CAMO-14-75543PSD	1203094008	052314V6\6J524.D	05/23/14	2332

Method Blank Summary

SDG Number:	**2014-3375**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1390101**	**Instrument ID:**	**VOA6.I**	**Data File:**	**052414V6\6J608BAR.D**
Lab Sample ID:	**1203099705**	**Prep Date:**	**05/24/2014 14:25**	**Analyzed:**	**05/24/14 14:25**
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
09	LCS for batch 1390101	1203099706	052414V6\6J603LAR.D	05/24/14	1200
10	LCS for batch 1390101	1203099707	052414V6\6J606SHAR.D	05/24/14	1327
11	CAMO-14-75545	348530003	052414V6\6J611.D	05/24/14	1552

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203094002**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 17:17**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 17:17**				
Data File:	**052314V6\6J511BAR.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	2.00	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	2.20	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	2.50	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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203094002**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 17:17**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 17:17**				
Data File:	**052314V6\6J511BAR.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	1.70	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.600	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	1.50	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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203094002**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 17:17**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 17:17**				
Data File:	**052314V6\6J511BAR.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	(78%-124%)
Bromofluorobenzene	49.9	50.0	ug/L	99.8	(80%-120%)
Toluene-d8	49.6	50.0	ug/L	99.3	(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:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094003**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 22:06**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 22:06**				
Data File:	**052314V6\6J521.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	H	54.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	H	52.2	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	H	43.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	H	43.2	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	H	44.5	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	H	43.2	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	H	44.1	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	H	48.9	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	H	43.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	H	48.6	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	H	46.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	H	45.3	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	H	47.2	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	H	47.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	H	48.9	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	H	49.1	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	H	48.2	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	H	49.0	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	H	43.2	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	H	45.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	H	49.8	ug/L	0.300	1.00
78-93-3	2-Butanone	H	124	ug/L	2.00	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	46.6	ug/L	0.300	1.00
591-78-6	2-Hexanone	H	146	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene	H	46.1	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	H	48.3	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	H	209	ug/L	1.50	5.00
67-64-1	Acetone	H	88.3	ug/L	2.50	10.0
75-05-8	Acetonitrile	H	881	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	44.5	ug/L	0.300	1.00
108-86-1	Bromobenzene	H	47.3	ug/L	0.300	1.00
74-97-5	Bromochloromethane	H	50.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	H	58.4	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:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094003**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 22:06**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 22:06**				
Data File:	**052314V6\6J521.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	H	51.5	ug/L	0.300	1.00
75-15-0	Carbon disulfide	H	231	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	H	55.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene	H	47.4	ug/L	0.300	1.00
75-00-3	Chloroethane	H	47.2	ug/L	0.300	1.00
67-66-3	Chloroform	H	49.3	ug/L	0.300	1.00
74-87-3	Chloromethane	H	51.6	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	H	54.4	ug/L	0.300	1.00
74-95-3	Dibromomethane	H	53.0	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	H	54.7	ug/L	0.300	1.00
60-29-7	Ethyl ether	H	43.2	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	46.6	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	H	52.8	ug/L	0.300	1.00
74-88-4	Iodomethane	H	259	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	45.7	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	46.2	ug/L	1.70	10.0
91-20-3	Naphthalene	H	41.4	ug/L	0.600	1.00
107-12-0	Propionitrile	HU	5.00	ug/L	1.50	5.00
100-42-5	Styrene	H	50.2	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	H	50.8	ug/L	0.300	1.00
108-88-3	Toluene	H	48.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene	H	47.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	H	58.3	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	HU	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate	H	249	ug/L	1.50	5.00
75-01-4	Vinyl chloride	H	55.5	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	H	45.2	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	H	52.8	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	H	96.3	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	H	3750	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	H	47.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	H	45.2	ug/L	0.300	1.00
95-47-6	o-Xylene	H	47.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	H	46.3	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094003**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 22:06**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 22:06**				
Data File:	**052314V6\6J521.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	H	48.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	H	48.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	H	43.1	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	H	47.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.4	50.0	ug/L	107	(78%-124%)
Bromofluorobenzene	47.5	50.0	ug/L	94.9	(80%-120%)
Toluene-d8	55.0	50.0	ug/L	110	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094004**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 22:35**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 22:35**				
Data File:	**052314V6\6J522.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	H	53.5	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	H	50.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	H	39.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	H	41.4	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	H	45.2	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	H	43.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	H	44.1	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	H	53.1	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	H	41.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	H	53.5	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	H	50.3	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	H	44.8	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane	H	45.2	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	45.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	H	36.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	H	49.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	H	46.7	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	H	41.9	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	H	45.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	H	48.4	ug/L	0.300	1.00
78-93-3	2-Butanone	H	113	ug/L	2.00	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	46.9	ug/L	0.300	1.00
591-78-6	2-Hexanone	H	132	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene	H	44.1	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	H	49.0	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	H	168	ug/L	1.50	5.00
67-64-1	Acetone	H	81.5	ug/L	2.50	10.0
75-05-8	Acetonitrile	H	847	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	44.2	ug/L	0.300	1.00
108-86-1	Bromobenzene	H	48.9	ug/L	0.300	1.00
74-97-5	Bromochloromethane	H	48.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	H	43.7	ug/L	0.300	1.00
75-25-2	Bromoform	H	51.4	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094004**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 22:35**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 22:35**				
Data File:	**052314V6\6J522.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	H	54.0	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	52.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene	H	47.8	ug/L	0.300	1.00
75-00-3	Chloroethane	H	50.9	ug/L	0.300	1.00
67-66-3	Chloroform	H	48.4	ug/L	0.300	1.00
74-87-3	Chloromethane	H	44.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	H	52.0	ug/L	0.300	1.00
74-95-3	Dibromomethane	H	38.9	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	H	46.4	ug/L	0.300	1.00
60-29-7	Ethyl ether	H	44.9	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	46.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	H	58.5	ug/L	0.300	1.00
74-88-4	Iodomethane	H	252	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	46.3	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	48.9	ug/L	1.70	10.0
91-20-3	Naphthalene	H	46.1	ug/L	0.600	1.00
107-12-0	Propionitrile	HU	5.00	ug/L	1.50	5.00
100-42-5	Styrene	H	51.3	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	H	51.0	ug/L	0.300	1.00
108-88-3	Toluene	H	44.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene	H	46.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	H	57.3	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	HU	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate	H	240	ug/L	1.50	5.00
75-01-4	Vinyl chloride	H	48.8	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	H	44.7	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	H	40.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	H	96.7	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	H	3350	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	H	46.4	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	H	45.5	ug/L	0.300	1.00
95-47-6	o-Xylene	H	48.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	H	46.4	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094004**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 22:35**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 22:35**				
Data File:	**052314V6\6J522.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether	H	44.5	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	H	49.7	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	46.3	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.1	50.0	ug/L	100	(78%-124%)
Bromofluorobenzene	46.5	50.0	ug/L	93.1	(80%-120%)
Toluene-d8	50.1	50.0	ug/L	100	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203094005**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 14:52**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 14:52**				
Data File:	**052314V6\6J506LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		52.5	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		51.3	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		44.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		44.0	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		46.5	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		46.6	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		46.7	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		60.7	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		45.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		60.3	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		48.1	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		54.9	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		48.3	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		48.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		42.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		49.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.5	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		43.1	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.3	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		52.0	ug/L	0.300	1.00
78-93-3	2-Butanone		271	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		47.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		266	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene		45.4	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		51.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		229	ug/L	1.50	5.00
67-64-1	Acetone		278	ug/L	2.50	10.0
75-05-8	Acetonitrile		1070	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		45.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		47.5	ug/L	0.300	1.00
74-97-5	Bromochloromethane		50.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		42.6	ug/L	0.300	1.00
75-25-2	Bromoform		54.7	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203094005**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 14:52**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 14:52**				
Data File:	**052314V6\6J506LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		53.1	ug/L	0.300	1.00
75-15-0	Carbon disulfide		253	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		53.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.8	ug/L	0.300	1.00
75-00-3	Chloroethane		54.1	ug/L	0.300	1.00
67-66-3	Chloroform		48.2	ug/L	0.300	1.00
74-87-3	Chloromethane		47.6	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		44.1	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		49.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.3	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		47.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		65.0	ug/L	0.300	1.00
74-88-4	Iodomethane		258	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		47.6	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		47.5	ug/L	1.70	10.0
91-20-3	Naphthalene		53.6	ug/L	0.600	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		50.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		52.4	ug/L	0.300	1.00
108-88-3	Toluene		45.3	ug/L	0.300	1.00
79-01-6	Trichloroethylene		46.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		60.3	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate		304	ug/L	1.50	5.00
75-01-4	Vinyl chloride		52.2	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		46.5	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		40.8	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		97.5	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4760	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		50.5	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		46.6	ug/L	0.300	1.00
95-47-6	o-Xylene		47.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		49.1	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203094005**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 14:52**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 14:52**				
Data File:	**052314V6\6J506LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		48.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		51.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		45.7	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		48.1	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	(78%-124%)
Bromofluorobenzene	47.6	50.0	ug/L	95.2	(80%-120%)
Toluene-d8	51.0	50.0	ug/L	102	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203094006**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 16:19**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 16:19**				
Data File:	**052314V6\6J509SHAR.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	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene		51.6	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	2.20	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	2.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		300	ug/L	1.50	5.00
107-13-1	Acrylonitrile		216	ug/L	1.50	5.00
107-05-1	Allyl chloride		231	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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203094006**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 16:19**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 16:19**				
Data File:	**052314V6\6J509SHAR.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		241	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		2000	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		223	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		235	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.70	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.600	1.00
107-12-0	Propionitrile		216	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		270	ug/L	1.50	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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203094006**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 16:19**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 16:19**				
Data File:	**052314V6\6J509SHAR.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	47.9	50.0	ug/L	95.9	(78%-124%)
Bromofluorobenzene	46.4	50.0	ug/L	92.8	(80%-120%)
Toluene-d8	48.1	50.0	ug/L	96.1	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094007**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 23:03**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 23:03**				
Data File:	**052314V6\6J523.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	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	H	56.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	HU	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	HU	5.00	ug/L	2.20	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	2.50	10.0
75-05-8	Acetonitrile	HU	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	H	350	ug/L	1.50	5.00
107-13-1	Acrylonitrile	H	256	ug/L	1.50	5.00
107-05-1	Allyl chloride	H	266	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:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094007**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 23:03**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 23:03**				
Data File:	**052314V6\6J523.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	246	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	1870	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	HU	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	H	220	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	H	229	ug/L	1.50	5.00
75-09-2	Methylene chloride	HU	10.0	ug/L	1.70	10.0
91-20-3	Naphthalene	HU	1.00	ug/L	0.600	1.00
107-12-0	Propionitrile	H	207	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	295	ug/L	1.50	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:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094007**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 23:03**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 23:03**				
Data File:	**052314V6\6J523.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	53.3	50.0	ug/L	107	(78%-124%)
Bromofluorobenzene	48.9	50.0	ug/L	97.7	(80%-120%)
Toluene-d8	51.3	50.0	ug/L	103	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094008**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 23:32**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 23:32**				
Data File:	**052314V6\6J524.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	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	H	49.6	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	2.20	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	2.50	10.0
75-05-8	Acetonitrile	HU	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	H	273	ug/L	1.50	5.00
107-13-1	Acrylonitrile	H	204	ug/L	1.50	5.00
107-05-1	Allyl chloride	H	221	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:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094008**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 23:32**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 23:32**				
Data File:	**052314V6\6J524.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	222	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	1930	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	HU	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	H	230	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	H	239	ug/L	1.50	5.00
75-09-2	Methylene chloride	HU	10.0	ug/L	1.70	10.0
91-20-3	Naphthalene	HU	1.00	ug/L	0.600	1.00
107-12-0	Propionitrile	H	203	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	253	ug/L	1.50	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:	**2014-3375**	**Date Collected:**	**05/06/2014 09:45**	**Matrix:**	**W**
Lab Sample ID:	**1203094008**	**Date Received:**	**05/08/2014 09:00**		
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75543PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 23:32**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 23:32**				
Data File:	**052314V6\6J524.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	53.4	50.0	ug/L	107	(78%-124%)
Bromofluorobenzene	48.9	50.0	ug/L	97.7	(80%-120%)
Toluene-d8	49.0	50.0	ug/L	98.1	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203099705**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 14:25**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 14:25**				
Data File:	**052414V6\6J608BAR.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	2.00	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	2.20	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	2.50	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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203099705**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 14:25**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 14:25**				
Data File:	**052414V6\6J608BAR.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	1.70	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.600	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	1.50	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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203099705**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 14:25**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 14:25**				
Data File:	**052414V6\6J608BAR.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	50.6	50.0	ug/L	101	(78%-124%)
Bromofluorobenzene	48.4	50.0	ug/L	96.7	(80%-120%)
Toluene-d8	50.0	50.0	ug/L	100	(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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203099706**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 12:00**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 12:00**				
Data File:	**052414V6\6J603LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		54.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		54.9	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		42.0	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		41.8	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		50.9	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		51.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		44.2	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		63.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		43.9	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		57.6	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		49.8	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		53.6	ug/L	0.500	1.00
106-93-4	1,2-Dibromoethane		45.9	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		46.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		44.2	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		41.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		49.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.5	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		40.8	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		44.4	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		57.1	ug/L	0.300	1.00
78-93-3	2-Butanone		268	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		46.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		232	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene		44.1	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		50.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		204	ug/L	1.50	5.00
67-64-1	Acetone		271	ug/L	2.50	10.0
75-05-8	Acetonitrile		1130	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		42.4	ug/L	0.300	1.00
108-86-1	Bromobenzene		45.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane		53.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		48.6	ug/L	0.300	1.00
75-25-2	Bromoform		52.3	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203099706**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 12:00**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 12:00**				
Data File:	**052414V6\6J603LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		59.5	ug/L	0.300	1.00
75-15-0	Carbon disulfide		277	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		53.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.9	ug/L	0.300	1.00
75-00-3	Chloroethane		59.6	ug/L	0.300	1.00
67-66-3	Chloroform		52.6	ug/L	0.300	1.00
74-87-3	Chloromethane		53.3	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		50.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		45.1	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		56.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		50.9	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		49.5	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		63.5	ug/L	0.300	1.00
74-88-4	Iodomethane		285	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		45.9	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		52.4	ug/L	1.70	10.0
91-20-3	Naphthalene		50.9	ug/L	0.600	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		49.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.0	ug/L	0.300	1.00
108-88-3	Toluene		46.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		46.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		68.5	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate		328	ug/L	1.50	5.00
75-01-4	Vinyl chloride		58.3	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		50.4	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		46.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		94.2	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4140	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		49.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		45.4	ug/L	0.300	1.00
95-47-6	o-Xylene		46.4	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		47.4	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203099706**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 12:00**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 12:00**				
Data File:	**052414V6\6J603LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		52.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.6	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		49.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		45.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.0	50.0	ug/L	99.9	(78%-124%)
Bromofluorobenzene	45.9	50.0	ug/L	91.8	(80%-120%)
Toluene-d8	52.5	50.0	ug/L	105	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203099707**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 13:27**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 13:27**				
Data File:	**052414V6\6J606SHAR.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	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene		51.9	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	2.20	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	2.50	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		328	ug/L	1.50	5.00
107-13-1	Acrylonitrile		236	ug/L	1.50	5.00
107-05-1	Allyl chloride		239	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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203099707**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 13:27**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 13:27**				
Data File:	**052414V6\6J606SHAR.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		257	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		2190	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		238	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		243	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	1.70	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.600	1.00
107-12-0	Propionitrile		236	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		269	ug/L	1.50	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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203099707**				
Client Sample:	**QC for batch 1390101**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1390101**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/24/2014 13:27**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/24/2014 13:27**				
Data File:	**052414V6\6J606SHAR.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.5	50.0	ug/L	97.1	(78%-124%)
Bromofluorobenzene	53.5	50.0	ug/L	107	(80%-120%)
Toluene-d8	49.7	50.0	ug/L	99.4	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
02-JUN-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1390101	See Below		

Potentially affected work order(s)(SDG): 348269(2014-3353),348526(2014-3373),348530(2014-3375),348630(2014-3383),348686(2014-3382)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Sample Analyzed out of Holding

Failed Recovery for LCS/LCSD

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. QC sample 1203094007MS recovered outside the limits for Acrolein. 2. The MS/MSD pairs did not all have acceptable RPD values. 3. Sample Analyzed out of Holding: 348269 001,002 348526 004 348530 003 QC 1203094003MS, 1203094004MSD, 1203094007MS and 1203094008MSD 4. The LCS recoveries were not all within the acceptance limits. 5. QC sample 1203094004MSD recovered outside the limits for 1,2-Dichloropropane and 4-Methyl-2-pentanone.	1,2 and 5. The MS/MSD pairs were re-analyzed and recovered in similar manners. 3. The samples were analyzed within two times the hold time criteria, which satisfies the client criteria. 4. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria.

Originator's Name:

Gelester Baskett 02-JUN-14

Data Validator/Group Leader:

Erin Haubert 02-JUN-14

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International, LLC (ARSL)
SDG 2014-3375

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:	1387889
Prep Batch Number:	1387888

Sample Analysis

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

Sample ID	**Client ID**
348530003	CAMO-14-75545
1203088329	Method Blank (MB)
1203088330	Laboratory Control Sample (LCS)
1203088331	348630001(CAMO-14-75494) Matrix Spike (MS)
1203088332	348630001(CAMO-14-75494) 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# 32.

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

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 348630001 (CAMO-14-75494) was selected for analysis as the matrix spike and matrix spike duplicate.

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 RPD between the MS and the MSD, 1203088331 (CAMO-14-75494) and 1203088332 (CAMO-14-75494), did not meet the 0% to 30% acceptance limits for Benzidine at 83.8%. The RPD failure is attributed to the large difference in the recovery values between analyte pair in the MS and MSD. The individual LCS, MS and MSD recoveries for this analyte were within their established acceptance criteria. The data are reported unqualified for the RPD value failure.

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
Data exception report 1293920 was generated for the samples in this batch 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) may be requested for samples 1203088329 (MB) and 348530003 (CAMO-14-75545) 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, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

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
MSD2.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: 2014-3375 GEL Work Order: 348530

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: 02 JUN 2014 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/09/2014 11:20**	**Matrix:**	**W**
Lab Sample ID:	**348530003**	**Date Received:**	**05/13/2014 09:20**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75545**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 21:42**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1514.D**	**Column:**	**DB-5ms**		

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/09/2014 11:20**	**Matrix:**	**W**
Lab Sample ID:	**348530003**	**Date Received:**	**05/13/2014 09:20**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75545**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 21:42**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1514.D**	**Column:**	**DB-5ms**		

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/09/2014 11:20**	**Matrix:**	**W**
Lab Sample ID:	**348530003**	**Date Received:**	**05/13/2014 09:20**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75545**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 21:42**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1514.D**	**Column:**	**DB-5ms**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	94.7	104	ug/L	90.9	(26%-129%)
2-Fluorobiphenyl	43.5	52.1	ug/L	83.6	(32%-102%)
2-Fluorophenol	53.9	104	ug/L	51.8	(10%-78%)
Nitrobenzene-d5	45.6	52.1	ug/L	87.6	(36%-125%)
Phenol-d5	34.9	104	ug/L	33.5	(10%-104%)
p-Terphenyl-d14	40.5	52.1	ug/L	77.8	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
082304-66-3	7,9-Di-tert-butyl-1-oxaspiro(4,5)d	12.207	9.58	ug/L	98	NJ
000080-05-7	Phenol, 4,4'-(1-methylethylidene)b	13.61	58.9	ug/L	98	NJ
	unknown	23.076	106	ug/L	0	J

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2014-3375

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203088330	LCS for batch 1387888	49	32	85	75	88	75
1203088329	MB for batch 1387888	50	33	83	65	78	86
348530003	CAMO-14-75545	52	33	88	84	91	78
1203088331	CAMO-14-75494MS	68	56	86	80	89	74
1203088332	CAMO-14-75494MSD	74	61	94	86	99	82

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(10%-78%)
PHL	= Phenol-d5	(10%-104%)
NBZ	= Nitrobenzene-d5	(36%-125%)
FBP	= 2-Fluorobiphenyl	(32%-102%)
TBP	= 2,4,6-Tribromophenol	(26%-129%)
TPH	= p-Terphenyl-d14	(34%-135%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1387888**
Matrix: **WATER**
Lab Sample ID **1203088330**
Instrument: **MSD2.I**
Analysis Date: **05/15/2014 19:43**
Dilution: **1**
Analyst: **AGS1**
Prep Batch ID: **1387888**
Inj. Vol: **1 uL**
Batch ID: **1387889**

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	28.3	57	18-75
110-86-1	LCS	Pyridine	50.0	0.0	33.1	66	11-88
62-53-3	LCS	Aniline	50.0	0.0	45.2	90	35-107
108-95-2	LCS	Phenol	50.0	0.0	17.0	34	13-77
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	46.4	93	35-111
95-57-8	LCS	2-Chlorophenol	50.0	0.0	38.3	77	39-99
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	30.2	60	25-100
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	31.0	62	24-88
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	31.4	63	27-87
108-60-1	LCS	bis(2-Chloro-1-methylethyl)et	50.0	0.0	47.8	96	23-120
100-51-6	LCS	Benzyl alcohol	50.0	0.0	32.0	64	33-90
95-48-7	LCS	o-Cresol	50.0	0.0	37.9	76	32-90
65794-96-9	LCS	m,p-Cresols	50.0	0.0	38.5	77	28-100
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	47.8	96	39-113
67-72-1	LCS	Hexachloroethane	50.0	0.0	27.7	55	20-85
98-95-3	LCS	Nitrobenzene	50.0	0.0	47.5	95	41-119
78-59-1	LCS	Isophorone	50.0	0.0	52.0	104	49-133
88-75-5	LCS	2-Nitrophenol	50.0	0.0	37.3	75	42-111
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	39.5	79	43-99
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	48.2	96	44-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	38.9	78	45-106
65-85-0	LCS	Benzoic acid	100	0.0	25.4	25	10-81

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Client ID: LCS for batch 1387888
Lab Sample ID 1203088330
Instrument: MSD2.I
Analvst: AGS1
Inj. Vol: 1 uL

Sample Type: Laboratory Control Sample
Matrix: WATER
Analvsis Date: 05/15/2014 19:43
Dilution: 1
Prep Batch ID: 1387888
Batch ID: 1387889

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	41.5	83	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	31.2	62	19-92
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	44.3	89	46-111
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	32.7	65	33-102
91-20-3	LCS	Naphthalene	50.0	0.0	34.0	68	31-98
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	35.3	71	35-106
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	16.9	34	15-72
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	40.6	81	41-109
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	39.7	79	41-111
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	35.1	70	36-98
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	46.8	94	44-117
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	42.0	84	45-124
131-11-3	LCS	Dimethylphthalate	50.0	0.0	48.7	97	53-112
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	46.9	94	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	49.7	99	45-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	38.5	77	37-107
83-32-9	LCS	Acenaphthene	50.0	0.0	36.7	73	40-104
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	31.6	63	19-110
132-64-9	LCS	Dibenzofuran	50.0	0.0	43.3	87	45-107
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	41.3	83	45-120
84-66-2	LCS	Diethylphthalate	50.0	0.0	51.2	102	51-116
100-02-7	LCS	4-Nitrophenol	50.0	0.0	12.0	24	16-77

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1387888**
Matrix: **WATER**
Lab Sample ID **1203088330**
Instrument: **MSD2.I**
Analysis Date: **05/15/2014 19:43**
Dilution: **1**
Analyst: **AGS1**
Prep Batch ID: **1387888**
Inj. Vol: **1 uL**
Batch ID: **1387889**

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	42.2	84	43-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	47.9	96	40-114
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	52.8	106	38-133
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	39.2	78	34-114
122-39-4	LCS	Diphenylamine	50.0	0.0	40.6	81	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	42.8	86	40-112
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	45.3	91	41-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	45.4	91	43-116
87-86-5	LCS	Pentachlorophenol	50.0	0.0	35.7	71	27-102
85-01-8	LCS	Phenanthrene	50.0	0.0	41.4	83	47-111
120-12-7	LCS	Anthracene	50.0	0.0	41.6	83	46-110
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	51.8	104	49-116
206-44-0	LCS	Fluoranthene	50.0	0.0	47.5	95	45-118
129-00-0	LCS	Pyrene	50.0	0.0	35.6	71	38-127
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	43.6	87	40-122
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	44.6	89	37-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	40.0	80	49-111
218-01-9	LCS	Chrysene	50.0	0.0	40.3	81	44-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	45.8	92	33-122
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	41.2	82	47-117
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	42.0	84	46-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	40.7	81	47-110

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1387888**
Matrix: **WATER**
Lab Sample ID **1203088330**
Instrument: **MSD2.I**
Analysis Date: **05/15/2014 19:43**
Dilution: **1**
Analyst: **AGS1**
Prep Batch ID: **1387888**
Inj. Vol: **1 uL**
Batch ID: **1387889**

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	34.2	68	37-125
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	35.0	70	36-125
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	34.0	68	33-126
123-91-1	LCS	1,4-Dioxane	50.0	0.0	29.2	58	26-73
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	42.4	85	42-106
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	31.3	63	36-95
1912-24-9	LCS	Atrazine	50.0	0.0	49.0	98	47-115
92-87-5	LCS	Benzidine	100	0.0	37.4	37	10-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	42.3	85	31-113
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	31.2	62	26-92

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Matrix Spike**
Client ID: **CAMO-14-75494MS**
Matrix: **W**
Lab Sample ID **1203088331**
Instrument: **MSD2.I**
Analysis Date: **05/15/2014 22:39**
Dilution: **1**
Analyst: **AGS1**
Prep Batch ID: **1387888**
Inj. Vol: **1 uL**
Batch ID: **1387889**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
123-91-1	MS	1,4-Dioxane	109	8.55	J	90.9	76	26-88
62-75-9	MS	N-Methyl-N-nitrosomethylam	109	0.00	U	81.7	75	21-88
110-86-1	MS	Pyridine	109	0.00	U	84.6	78	14-94
62-53-3	MS	Aniline	109	0.00	U	103	95	24-109
108-95-2	MS	Phenol	109	0.00	U	63.5	58	10-88
111-44-4	MS	bis(2-Chloroethyl) ether	109	0.00	U	101	93	25-114
95-57-8	MS	2-Chlorophenol	109	0.00	U	87.9	81	31-103
541-73-1	MS	1,3-Dichlorobenzene	109	0.00	U	72.7	67	18-83
106-46-7	MS	1,4-Dichlorobenzene	109	0.00	U	74.7	69	20-86
95-50-1	MS	1,2-Dichlorobenzene	109	0.00	U	76.0	70	21-85
108-60-1	MS	bis(2-Chloro-1-methylethyl)et	109	0.00	U	106	98	16-121
100-51-6	MS	Benzyl alcohol	109	0.00	U	79.3	73	31-100
95-48-7	MS	o-Cresol	109	0.00	U	92.1	85	26-97
65794-96-9	MS	m,p-Cresols	109	0.00	U	101	93	24-110
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	109	0.00	U	105	96	29-116
67-72-1	MS	Hexachloroethane	109	0.00	U	70.3	65	17-82
98-95-3	MS	Nitrobenzene	109	0.00	U	104	96	32-126
78-59-1	MS	Isophorone	109	0.00	U	111	102	36-139
88-75-5	MS	2-Nitrophenol	109	0.00	U	87.3	80	29-117
105-67-9	MS	2,4-Dimethylphenol	109	0.00	U	87.7	81	28-107
111-91-1	MS	bis(2-Chloroethoxy)methane	109	0.00	U	101	93	34-112
120-83-2	MS	2,4-Dichlorophenol	109	0.00	U	88.3	81	34-111

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Matrix Spike**
Client ID: **CAMO-14-75494MS**
Matrix: **W**
Lab Sample ID **1203088331**
Instrument: **MSD2.I**
Analysis Date: **05/15/2014 22:39**
Dilution: 1
Analyst: **AGS1**
Prep Batch ID: **1387888**
Inj. Vol: **1 uL**
Batch ID: **1387889**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
65-85-0	MS	Benzoic acid	217	0.00	U	121	56	10-105
106-47-8	MS	4-Chloroaniline	109	0.00	U	89.8	83	28-123
87-68-3	MS	Hexachlorobutadiene	109	0.00	U	77.3	71	11-97
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	109	0.00	U	98.4	91	31-119
91-57-6	MS	2-Methylnaphthalene	109	0.00	U	81.5	75	26-103
91-20-3	MS	Naphthalene	109	0.00	U	83.0	76	25-100
90-12-0	MS	1-Methylnaphthalene	109	0.00	U	87.2	80	27-107
77-47-4	MS	Hexachlorocyclopentadiene	109	0.00	U	43.7	40	14-73
88-06-2	MS	2,4,6-Trichlorophenol	109	0.00	U	91.4	84	31-113
95-95-4	MS	2,4,5-Trichlorophenol	109	0.00	U	93.1	86	30-117
91-58-7	MS	2-Chloronaphthalene	109	0.00	U	83.6	77	30-97
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	109	0.00	U	100	92	28-122
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	109	0.00	U	90.3	83	29-125
131-11-3	MS	Dimethylphthalate	109	0.00	U	103	95	41-116
606-20-2	MS	2,6-Dinitrotoluene	109	0.00	U	99.9	92	40-123
121-14-2	MS	2,4-Dinitrotoluene	109	0.00	U	106	97	34-126
208-96-8	MS	Acenaphthylene	109	0.00	U	87.6	81	33-104
83-32-9	MS	Acenaphthene	109	0.00	U	83.4	77	31-103
51-28-5	MS	2,4-Dinitrophenol	109	0.00	U	62.8	58	17-110
132-64-9	MS	Dibenzofuran	109	0.00	U	96.4	89	36-107
58-90-2	MS	2,3,4,6-Tetrachlorophenol	109	0.00	U	95.2	88	29-126
84-66-2	MS	Diethylphthalate	109	0.00	U	108	100	41-117

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Matrix Spike
Client ID: CAMO-14-75494MS
Matrix: W
Lab Sample ID 1203088331
Instrument: MSD2.I
Analysis Date: 05/15/2014 22:39
Dilution: 1
Analyst: AGS1
Prep Batch ID: 1387888
Inj. Vol: 1 uL
Batch ID: 1387889

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
100-02-7	MS	4-Nitrophenol	109	0.00	U	46.8	43	16-71
86-73-7	MS	Fluorene	109	0.00	U	91.2	84	32-111
7005-72-3	MS	4-Chlorophenylphenylether	109	0.00	U	106	97	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	109	0.00	U	109	100	25-133
534-52-1	MS	2-Methyl-4,6-dinitrophenol	109	0.00	U	84.2	77	22-118
122-39-4	MS	Diphenylamine	109	0.00	U	86.8	80	34-111
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	109	0.00	U	92.7	85	30-112
101-55-3	MS	4-Bromophenylphenylether	109	0.00	U	97.5	90	32-111
118-74-1	MS	Hexachlorobenzene	109	0.00	U	94.9	87	33-115
87-86-5	MS	Pentachlorophenol	109	0.00	U	81.7	75	19-112
85-01-8	MS	Phenanthrene	109	0.00	U	87.6	81	34-112
120-12-7	MS	Anthracene	109	0.00	U	87.6	81	33-108
84-74-2	MS	Di-n-butylphthalate	109	0.00	U	109	100	35-118
206-44-0	MS	Fluoranthene	109	0.00	U	98.2	90	31-118
129-00-0	MS	Pyrene	109	0.00	U	77.4	71	27-126
85-68-7	MS	Butylbenzylphthalate	109	0.00	U	93.1	86	29-121
117-81-7	MS	bis(2-Ethylhexyl)phthalate	109	0.00	U	93.1	86	29-120
56-55-3	MS	Benzo(a)anthracene	109	0.00	U	83.5	77	35-112
218-01-9	MS	Chrysene	109	0.00	U	83.6	77	32-116
117-84-0	MS	Di-n-octylphthalate	109	0.00	U	94.5	87	25-118
205-99-2	MS	Benzo(b)fluoranthene	109	0.00	U	87.9	81	34-116
207-08-9	MS	Benzo(k)fluoranthene	109	0.00	U	89.1	82	34-119

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3375**
Sample Type: **Matrix Spike**
Client ID: **CAMO-14-75494MS**
Matrix: **W**
Lab Sample ID **1203088331**
Instrument: **MSD2.I**
Analysis Date: **05/15/2014 22:39**
Dilution: **1**
Analyst: **AGS1**
Prep Batch ID: **1387888**
Inj. Vol: **1 uL**
Batch ID: **1387889**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
50-32-8	MS	Benzo(a)pyrene	109	0.00	U	85.5	79	34-110
193-39-5	MS	Indeno(1,2,3-cd)pyrene	109	0.00	U	73.3	67	25-122
53-70-3	MS	Dibenzo(a,h)anthracene	109	0.00	U	75.9	70	24-123
191-24-2	MS	Benzo(ghi)perylene	109	0.00	U	74.3	68	22-122
930-55-2	MS	N-Nitrosopyrrolidine	109	0.00	U	97.7	90	42-110
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	109	0.00	U	77.4	71	29-96
1912-24-9	MS	Atrazine	109	0.00	U	106	97	33-121
92-87-5	MS	Benzidine	217	0.00	U	25.0	11	10-117
91-94-1	MS	3,3'-Dichlorobenzidine	109	0.00	U	85.4	79	22-111
120-82-1	MS	1,2,4-Trichlorobenzene	109	0.00	U	77.7	71	20-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Sample Type: Matrix Spike Duplicate
Client ID: CAMO-14-75494MSD
Matrix: W
Lab Sample ID 1203088332
Instrument: MSD2.I
Analysis Date: 05/15/2014 23:08
Dilution: 1
Analyst: AGS1
Prep Batch ID: 1387888
Inj. Vol: 1 uL
Batch ID: 1387889

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
123-91-1	MSD	1,4-Dioxane	109	8.55	J	101	85	26-88	10	0-30
62-75-9	MSD	N-Methyl-N-nitrosomethylam	109	0.00	U	89.8	83	21-88	10	0-30
110-86-1	MSD	Pyridine	109	0.00	U	95.0	87	14-94	12	0-30
62-53-3	MSD	Aniline	109	0.00	U	113	104	24-109	9	0-30
108-95-2	MSD	Phenol	109	0.00	U	70.0	64	10-88	10	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	109	0.00	U	109	101	25-114	8	0-30
95-57-8	MSD	2-Chlorophenol	109	0.00	U	96.8	89	31-103	10	0-30
541-73-1	MSD	1,3-Dichlorobenzene	109	0.00	U	78.0	72	18-83	7	0-30
106-46-7	MSD	1,4-Dichlorobenzene	109	0.00	U	79.8	73	20-86	7	0-30
95-50-1	MSD	1,2-Dichlorobenzene	109	0.00	U	80.2	74	21-85	5	0-30
108-60-1	MSD	bis(2-Chloro-1-methylethyl)et	109	0.00	U	115	105	16-121	8	0-30
100-51-6	MSD	Benzyl alcohol	109	0.00	U	90.2	83	31-100	13	0-30
95-48-7	MSD	o-Cresol	109	0.00	U	101	93	26-97	9	0-30
65794-96-9	MSD	m,p-Cresols	109	0.00	U	112	103	24-110	10	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	109	0.00	U	113	104	29-116	8	0-30
67-72-1	MSD	Hexachloroethane	109	0.00	U	75.1	69	17-82	7	0-30
98-95-3	MSD	Nitrobenzene	109	0.00	U	114	105	32-126	9	0-30
78-59-1	MSD	Isophorone	109	0.00	U	122	112	36-139	9	0-30
88-75-5	MSD	2-Nitrophenol	109	0.00	U	97.5	90	29-117	11	0-30
105-67-9	MSD	2,4-Dimethylphenol	109	0.00	U	93.0	86	28-107	6	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	109	0.00	U	112	103	34-112	10	0-30
120-83-2	MSD	2,4-Dichlorophenol	109	0.00	U	97.2	89	34-111	10	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Client ID: CAMO-14-75494MSD
Lab Sample ID 1203088332
Instrument: MSD2.I
Analyst: AGS1
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: W
Analysis Date: 05/15/2014 23:08
Prep Batch ID: 1387888
Batch ID: 1387889
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
65-85-0	MSD	Benzoic acid	217	0.00	U	142	65	10-105	16	0-30
106-47-8	MSD	4-Chloroaniline	109	0.00	U	101	93	28-123	12	0-30
87-68-3	MSD	Hexachlorobutadiene	109	0.00	U	80.2	74	11-97	4	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	109	0.00	U	109	100	31-119	10	0-30
91-57-6	MSD	2-Methylnaphthalene	109	0.00	U	86.1	79	26-103	5	0-30
91-20-3	MSD	Naphthalene	109	0.00	U	87.3	80	25-100	5	0-30
90-12-0	MSD	1-Methylnaphthalene	109	0.00	U	92.8	85	27-107	6	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	109	0.00	U	53.2	49	14-73	20	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	109	0.00	U	102	94	31-113	11	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	109	0.00	U	104	95	30-117	11	0-30
91-58-7	MSD	2-Chloronaphthalene	109	0.00	U	91.2	84	30-97	9	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	109	0.00	U	114	105	28-122	13	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	109	0.00	U	103	95	29-125	13	0-30
131-11-3	MSD	Dimethylphthalate	109	0.00	U	114	105	41-116	9	0-30
606-20-2	MSD	2,6-Dinitrotoluene	109	0.00	U	111	102	40-123	11	0-30
121-14-2	MSD	2,4-Dinitrotoluene	109	0.00	U	120	110	34-126	12	0-30
208-96-8	MSD	Acenaphthylene	109	0.00	U	96.0	88	33-104	9	0-30
83-32-9	MSD	Acenaphthene	109	0.00	U	90.4	83	31-103	8	0-30
51-28-5	MSD	2,4-Dinitrophenol	109	0.00	U	81.9	75	17-110	26	0-30
132-64-9	MSD	Dibenzofuran	109	0.00	U	107	99	36-107	11	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	109	0.00	U	107	99	29-126	12	0-30
84-66-2	MSD	Diethylphthalate	109	0.00	U	119	109	41-117	9	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Client ID: CAMO-14-75494MSD
Lab Sample ID 1203088332
Instrument: MSD2.I
Analyst: AGS1
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: W
Analysis Date: 05/15/2014 23:08
Prep Batch ID: 1387888
Batch ID: 1387889
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
100-02-7	MSD	4-Nitrophenol	109	0.00	U	51.9	48	16-71	10	0-30
86-73-7	MSD	Fluorene	109	0.00	U	102	94	32-111	11	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	109	0.00	U	116	107	30-112	10	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	109	0.00	U	127	117	25-133	16	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	109	0.00	U	97.5	90	22-118	15	0-30
122-39-4	MSD	Diphenylamine	109	0.00	U	94.4	87	34-111	8	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	109	0.00	U	101	93	30-112	8	0-30
101-55-3	MSD	4-Bromophenylphenylether	109	0.00	U	107	99	32-111	9	0-30
118-74-1	MSD	Hexachlorobenzene	109	0.00	U	103	95	33-115	8	0-30
87-86-5	MSD	Pentachlorophenol	109	0.00	U	91.6	84	19-112	11	0-30
85-01-8	MSD	Phenanthrene	109	0.00	U	95.7	88	34-112	9	0-30
120-12-7	MSD	Anthracene	109	0.00	U	97.0	89	33-108	10	0-30
84-74-2	MSD	Di-n-butylphthalate	109	0.00	U	118	108	35-118	8	0-30
206-44-0	MSD	Fluoranthene	109	0.00	U	108	99	31-118	9	0-30
129-00-0	MSD	Pyrene	109	0.00	U	86.1	79	27-126	11	0-30
85-68-7	MSD	Butylbenzylphthalate	109	0.00	U	104	95	29-121	11	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	109	0.00	U	103	95	29-120	10	0-30
56-55-3	MSD	Benzo(a)anthracene	109	0.00	U	92.5	85	35-112	10	0-30
218-01-9	MSD	Chrysene	109	0.00	U	92.8	85	32-116	10	0-30
117-84-0	MSD	Di-n-octylphthalate	109	0.00	U	103	95	25-118	9	0-30
205-99-2	MSD	Benzo(b)fluoranthene	109	0.00	U	100	92	34-116	13	0-30
207-08-9	MSD	Benzo(k)fluoranthene	109	0.00	U	102	93	34-119	13	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3375
Client ID: CAMO-14-75494MSD
Lab Sample ID 1203088332
Instrument: MSD2.I
Analyst: AGS1
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: W
Analysis Date: 05/15/2014 23:08
Prep Batch ID: 1387888
Batch ID: 1387889
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
50-32-8	MSD Benzo(a)pyrene	109	0.00	U	96.0	88	34-110	12	0-30
193-39-5	MSD Indeno(1,2,3-cd)pyrene	109	0.00	U	78.1	72	25-122	6	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	109	0.00	U	81.0	74	24-123	6	0-30
191-24-2	MSD Benzo(ghi)perylene	109	0.00	U	77.9	72	22-122	5	0-30
930-55-2	MSD N-Nitrosopyrrolidine	109	0.00	U	108	100	42-110	11	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	109	0.00	U	83.7	77	29-96	8	0-30
1912-24-9	MSD Atrazine	109	0.00	U	112	103	33-121	6	0-30
92-87-5	MSD Benzidine	217	0.00	U	61.0	28	10-117	84 *	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	109	0.00	U	94.7	87	22-111	10	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	109	0.00	U	81.2	75	20-90	4	0-30

Method Blank Summary

SDG Number:	**2014-3375**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1387888**	**Instrument ID:**	**MSD2.I**	**Data File:**	**s051514.B\s2e1511.D**
Lab Sample ID:	**1203088329**	**Prep Date:**	**05/15/2014 10:13**	**Analyzed:**	**05/15/14 20:12**
Column:	**DB-5ms**				

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

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1387888	1203088330	s051514.B\s2e1510.D	05/15/14	1943
02	CAMO-14-75545	348530003	s051514.B\s2e1514.D	05/15/14	2142
03	CAMO-14-75494MS	1203088331	s051514.B\s2e1516.D	05/15/14	2239
04	CAMO-14-75494MSD	1203088332	s051514.B\s2e1517.D	05/15/14	2308

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203088329**				
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1387888**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 20:12**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1511.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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203088329**				
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1387888**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 20:12**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1511.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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203088329**				
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1387888**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 20:12**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1511.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	78.4	100	ug/L	78.4	(26%-129%)
2-Fluorobiphenyl	32.7	50.0	ug/L	65.5	(32%-102%)
2-Fluorophenol	50.3	100	ug/L	50.3	(10%-78%)
Nitrobenzene-d5	41.6	50.0	ug/L	83.1	(36%-125%)
Phenol-d5	32.7	100	ug/L	32.7	(10%-104%)
p-Terphenyl-d14	43.2	50.0	ug/L	86.5	(34%-135%)

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:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203088330**				
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1387888**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 19:43**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1510.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		31.3	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		31.2	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		31.4	ug/L	3.00	10.0
122-66-7	Azobenzene		42.8	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		31.0	ug/L	3.00	10.0
123-91-1	1,4-Dioxane		29.2	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene		35.3	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol		41.3	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		39.7	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		40.6	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		38.9	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		39.5	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol		31.6	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene		49.7	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		46.9	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		35.1	ug/L	0.410	1.00
95-57-8	2-Chlorophenol		38.3	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		39.2	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		32.7	ug/L	0.300	1.00
88-75-5	2-Nitrophenol		37.3	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		42.3	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether		45.3	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol		44.3	ug/L	3.00	10.0
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		41.5	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether		47.9	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		12.0	ug/L	3.00	10.0
83-32-9	Acenaphthene		36.7	ug/L	0.300	1.00
208-96-8	Acenaphthylene		38.5	ug/L	0.300	1.00
62-53-3	Aniline		45.2	ug/L	4.20	10.0
120-12-7	Anthracene		41.6	ug/L	0.300	1.00
1912-24-9	Atrazine		49.0	ug/L	3.00	10.0
92-87-5	Benzidine		37.4	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene		40.0	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		40.7	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene		41.2	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		34.0	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203088330**				
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1387888**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 19:43**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1510.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		42.0	ug/L	0.300	1.00
65-85-0	Benzoic acid		25.4	ug/L	6.00	20.0
100-51-6	Benzyl alcohol		32.0	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate		43.6	ug/L	3.00	10.0
218-01-9	Chrysene		40.3	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		51.8	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate		45.8	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene		35.0	ug/L	0.300	1.00
132-64-9	Dibenzofuran		43.3	ug/L	3.00	10.0
84-66-2	Diethylphthalate		51.2	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		48.7	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine		40.6	ug/L	3.00	10.0
206-44-0	Fluoranthene		47.5	ug/L	0.300	1.00
86-73-7	Fluorene		42.2	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene		45.4	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		31.2	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene		16.9	ug/L	3.00	10.0
67-72-1	Hexachloroethane		27.7	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene		34.2	ug/L	0.300	1.00
78-59-1	Isophorone		52.0	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine		28.3	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*		47.8	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		42.4	ug/L	3.00	10.0
91-20-3	Naphthalene		34.0	ug/L	0.300	1.00
98-95-3	Nitrobenzene		47.5	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		35.7	ug/L	3.00	10.0
85-01-8	Phenanthrene		41.4	ug/L	0.300	1.00
108-95-2	Phenol		17.0	ug/L	3.00	10.0
129-00-0	Pyrene		35.6	ug/L	0.300	1.00
110-86-1	Pyridine		33.1	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		47.8	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		48.2	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		46.4	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		44.6	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**			**Matrix:**	**WATER**
Lab Sample ID:	**1203088330**				
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1387888**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 19:43**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1510.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		38.5	ug/L	3.70	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		42.0	ug/L	3.00	10.0
95-48-7	o-Cresol		37.9	ug/L	3.00	10.0
88-74-4	2-Nitroaniline *o-Nitroaniline*		46.8	ug/L	3.00	10.0
100-01-6	4-Nitroaniline *p-Nitroaniline*		52.8	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	88.4	100	ug/L	88.4	(26%-129%)
2-Fluorobiphenyl	37.3	50.0	ug/L	74.7	(32%-102%)
2-Fluorophenol	49.2	100	ug/L	49.2	(10%-78%)
Nitrobenzene-d5	42.7	50.0	ug/L	85.4	(36%-125%)
Phenol-d5	32.3	100	ug/L	32.3	(10%-104%)
p-Terphenyl-d14	37.5	50.0	ug/L	75.1	(34%-135%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/12/2014 11:54**	**Matrix:**	**W**
Lab Sample ID:	**1203088331**	**Date Received:**	**05/14/2014 09:00**		
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75494MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 22:39**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1516.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		77.4	ug/L	6.52	21.7
120-82-1	1,2,4-Trichlorobenzene		77.7	ug/L	6.52	21.7
95-50-1	1,2-Dichlorobenzene		76.0	ug/L	6.52	21.7
122-66-7	Azobenzene		92.7	ug/L	6.52	21.7
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		72.7	ug/L	6.52	21.7
106-46-7	1,4-Dichlorobenzene		74.7	ug/L	6.52	21.7
123-91-1	1,4-Dioxane		90.9	ug/L	6.52	21.7
90-12-0	1-Methylnaphthalene		87.2	ug/L	0.652	2.17
58-90-2	2,3,4,6-Tetrachlorophenol		95.2	ug/L	6.52	21.7
95-95-4	2,4,5-Trichlorophenol		93.1	ug/L	6.52	21.7
88-06-2	2,4,6-Trichlorophenol		91.4	ug/L	6.52	21.7
120-83-2	2,4-Dichlorophenol		88.3	ug/L	6.52	21.7
105-67-9	2,4-Dimethylphenol		87.7	ug/L	6.52	21.7
51-28-5	2,4-Dinitrophenol		62.8	ug/L	10.9	43.5
121-14-2	2,4-Dinitrotoluene		106	ug/L	6.52	21.7
606-20-2	2,6-Dinitrotoluene		99.9	ug/L	6.52	21.7
91-58-7	2-Chloronaphthalene		83.6	ug/L	0.891	2.17
95-57-8	2-Chlorophenol		87.9	ug/L	6.52	21.7
534-52-1	2-Methyl-4,6-dinitrophenol		84.2	ug/L	6.52	21.7
91-57-6	2-Methylnaphthalene		81.5	ug/L	0.652	2.17
88-75-5	2-Nitrophenol		87.3	ug/L	6.52	21.7
91-94-1	3,3'-Dichlorobenzidine		85.4	ug/L	6.52	21.7
101-55-3	4-Bromophenylphenylether		97.5	ug/L	6.52	21.7
59-50-7	Parachlorometa cresol		98.4	ug/L	6.52	21.7
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		89.8	ug/L	7.17	21.7
7005-72-3	4-Chlorophenylphenylether		106	ug/L	6.52	21.7
100-02-7	4-Nitrophenol		46.8	ug/L	6.52	21.7
83-32-9	Acenaphthene		83.4	ug/L	0.652	2.17
208-96-8	Acenaphthylene		87.6	ug/L	0.652	2.17
62-53-3	Aniline		103	ug/L	9.13	21.7
120-12-7	Anthracene		87.6	ug/L	0.652	2.17
1912-24-9	Atrazine		106	ug/L	6.52	21.7
92-87-5	Benzidine		25.0	ug/L	8.48	21.7
56-55-3	Benzo(a)anthracene		83.5	ug/L	0.652	2.17
50-32-8	Benzo(a)pyrene		85.5	ug/L	0.652	2.17
205-99-2	Benzo(b)fluoranthene		87.9	ug/L	0.652	2.17
191-24-2	Benzo(ghi)perylene		74.3	ug/L	0.652	2.17

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/12/2014 11:54**	**Matrix:**	**W**
Lab Sample ID:	**1203088331**	**Date Received:**	**05/14/2014 09:00**		
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75494MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 22:39**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1516.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		89.1	ug/L	0.652	2.17
65-85-0	Benzoic acid		121	ug/L	13.0	43.5
100-51-6	Benzyl alcohol		79.3	ug/L	6.52	21.7
85-68-7	Butylbenzylphthalate		93.1	ug/L	6.52	21.7
218-01-9	Chrysene		83.6	ug/L	0.652	2.17
84-74-2	Di-n-butylphthalate		109	ug/L	6.52	21.7
117-84-0	Di-n-octylphthalate		94.5	ug/L	6.52	21.7
53-70-3	Dibenzo(a,h)anthracene		75.9	ug/L	0.652	2.17
132-64-9	Dibenzofuran		96.4	ug/L	6.52	21.7
84-66-2	Diethylphthalate		108	ug/L	6.52	21.7
131-11-3	Dimethylphthalate		103	ug/L	6.52	21.7
88-85-7	Dinoseb	U	21.7	ug/L	6.52	21.7
122-39-4	Diphenylamine		86.8	ug/L	6.52	21.7
206-44-0	Fluoranthene		98.2	ug/L	0.652	2.17
86-73-7	Fluorene		91.2	ug/L	0.652	2.17
118-74-1	Hexachlorobenzene		94.9	ug/L	6.52	21.7
87-68-3	Hexachlorobutadiene		77.3	ug/L	6.52	21.7
77-47-4	Hexachlorocyclopentadiene		43.7	ug/L	6.52	21.7
67-72-1	Hexachloroethane		70.3	ug/L	6.52	21.7
193-39-5	Indeno(1,2,3-cd)pyrene		73.3	ug/L	0.652	2.17
78-59-1	Isophorone		111	ug/L	7.61	21.7
62-75-9	N-Methyl-N-nitrosomethylamine		81.7	ug/L	6.52	21.7
924-16-3	N-Nitrosodi-n-butylamine	U	21.7	ug/L	6.52	21.7
55-18-5	N-Nitrosodiethylamine	U	21.7	ug/L	6.52	21.7
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		105	ug/L	6.52	21.7
930-55-2	N-Nitrosopyrrolidine		97.7	ug/L	6.52	21.7
91-20-3	Naphthalene		83.0	ug/L	0.652	2.17
98-95-3	Nitrobenzene		104	ug/L	6.52	21.7
608-93-5	Pentachlorobenzene	U	21.7	ug/L	6.52	21.7
87-86-5	Pentachlorophenol		81.7	ug/L	6.52	21.7
85-01-8	Phenanthrene		87.6	ug/L	0.652	2.17
108-95-2	Phenol		63.5	ug/L	6.52	21.7
129-00-0	Pyrene		77.4	ug/L	0.652	2.17
110-86-1	Pyridine		84.6	ug/L	6.52	21.7
108-60-1	bis(2-Chloro-1-methylethyl)ether		106	ug/L	6.52	21.7
111-91-1	bis(2-Chloroethoxy)methane		101	ug/L	6.52	21.7
111-44-4	bis(2-Chloroethyl) ether		101	ug/L	6.52	21.7
117-81-7	bis(2-Ethylhexyl)phthalate		93.1	ug/L	6.52	21.7

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/12/2014 11:54**	**Matrix:**	**W**
Lab Sample ID:	**1203088331**	**Date Received:**	**05/14/2014 09:00**		
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75494MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 22:39**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1516.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		101	ug/L	8.04	21.7
99-09-2	3-Nitroaniline *m-Nitroaniline*		90.3	ug/L	6.52	21.7
95-48-7	o-Cresol		92.1	ug/L	6.52	21.7
88-74-4	2-Nitroaniline *o-Nitroaniline*		100	ug/L	6.52	21.7
100-01-6	4-Nitroaniline *p-Nitroaniline*		109	ug/L	6.52	21.7

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	193	217	ug/L	88.8	(26%-129%)
2-Fluorobiphenyl	86.6	109	ug/L	79.7	(32%-102%)
2-Fluorophenol	148	217	ug/L	68.1	(10%-78%)
Nitrobenzene-d5	93.3	109	ug/L	85.9	(36%-125%)
Phenol-d5	121	217	ug/L	55.6	(10%-104%)
p-Terphenyl-d14	79.9	109	ug/L	73.5	(34%-135%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/12/2014 11:54**	**Matrix:**	**W**
Lab Sample ID:	**1203088332**	**Date Received:**	**05/14/2014 09:00**		
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75494MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 23:08**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1517.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		83.7	ug/L	6.52	21.7
120-82-1	1,2,4-Trichlorobenzene		81.2	ug/L	6.52	21.7
95-50-1	1,2-Dichlorobenzene		80.2	ug/L	6.52	21.7
122-66-7	Azobenzene		101	ug/L	6.52	21.7
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		78.0	ug/L	6.52	21.7
106-46-7	1,4-Dichlorobenzene		79.8	ug/L	6.52	21.7
123-91-1	1,4-Dioxane		101	ug/L	6.52	21.7
90-12-0	1-Methylnaphthalene		92.8	ug/L	0.652	2.17
58-90-2	2,3,4,6-Tetrachlorophenol		107	ug/L	6.52	21.7
95-95-4	2,4,5-Trichlorophenol		104	ug/L	6.52	21.7
88-06-2	2,4,6-Trichlorophenol		102	ug/L	6.52	21.7
120-83-2	2,4-Dichlorophenol		97.2	ug/L	6.52	21.7
105-67-9	2,4-Dimethylphenol		93.0	ug/L	6.52	21.7
51-28-5	2,4-Dinitrophenol		81.9	ug/L	10.9	43.5
121-14-2	2,4-Dinitrotoluene		120	ug/L	6.52	21.7
606-20-2	2,6-Dinitrotoluene		111	ug/L	6.52	21.7
91-58-7	2-Chloronaphthalene		91.2	ug/L	0.891	2.17
95-57-8	2-Chlorophenol		96.8	ug/L	6.52	21.7
534-52-1	2-Methyl-4,6-dinitrophenol		97.5	ug/L	6.52	21.7
91-57-6	2-Methylnaphthalene		86.1	ug/L	0.652	2.17
88-75-5	2-Nitrophenol		97.5	ug/L	6.52	21.7
91-94-1	3,3'-Dichlorobenzidine		94.7	ug/L	6.52	21.7
101-55-3	4-Bromophenylphenylether		107	ug/L	6.52	21.7
59-50-7	Parachlorometa cresol		109	ug/L	6.52	21.7
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		101	ug/L	7.17	21.7
7005-72-3	4-Chlorophenylphenylether		116	ug/L	6.52	21.7
100-02-7	4-Nitrophenol		51.9	ug/L	6.52	21.7
83-32-9	Acenaphthene		90.4	ug/L	0.652	2.17
208-96-8	Acenaphthylene		96.0	ug/L	0.652	2.17
62-53-3	Aniline		113	ug/L	9.13	21.7
120-12-7	Anthracene		97.0	ug/L	0.652	2.17
1912-24-9	Atrazine		112	ug/L	6.52	21.7
92-87-5	Benzidine		61.0	ug/L	8.48	21.7
56-55-3	Benzo(a)anthracene		92.5	ug/L	0.652	2.17
50-32-8	Benzo(a)pyrene		96.0	ug/L	0.652	2.17
205-99-2	Benzo(b)fluoranthene		100	ug/L	0.652	2.17
191-24-2	Benzo(ghi)perylene		77.9	ug/L	0.652	2.17

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/12/2014 11:54**	**Matrix:**	**W**
Lab Sample ID:	**1203088332**	**Date Received:**	**05/14/2014 09:00**		
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75494MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 23:08**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1517.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		102	ug/L	0.652	2.17
65-85-0	Benzoic acid		142	ug/L	13.0	43.5
100-51-6	Benzyl alcohol		90.2	ug/L	6.52	21.7
85-68-7	Butylbenzylphthalate		104	ug/L	6.52	21.7
218-01-9	Chrysene		92.8	ug/L	0.652	2.17
84-74-2	Di-n-butylphthalate		118	ug/L	6.52	21.7
117-84-0	Di-n-octylphthalate		103	ug/L	6.52	21.7
53-70-3	Dibenzo(a,h)anthracene		81.0	ug/L	0.652	2.17
132-64-9	Dibenzofuran		107	ug/L	6.52	21.7
84-66-2	Diethylphthalate		119	ug/L	6.52	21.7
131-11-3	Dimethylphthalate		114	ug/L	6.52	21.7
88-85-7	Dinoseb	U	21.7	ug/L	6.52	21.7
122-39-4	Diphenylamine		94.4	ug/L	6.52	21.7
206-44-0	Fluoranthene		108	ug/L	0.652	2.17
86-73-7	Fluorene		102	ug/L	0.652	2.17
118-74-1	Hexachlorobenzene		103	ug/L	6.52	21.7
87-68-3	Hexachlorobutadiene		80.2	ug/L	6.52	21.7
77-47-4	Hexachlorocyclopentadiene		53.2	ug/L	6.52	21.7
67-72-1	Hexachloroethane		75.1	ug/L	6.52	21.7
193-39-5	Indeno(1,2,3-cd)pyrene		78.1	ug/L	0.652	2.17
78-59-1	Isophorone		122	ug/L	7.61	21.7
62-75-9	N-Methyl-N-nitrosomethylamine		89.8	ug/L	6.52	21.7
924-16-3	N-Nitrosodi-n-butylamine	U	21.7	ug/L	6.52	21.7
55-18-5	N-Nitrosodiethylamine	U	21.7	ug/L	6.52	21.7
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		113	ug/L	6.52	21.7
930-55-2	N-Nitrosopyrrolidine		108	ug/L	6.52	21.7
91-20-3	Naphthalene		87.3	ug/L	0.652	2.17
98-95-3	Nitrobenzene		114	ug/L	6.52	21.7
608-93-5	Pentachlorobenzene	U	21.7	ug/L	6.52	21.7
87-86-5	Pentachlorophenol		91.6	ug/L	6.52	21.7
85-01-8	Phenanthrene		95.7	ug/L	0.652	2.17
108-95-2	Phenol		70.0	ug/L	6.52	21.7
129-00-0	Pyrene		86.1	ug/L	0.652	2.17
110-86-1	Pyridine		95.0	ug/L	6.52	21.7
108-60-1	bis(2-Chloro-1-methylethyl)ether		115	ug/L	6.52	21.7
111-91-1	bis(2-Chloroethoxy)methane		112	ug/L	6.52	21.7
111-44-4	bis(2-Chloroethyl) ether		109	ug/L	6.52	21.7
117-81-7	bis(2-Ethylhexyl)phthalate		103	ug/L	6.52	21.7

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3375**	**Date Collected:**	**05/12/2014 11:54**	**Matrix:**	**W**
Lab Sample ID:	**1203088332**	**Date Received:**	**05/14/2014 09:00**		
Client Sample:	**QC for batch 1387888**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75494MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1387889**	**Inst:**	**MSD2.I**	**Dilution:**	**1**
Run Date:	**05/15/2014 23:08**	**Analyst:**	**AGS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/15/2014 10:13**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s051514.B\s2e1517.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		112	ug/L	8.04	21.7
99-09-2	3-Nitroaniline *m-Nitroaniline*		103	ug/L	6.52	21.7
95-48-7	o-Cresol		101	ug/L	6.52	21.7
88-74-4	2-Nitroaniline *o-Nitroaniline*		114	ug/L	6.52	21.7
100-01-6	4-Nitroaniline *p-Nitroaniline*		127	ug/L	6.52	21.7

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	216	217	ug/L	99.3	(26%-129%)
2-Fluorobiphenyl	93.8	109	ug/L	86.3	(32%-102%)
2-Fluorophenol	161	217	ug/L	74.1	(10%-78%)
Nitrobenzene-d5	102	109	ug/L	94.2	(36%-125%)
Phenol-d5	132	217	ug/L	60.7	(10%-104%)
p-Terphenyl-d14	89.2	109	ug/L	82.0	(34%-135%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
16-MAY-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 3510C/8270D	Liquid	ARSL (ESHL)
Batch ID:	**Sample Numbers:**		
1387889	See Below		

Potentially affected work order(s)(SDG): 348526(2014-3373),348530(2014-3375),348630(2014-3383)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. The RPD between the MS(1203088331) and the MSD(1203088332) did not meet the 0% to 30% acceptance limits for Benzidine at 83.8%.	1. The RPD failure is attributed to the large difference in the recovery values between analyte pair in the MS and MSD. The individual LCS, MS and MSD recoveries for this analyte were within their established acceptance criteria. The data are reported unqualified for the RPD value failure.

Originator's Name:

Anne Salter 16-MAY-14

Data Validator/Group Leader:

Herbert Maier 16-MAY-14

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC-MS/MS
ARS International, LLC (ARSL)
SDG 2014-3375

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:	1388153
Prep Batch Number:	1388152

Sample Analysis

Sample ID	Client ID
348530002	CAMO-14-75548
348530004	CAMO-14-75549
1203088982	Interference Check Sample (ICS)
1203088978	Method Blank (MB)
1203088979	Laboratory Control Sample (LCS)
1203088980	348527004(CASA-14-75538) Matrix Spike (MS)
1203088981	348527004(CASA-14-75538) 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
The initial calibration verification standard (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 348527004 (CASA-14-75538) from SDG 2014-3374 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
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

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 either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. 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: 2014-3375 GEL Work Order: 348530

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: 27 MAY 2014 **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: 1388152

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-14-75548

Date Received: 13-MAY-14

GEL Job No (SDG): 2014-3375

GEL Sample ID: 348530002

Date Filtered: 15-MAY-14

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	0.320	ug/L		1	20-MAY-14 19:56	per0520049a
	Perchlorate Isotope Ratio			3			1	20-MAY-14 19:56	per0520049a
14797-73-0	Perchlorate-101	.05	.2	0.318	ug/L		1	20-MAY-14 19:56	per0520049a
	Perchlorate-O(18)			0.477	ug/L		1	20-MAY-14 19:56	per0520049a

^ 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: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1388152

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-14-75549

Date Received: 13-MAY-14

GEL Job No (SDG): 2014-3375

GEL Sample ID: 348530004

Date Filtered: 15-MAY-14

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	0.293	ug/L		1	20-MAY-14 20:05	per0520050a
	Perchlorate Isotope Ratio			2.89			1	20-MAY-14 20:05	per0520050a
14797-73-0	Perchlorate-101	.05	.2	0.302	ug/L		1	20-MAY-14 20:05	per0520050a
	Perchlorate-O(18)			0.475	ug/L		1	20-MAY-14 20:05	per0520050a

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

*Concentration =

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

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2014-3375

Extract Batch Code: 1388152

Date Filtered: 15-MAY-14

Matrix: WATER

Sample ID: 1203088979

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.181	ug/L	90.6		85 - 115
Perchlorate Isotope Ratio		3.03				-
Perchlorate-101	0.200	.178	ug/L	89.0		85 - 115
Perchlorate-O(18)		.485	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): 2014-3375

Extract Batch Code: 1388152

Date Extracted: 15-MAY-14

GEL MS/PS ID: 1203088980

Client ID: CASA-14-75538

GEL MSD/PSD ID: 1203088981

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	0.613	ug/L	0.815	101	.788	87.5	3.37	30	75 - 125
Perchlorate Isotope Ratio	0	2.92		3.05		2.9		5.04		-
Perchlorate-101	0.200	0.625	ug/L	0.795	84.9	.809	91.6	1.67	30	75 - 125
Perchlorate-O(18)	0	0.486	ug/L	0.495		.464		6.48		-

^ 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: 1388152

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 15-MAY-14

GEL Job No (SDG): 2014-3375

GEL Sample ID: 1203088978

Date Filtered: 15-MAY-14

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	20-MAY-14 18:57	per0520042a
	Perchlorate Isotope Ratio						1	20-MAY-14 18:57	per0520042a
14797-73-0	Perchlorate-101	.05	.2	0.200	ug/L	U	1	20-MAY-14 18:57	per0520042a
	Perchlorate-O(18)			0.489	ug/L		1	20-MAY-14 18:57	per0520042a

^ 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: 1388152

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 15-MAY-14

GEL Job No (SDG): 2014-3375

GEL Sample ID: 1203088979

Date Filtered: 15-MAY-14

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	0.181	ug/L	J	1	20-MAY-14 19:05	per0520043a
	Perchlorate Isotope Ratio			3.03			1	20-MAY-14 19:05	per0520043a
14797-73-0	Perchlorate-101	.05	.2	0.178	ug/L	J	1	20-MAY-14 19:05	per0520043a
	Perchlorate-O(18)			0.485	ug/L		1	20-MAY-14 19:05	per0520043a

^ 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: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1388152

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): 2014-3375

GEL Sample ID: 1203088982

Date Filtered: 15-MAY-14

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	0.188	ug/L	J	1	20-MAY-14 19:14	per0520044a
	Perchlorate Isotope Ratio			3.05			1	20-MAY-14 19:14	per0520044a
14797-73-0	Perchlorate-101	.05	.2	0.184	ug/L	J	1	20-MAY-14 19:14	per0520044a
	Perchlorate-O(18)			0.469	ug/L		1	20-MAY-14 19:14	per0520044a

^ 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: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1388152

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-14-75538MS

Date Received: 13-MAY-14

GEL Job No (SDG): 2014-3375

GEL Sample ID: 1203088980

Date Filtered: 15-MAY-14

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	0.815	ug/L		1	20-MAY-14 19:39	per0520047a
	Perchlorate Isotope Ratio			3.05			1	20-MAY-14 19:39	per0520047a
14797-73-0	Perchlorate-101	.05	.2	0.795	ug/L		1	20-MAY-14 19:39	per0520047a
	Perchlorate-O(18)			0.495	ug/L		1	20-MAY-14 19:39	per0520047a

^ 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: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1388152

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-14-75538MSD

Date Received: 13-MAY-14

GEL Job No (SDG): 2014-3375

GEL Sample ID: 1203088981

Date Filtered: 15-MAY-14

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	0.788	ug/L		1	20-MAY-14 19:48	per0520048a
	Perchlorate Isotope Ratio			2.9			1	20-MAY-14 19:48	per0520048a
14797-73-0	Perchlorate-101	.05	.2	0.809	ug/L		1	20-MAY-14 19:48	per0520048a
	Perchlorate-O(18)			0.464	ug/L		1	20-MAY-14 19:48	per0520048a

^ 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 Fractional Narrative
ARS International, LLC (ARSL)
SDG 2014-3375

Sample Analysis

Sample ID	Client ID
348530001	CAMO-14-75544
348530002	CAMO-14-75548
348530003	CAMO-14-75545
348530004	CAMO-14-75549
1203088025	Method Blank (MB) **ICP**
1203088026	Laboratory Control Sample (LCS)
1203088030	348532001(CAMO-14-75863L) Serial Dilution (SD)
1203088027	348532001(CAMO-14-75863D) Sample Duplicate (DUP)
1203088028	348532001(CAMO-14-75863S) Matrix Spike (MS)
1203088029	348532001(CAMO-14-75863SD) Matrix Spike Duplicate (MSD)
1203088105	Method Blank (MB) **ICP-MS**
1203088106	Laboratory Control Sample (LCS)
1203088109	348532001(CAMO-14-75863L) Serial Dilution (SD)
1203088107	348532001(CAMO-14-75863D) Sample Duplicate (DUP)
1203088108	348532001(CAMO-14-75863S) Matrix Spike (MS)
1203097981	Method Blank (MB) **CVAA**
1203097982	Laboratory Control Sample (LCS)
1203097985	348532001(CAMO-14-75863L) Serial Dilution (SD)
1203097983	348532001(CAMO-14-75863D) Sample Duplicate (DUP)
1203097984	348532001(CAMO-14-75863S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1387760, 1387803, 1391688 and 1392496
Prep Batch :	1387759, 1387802 and 1391687
Standard Operating Procedures:	GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 10, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 27 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. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 0.4L/min, argon gas flows of 13 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

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. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

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

CRDL/PQL Requirements
The PQL standard recoveries for SW846 6010C met the control limits except for potassium and sodium in file 052914-1 at 1353 and 20:32. Potassium recovered high in the initial and closing PQL standards, however the analyte concentrations in the associated client samples were greater than two times the PQL. Sodium recovered high in the closing PQL standard; however the analyte concentrations in the associated client samples were greater than two times the PQL. Therefore, the data were not considered adversely affected.

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: 348532001 (CAMO-14-75863)-ICP, ICP-MS and CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Matrix Spike Duplicate (MSD) Recovery Statement
The percent recovery (%R) obtained from the MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) obtained from the designated matrix spike duplicate (MSD) is evaluated based on acceptance criteria of 20%. The RPD between qualifying elements results in the MS and MSD were within the acceptance limits of 20%.

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. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the established acceptance percent difference criteria.

Technical Information

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

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Samples 348530002 (CAMO-14-75548) and 348530004 (CAMO-14-75549)-ICP were diluted for tin to minimize suppression due to matrix interferences.

Preparation Information
The samples in this SDG were prepared exactly 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
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. Data exception reports are included in the Miscellaneous Data section of the package. A data exception report was not required for this SDG.

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.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Pat Stull **Date:** 06/06/2014

Sample Data Summary

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: 2014-3375 GEL Work Order: 348530

The Qualifiers in this report are defined as follows:

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

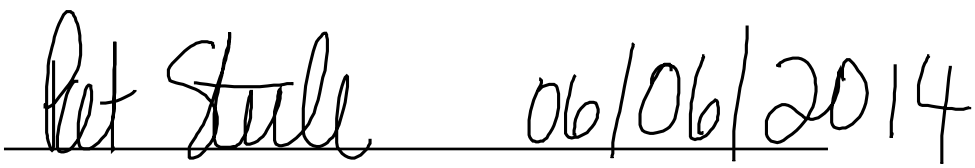
J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by  06/06/2014

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3375 **CONTRACT:** ESHL00114 **METHOD TYPE:** EPA

SAMPLE ID: 348530001 **BASIS:** As Received **DATE COLLECTED** 09−MAY−14

CLIENT ID: CAMO−14−75544 **LEVEL:** Low **DATE RECEIVED** 13−MAY−14

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	0.20	ug/L	U	0.067	0.2	0.2	1	AV	NOR1	05/30/14 10:23	053014W1−6	1391688

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1391688	1391687	EPA 245.1/245.2 Prep	20	mL	20	mL	05/29/14	AXS5

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3375 **CONTRACT:** ESHL00114 **METHOD TYPE:** EPA

SAMPLE ID: 348530002 **BASIS:** As Received **DATE COLLECTED** 09−MAY−14

CLIENT ID: CAMO−14−75548 **LEVEL:** Low **DATE RECEIVED** 13−MAY−14

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	0.20	ug/L	U	0.067	0.2	0.2	1	AV	NOR1	05/30/14 10:25	053014W1−6	1391688

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3375 **CONTRACT:** ESHL00114 **METHOD TYPE:** SW846

SAMPLE ID: 348530002 **BASIS:** As Received **DATE COLLECTED** 09−MAY−14

CLIENT ID: CAMO−14−75548 **LEVEL:** Low **DATE RECEIVED** 13−MAY−14

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	200	ug/L	U	68	200	200	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−36−0	Antimony	3	ug/L	U	1	3	3	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7440−38−2	Arsenic	6.74	ug/L		1.7	5	5	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7440−39−3	Barium	24.4	ug/L		1	5	5	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−41−7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−42−8	Boron	16.4	ug/L	J	15	50	50	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−43−9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7440−70−2	Calcium	16000	ug/L		50	200	200	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−47−3	Chromium	4.67	ug/L	J	2	10	10	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7440−48−4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−50−8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/29/14 20:00	052914−1	1387760
7439−89−6	Iron	100	ug/L	U	30	100	100	1	P	HSC	05/29/14 20:00	052914−1	1387760
7439−92−1	Lead	2	ug/L	U	0.5	2	2	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7439−95−4	Magnesium	3690	ug/L		110	300	300	1	P	HSC	05/30/14 18:16	053014−2	1387760
7439−96−5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/29/14 20:00	052914−1	1387760
7439−98−7	Molybdenum	1.13	ug/L		0.165	0.5	0.5	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7440−02−0	Nickel	2	ug/L	U	0.5	2	2	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7440−09−7	Potassium	1730	ug/L		50	150	150	1	P	HSC	05/29/14 20:00	052914−1	1387760
7782−49−2	Selenium	5	ug/L	U	1.5	5	5	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7631−86−9	Silica	68000	ug/L		53	213	213	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−22−4	Silver	1	ug/L	U	0.2	1	1	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7440−23−5	Sodium	10700	ug/L		100	300	300	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−24−6	Strontium	56.8	ug/L		1	5	5	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−28−0	Thallium	2	ug/L	U	0.45	2	2	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7440−31−5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	05/31/14 07:54	053114A−3	1387760
7440−61−1	Uranium	0.484	ug/L		0.067	0.2	0.2	1	MS	PRB	05/30/14 23:48	140530−5	1387803
7440−62−2	Vanadium	6.61	ug/L		1	5	5	1	P	HSC	05/29/14 20:00	052914−1	1387760
7440−66−6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/29/14 20:00	052914−1	1387760

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3375 **CONTRACT:** ESHL00114 **METHOD TYPE:**

SAMPLE ID: 348530002 **BASIS:** As Received **DATE COLLECTED** 09−MAY−14

CLIENT ID: CAMO−14−75548 **LEVEL:** Low **DATE RECEIVED** 13−MAY−14

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	55.2	mg/L		0.453	1.24	1.24	1		JJ2	06/02/14 09:04		1392496

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1387760	1387759	SW846 3005A	50	mL	50	mL	05/22/14	KXP3
1387803	1387802	SW846 3005A	50	mL	50	mL	05/22/14	KXP3
1391688	1391687	EPA 245.1/245.2 Prep	20	mL	20	mL	05/29/14	AXS5

***Analytical Methods:**

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

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3375 **CONTRACT:** ESHL00114 **METHOD TYPE:** EPA

SAMPLE ID: 348530003 **BASIS:** As Received **DATE COLLECTED** 09−MAY−14

CLIENT ID: CAMO−14−75545 **LEVEL:** Low **DATE RECEIVED** 13−MAY−14

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	0.20	ug/L	U	0.067	0.2	0.2	1	AV	NOR1	05/30/14 10:30	053014W1−6	1391688

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1391688	1391687	EPA 245.1/245.2 Prep	20	mL	20	mL	05/29/14	AXS5

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3375 **CONTRACT:** ESHL00114 **METHOD TYPE:** EPA

SAMPLE ID: 348530004 **BASIS:** As Received **DATE COLLECTED** 09−MAY−14

CLIENT ID: CAMO−14−75549 **LEVEL:** Low **DATE RECEIVED** 13−MAY−14

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	0.20	ug/L	U	0.067	0.2	0.2	1	AV	NOR1	05/30/14 10:32	053014W1−6	1391688

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3375 **CONTRACT:** ESHL00114 **METHOD TYPE:** SW846

SAMPLE ID: 348530004 **BASIS:** As Received **DATE COLLECTED** 09−MAY−14

CLIENT ID: CAMO−14−75549 **LEVEL:** Low **DATE RECEIVED** 13−MAY−14

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	200	ug/L	U	68	200	200	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−36−0	Antimony	3	ug/L	U	1	3	3	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7440−38−2	Arsenic	5.44	ug/L		1.7	5	5	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7440−39−3	Barium	97.2	ug/L		1	5	5	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−41−7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−42−8	Boron	16.3	ug/L	J	15	50	50	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−43−9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7440−70−2	Calcium	53600	ug/L		50	200	200	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−47−3	Chromium	923	ug/L		2	10	10	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7440−48−4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−50−8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/29/14 20:04	052914−1	1387760
7439−89−6	Iron	100	ug/L	U	30	100	100	1	P	HSC	05/29/14 20:04	052914−1	1387760
7439−92−1	Lead	2	ug/L	U	0.5	2	2	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7439−95−4	Magnesium	15100	ug/L		110	300	300	1	P	HSC	05/30/14 18:26	053014−2	1387760
7439−96−5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/29/14 20:04	052914−1	1387760
7439−98−7	Molybdenum	0.628	ug/L		0.165	0.5	0.5	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7440−02−0	Nickel	24.5	ug/L		0.5	2	2	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7440−09−7	Potassium	2370	ug/L		50	150	150	1	P	HSC	05/29/14 20:04	052914−1	1387760
7782−49−2	Selenium	5	ug/L	U	1.5	5	5	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7631−86−9	Silica	73500	ug/L		53	213	213	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−22−4	Silver	1	ug/L	U	0.2	1	1	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7440−23−5	Sodium	17400	ug/L		100	300	300	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−24−6	Strontium	201	ug/L		1	5	5	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−28−0	Thallium	2	ug/L	U	0.45	2	2	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7440−31−5	Tin	100	ug/L	U	25	100	100	10	P	HSC	05/31/14 08:03	053114A−3	1387760
7440−61−1	Uranium	1.04	ug/L		0.067	0.2	0.2	1	MS	PRB	05/30/14 23:56	140530−5	1387803
7440−62−2	Vanadium	4.97	ug/L	J	1	5	5	1	P	HSC	05/29/14 20:04	052914−1	1387760
7440−66−6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/29/14 20:04	052914−1	1387760

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3375 **CONTRACT:** ESHL00114 **METHOD TYPE:**

SAMPLE ID: 348530004 **BASIS:** As Received **DATE COLLECTED** 09−MAY−14

CLIENT ID: CAMO−14−75549 **LEVEL:** Low **DATE RECEIVED** 13−MAY−14

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	196	mg/L		0.453	1.24	1.24	1		JJ2	06/02/14 09:04		1392496

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1387760	1387759	SW846 3005A	50	mL	50	mL	05/22/14	KXP3
1387803	1387802	SW846 3005A	50	mL	50	mL	05/22/14	KXP3
1391688	1391687	EPA 245.1/245.2 Prep	20	mL	20	mL	05/29/14	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. 2014−3375
Contract: ESHL00114
Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1203088025								
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	97.1	ug/L	+/−150	J	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Barium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Copper	3	ug/L	+/−10	U	P	3	10
	Calcium	50	ug/L	+/−200	U	P	50	200
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Aluminum	68	ug/L	+/−200	U	P	68	200
	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
1203088105								
	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
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1203097981								
	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. 2014−3375 **Client ID** CAMO−14−75863S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 348532001 **Spike ID:** 1203088028

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5190		68	U	5000	104		P
Barium	ug/L	75−125	529		22.3		500	101		P
Beryllium	ug/L	75−125	514		1	U	500	103		P
Boron	ug/L	75−125	507		15	U	500	99.6		P
Calcium	ug/L	75−125	15600		10600		5000	99.4		P
Cobalt	ug/L	75−125	498		1	U	500	99.5		P
Copper	ug/L	75−125	532		3	U	500	106		P
Iron	ug/L	75−125	5300		30	U	5000	106		P
Magnesium	ug/L	75−125	8820		3480		5000	107		P
Manganese	ug/L	75−125	519		2	U	500	103		P
Potassium	ug/L	75−125	6950		1930		5000	100		P
Silica	ug/L		83200		73100		10700	94.1	N/A	P
Sodium	ug/L	75−125	15500		9840		5000	114		P
Strontium	ug/L	75−125	573		44.1		500	106		P
Tin	ug/L	75−125	479		12.5	U	500	95.7		P
Vanadium	ug/L	75−125	535		7.05		500	106		P
Zinc	ug/L	75−125	513		4.09	J	500	102		P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−5a−

Matrix Spike Duplicate Summary

SDG NO. 2014−3375 **Client ID** CAMO−14−75863SD

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 348532001 **Spike ID:** 1203088029

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5150		68	U	5000	103		P
Barium	ug/L	75−125	529		22.3		500	101		P
Beryllium	ug/L	75−125	513		1	U	500	103		P
Boron	ug/L	75−125	506		15	U	500	99.4		P
Calcium	ug/L	75−125	15500		10600		5000	97.9		P
Cobalt	ug/L	75−125	494		1	U	500	98.8		P
Copper	ug/L	75−125	529		3	U	500	106		P
Iron	ug/L	75−125	5270		30	U	5000	105		P
Magnesium	ug/L	75−125	8740		3480		5000	105		P
Manganese	ug/L	75−125	516		2	U	500	103		P
Potassium	ug/L	75−125	6910		1930		5000	99.5		P
Silica	ug/L		82900		73100		10700	91.9	N/A	P
Sodium	ug/L	75−125	15200		9840		5000	108		P
Strontium	ug/L	75−125	568		44.1		500	105		P
Tin	ug/L	75−125	494		12.5	U	500	98.9		P
Vanadium	ug/L	75−125	532		7.05		500	105		P
Zinc	ug/L	75−125	510		4.09	J	500	101		P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2014−3375 **Client ID** CAMO−14−75863S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 348532001 **Spike ID:** 1203088108

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	55.4		5.41		50	100		MS
Arsenic	ug/L	75−125	50.5		1.7	U	50	100		MS
Cadmium	ug/L	75−125	50.6		0.11	U	50	101		MS
Chromium	ug/L	75−125	55.4		5.84	J	50	99		MS
Lead	ug/L	75−125	49		0.5	U	50	98		MS
Molybdenum	ug/L	75−125	49.4		0.972		50	96.9		MS
Nickel	ug/L	75−125	48.6		0.649	J	50	95.9		MS
Selenium	ug/L	75−125	48.4		1.5	U	50	95.3		MS
Silver	ug/L	75−125	50.8		0.2	U	50	102		MS
Thallium	ug/L	75−125	42.8		0.45	U	50	85.4		MS
Uranium	ug/L	75−125	50.7		0.448		50	100		MS

***Analytical Methods:**

MS SW846 3005A/6020A

METALS
−5a−

Matrix Spike Summary

SDG NO. 2014−3375 **Client ID** CAMO−14−75863S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 348532001 **Spike ID:** 1203097984

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.87		0.067	U	2	93.7		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3375 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75863D

Matrix: WATER **Level:** Low

Sample ID: 348532001 **Duplicate ID:** 1203088027 **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	+/−5	22.3		21.9		1.81		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	10600		10300		3.4		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%	3480		3390		2.42		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1930		1850		4.32		P
Silica	ug/L	+/−20%	73100		71400		2.41		P
Sodium	ug/L	+/−20%	9840		9480		3.72		P
Strontium	ug/L	+/−20%	44.1		42.6		3.56		P
Tin	ug/L		12.5	U	12.5	U			P
Vanadium	ug/L	+/−5	7.05		7.64		8.09		P
Zinc	ug/L	+/−10	4.09	J	3.37	J	19.4		P

***Analytical Methods:**

P SW846 3005A/6010C

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3375 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75863SD

Matrix: WATER **Level:** Low

Sample ID: 1203088028 **Duplicate ID:** 1203088029 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L	+/−20	5190		5150		.681		P
Barium	ug/L	+/−20	529		529		.14		P
Beryllium	ug/L	+/−20	514		513		.24		P
Boron	ug/L	+/−20	507		506		.156		P
Calcium	ug/L	+/−20	15600		15500		.47		P
Cobalt	ug/L	+/−20	498		494		.799		P
Copper	ug/L	+/−20	532		529		.557		P
Iron	ug/L	+/−20	5300		5270		.55		P
Magnesium	ug/L	+/−20	8820		8740		.915		P
Manganese	ug/L	+/−20	519		516		.547		P
Potassium	ug/L	+/−20	6950		6910		.606		P
Silica	ug/L	+/−20	83200		82900		.285		P
Sodium	ug/L	+/−20	15500		15200		1.97		P
Strontium	ug/L	+/−20	573		568		.844		P
Tin	ug/L	+/−20	479		494		3.25		P
Vanadium	ug/L	+/−20	535		532		.581		P
Zinc	ug/L	+/−20	513		510		.602		P

***Analytical Methods:**

P SW846 3005A/6010C

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3375 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75863D

Matrix: WATER **Level:** Low

Sample ID: 348532001 **Duplicate ID:** 1203088107 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L	+/−3	5.41		5.13		5.24		MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.84	J	6.44	J	9.75		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	0.972		0.938		3.56		MS
Nickel	ug/L	+/−2	0.649	J	0.574	J	12.3		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	0.448		0.423		5.74		MS

***Analytical Methods:**

MS SW846 3005A/6020A

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3375 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75863D

Matrix: WATER **Level:** Low

Sample ID: 348532001 **Duplicate ID:** 1203097983 **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. 2014−3375

Contract: ESHL00114

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203088026								
	Aluminum	ug/L	5000	5380		108	80−120	P
	Barium	ug/L	500	521		104	80−120	P
	Beryllium	ug/L	500	519		104	80−120	P
	Boron	ug/L	500	503		101	80−120	P
	Calcium	ug/L	5000	5330		107	80−120	P
	Cobalt	ug/L	500	507		101	80−120	P
	Copper	ug/L	500	529		106	80−120	P
	Iron	ug/L	5000	5370		107	80−120	P
	Magnesium	ug/L	5000	5480		110	80−120	P
	Manganese	ug/L	500	531		106	80−120	P
	Potassium	ug/L	5000	5310		106	80−120	P
	Silica	ug/L	10700	10700		100	80−120	P
	Sodium	ug/L	5000	5540		111	80−120	P
	Strontium	ug/L	500	542		108	80−120	P
	Tin	ug/L	500	512		102	80−120	P
	Vanadium	ug/L	500	538		108	80−120	P
	Zinc	ug/L	500	518		104	80−120	P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2014−3375

Contract: ESHL00114

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203088106								
	Antimony	ug/L	50	50.3		101	80−120	MS
	Arsenic	ug/L	50	48		96.1	80−120	MS
	Cadmium	ug/L	50	51.5		103	80−120	MS
	Chromium	ug/L	50	50.2		100	80−120	MS
	Lead	ug/L	50	50		100	80−120	MS
	Molybdenum	ug/L	50	49.4		98.8	80−120	MS
	Nickel	ug/L	50	49.7		99.4	80−120	MS
	Selenium	ug/L	50	47.6		95.1	80−120	MS
	Silver	ug/L	50	51.4		103	80−120	MS
	Thallium	ug/L	50	44.4		88.8	80−120	MS
	Uranium	ug/L	50	52		104	80−120	MS

***Analytical Methods:**

MS **SW846 3005A/6020A**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2014−3375

Contract: ESHL00114

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203097982								
	Mercury	ug/L	2	1.97		98.5	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2014−3375 **Client ID** CAMO−14−75863L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 348532001 **Serial Dilution ID:** 1203088030

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	22.3		23.2	J	3.97			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	10600		10400		1.86		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3480		3430		1.27			P
Manganese	2	U	10	U				P
Potassium	1930		2020		4.9			P
Silica	73100		72400		1.01		10	P
Sodium	9840		10200		3.53		10	P
Strontium	44.1		45.6		3.35			P
Tin	2.5	U	12.5	U				P
Vanadium	7.05		5.87	J	16.7			P
Zinc	4.09	J	16.5	U	100			P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2014−3375 **Client ID** CAMO−14−75863L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 348532001 **Serial Dilution ID:** 1203088109

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	5.41		5.41	J	.019			MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.84	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	.972		1.38	J	42			MS
Nickel	.649	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.448		.41	J	8.48			MS

***Analytical Methods:**

MS **SW846 3005A/6020A**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2014−3375 **Client ID** CAMO−14−75863L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 348532001 **Serial Dilution ID:** 1203097985

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**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International, LLC (ARSL)
SDG 2014-3375

Method/Analysis Information

Product:	**Carbon and Total Organic**		
Analytical Batch:	1387445	**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
348530001	CAMO-14-75544
348530003	CAMO-14-75545
1203087252	Method Blank (MB)
1203087253	347885001(CASA-14-75528) Sample Duplicate (DUP)
1203087254	348392001(CASA-14-75526) Sample Duplicate (DUP)
1203087255	347885001(CASA-14-75528) Post Spike (PS)
1203087256	348392001(CASA-14-75526) Post Spike (PS)
1203087257	Laboratory Control Sample (LCS)

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 Model 1010 Total Organic 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
The following samples were selected for QC analysis: 347885001 (CASA-14-75528) and 348392001 (CASA-14-75526).

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

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

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

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1391989	**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
348530002	CAMO-14-75548
348530004	CAMO-14-75549
1203098766	348527002(CASA-14-75532) Sample Duplicate (DUP)
1203098768	Laboratory Control Sample (LCS)

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 Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 348527002 (CASA-14-75532).

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: 1390573 **Method:** EPA 150.1 pH

Sample Analysis

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

Sample ID	Client ID
348530002	CAMO-14-75548
348530004	CAMO-14-75549
1203095299	Laboratory Control Sample (LCS)
1203095300	348686002(CAMO-14-75550) Sample Duplicate (DUP)
1203095301	Continuing Calibration Variable (CCV)

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 Electrode analysis was performed on a Thermo Orion Star A111. Immediates

Initial Calibration
All initial calibration requirements have been met for this SDG.

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 348686002 (CAMO-14-75550).

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
The following samples from this sample group were received by the lab outside of the method specified holding time: 348530002 (CAMO-14-75548) and 348530004 (CAMO-14-75549).

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
The following DER was generated for this SDG: 1296873. 348530002 (CAMO-14-75548) and 348530004 (CAMO-14-75549).

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:	1387858	**Method:**	WSP-CN(T)
Prep Batch :	1387857	**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
348530001	CAMO-14-75544
348530003	CAMO-14-75545
1203088224	Method Blank (MB)
1203088225	348526001(WSTMO-14-75608) Sample Duplicate (DUP)
1203088227	348526001(WSTMO-14-75608) Matrix Spike (MS)
1203088229	Laboratory Control Sample (LCS)

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.

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
The following sample was selected for QC analysis: 348526001 (WSTMO-14-75608).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1203088227 (WSTMO-14-75608).

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
The following DER was generated for this SDG: 1293244 1203088227 (WSTMO-14-75608).

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:	1387241	**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
348530002	CAMO-14-75548
348530004	CAMO-14-75549
1203086676	Method Blank (MB)
1203086677	348392002(CASA-14-75534) Sample Duplicate (DUP)
1203086678	348392002(CASA-14-75534) Post Spike (PS)
1203086679	Laboratory Control Sample (LCS)
1203088764	348686002(CAMO-14-75550) Sample Duplicate (DUP)
1203088765	348686002(CAMO-14-75550) 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# 22.

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
The following samples were selected for QC analysis: 348392002 (CASA-14-75534) and 348686002 (CAMO-14-75550).

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 values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1203086677 (CASA-14-75534).

Technical Information

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

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

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

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

Miscellaneous Information

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

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1203086677 (CASA-14-75534), 1203086678 (CASA-14-75534), 1203088764 (CAMO-14-75550), 1203088765 (CAMO-14-75550), 348530002 (CAMO-14-75548) and 348530004 (CAMO-14-75549).

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:	1387647	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1387646	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
348530002	CAMO-14-75548
348530004	CAMO-14-75549
1203087750	Method Blank (MB)
1203087752	348527002(CASA-14-75532) Sample Duplicate (DUP)
1203087754	348527002(CASA-14-75532) Matrix Spike (MS)
1203087755	Laboratory Control Sample (LCS)

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
The following sample was selected for QC analysis: 348527002 (CASA-14-75532).

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 Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1203087752 (CASA-14-75532).

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
The following DER was generated for this SDG: 1294754 1203087752 (CASA-14-75532).

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:	1387649	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1387648	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
348530001	CAMO-14-75544
348530003	CAMO-14-75545
1203087756	Method Blank (MB)
1203087758	348391001(CAMO-14-75502) Sample Duplicate (DUP)
1203087760	348391001(CAMO-14-75502) Matrix Spike (MS)
1203087761	Laboratory Control Sample (LCS)

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
The following sample was selected for QC analysis: 348391001 (CAMO-14-75502).

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 values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1203087758 (CAMO-14-75502).

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 following sample was re-analyzed due to instrument failure. The results from the reanalysis are reported. 1203087756 (MB).

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.

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:	1387667	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

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

Sample ID	Client ID
348530002	CAMO-14-75548
348530004	CAMO-14-75549
1203087801	Method Blank (MB)
1203087805	348391002(CAMO-14-75517) Sample Duplicate (DUP)
1203087809	348391002(CAMO-14-75517) Post Spike (PS)
1203087810	Laboratory Control Sample (LCS)

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
The following sample was selected for QC analysis: 348391002 (CAMO-14-75517).

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 in this sample group were diluted due to high concentration: 1203087805 (CAMO-14-75517) and 1203087809 (CAMO-14-75517).

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:	1386914	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1386913	**Method:**	EEPA 365.4 Prep

Sample Analysis

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

Sample ID	Client ID
348530002	CAMO-14-75548
348530004	CAMO-14-75549
1203085712	Method Blank (MB)
1203085715	348391002(CAMO-14-75517) Sample Duplicate (DUP)
1203085718	348391002(CAMO-14-75517) Matrix Spike (MS)
1203085719	Laboratory Control Sample (LCS)
1203087746	348533001(NP160-14-74443) Sample Duplicate (DUP)
1203087747	348533001(NP160-14-74443) 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
The following samples were selected for QC analysis: 348391002 (CAMO-14-75517) and 348533001 (NP160-14-74443).

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 values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1203085715 (CAMO-14-75517).

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 following samples were re-analyzed due to CCB failure. The reanalysis data with passing instrument QC was reported. 1203087746 (NP160-14-74443), 1203087747 (NP160-14-74443), 348530002 (CAMO-14-75548) and 348530004 (CAMO-14-75549).

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:	1387730	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

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

Sample ID	Client ID
348530002	CAMO-14-75548
348530004	CAMO-14-75549
1203087964	Method Blank (MB)
1203087965	348532001(CAMO-14-75863) Sample Duplicate (DUP)
1203087967	Laboratory Control Sample (LCS)

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
The following sample was selected for QC analysis: 348532001 (CAMO-14-75863).

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.

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:	1390102	**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
348530002	CAMO-14-75548
348530004	CAMO-14-75549
1203094009	Laboratory Control Sample (LCS)
1203094010	348686002(CAMO-14-75550) Sample Duplicate (DUP)
1203094011	348686002(CAMO-14-75550) Matrix Spike (MS)
1203094012	Method Blank (MB)

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 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
The following sample was selected for QC analysis: 348686002 (CAMO-14-75550).

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

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

Technical Information

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

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

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

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

Miscellaneous Information

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

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.

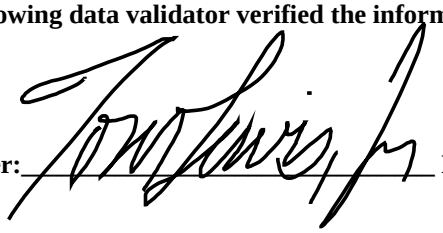
Certification Statement

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.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:  **Date:** 09Jun14

Sample Data Summary

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: 2014-3375 GEL Work Order: 348530

The Qualifiers in this report are defined as follows:

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

** Analyte is a Tracer compound

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by 

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

Certificate of Analysis

Report Date: June 5, 2014

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: 2014-3375

Client Sample ID: CAMO-14-75544
Sample ID: 348530001
Matrix: W
Collect Date: 09-MAY-14 12:41
Receive Date: 13-MAY-14
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	J	0.524	0.330	1.00	mg/L	1	TSM	05/15/14	2207	1387445	1
Flow Injection Analysis											
WSP-CN(T) "As Received"											
Cyanide, Total	U	ND	1.67	5.00	ug/L	1	AXH3	05/15/14	0906	1387858	2
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	05/20/14	1019	1387649	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	05/14/14	1308	1387857
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	05/19/14	1700	1387648

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 5, 2014

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: 2014-3375

Client Sample ID: CAMO-14-75548
Sample ID: 348530002
Matrix: W
Collect Date: 09-MAY-14 12:41
Receive Date: 13-MAY-14
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		153	1.00	1.00	umhos/cm	1	PXO1	05/30/14	1340	1391989	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 14.5C	H	8.16	0.010	0.100	SU	1	PXO1	05/23/14	1634	1390573	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	DM	05/31/14	0704	1387241	3
Chloride		2.72	0.067	0.200	mg/L	1					
Fluoride		0.329	0.033	0.100	mg/L	1					
Sulfate		2.73	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0358	0.017	0.050	mg/L	1	KLP1	05/19/14	1547	1387647	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.471	0.017	0.050	mg/L	1	KLP1	05/19/14	1356	1387667	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	05/15/14	1012	1386914	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		131	3.40	14.3	mg/L		LYG1	05/14/14	0838	1387730	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		71.6	0.725	1.00	mg/L		LXA1	05/22/14	1208	1390102	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	05/19/14	1520	1387646
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	05/14/14	1600	1386913

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Certificate of Analysis

Report Date: June 5, 2014

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: 2014-3375

Client Sample ID:	CAMO-14-75548	Project:	ESHL00114
Sample ID:	348530002	Client ID:	ARSL004

The following Analytical Methods were performed:

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

Notes:

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Certificate of Analysis

Report Date: June 5, 2014

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: 2014-3375

Client Sample ID: CAMO-14-75545
Sample ID: 348530003
Matrix: W
Collect Date: 09-MAY-14 11:20
Receive Date: 13-MAY-14
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		1.73	0.330	1.00	mg/L	1	TSM	05/15/14	2241	1387445	1
Flow Injection Analysis											
WSP-CN(T) "As Received"											
Cyanide, Total	U	ND	1.67	5.00	ug/L	1	AXH3	05/15/14	0911	1387858	2
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	05/20/14	1020	1387649	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	05/14/14	1308	1387857
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	05/19/14	1700	1387648

The following Analytical Methods were performed:

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

Notes:

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Certificate of Analysis

Report Date: June 5, 2014

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: 2014-3375

Client Sample ID: CAMO-14-75549
Sample ID: 348530004
Matrix: W
Collect Date: 09-MAY-14 11:20
Receive Date: 13-MAY-14
Collector: Client

Project: ESHL00114
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		120	1.00	1.00	umhos/cm	1	PXO1	05/30/14	1342	1391989	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 15.3C	H	7.71	0.010	0.100	SU	1	PXO1	05/23/14	1636	1390573	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.0794	0.067	0.200	mg/L	1	DM	05/31/14	0734	1387241	3
Chloride		1.77	0.067	0.200	mg/L	1					
Fluoride		0.117	0.033	0.100	mg/L	1					
Sulfate		1.78	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0285	0.017	0.050	mg/L	1	KLP1	05/19/14	1547	1387647	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.548	0.017	0.050	mg/L	1	KLP1	05/19/14	1358	1387667	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	05/15/14	1013	1386914	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		119	3.40	14.3	mg/L		LYG1	05/14/14	0838	1387730	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		57.8	0.725	1.00	mg/L		LXA1	05/22/14	1215	1390102	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	05/19/14	1520	1387646
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	05/14/14	1600	1386913

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Certificate of Analysis

Report Date: June 5, 2014

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: 2014-3375

Client Sample ID:	CAMO-14-75549	Project:	ESHL00114
Sample ID:	348530004	Client ID:	ARSL004

The following Analytical Methods were performed:

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

Notes:

Quality Control Summary

QC Summary

Report Date: June 5, 2014

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

Contact: **Mr. Keith Greene**

Workorder: **348530**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis												
Batch 1387445												
QC1203087253 347885001 DUP												
Total Organic Carbon Average		J	0.683	J	0.637	mg/L	6.97 ^		(+/-1.00)	TSM	05/15/14	15:16
QC1203087254 348392001 DUP												
Total Organic Carbon Average		J	0.520	J	0.613	mg/L	16.4 ^		(+/-1.00)		05/15/14	20:32
QC1203087257 LCS												
Total Organic Carbon Average	10.0				10.1	mg/L		101	(85%-115%)		05/15/14	14:34
QC1203087252 MB												
Total Organic Carbon Average				U	ND	mg/L					05/15/14	14:25
QC1203087255 347885001 PS												
Total Organic Carbon Average	10.0	J	0.683		11.1	mg/L		105	(65%-120%)		05/15/14	15:36
QC1203087256 348392001 PS												
Total Organic Carbon Average	10.0	J	0.520		10.6	mg/L		101	(65%-120%)		05/15/14	20:52
Conductivity Analysis												
Batch 1391989												
QC1203098766 348527002 DUP												
Conductivity			228		229	umhos/cm	0.438		(0%-10%)	PXO1	05/30/14	13:35
QC1203098768 LCS												
Conductivity	1410				1390	umhos/cm		98.3	(95%-105%)		05/30/14	13:32
Electrode Analysis												
Batch 1390573												
QC1203095300 348686002 DUP												
pH		H	8.08	H	8.16	SU	0.985		(0%-10%)	PXO1	05/23/14	16:59
QC1203095299 LCS												
pH	7.00				7.02	SU		100	(99%-101%)		05/23/14	16:28
Flow Injection Analysis												
Batch 1387858												
QC1203088225 348526001 DUP												
Cyanide, Total		U	ND	U	ND	ug/L	N/A			AXH3	05/15/14	09:02
QC1203088229 LCS												
Cyanide, Total	50.0				54.6	ug/L		109	(90%-110%)		05/15/14	08:58
QC1203088224 MB												

QC Summary

Workorder: **348530**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Flow Injection Analysis											
Batch 1387858											
Cyanide, Total				U	ND	ug/L					05/15/14 08:57
QC1203088227 348526001 MS											
Cyanide, Total	100	U	ND		85.5	ug/L		84.2*	(90%-110%)	AXH3	05/15/14 09:03
Ion Chromatography											
Batch 1387241											
QC1203086677 348392002 DUP											
Bromide		U	ND	U	ND	mg/L	N/A			DM	05/31/14 03:35
Chloride			3.00		2.97	mg/L	0.700		(0%-20%)		
Fluoride			0.459		0.444	mg/L	3.41 ^		(+/-0.100)		
Sulfate			3.54		3.65	mg/L	3.00		(0%-20%)		
QC1203088764 348686002 DUP											
Bromide		U	ND	U	ND	mg/L	N/A				05/31/14 19:02
Chloride			1.92		1.91	mg/L	0.355		(0%-20%)		
Fluoride			0.110		0.117	mg/L	6.54 ^		(+/-0.100)		
Sulfate			2.05		2.04	mg/L	0.699		(0%-20%)		
QC1203086679 LCS											
Bromide	1.25				1.27	mg/L		101	(90%-110%)		05/31/14 01:36
Chloride	5.00				4.96	mg/L		99.2	(90%-110%)		
Fluoride	2.50				2.51	mg/L		100	(90%-110%)		
Sulfate	10.0				10.0	mg/L		100	(90%-110%)		
QC1203086676 MB											
Bromide				U	ND	mg/L					05/31/14 01:06
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1203086678 348392002 PS											
Bromide	1.25	U	ND		1.31	mg/L		99.4	(90%-110%)		05/31/14 04:05

QC Summary

Workorder: **348530**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1387241											
Chloride	5.00		3.00		8.22	mg/L		105	(90%-110%)		
Fluoride	2.50		0.459		2.96	mg/L		100	(90%-110%)	DM	05/31/14 04:05
Sulfate	10.0		3.54		13.8	mg/L		102	(90%-110%)		
QC1203088765 348686002 PS											
Bromide	1.25	U	ND		1.27	mg/L		97.8	(90%-110%)		05/31/14 19:31
Chloride	5.00		1.92		7.03	mg/L		102	(90%-110%)		
Fluoride	2.50		0.110		2.55	mg/L		97.7	(90%-110%)		
Sulfate	10.0		2.05		12.1	mg/L		101	(90%-110%)		
Nutrient Analysis											
Batch 1386914											
QC1203085715 348391002 DUP											
Phosphorus, Total as P		J	0.0273	J	0.0176	mg/L	43.2 ^		(+/-0.050)	KLP1	05/15/14 09:27
QC1203087746 348533001 DUP											
Phosphorus, Total as P			0.0654		0.0637	mg/L	2.63 ^		(+/-0.050)		05/15/14 10:16
QC1203085719 LCS											
Phosphorus, Total as P	1.00				1.05	mg/L		105	(79%-126%)		05/15/14 09:13
QC1203085712 MB											
Phosphorus, Total as P				U	ND	mg/L					05/15/14 09:12
QC1203085718 348391002 MS											
Phosphorus, Total as P	1.00	J	0.0273		1.14	mg/L		111	(64%-134%)		05/15/14 09:28
QC1203087747 348533001 MS											
Phosphorus, Total as P	1.00		0.0654		1.17	mg/L		110	(64%-134%)		05/15/14 10:16
Batch 1387647											
QC1203087752 348527002 DUP											
Nitrogen, Ammonia			0.0753	U	ND	mg/L	182*^		(+/-0.050)	KLP1	05/19/14 15:44
QC1203087755 LCS											
Nitrogen, Ammonia	1.00				1.03	mg/L		103	(90%-110%)		05/19/14 15:33
QC1203087750 MB											
Nitrogen, Ammonia				U	ND	mg/L					05/19/14 15:32
QC1203087754 348527002 MS											
Nitrogen, Ammonia	1.00		0.0753		1.04	mg/L		96.5	(90%-110%)		05/19/14 15:45

QC Summary

Workorder: **348530**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis										
Batch 1387647										
Batch 1387649										
QC1203087758 348391001 DUP										
Nitrogen, Total Kjeldahl	U	ND	U	ND	mg/L	N/A			KLP1	05/20/14 10:14
QC1203087761 LCS										
Nitrogen, Total Kjeldahl	1.00			1.04	mg/L		104	(90%-110%)		05/20/14 10:03
QC1203087756 MB										
Nitrogen, Total Kjeldahl			U	ND	mg/L					05/20/14 10:02
QC1203087760 348391001 MS										
Nitrogen, Total Kjeldahl	1.00 U	ND		0.999	mg/L		96.6	(90%-110%)		05/20/14 10:15
Batch 1387667										
QC1203087805 348391002 DUP										
Nitrogen, Nitrate/Nitrite		2.88		2.72	mg/L	5.72		(0%-20%)	KLP1	05/19/14 13:40
QC1203087810 LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.00	mg/L		100	(90%-110%)		05/19/14 13:17
QC1203087801 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					05/19/14 13:16
QC1203087809 348391002 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.575		1.63	mg/L		106	(90%-110%)		05/19/14 13:41
Solids Analysis										
Batch 1387730										
QC1203087965 348532001 DUP										
Total Dissolved Solids		353		364	mg/L	3.19		(0%-10%)	LYG1	05/14/14 08:38
QC1203087967 LCS										
Total Dissolved Solids	300			286	mg/L		95.2	(95%-105%)		05/14/14 08:38
QC1203087964 MB										
Total Dissolved Solids			U	ND	mg/L					05/14/14 08:38
Titration Analysis										
Batch 1390102										
QC1203094010 348686002 DUP										
Alkalinity, Total as CaCO3		58.3		58.3	mg/L	0.00		(0%-20%)	LXA1	05/22/14 15:38
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A				
QC1203094009 LCS										

QC Summary

Workorder: **348530**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Titration Analysis										
Batch 1390102										
Alkalinity, Total as CaCO3	50.0			50.6	mg/L		101	(90%-110%)		05/22/14 11:13
QC1203094012 MB										
Alkalinity, Total as CaCO3			U	ND	mg/L				LXA1	05/22/14 11:07
Carbonate alkalinity (CaCO3)			U	ND	mg/L					
QC1203094011 348686002 MS										
Alkalinity, Total as CaCO3	50.0	58.3		106	mg/L		96.2	(80%-120%)		05/22/14 15:45

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

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QC Summary

Workorder: **348530**

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

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:**
15-MAY-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 335.4, SW846 9012B	Liquid	COMA, ESHL, OLAB, ORNL,
Batch ID:	**Sample Numbers:**		
1387858	See Below		

Potentially affected work order(s)(SDG): 348498,348526(2014-3373),348527(2014-3374),348530(2014-3375),348532(2014-3376),348537(X405103),348548,348562,348565

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MS/PS: QC 1203088227MS,1203088228MS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1203088227MS The spike recovery falls outside of the established acceptance limits due to matrix interference. 1203088228MS

Originator's Name:

Aubrey Kingsbury 15-MAY-14

Data Validator/Group Leader:

Kristen Parson 16-MAY-14

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
19-MAY-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1, EPA 350.1 SC	Liquid	DPNT, ESHL, GEOS
Batch ID:	**Sample Numbers:**		
1387647	See Below		

Potentially affected work order(s)(SDG): 348236,348238,348239,348527(2014-3374),348530(2014-3375),348532(2014-3376),348602

Application Issues:

Failed RPD for DUP

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed RPD for DUP: QC 1203087751DUP,1203087752DUP	1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.

Originator's Name:

Kristen Parson 19-MAY-14

Data Validator/Group Leader:

Aubrey Kingsbury 20-MAY-14

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
23-MAY-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1, SW846 9040B/9040C, SW846 9040C	Liquid	ESHL, INPA, KAPL, SCPO
Batch ID:	**Sample Numbers:**		
1390573	See Below		

Potentially affected work order(s)(SDG): 348527(2014-3374),348530(2014-3375),348532(2014-3376),348555,348666,348686(2014-3382),349087,349121

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	**DER Disposition:**
1. Sample received out of holding: 348527 002,004 348530 002,004 348532 001 348555 001,002 348666 001,002 348686 002 349087 001,002,003,004 349121 001,003,005,007,009	1. Sample received out of holding

Originator's Name:
Patrick Orgel 23-MAY-14

Data Validator/Group Leader:
Elzbieta Szulc 27-MAY-14

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

www.gel.com

June 23, 2014

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: 350826
SDG: 2014-3375-1

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 13, 2014, and analyzed for Metals. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Chain of Custody: 2014-3375
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 350826
SDG: 2014-3375-1

Table of Contents

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 350826
SDG # : 2014-3375-1

June 23, 2014

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The sample arrived at GEL Laboratories LLC, Charleston, South Carolina on May 13, 2014 for analysis. The sample was 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 temperature was checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following sample:

Laboratory ID	Client ID
350826001	CAMO-14-75549

Case Narrative

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

Data Package

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

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 23 June 2014

State	Certification
Alaska	UST−110
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
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	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA130005
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
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−14−9
Utah NELAP	SC000122014−12
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

Relay # 350826

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

348530

ADEP

COC/Lab Request #: 2014-3375

Client Contact:

Lab Agreement # : 126310011

Project Number :

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐

7 Day - ☐

14 Day - ☐

21 Day - ☐

28 Day - ☒

Rad Screening Info: Yes, Below Background

Lab Reporting Limit Type: Sample Quantitation Limit

Special Instructions:

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-14-75544	May 9 2014	12:41	W	1				1			1
CAMO-14-75548	May 9 2014	12:41	W				1		1	1	
CAMO-14-75545	May 9 2014	11:20	W	1	2	3		1			1
CAMO-14-75549	May 9 2014	11:20	W				1		1	1	
CAMO-14-75541	May 9 2014	11:20	W		2						

001

Special Instructions:

Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
	Nicholas Martin	5/12/14 3:00		H. Taylor CSBU	5/9/20
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:** 2014-3375
Received By: H Taylor	**Date Received:** 051314

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) 3, 4 *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR-4629(e) Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	✓			Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected: CAMO-14-7554l received 1 vial, chain indicates 2 CAMO-14-7554S received 2 containers, chain indicates 3
11	Number of containers received match number indicated on COC?			✓	Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5908 1777 0380 -3 0417 -4 0406 -3 0391 -4 0370 -3

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials Hope Taylor Date 051314 Page 1 of 1


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: 12MAY14
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2704
BILL SENDER
TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD
CHARLESTON SC 29407
(843) 556-8171
REF: MR1A01407Q00
3c
518C1/6283/6F03
FedEx
Express
2 of 2
MPS# 0263 5908 1777 0380
Mstr# 5908 1777 0370
0201
TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT
XX 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: 12MAY14
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2704

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWL0

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518C1/62D3/6F03

FedEx Express

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TRK# 0201 5908 1777 0417

TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 158148-434 RIT2 10/11

ORIGIN ID:SAFA (505) 665-9966
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REF: MR1A015AGWK0

3C

518C1/62D3/6F03

FedEx Express

J131113052301 26

2 of 2
MPS# 0263 5908 1777 0406
Mstr# 5908 1777 0391 0201

TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 158148-434 RIT2 10/11

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 12MAY14
ACTWGT: 50.0 LB MAN
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BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

FedEx Express

1 of 2

TRK# 0201 5908 1777 0391

TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT

MASTER

XX 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: 12MAY14
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2704

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A01407Q00

FedEx Express

1 of 2

TRK# 0201 5908 1777 0370

TUE - 13 MAY 10:30A
PRIORITY OVERNIGHT

MASTER

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 10/11

Subject: Hey Val - maybe Bottles switched?? FW: follow up on R-46
From: "Patel, Nita" <npatel@lanl.gov>
Date: 6/17/2014 1:12 PM
To: "Valerie Davis (vsd@gel.com)" <vsd@gel.com>

See below? Sorry to bombard you with emails today..

From: Rogers, David B
Sent: Tuesday, June 17, 2014 11:10 AM
To: Patel, Nita
Cc: Katzman, Danny; Goering, Tim J; Ding, Mei; Macgregor, Alan S
Subject: follow up on R-46

Hi Nita;

I wonder if sample bottles were switched for R-42 and R-46? Is there a way we can look at the bottles and have them checked and reanalyzed?

Can you have the lab track the R-42 bottles along with the R-46 bottles? Can we establish whether these two bottles were switched at some point?

This applies to all the SW-846:6010C and SW-846:6020 results for R-42 and R-46.

The SW-846:6010C for R-42 includes CAMO-14-75863, 2014-3376, 11503777. The SW-846:602 information for R-42 is below.

The 5/8/14 R-42 results show the unusually high antimony that R-46 usually shows, while is was nondetect in R-46 this time. This is unusual for R-42; the antimony field sample result is 11503771.

Thanks, David

Location ID	Date Sampled	Analytical Method	Parameter Name	Analysis Type Code	Sample Purpose	Field Prep Code	Report Result
R-42	05/08/14	SW-846:6020	Chromium	INIT	REG	F	5.84

Location ID	Date Sampled	Analytical Method	Parameter Name	Analysis Type Code	Sample Purpose	Field Prep Code	Report Result	Re MI
R-46	05/09/14	SW-846:6020	Chromium	INIT	REG	F	923	2

David B. Rogers
Environmental Services Group
Corrective Actions Projects
Environmental Programs Directorate
Los Alamos National Laboratory MS M992

Los Alamos, NM 87545

email slug@lanl.gov
office 505-667-0313
fax 505-606-0503

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International, LLC (ARSL)
SDG 2014-3375-1

Sample Analysis

Sample ID	Client ID
350826001	CAMO-14-75549
1203110992	Method Blank (MB) **ICP**
1203110993	Laboratory Control Sample (LCS)
1203110996	350826001(CAMO-14-75549L) Serial Dilution (SD)
1203110994	350826001(CAMO-14-75549D) Sample Duplicate (DUP)
1203110995	350826001(CAMO-14-75549S) Matrix Spike (MS)
1203110997	Method Blank (MB) **ICP-MS**
1203110998	Laboratory Control Sample (LCS)
1203111001	350826001(CAMO-14-75549L) Serial Dilution (SD)
1203110999	350826001(CAMO-14-75549D) Sample Duplicate (DUP)
1203111000	350826001(CAMO-14-75549S) Matrix Spike (MS)

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

Method/Analysis Information

Analytical Batch:	1396634 and 1396636
Prep Batch :	1396633 and 1396635
Standard Operating Procedures:	GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 10 and GL-MA-E-014 REV# 25
Analytical Method:	SW846 3005A/6010C and SW846 3005A/6020A
Prep Method :	SW846 3005A

Preparation/Analytical Method Verification

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

System Configuration

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with an ESI SC-FAST introduction, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 0.4L/min, argon gas flows of 13 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN DRC-e inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector, and dynamic reaction cell. The DRC-e uses a dynamic reaction cell to eliminate polyatomic interferences. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

Calibration Information

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

CRDL/PQL Requirements
All PQL standards for 6010C met the control limits with the exception of tin listed below. The sample concentrations were less than the MDL or greater than 2x the PQL, so the data is not adversely affected.
350826001 (CAMO-14-75549)-ICP.

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: 350826001 (CAMO-14-75549)-ICP and ICP-MS.

Matrix Spike (MS) Recovery Statement

The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable analytes met the acceptance criteria.

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. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the established acceptance percent difference criteria.

Technical Information

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

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Sample required dilutions for tin in order to minimize suppression due to matrix interferences. 350826001 (CAMO-14-75549)-ICP.

Preparation Information
The samples in this SDG were prepared exactly 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
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. Data exception reports were included behind the Case Narrative or in the Miscellaneous Data section of this data package. A data exception report was not required for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

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

Client SDG: 2014-3375-1 GEL Work Order: 350826

The Qualifiers in this report are defined as follows:

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

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

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

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

Signature: Nik-Cole A. Elmore **Name: Nik-Cole Elmore**

Date: 23 JUN 2014 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3375−1 **CONTRACT:** ESHL00114 **METHOD TYPE:** SW846

SAMPLE ID: 350826001 **BASIS:** As Received **DATE COLLECTED** 09−MAY−14

CLIENT ID: CAMO−14−75549 **LEVEL:** Low **DATE RECEIVED** 13−MAY−14

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	200	ug/L	U	68	200	200	1	P	HSC	06/19/14 14:47	061914−1	1396634
7440−36−0	Antimony	5.18	ug/L		1	3	3	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7440−38−2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7440−39−3	Barium	22.3	ug/L		1	5	5	1	P	HSC	06/19/14 14:47	061914−1	1396634
7440−41−7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	06/19/14 14:47	061914−1	1396634
7440−42−8	Boron	50	ug/L	U	15	50	50	1	P	HSC	06/19/14 14:47	061914−1	1396634
7440−43−9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7440−70−2	Calcium	9460	ug/L		50	200	200	1	P	HSC	06/19/14 14:47	061914−1	1396634
7440−47−3	Chromium	5.32	ug/L	J	2	10	10	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7440−48−4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	06/19/14 14:47	061914−1	1396634
7440−50−8	Copper	10	ug/L	U	3	10	10	1	P	HSC	06/19/14 14:47	061914−1	1396634
7439−89−6	Iron	100	ug/L	U	30	100	100	1	P	HSC	06/19/14 14:47	061914−1	1396634
7439−92−1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7439−95−4	Magnesium	3040	ug/L		110	300	300	1	P	HSC	06/19/14 14:47	061914−1	1396634
7439−96−5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	06/19/14 14:47	061914−1	1396634
7439−98−7	Molybdenum	0.902	ug/L		0.165	0.5	0.5	1	MS	BAJ	06/19/14 12:55	140619−3	1396636
7440−02−0	Nickel	0.672	ug/L	J	0.5	2	2	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7440−09−7	Potassium	1710	ug/L		50	150	150	1	P	HSC	06/19/14 14:47	061914−1	1396634
7782−49−2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7440−22−4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7440−23−5	Sodium	9150	ug/L		100	300	300	1	P	HSC	06/19/14 14:47	061914−1	1396634
7440−24−6	Strontium	40.3	ug/L		1	5	5	1	P	HSC	06/19/14 14:47	061914−1	1396634
7440−28−0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7440−31−5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	06/19/14 16:13	061914−1	1396634
7440−61−1	Uranium	0.458	ug/L		0.067	0.2	0.2	1	MS	BAJ	06/18/14 21:35	140618−2	1396636
7440−62−2	Vanadium	6.45	ug/L		1	5	5	1	P	HSC	06/19/14 14:47	061914−1	1396634
7440−66−6	Zinc	3.83	ug/L	J	3.3	10	10	1	P	HSC	06/19/14 14:47	061914−1	1396634

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1396634	1396633	SW846 3005A	50	mL	50	mL	06/18/14	KXP3
1396636	1396635	SW846 3005A	50	mL	50	mL	06/18/14	KXP3

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

MS SW846 3005A/6020A

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2014−3375−1
Contract: ESHL00114
Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1203110992								
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	4.12	ug/L	+/−10	J	P	2.5	10
	Barium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Copper	3	ug/L	+/−10	U	P	3	10
	Calcium	50	ug/L	+/−200	U	P	50	200
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1203110997								
	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
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2

***Analytical Methods:**

P	**SW846 3005A/6010C**
MS	**SW846 3005A/6020A**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2014−3375−1 **Client ID** CAMO−14−75549S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 350826001 **Spike ID:** 1203110995

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	4720		68	U	5000	93.7		P
Barium	ug/L	75−125	502		22.3		500	95.9		P
Beryllium	ug/L	75−125	490		1	U	500	97.9		P
Boron	ug/L	75−125	481		15	U	500	94.2		P
Calcium	ug/L	75−125	14300		9460		5000	96.8		P
Cobalt	ug/L	75−125	479		1	U	500	95.7		P
Copper	ug/L	75−125	498		3	U	500	99.5		P
Iron	ug/L	75−125	4930		30	U	5000	98.6		P
Magnesium	ug/L	75−125	8130		3040		5000	102		P
Manganese	ug/L	75−125	490		2	U	500	97.8		P
Potassium	ug/L	75−125	6540		1710		5000	96.5		P
Sodium	ug/L	75−125	14700		9150		5000	110		P
Strontium	ug/L	75−125	521		40.3		500	96.1		P
Tin	ug/L	75−125	557		12.5	U	500	111		P
Vanadium	ug/L	75−125	507		6.45		500	100		P
Zinc	ug/L	75−125	492		3.83	J	500	97.6		P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2014−3375−1 **Client ID** CAMO−14−75549S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 350826001 **Spike ID:** 1203111000

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Nickel	ug/L	75−125	47.7		0.672	J	50	94		MS
Selenium	ug/L	75−125	48.3		1.5	U	50	96.1		MS
Silver	ug/L	75−125	50.5		0.2	U	50	101		MS
Thallium	ug/L	75−125	48		0.45	U	50	96		MS
Uranium	ug/L	75−125	52.6		0.458		50	104		MS
Antimony	ug/L	75−125	53.5		5.18		50	96.7		MS
Arsenic	ug/L	75−125	47.7		1.7	U	50	92.9		MS
Cadmium	ug/L	75−125	49.2		0.11	U	50	98.4		MS
Chromium	ug/L	75−125	53.3		5.32	J	50	96		MS
Lead	ug/L	75−125	48.8		0.5	U	50	97.6		MS
Molybdenum	ug/L	75−125	46		0.902		50	90.1		MS

***Analytical Methods:**

MS SW846 3005A/6020A

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3375−1 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75549D

Matrix: WATER **Level:** Low

Sample ID: 350826001 **Duplicate ID:** 1203110994 **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	+/−5	22.3		21.7		2.46		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	9460		9600		1.5		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%	3040		3090		1.52		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1710		1760		2.74		P
Sodium	ug/L	+/−20%	9150		9350		2.24		P
Strontium	ug/L	+/−20%	40.3		41.4		2.52		P
Tin	ug/L		12.5	U	12.5	U			P
Vanadium	ug/L	+/−5	6.45		6.69		3.6		P
Zinc	ug/L	+/−10	3.83	J	3.3	J	14.7		P

***Analytical Methods:**

P SW846 3005A/6010C

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3375−1 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75549D

Matrix: WATER **Level:** Low

Sample ID: 350826001 **Duplicate ID:** 1203110999 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L	+/−3	5.18		5.28		1.93		MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.32	J	4.97	J	6.81		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	0.902		0.869		3.73		MS
Nickel	ug/L	+/−2	0.672	J	0.715	J	6.2		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	0.458		0.468		2.16		MS

***Analytical Methods:**

MS SW846 3005A/6020A

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2014−3375−1

Contract: ESHL00114

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203110993								
	Aluminum	ug/L	5000	4770		95.5	80−120	P
	Barium	ug/L	500	476		95.2	80−120	P
	Beryllium	ug/L	500	476		95.2	80−120	P
	Boron	ug/L	500	455		91.1	80−120	P
	Calcium	ug/L	5000	4790		95.7	80−120	P
	Cobalt	ug/L	500	472		94.4	80−120	P
	Copper	ug/L	500	475		95	80−120	P
	Iron	ug/L	5000	4960		99.3	80−120	P
	Magnesium	ug/L	5000	4990		99.8	80−120	P
	Manganese	ug/L	500	483		96.7	80−120	P
	Potassium	ug/L	5000	4830		96.6	80−120	P
	Sodium	ug/L	5000	5010		100	80−120	P
	Strontium	ug/L	500	489		97.8	80−120	P
	Tin	ug/L	500	487		97.4	80−120	P
	Vanadium	ug/L	500	494		98.8	80−120	P
	Zinc	ug/L	500	476		95.2	80−120	P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2014−3375−1

Contract: ESHL00114

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203110998								
	Uranium	ug/L	50	51.1		102	80−120	MS
	Antimony	ug/L	50	49.3		98.7	80−120	MS
	Arsenic	ug/L	50	47.1		94.2	80−120	MS
	Cadmium	ug/L	50	49.3		98.5	80−120	MS
	Chromium	ug/L	50	49.5		99	80−120	MS
	Lead	ug/L	50	47.6		95.2	80−120	MS
	Molybdenum	ug/L	50	47.2		94.3	80−120	MS
	Nickel	ug/L	50	49.6		99.2	80−120	MS
	Selenium	ug/L	50	47.7		95.4	80−120	MS
	Silver	ug/L	50	50.1		100	80−120	MS
	Thallium	ug/L	50	46.4		92.8	80−120	MS

***Analytical Methods:**

MS **SW846 3005A/6020A**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2014−3375−1 **Client ID** CAMO−14−75549L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 350826001 **Serial Dilution ID:** 1203110996

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	22.3		22.3	J	.258			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	9460		9380		.882		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3040		3030		.367			P
Manganese	2	U	10	U				P
Potassium	1710		1500		12.4			P
Sodium	9150		8840		3.34		10	P
Strontium	40.3		42.1		4.36			P
Tin	2.5	U	12.5	J				P
Vanadium	6.45		6.68	J	3.44			P
Zinc	3.83	J	16.5	U	100			P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2014−3375−1 **Client ID** CAMO−14−75549L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 350826001 **Serial Dilution ID:** 1203111001

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	5.18		5	U	100			MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.32	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	.902		1.01	J	12			MS
Nickel	.672	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.458		.42	J	8.3			MS

***Analytical Methods:**

MS **SW846 3005A/6020A**