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

Chain of Custody/Analysis Request

ADEP

COC/Lab Request #: 2014-3382

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-14-75546	May 12 2014	11:51	W	1	2	3		1			1
CAMO-14-75550	May 12 2014	11:51	W				1		1	1	
CAMO-14-75542	May 12 2014	11:51	W		2						

Special Instructions:

Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
	Melissa Martz	5/13/14 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-14-75542 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		05/12/2014	**FIELD MATRIX:** WG		Ok
TIME COLLECTED (HH:MM):		11:51	**MEDIA:** UA		↓
PRS ID:		Ok	**SAMPLE TECH CODE:** UA		GSP
LOCATION ID: R-60		↓	**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
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2/1	CRA 5/12/14 HCL	Y	NONE

SAMPLE COMMENTS: NONE

LOCATION COMMENTS: NONE

FIELD PARAMETERS:

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

pH N/A SU Specific Conductance N/A uS/cm Temperature N/A deg C

Turbidity N/A NTU

COLLECTED BY (PRINT) A Stocker

RELINQUISHED BY (Printed Name) Julie Mayo **(Signature)**	**Date/Time** 05/12/2014 12:35	**RECEIVED BY (Printed Name)** K. Greene **(Signature)**	**Date/Time** 05/12/2014 12:35
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-14-75546

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		05/12/2014	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		11:51	**MEDIA:**	UA	↓
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-60		**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
N/A	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NONE
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator

LOCATION COMMENTS: NONE

FIELD PARAMETERS:

Dissolved Oxygen 5.79 mg/L Flow (in gpm) 1.27 GPM Oxidation-Reduction Potential 74.9 mV

pH 8.18 SU Specific Conductance 130 uS/cm Temperature 23.21 deg C

Turbidity 3.40 NTU

COLLECTED BY (PRINT) A. Stocker

RELINQUISHED BY (Printed Name) Julie Mage **(Signature)**	**Date/Time** 05/12/2014 1235	**RECEIVED BY (Printed Name)** K. Greene **(Signature)**	**Date/Time** 05/12/2014 1235
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-14-75550

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		05/12/2014	**FIELD MATRIX:**	WG	ok
TIME COLLECTED (HH:MM):		11:51	**MEDIA:**	UA	↓
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-60	↓	**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
N/A	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	y	NONE
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NONE

LOCATION COMMENTS: NONE

FIELD PARAMETERS:

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

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

Turbidity ↓ NTU

COLLECTED BY (PRINT) A. Stocker

RELINQUISHED BY (Printed Name) Julie Maze **(Signature)**	**Date/Time** 05/12/2014 1235	**RECEIVED BY (Printed Name)** K. Greene **(Signature)**	**Date/Time** 05/12/2014 1235
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. 2014-3382

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
348686	EPA:120.1	1				
348686	EPA:150.1	1				
348686	EPA:160.1	1				
348686	EPA:245.2	2				
348686	EPA:300.0	1				
348686	EPA:310.1	1				
348686	EPA:335.4	1				
348686	EPA:350.1	1				
348686	EPA:351.2	1				
348686	EPA:353.2	1				
348686	EPA:365.4	1				
348686	SM:A2340B	1				
348686	SW-846:6010C	1				
348686	SW-846:6020	1				
348686	SW-846:6850	1				
348686	SW-846:8260B	1		1		
348686	SW-846:8270D	1				
348686	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
348686	EPA:120.1	1391989	1391989	1										1				1			
348686	EPA:150.1	1390573	1390573	1										1				1			
348686	EPA:160.1	1388163	1388163	1					1					1				1			
348686	EPA:245.2	1392516	1392514	2					1	2				1				2			
348686	EPA:300.0	1387241	1387241	1					1					1				2			
348686	EPA:310.1	1390102	1390102	1					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
348686	EPA:335.4	1388571	1388569	1					1	1				1				1			
348686	EPA:350.1	1388633	1388631	1					1	1				1				1			
348686	EPA:351.2	1388638	1388637	1					1	1				1				1			
348686	EPA:353.2	1388628	1388628	1					1					1				1			
348686	EPA:365.4	1389727	1389725	1					1	1				1				1			
348686	SM:A2340B	1393227	1393227	1																	
348686	SW-846:6010C	1388087	1388086	1					1	1	1			1				1			
348686	SW-846:6020	1388081	1388080	1					1	1				1				1			
348686	SW-846:6850	1385694	1385693	1					1	1	1			1							
348686	SW-846:8260B	1390101	1390101	1		1			2					4							
348686	SW-846:8270D	1388968	1388967	1					1	1	1			1							
348686	SW-846:9060	1389294	1389294	1					1					1				1			

2. Distribution Of Analytes In EDD.

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-14-75550	348686002	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-14-75550	1203095300	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-14-75550	348686002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1203095299	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-14-75509	1203089006	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-14-75550	348686002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1203089010	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1203089005	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-14-75494	1203100149	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-14-75494	1203100151	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-14-75495	1203100146	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-14-75495	1203100147	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-14-75546	348686001	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-14-75550	348686002	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	LCS	1203100145	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1203100144	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-14-75550	1203088764	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-14-75550	348686002	REG	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-14-75550	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	CAMO-14-75550	348686002	REG	2	0	0	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-14-75494	1203090113	DUP	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-14-75494	1203090114	MS	0	0	1	0
EPA:335.4	GENERAL CHEMISTRY	CAMO-14-75546	348686001	REG	1	0	0	0
EPA:335.4	GENERAL CHEMISTRY	LCS	1203090115	LCS	0	0	1	0
EPA:335.4	GENERAL CHEMISTRY	MB	1203090112	MB	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-14-75550	1203090274	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-14-75550	1203090276	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-14-75550	348686002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1203090278	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1203090273	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-14-75546	1203090286	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-14-75546	1203090288	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-14-75546	348686001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1203090290	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1203090285	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-14-75550	1203090255	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-14-75550	348686002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1203090258	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1203090253	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-14-75550	1203092980	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-14-75550	1203092981	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-14-75550	348686002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1203092977	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1203092976	MB	1	0	0	0
SM:A2340B	INORGANIC	CAMO-14-75550	348686002	REG	1	0	0	0
SW-846:6010C	INORGANIC	CAMO-14-75509	1203088826	DUP	17	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
SW-846:6010C	INORGANIC	CAMO-14-75509	1203088827	MS	0	0	17	0
SW-846:6010C	INORGANIC	CAMO-14-75509	1203088828	MSD	0	0	17	0
SW-846:6010C	INORGANIC	CAMO-14-75550	348686002	REG	17	0	0	0
SW-846:6010C	INORGANIC	LCS	1203088825	LCS	0	0	17	0
SW-846:6010C	INORGANIC	MB	1203088824	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-14-75509	1203088811	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-14-75509	1203088812	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-14-75550	348686002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1203088810	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1203088809	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-14-75550	348686002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-14-75536	1203082241	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-14-75536	1203082242	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1203082240	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1203082239	MB	1	0	0	0
SW-846:8260B	VOC	CAMO-14-75542	348686003	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-14-75546	348686001	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-14-75546	1203091095	MS	0	6	76	0
SW-846:8270D	SVOC	CAMO-14-75546	1203091096	MSD	0	6	76	0
SW-846:8270D	SVOC	CAMO-14-75546	348686001	REG	80	6	0	0
SW-846:8270D	SVOC	LCS	1203091094	LCS	0	6	76	0
SW-846:8270D	SVOC	MB	1203091093	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-14-75546	1203091904	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-14-75546	348686001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1203091908	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1203091903	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	1203088809	METHOD BLANK	SW-846:6020	W	Molybdenum	.219	J	ug/L	0.500

Field Sample ID	Blank Lab	Blank Type	Analytical Method	Parameter Name	Blank Lab Result	Blank Lab Units	Lab Result	Lab Qualifier	Lab Detection Limit	Detect Flag	Detect to Nondetect Factor	Detect to Estimated Factor	Use Factors
CAMO-14-75550	1203088809	METHOD BLANK	SW-846:6020	Molybdenum	.219	ug/L	.917		0.500	Y	5	100	Y

6. Any surrogate recoveries outside the control limits?

No.

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

Field Sample ID	MS Lab Sample ID	MSD Lab Sample ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS Spike Recovery	MSD Spike Recovery	MS Upper Limit	MS Lower Limit	MS Reject Limit	RPD	RPD Limit
CAMO-14-75546	1203090288		EPA:351.2	Total Kjeldahl Nitrogen	1388637	05-20-2014	W	81		110	90	10		
CAMO-14-75546	1203090288		EPA:351.2	Total Kjeldahl Nitrogen	1388637	05-20-2014	W	81		110	90	10		

DATA VALIDATION REPORT

Field Sample ID	MS Lab Sample ID	MSD Lab Sample ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS Spike Recovery	MSD Spike Recovery	MS Upper Limit	MS Lower Limit	MS Reject Limit	RPD	RPD Limit
CAMO-14-75546	1203091095	1203091096	SW-846:8270D	Hexachlorocyclopentadiene	1388967	05-19-2014	W	76	69	73	14		9	30

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

LCS Lab Sample	LCSD Lab	Analytical Method	Parameter Name	Lab Lot ID	Analysis	Sample Matrix	LCS Spike Recovery	LCSD Spike Recovery	Upper Limit	Lower Limit	Upper Rejection Limit	Lower Rejection Limit	RPD	RPD Limit
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.

12. Additional Validator's Comments.

DATA VALIDATION REPORT

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-60	2014-3382	CAMO-14-75546	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	U	UJ	I6a	N	0.100	mg/L	0.100	mg/L			W	05/12/2014		1388638	VAL	Y
R-60	2014-3382	CAMO-14-75550	REG	INIT	INORGANIC	SW-846:6020	Molybdenum		U	I4	N	.917	ug/L	.917	ug/L			W	05/12/2014		1388081	VAL	Y

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
I6a	The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not 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-14-75542	R-60	FTB	SW-846:8260B	0	80
CAMO-14-75546	R-60	REG	EPA:245.2	0	1
CAMO-14-75546	R-60	REG	EPA:335.4	0	1
CAMO-14-75546	R-60	REG	EPA:351.2	0	1
CAMO-14-75546	R-60	REG	SW-846:8260B	0	80
CAMO-14-75546	R-60	REG	SW-846:8270D	0	80
CAMO-14-75546	R-60	REG	SW-846:9060	0	1
CAMO-14-75550	R-60	REG	EPA:120.1	0	1
CAMO-14-75550	R-60	REG	EPA:150.1	0	1
CAMO-14-75550	R-60	REG	EPA:160.1	0	1
CAMO-14-75550	R-60	REG	EPA:245.2	0	1
CAMO-14-75550	R-60	REG	EPA:300.0	0	4
CAMO-14-75550	R-60	REG	EPA:310.1	0	2
CAMO-14-75550	R-60	REG	EPA:350.1	0	1

DATA VALIDATION REPORT

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAMO-14-75550	R-60	REG	EPA:353.2	0	1
CAMO-14-75550	R-60	REG	EPA:365.4	0	1
CAMO-14-75550	R-60	REG	SM:A2340B	0	1
CAMO-14-75550	R-60	REG	SW-846:6010C	0	17
CAMO-14-75550	R-60	REG	SW-846:6020	0	11
CAMO-14-75550	R-60	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 08, 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: 348686
SDG: 2014-3382

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 14, 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: 2014-3382
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 348686
SDG: 2014-3382

Table of Contents

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 348686
SDG # : 2014-3382

June 10, 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 14, 2014 for analysis. Please see attached email for discrepancies. 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
348686001	CAMO-14-75546
348686002	CAMO-14-75550
348686003	CAMO-14-75542

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 08 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

348686

AOC

COC/Lab Request #: 2014-3382

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-14-75546	May 12 2014	11:51	W	1	2	3		1			1
CAMO-14-75550	May 12 2014	11:51	W				1		1	1	
CAMO-14-75542	May 12 2014	11:51	W		2						

Special Instructions:

Relinquished by:	Print Name: Melissa Martz	Date/Time: 5/13/14 3:00	Received by: P. Dent	Print Name: Patricia Dent	Date/Time: 5-14-14 08:15
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:** 348686
Received By: P Nuent	**Date Received:** 5-14-14

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?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe) 4C
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 130462966
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	X			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: CAMO-14-75542, 75489 Lab rec'd (1) 8260B chain indicates (2). CAMO-14-75546 Lab rec'd (2) 5 VOA, chain indicates (3).
12	Are sample containers identifiable as GEL provided?			X	Clients
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5908 1777 0494 5908 1777 0483 } 4C

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials QP Date 5-15-14 Page 1 of 1

Subject: Sample receipt issue from 05/14/14
From: Pat Dent <Pat.Dent@gel.com>
Date: 5/15/2014 7:53 AM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>, LANL@amrad.com, npatel@lanl.gov

RN#2014-3382
CAMO-14-75546 The lab received (2)-containers for SVOA, chain indicates 3.
CAMO-14-75542 the lab received (1)-container for 8260b, chain indicates 2.

RN#2014-3383
CAMO-14-75489 the lab received (1)-container for 8260b, chain indicates 2.

Thanks!!

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

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

SHIP DATE: 13MAY14
ACTWGT: 30.0 LB MAN
CAD: 0014176/CAFE2704

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

4

518C1/62D3/6F03

FedEx Express

J131113865230126

2 of 2
MPS# 0263 5908 1777 0494
Mstr# 5908 1777 0483

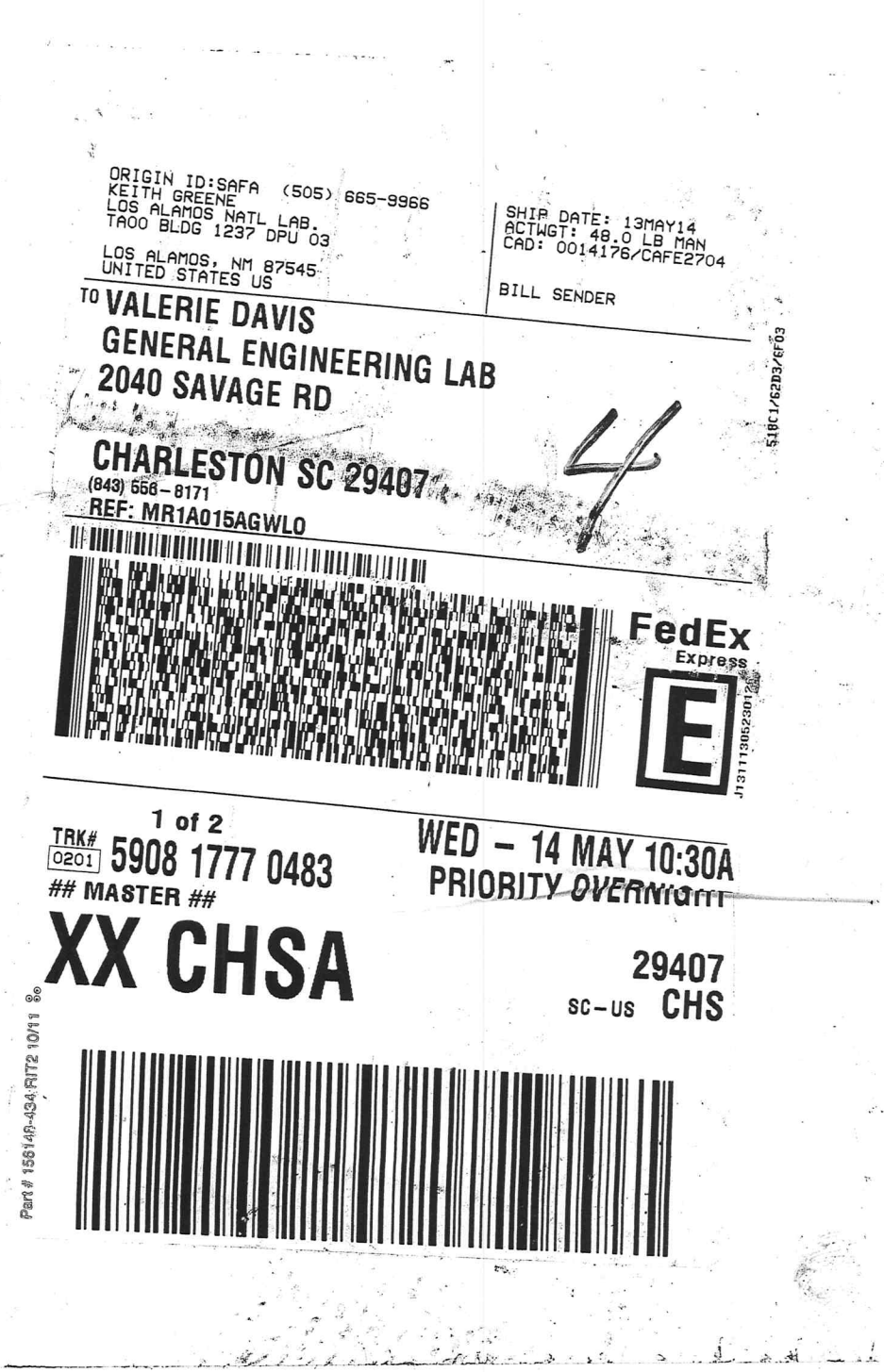
WED - 14 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

0201

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: 13MAY14
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2704

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

4

518C1/62D3/6F03

FedEx Express

J131113865230126

1 of 2
TRK# 0201 5908 1777 0483
MASTER

WED - 14 MAY 10:30A
PRIORITY OVERNIGHT

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 2014-3382

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
348686001	CAMO-14-75546
348686003	CAMO-14-75542
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)

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 blank analyzed with this SDG met the acceptance criteria.

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

Laboratory Control Sample (LCS) Recovery
The LCS 1203094005 (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) and 1203094008 (CAMO-14-75543) were not analyzed within the recommended holding. However, the samples were analyzed within two times the holding period. This satisfies the client criteria.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

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

Sample Re-extraction/Re-analysis
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

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: 2014-3382 GEL Work Order: 348686

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: 07 JUN 2014 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**348686001**	**Date Received:**	**05/14/2014 09:15**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75546**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 21:08**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 21:08**				
Data File:	**052314V6\6J519.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:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**348686001**	**Date Received:**	**05/14/2014 09:15**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75546**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 21:08**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 21:08**				
Data File:	**052314V6\6J519.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:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**348686001**	**Date Received:**	**05/14/2014 09:15**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75546**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 21:08**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 21:08**				
Data File:	**052314V6\6J519.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.1	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	50.8	50.0	ug/L	102	(80%-120%)
Toluene-d8	49.4	50.0	ug/L	98.8	(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:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**348686003**	**Date Received:**	**05/14/2014 09:15**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 21:37**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 21:37**				
Data File:	**052314V6\6J520.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:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**348686003**	**Date Received:**	**05/14/2014 09:15**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 21:37**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 21:37**				
Data File:	**052314V6\6J520.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:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**348686003**	**Date Received:**	**05/14/2014 09:15**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1390101**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**05/23/2014 21:37**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**05/23/2014 21:37**				
Data File:	**052314V6\6J520.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	53.9	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	47.0	50.0	ug/L	93.9	(80%-120%)
Toluene-d8	59.9	50.0	ug/L	120	(80%-120%)

Tentatively Identified Compound Summary

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

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2014-3382

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
348686001	CAMO-14-75546	108	99	102
348686003	CAMO-14-75542	108	120	94
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

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: 2014-3382 **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

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382 **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: 2014-3382 **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: **2014-3382**
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: 2014-3382
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: 2014-3382 **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: 2014-3382 **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: 2014-3382 **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: 2014-3382
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: 2014-3382
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: 2014-3382
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: **2014-3382**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1390101**
Matrix: **WATER**
Lab Sample ID **1203094005**
Instrument: **VOA6.I**
Analvsis Date: **05/23/2014 14:52**
Dilution: **1**
Analvst: **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: **2014-3382**
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: **2014-3382**
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: 2014-3382 **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

Method Blank Summary

SDG Number:	**2014-3382**	**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-14-75546	348686001	052314V6\6J519.D	05/23/14	2108
04	CAMO-14-75542	348686003	052314V6\6J520.D	05/23/14	2137
05	CAMO-14-75543PS	1203094003	052314V6\6J521.D	05/23/14	2206
06	CAMO-14-75543PSD	1203094004	052314V6\6J522.D	05/23/14	2235
07	CAMO-14-75543PS	1203094007	052314V6\6J523.D	05/23/14	2303
08	CAMO-14-75543PSD	1203094008	052314V6\6J524.D	05/23/14	2332

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**			**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:	**2014-3382**			**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:	**2014-3382**			**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:	**2014-3382**	**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:	**2014-3382**	**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:	**2014-3382**	**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:	**2014-3382**	**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:	**2014-3382**	**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:	**2014-3382**	**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:	**2014-3382**			**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:	**2014-3382**			**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:	**2014-3382**			**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:	**2014-3382**			**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:	**2014-3382**			**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:	**2014-3382**			**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:	**2014-3382**	**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:	**2014-3382**	**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:	**2014-3382**	**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:	**2014-3382**	**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:	**2014-3382**	**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:	**2014-3382**	**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%)

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 2014-3382

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:	1388968
Prep Batch Number:	1388967

Sample Analysis

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

Sample ID	Client ID
348686001	CAMO-14-75546
1203091093	Method Blank (MB)
1203091094	Laboratory Control Sample (LCS)
1203091095	348686001(CAMO-14-75546) Matrix Spike (MS)
1203091096	348686001(CAMO-14-75546) 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 Calibration Verification Standards (CCV) did not meet the acceptance criteria as outlined in Method 8270D for sample 348686001 (CAMO-14-75546). However, the method allows for a designated number of outliers dependent on the requested analyte list. This SDG satisfied the 8270D outlier acceptance criteria. Detected concentrations of these analytes should be considered as estimated.

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 348686001 (CAMO-14-75546) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS, 1203091095 (CAMO-14-75546), for sample 348686001 (CAMO-14-75546) exceeded spike recovery limits for Hexachlorocyclopentadiene at 75.7% (SPC limits: 14.0%-73.0%). Hexachlorocyclopentadiene was not detected in the parent sample, therefore the positive bias in MS spike recovery for this analyte has no adverse effect on the data. The LCS and MSD passed recovery for Hexachlorocyclopentadiene. The data are reported.

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

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

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

Technical Information:

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

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

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

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

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1294880 was generated for sample 348686001 (CAMO-14-75546) 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 1203091093(MB) and 348686001 (CAMO-14-75546) 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

MSD4.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP6890/HP5973	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

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

Client SDG: 2014-3382 GEL Work Order: 348686

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: 10 JUN 2014 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**348686001**	**Date Received:**	**05/14/2014 09:15**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75546**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 19:01**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1912.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:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**348686001**	**Date Received:**	**05/14/2014 09:15**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75546**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 19:01**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1912.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:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**348686001**	**Date Received:**	**05/14/2014 09:15**		
		Client:	**ARSL004**	**Project:**	**ESHL00114**
Client ID:	**CAMO-14-75546**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 19:01**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1912.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	74.7	100	ug/L	74.7	(26%-129%)
2-Fluorobiphenyl	43.2	50.0	ug/L	86.3	(32%-102%)
2-Fluorophenol	47.0	100	ug/L	47.0	(10%-78%)
Nitrobenzene-d5	42.3	50.0	ug/L	84.6	(36%-125%)
Phenol-d5	28.3	100	ug/L	28.3	(10%-104%)
p-Terphenyl-d14	48.2	50.0	ug/L	96.4	(34%-135%)

Tentatively Identified Compound Summary

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

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2014-3382

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203091093	MB for batch 1388967	43	26	72	76	68	87
1203091094	LCS for batch 1388967	48	32	83	87	87	85
348686001	CAMO-14-75546	47	28	85	86	75	96
1203091095	CAMO-14-75546MS	66	51	88	92	86	92
1203091096	CAMO-14-75546MSD	63	50	83	87	88	87

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

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1388967
Matrix: WATER
Lab Sample ID 1203091094
Instrument: MSD4.I
Analysis Date: 05/19/2014 17:32
Dilution: 1
Analyst: JMB3
Prep Batch ID: 1388967
Inj. Vol: 1 uL
Batch ID: 1388968

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	25.3	51	18-75
110-86-1	LCS	Pyridine	50.0	0.0	30.6	61	11-88
62-53-3	LCS	Aniline	50.0	0.0	42.0	84	35-107
108-95-2	LCS	Phenol	50.0	0.0	16.3	33	13-77
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	41.4	83	35-111
95-57-8	LCS	2-Chlorophenol	50.0	0.0	38.2	76	39-99
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	31.8	64	25-100
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	32.0	64	24-88
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	32.8	66	27-87
108-60-1	LCS	bis(2-Chloro-1-methylethyl)et	50.0	0.0	43.0	86	23-120
100-51-6	LCS	Benzyl alcohol	50.0	0.0	36.9	74	33-90
95-48-7	LCS	o-Cresol	50.0	0.0	34.8	70	32-90
65794-96-9	LCS	m,p-Cresols	50.0	0.0	35.3	71	28-100
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	42.9	86	39-113
67-72-1	LCS	Hexachloroethane	50.0	0.0	32.3	65	20-85
98-95-3	LCS	Nitrobenzene	50.0	0.0	44.7	89	41-119
78-59-1	LCS	Isophorone	50.0	0.0	47.7	95	49-133
88-75-5	LCS	2-Nitrophenol	50.0	0.0	39.3	79	42-111
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	39.6	79	43-99
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	46.4	93	44-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	39.6	79	45-106
65-85-0	LCS	Benzoic acid	100	0.0	21.4	21	10-81

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1388967
Matrix: WATER
Lab Sample ID 1203091094
Instrument: MSD4.I
Analysis Date: 05/19/2014 17:32
Dilution: 1
Analyst: JMB3
Prep Batch ID: 1388967
Inj. Vol: 1 uL
Batch ID: 1388968

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	43.0	86	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	30.4	61	19-92
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	40.3	81	46-111
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	34.1	68	33-102
91-20-3	LCS	Naphthalene	50.0	0.0	34.9	70	31-98
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	36.8	74	35-106
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	29.4	59	15-72
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	45.0	90	41-109
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	42.8	86	41-111
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	38.7	77	36-98
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	46.4	93	44-117
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	44.1	88	45-124
131-11-3	LCS	Dimethylphthalate	50.0	0.0	49.3	99	53-112
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	48.5	97	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	48.8	98	45-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	41.7	83	37-107
83-32-9	LCS	Acenaphthene	50.0	0.0	41.0	82	40-104
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	40.4	81	19-110
132-64-9	LCS	Dibenzofuran	50.0	0.0	45.3	91	45-107
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	45.1	90	45-120
84-66-2	LCS	Diethylphthalate	50.0	0.0	49.1	98	51-116
100-02-7	LCS	4-Nitrophenol	50.0	0.0	12.8	26	16-77

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Client ID: LCS for batch 1388967
Lab Sample ID 1203091094
Instrument: MSD4.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Laboratory Control Sample
Matrix: WATER
Analysis Date: 05/19/2014 17:32
Prep Batch ID: 1388967
Batch ID: 1388968
Dilution: 1

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	43.0	86	43-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	46.3	93	40-114
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	50.3	101	38-133
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	45.8	92	34-114
122-39-4	LCS	Diphenylamine	50.0	0.0	46.8	94	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	46.1	92	40-112
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	45.8	92	41-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	42.0	84	43-116
87-86-5	LCS	Pentachlorophenol	50.0	0.0	37.9	76	27-102
85-01-8	LCS	Phenanthrene	50.0	0.0	43.3	87	47-111
120-12-7	LCS	Anthracene	50.0	0.0	44.1	88	46-110
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	47.1	94	49-116
206-44-0	LCS	Fluoranthene	50.0	0.0	42.4	85	45-118
129-00-0	LCS	Pyrene	50.0	0.0	43.2	86	38-127
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	44.4	89	40-122
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	41.3	83	37-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	40.7	81	49-111
218-01-9	LCS	Chrysene	50.0	0.0	42.0	84	44-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	39.5	79	33-122
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	40.1	80	47-117
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	41.1	82	46-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	41.3	83	47-110

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Client ID: LCS for batch 1388967
Lab Sample ID 1203091094
Instrument: MSD4.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Laboratory Control Sample
Matrix: WATER
Analysis Date: 05/19/2014 17:32
Prep Batch ID: 1388967
Batch ID: 1388968
Dilution: 1

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	42.6	85	37-125
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	44.4	89	36-125
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	45.3	91	33-126
123-91-1	LCS	1,4-Dioxane	50.0	0.0	26.2	52	26-73
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	40.1	80	42-106
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	34.6	69	36-95
1912-24-9	LCS	Atrazine	50.0	0.0	48.5	97	47-115
92-87-5	LCS	Benzidine	100	0.0	58.8	59	10-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	40.1	80	31-113
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	32.0	64	26-92

Quality Control Summary
Spike Recovery Report

SDG Number: **2014-3382**
Sample Type: **Matrix Spike**
Client ID: **CAMO-14-75546MS**
Matrix: **W**
Lab Sample ID **1203091095**
Instrument: **MSD4.I**
Analysis Date: **05/19/2014 19:31**
Dilution: **1**
Analyst: **JMB3**
Prep Batch ID: **1388967**
Inj. Vol: **1 uL**
Batch ID: **1388968**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	111	0.00	U	80.2	72	21-88
110-86-1	MS	Pyridine	111	0.00	U	82.7	74	14-94
62-53-3	MS	Aniline	111	0.00	U	102	92	24-109
108-95-2	MS	Phenol	111	0.00	U	58.4	53	10-88
111-44-4	MS	bis(2-Chloroethyl) ether	111	0.00	U	101	91	25-114
95-57-8	MS	2-Chlorophenol	111	0.00	U	92.1	83	31-103
541-73-1	MS	1,3-Dichlorobenzene	111	0.00	U	80.3	72	18-83
106-46-7	MS	1,4-Dichlorobenzene	111	0.00	U	81.9	74	20-86
95-50-1	MS	1,2-Dichlorobenzene	111	0.00	U	83.4	75	21-85
108-60-1	MS	bis(2-Chloro-1-methylethyl)et	111	0.00	U	109	98	16-121
100-51-6	MS	Benzyl alcohol	111	0.00	U	98.7	89	31-100
95-48-7	MS	o-Cresol	111	0.00	U	89.4	80	26-97
65794-96-9	MS	m,p-Cresols	111	0.00	U	99.4	89	24-110
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	111	0.00	U	100	90	29-116
67-72-1	MS	Hexachloroethane	111	0.00	U	81.3	73	17-82
98-95-3	MS	Nitrobenzene	111	0.00	U	106	95	32-126
78-59-1	MS	Isophorone	111	0.00	U	109	98	36-139
88-75-5	MS	2-Nitrophenol	111	0.00	U	94.0	85	29-117
105-67-9	MS	2,4-Dimethylphenol	111	0.00	U	93.6	84	28-107
111-91-1	MS	bis(2-Chloroethoxy)methane	111	0.00	U	109	98	34-112
120-83-2	MS	2,4-Dichlorophenol	111	0.00	U	93.4	84	34-111
65-85-0	MS	Benzoic acid	222	0.00	U	91.0	41	10-105

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Client ID: CAMO-14-75546MS
Lab Sample ID 1203091095
Instrument: MSD4.I
Analvst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike
Matrix: W
Analvsis Date: 05/19/2014 19:31
Prep Batch ID: 1388967
Batch ID: 1388968
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	111	0.00	U	99.5	90	28-123
87-68-3	MS	Hexachlorobutadiene	111	0.00	U	77.7	70	11-97
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	111	0.00	U	92.4	83	31-119
91-57-6	MS	2-Methylnaphthalene	111	0.00	U	86.1	78	26-103
91-20-3	MS	Naphthalene	111	0.00	U	89.3	80	25-100
90-12-0	MS	1-Methylnaphthalene	111	0.00	U	91.3	82	27-107
77-47-4	MS	Hexachlorocyclopentadiene	111	0.00	U	84.2	76 *	14-73
88-06-2	MS	2,4,6-Trichlorophenol	111	0.00	U	104	94	31-113
95-95-4	MS	2,4,5-Trichlorophenol	111	0.00	U	95.8	86	30-117
91-58-7	MS	2-Chloronaphthalene	111	0.00	U	95.1	86	30-97
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	111	0.00	U	105	95	28-122
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	111	0.00	U	102	91	29-125
131-11-3	MS	Dimethylphthalate	111	0.00	U	108	97	41-116
606-20-2	MS	2,6-Dinitrotoluene	111	0.00	U	106	95	40-123
121-14-2	MS	2,4-Dinitrotoluene	111	0.00	U	109	98	34-126
208-96-8	MS	Acenaphthylene	111	0.00	U	97.8	88	33-104
83-32-9	MS	Acenaphthene	111	0.00	U	96.1	86	31-103
51-28-5	MS	2,4-Dinitrophenol	111	0.00	U	93.6	84	17-110
132-64-9	MS	Dibenzofuran	111	0.00	U	105	94	36-107
58-90-2	MS	2,3,4,6-Tetrachlorophenol	111	0.00	U	101	91	29-126
84-66-2	MS	Diethylphthalate	111	0.00	U	106	96	41-117
100-02-7	MS	4-Nitrophenol	111	0.00	U	49.9	45	16-71

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Client ID: CAMO-14-75546MS
Lab Sample ID 1203091095
Instrument: MSD4.I
Analvst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike
Matrix: W
Analvsis Date: 05/19/2014 19:31
Prep Batch ID: 1388967
Batch ID: 1388968
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	111	0.00	U	96.6	87	32-111
7005-72-3	MS	4-Chlorophenylphenylether	111	0.00	U	106	95	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	111	0.00	U	112	101	25-133
534-52-1	MS	2-Methyl-4,6-dinitrophenol	111	0.00	U	106	95	22-118
122-39-4	MS	Diphenylamine	111	0.00	U	106	96	34-111
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	111	0.00	U	105	94	30-112
101-55-3	MS	4-Bromophenylphenylether	111	0.00	U	104	93	32-111
118-74-1	MS	Hexachlorobenzene	111	0.00	U	94.1	85	33-115
87-86-5	MS	Pentachlorophenol	111	0.00	U	83.5	75	19-112
85-01-8	MS	Phenanthrene	111	0.00	U	96.8	87	34-112
120-12-7	MS	Anthracene	111	0.00	U	97.8	88	33-108
84-74-2	MS	Di-n-butylphthalate	111	0.00	U	100	90	35-118
206-44-0	MS	Fluoranthene	111	0.00	U	89.9	81	31-118
129-00-0	MS	Pyrene	111	0.00	U	109	98	27-126
85-68-7	MS	Butylbenzylphthalate	111	0.00	U	100	90	29-121
117-81-7	MS	bis(2-Ethylhexyl)phthalate	111	0.00	U	87.1	78	29-120
56-55-3	MS	Benzo(a)anthracene	111	0.00	U	92.3	83	35-112
218-01-9	MS	Chrysene	111	0.00	U	95.7	86	32-116
117-84-0	MS	Di-n-octylphthalate	111	0.00	U	77.0	69	25-118
205-99-2	MS	Benzo(b)fluoranthene	111	0.00	U	91.3	82	34-116
207-08-9	MS	Benzo(k)fluoranthene	111	0.00	U	96.4	87	34-119
50-32-8	MS	Benzo(a)pyrene	111	0.00	U	94.5	85	34-110

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Sample Type: Matrix Spike
Client ID: CAMO-14-75546MS
Matrix: W
Lab Sample ID 1203091095
Instrument: MSD4.I
Analysis Date: 05/19/2014 19:31
Dilution: 1
Analyst: JMB3
Prep Batch ID: 1388967
Inj. Vol: 1 uL
Batch ID: 1388968

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	111	0.00	U	101	91	25-122
53-70-3	MS	Dibenzo(a,h)anthracene	111	0.00	U	108	97	24-123
191-24-2	MS	Benzo(ghi)perylene	111	0.00	U	111	100	22-122
123-91-1	MS	1,4-Dioxane	111	0.00	U	80.6	73	26-88
930-55-2	MS	N-Nitrosopyrrolidine	111	0.00	U	98.3	88	42-110
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	111	0.00	U	87.9	79	29-96
1912-24-9	MS	Atrazine	111	0.00	U	106	95	33-121
92-87-5	MS	Benzidine	222	0.00	U	97.7	44	10-117
91-94-1	MS	3,3'-Dichlorobenzidine	111	0.00	U	85.8	77	22-111
120-82-1	MS	1,2,4-Trichlorobenzene	111	0.00	U	82.8	75	20-90

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Sample Type: Matrix Spike Duplicate
Client ID: CAMO-14-75546MSD
Matrix: W
Lab Sample ID 1203091096
Instrument: MSD4.I
Analysis Date: 05/19/2014 20:00
Dilution: 1
Analyst: JMB3
Prep Batch ID: 1388967
Inj. Vol: 1 uL
Batch ID: 1388968

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	111	0.00	U	76.6	69	21-88	4	0-30
110-86-1	MSD	Pyridine	111	0.00	U	84.5	76	14-94	2	0-30
62-53-3	MSD	Aniline	111	0.00	U	100	90	24-109	2	0-30
108-95-2	MSD	Phenol	111	0.00	U	57.3	52	10-88	2	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	111	0.00	U	96.6	87	25-114	5	0-30
95-57-8	MSD	2-Chlorophenol	111	0.00	U	90.5	81	31-103	2	0-30
541-73-1	MSD	1,3-Dichlorobenzene	111	0.00	U	77.0	69	18-83	4	0-30
106-46-7	MSD	1,4-Dichlorobenzene	111	0.00	U	79.0	71	20-86	4	0-30
95-50-1	MSD	1,2-Dichlorobenzene	111	0.00	U	82.3	74	21-85	1	0-30
108-60-1	MSD	bis(2-Chloro-1-methylethyl)et	111	0.00	U	105	95	16-121	4	0-30
100-51-6	MSD	Benzyl alcohol	111	0.00	U	96.7	87	31-100	2	0-30
95-48-7	MSD	o-Cresol	111	0.00	U	88.2	79	26-97	1	0-30
65794-96-9	MSD	m,p-Cresols	111	0.00	U	95.7	86	24-110	4	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	111	0.00	U	97.5	88	29-116	3	0-30
67-72-1	MSD	Hexachloroethane	111	0.00	U	81.4	73	17-82	0	0-30
98-95-3	MSD	Nitrobenzene	111	0.00	U	103	92	32-126	3	0-30
78-59-1	MSD	Isophorone	111	0.00	U	107	96	36-139	3	0-30
88-75-5	MSD	2-Nitrophenol	111	0.00	U	90.6	82	29-117	4	0-30
105-67-9	MSD	2,4-Dimethylphenol	111	0.00	U	90.9	82	28-107	3	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	111	0.00	U	105	95	34-112	3	0-30
120-83-2	MSD	2,4-Dichlorophenol	111	0.00	U	89.8	81	34-111	4	0-30
65-85-0	MSD	Benzoic acid	222	0.00	U	95.1	43	10-105	4	0-30

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Client ID: CAMO-14-75546MSD
Lab Sample ID 1203091096
Instrument: MSD4.I
Analvst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: W
Analvsis Date: 05/19/2014 20:00
Dilution: 1
Prep Batch ID: 1388967
Batch ID: 1388968

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	111	0.00	U	98.0	88	28-123	1	0-30
87-68-3	MSD	Hexachlorobutadiene	111	0.00	U	77.0	69	11-97	1	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	111	0.00	U	91.6	82	31-119	1	0-30
91-57-6	MSD	2-Methylnaphthalene	111	0.00	U	86.2	78	26-103	0	0-30
91-20-3	MSD	Naphthalene	111	0.00	U	88.2	79	25-100	1	0-30
90-12-0	MSD	1-Methylnaphthalene	111	0.00	U	92.0	83	27-107	1	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	111	0.00	U	76.8	69	14-73	9	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	111	0.00	U	99.4	89	31-113	4	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	111	0.00	U	94.9	85	30-117	1	0-30
91-58-7	MSD	2-Chloronaphthalene	111	0.00	U	93.0	84	30-97	2	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	111	0.00	U	103	93	28-122	2	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	111	0.00	U	103	92	29-125	1	0-30
131-11-3	MSD	Dimethylphthalate	111	0.00	U	108	97	41-116	0	0-30
606-20-2	MSD	2,6-Dinitrotoluene	111	0.00	U	108	97	40-123	2	0-30
121-14-2	MSD	2,4-Dinitrotoluene	111	0.00	U	112	101	34-126	3	0-30
208-96-8	MSD	Acenaphthylene	111	0.00	U	98.3	88	33-104	0	0-30
83-32-9	MSD	Acenaphthene	111	0.00	U	95.8	86	31-103	0	0-30
51-28-5	MSD	2,4-Dinitrophenol	111	0.00	U	98.6	89	17-110	5	0-30
132-64-9	MSD	Dibenzofuran	111	0.00	U	107	96	36-107	2	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	111	0.00	U	103	92	29-126	1	0-30
84-66-2	MSD	Diethylphthalate	111	0.00	U	110	99	41-117	3	0-30
100-02-7	MSD	4-Nitrophenol	111	0.00	U	53.6	48	16-71	7	0-30

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Sample Type: Matrix Spike Duplicate
Client ID: CAMO-14-75546MSD
Matrix: W
Lab Sample ID 1203091096
Instrument: MSD4.I
Analysis Date: 05/19/2014 20:00
Dilution: 1
Analyst: JMB3
Prep Batch ID: 1388967
Inj. Vol: 1 uL
Batch ID: 1388968

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	111	0.00	U	100	90	32-111	3	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	111	0.00	U	108	98	30-112	3	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	111	0.00	U	122	110	25-133	8	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	111	0.00	U	102	92	22-118	4	0-30
122-39-4	MSD	Diphenylamine	111	0.00	U	103	93	34-111	3	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	111	0.00	U	103	93	30-112	2	0-30
101-55-3	MSD	4-Bromophenylphenylether	111	0.00	U	103	93	32-111	1	0-30
118-74-1	MSD	Hexachlorobenzene	111	0.00	U	93.2	84	33-115	1	0-30
87-86-5	MSD	Pentachlorophenol	111	0.00	U	85.7	77	19-112	3	0-30
85-01-8	MSD	Phenanthrene	111	0.00	U	99.0	89	34-112	2	0-30
120-12-7	MSD	Anthracene	111	0.00	U	101	91	33-108	4	0-30
84-74-2	MSD	Di-n-butylphthalate	111	0.00	U	110	99	35-118	9	0-30
206-44-0	MSD	Fluoranthene	111	0.00	U	99.8	90	31-118	11	0-30
129-00-0	MSD	Pyrene	111	0.00	U	99.4	89	27-126	9	0-30
85-68-7	MSD	Butylbenzylphthalate	111	0.00	U	102	92	29-121	2	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	111	0.00	U	95.3	86	29-120	9	0-30
56-55-3	MSD	Benzo(a)anthracene	111	0.00	U	94.0	85	35-112	2	0-30
218-01-9	MSD	Chrysene	111	0.00	U	96.8	87	32-116	1	0-30
117-84-0	MSD	Di-n-octylphthalate	111	0.00	U	85.7	77	25-118	11	0-30
205-99-2	MSD	Benzo(b)fluoranthene	111	0.00	U	94.7	85	34-116	4	0-30
207-08-9	MSD	Benzo(k)fluoranthene	111	0.00	U	98.8	89	34-119	2	0-30
50-32-8	MSD	Benzo(a)pyrene	111	0.00	U	96.5	87	34-110	2	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2014-3382
Client ID: CAMO-14-75546MSD
Lab Sample ID 1203091096
Instrument: MSD4.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: W
Analysis Date: 05/19/2014 20:00
Prep Batch ID: 1388967
Batch ID: 1388968
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD Indeno(1,2,3-cd)pyrene	111	0.00	U	96.2	87	25-122	5	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	111	0.00	U	103	93	24-123	4	0-30
191-24-2	MSD Benzo(ghi)perylene	111	0.00	U	104	93	22-122	7	0-30
123-91-1	MSD 1,4-Dioxane	111	0.00	U	76.5	69	26-88	5	0-30
930-55-2	MSD N-Nitrosopyrrolidine	111	0.00	U	97.4	88	42-110	1	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	111	0.00	U	84.2	76	29-96	4	0-30
1912-24-9	MSD Atrazine	111	0.00	U	105	94	33-121	1	0-30
92-87-5	MSD Benzidine	222	0.00	U	108	49	10-117	10	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	111	0.00	U	89.4	80	22-111	4	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	111	0.00	U	82.2	74	20-90	1	0-30

Method Blank Summary

SDG Number:	**2014-3382**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1388967**	**Instrument ID:**	**MSD4.I**	**Data File:**	**s051914.B\s4e1908.D**
Lab Sample ID:	**1203091093**	**Prep Date:**	**05/19/2014 06:12**	**Analyzed:**	**05/19/14 17:03**
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 1388967	1203091094	s051914.B\s4e1909.D	05/19/14	1732
02	CAMO-14-75546	348686001	s051914.B\s4e1912.D	05/19/14	1901
03	CAMO-14-75546MS	1203091095	s051914.B\s4e1913.D	05/19/14	1931
04	CAMO-14-75546MSD	1203091096	s051914.B\s4e1914.D	05/19/14	2000

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**			**Matrix:**	**WATER**
Lab Sample ID:	**1203091093**				
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1388967**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 17:03**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1908.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:	**2014-3382**			**Matrix:**	**WATER**
Lab Sample ID:	**1203091093**				
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1388967**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 17:03**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1908.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:	**2014-3382**			**Matrix:**	**WATER**
Lab Sample ID:	**1203091093**				
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1388967**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 17:03**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1908.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	68.5	100	ug/L	68.5	(26%-129%)
2-Fluorobiphenyl	38.0	50.0	ug/L	76.0	(32%-102%)
2-Fluorophenol	43.1	100	ug/L	43.1	(10%-78%)
Nitrobenzene-d5	36.2	50.0	ug/L	72.4	(36%-125%)
Phenol-d5	25.5	100	ug/L	25.5	(10%-104%)
p-Terphenyl-d14	43.4	50.0	ug/L	86.8	(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:	**2014-3382**			**Matrix:**	**WATER**
Lab Sample ID:	**1203091094**				
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1388967**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 17:32**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1909.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		34.6	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		32.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		32.8	ug/L	3.00	10.0
122-66-7	Azobenzene		46.1	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		31.8	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		32.0	ug/L	3.00	10.0
123-91-1	1,4-Dioxane		26.2	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene		36.8	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol		45.1	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		42.8	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		45.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		39.6	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		39.6	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol		40.4	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene		48.8	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		48.5	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		38.7	ug/L	0.410	1.00
95-57-8	2-Chlorophenol		38.2	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		45.8	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		34.1	ug/L	0.300	1.00
88-75-5	2-Nitrophenol		39.3	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		40.1	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether		45.8	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol		40.3	ug/L	3.00	10.0
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		43.0	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether		46.3	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		12.8	ug/L	3.00	10.0
83-32-9	Acenaphthene		41.0	ug/L	0.300	1.00
208-96-8	Acenaphthylene		41.7	ug/L	0.300	1.00
62-53-3	Aniline		42.0	ug/L	4.20	10.0
120-12-7	Anthracene		44.1	ug/L	0.300	1.00
1912-24-9	Atrazine		48.5	ug/L	3.00	10.0
92-87-5	Benzidine		58.8	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene		40.7	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		41.3	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene		40.1	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		45.3	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**			**Matrix:**	**WATER**
Lab Sample ID:	**1203091094**				
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1388967**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 17:32**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1909.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		41.1	ug/L	0.300	1.00
65-85-0	Benzoic acid		21.4	ug/L	6.00	20.0
100-51-6	Benzyl alcohol		36.9	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate		44.4	ug/L	3.00	10.0
218-01-9	Chrysene		42.0	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		47.1	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate		39.5	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene		44.4	ug/L	0.300	1.00
132-64-9	Dibenzofuran		45.3	ug/L	3.00	10.0
84-66-2	Diethylphthalate		49.1	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		49.3	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine		46.8	ug/L	3.00	10.0
206-44-0	Fluoranthene		42.4	ug/L	0.300	1.00
86-73-7	Fluorene		43.0	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene		42.0	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		30.4	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene		29.4	ug/L	3.00	10.0
67-72-1	Hexachloroethane		32.3	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene		42.6	ug/L	0.300	1.00
78-59-1	Isophorone		47.7	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine		25.3	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*		42.9	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		40.1	ug/L	3.00	10.0
91-20-3	Naphthalene		34.9	ug/L	0.300	1.00
98-95-3	Nitrobenzene		44.7	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		37.9	ug/L	3.00	10.0
85-01-8	Phenanthrene		43.3	ug/L	0.300	1.00
108-95-2	Phenol		16.3	ug/L	3.00	10.0
129-00-0	Pyrene		43.2	ug/L	0.300	1.00
110-86-1	Pyridine		30.6	ug/L	3.00	10.0
108-60-1	bis(2-Chloro-1-methylethyl)ether		43.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		46.4	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		41.4	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		41.3	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**			**Matrix:**	**WATER**
Lab Sample ID:	**1203091094**				
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1388967**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 17:32**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1909.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		35.3	ug/L	3.70	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		44.1	ug/L	3.00	10.0
95-48-7	o-Cresol		34.8	ug/L	3.00	10.0
88-74-4	2-Nitroaniline *o-Nitroaniline*		46.4	ug/L	3.00	10.0
100-01-6	4-Nitroaniline *p-Nitroaniline*		50.3	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	87.2	100	ug/L	87.2	(26%-129%)
2-Fluorobiphenyl	43.3	50.0	ug/L	86.6	(32%-102%)
2-Fluorophenol	47.9	100	ug/L	47.9	(10%-78%)
Nitrobenzene-d5	41.3	50.0	ug/L	82.6	(36%-125%)
Phenol-d5	31.7	100	ug/L	31.7	(10%-104%)
p-Terphenyl-d14	42.5	50.0	ug/L	85.0	(34%-135%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**1203091095**	**Date Received:**	**05/14/2014 09:15**		
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75546MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 19:31**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1913.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		87.9	ug/L	6.67	22.2
120-82-1	1,2,4-Trichlorobenzene		82.8	ug/L	6.67	22.2
95-50-1	1,2-Dichlorobenzene		83.4	ug/L	6.67	22.2
122-66-7	Azobenzene		105	ug/L	6.67	22.2
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		80.3	ug/L	6.67	22.2
106-46-7	1,4-Dichlorobenzene		81.9	ug/L	6.67	22.2
123-91-1	1,4-Dioxane		80.6	ug/L	6.67	22.2
90-12-0	1-Methylnaphthalene		91.3	ug/L	0.667	2.22
58-90-2	2,3,4,6-Tetrachlorophenol		101	ug/L	6.67	22.2
95-95-4	2,4,5-Trichlorophenol		95.8	ug/L	6.67	22.2
88-06-2	2,4,6-Trichlorophenol		104	ug/L	6.67	22.2
120-83-2	2,4-Dichlorophenol		93.4	ug/L	6.67	22.2
105-67-9	2,4-Dimethylphenol		93.6	ug/L	6.67	22.2
51-28-5	2,4-Dinitrophenol		93.6	ug/L	11.1	44.4
121-14-2	2,4-Dinitrotoluene		109	ug/L	6.67	22.2
606-20-2	2,6-Dinitrotoluene		106	ug/L	6.67	22.2
91-58-7	2-Chloronaphthalene		95.1	ug/L	0.911	2.22
95-57-8	2-Chlorophenol		92.1	ug/L	6.67	22.2
534-52-1	2-Methyl-4,6-dinitrophenol		106	ug/L	6.67	22.2
91-57-6	2-Methylnaphthalene		86.1	ug/L	0.667	2.22
88-75-5	2-Nitrophenol		94.0	ug/L	6.67	22.2
91-94-1	3,3'-Dichlorobenzidine		85.8	ug/L	6.67	22.2
101-55-3	4-Bromophenylphenylether		104	ug/L	6.67	22.2
59-50-7	Parachlorometa cresol		92.4	ug/L	6.67	22.2
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		99.5	ug/L	7.33	22.2
7005-72-3	4-Chlorophenylphenylether		106	ug/L	6.67	22.2
100-02-7	4-Nitrophenol		49.9	ug/L	6.67	22.2
83-32-9	Acenaphthene		96.1	ug/L	0.667	2.22
208-96-8	Acenaphthylene		97.8	ug/L	0.667	2.22
62-53-3	Aniline		102	ug/L	9.33	22.2
120-12-7	Anthracene		97.8	ug/L	0.667	2.22
1912-24-9	Atrazine		106	ug/L	6.67	22.2
92-87-5	Benzidine		97.7	ug/L	8.67	22.2
56-55-3	Benzo(a)anthracene		92.3	ug/L	0.667	2.22
50-32-8	Benzo(a)pyrene		94.5	ug/L	0.667	2.22
205-99-2	Benzo(b)fluoranthene		91.3	ug/L	0.667	2.22
191-24-2	Benzo(ghi)perylene		111	ug/L	0.667	2.22

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**1203091095**	**Date Received:**	**05/14/2014 09:15**		
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75546MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 19:31**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1913.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		96.4	ug/L	0.667	2.22
65-85-0	Benzoic acid		91.0	ug/L	13.3	44.4
100-51-6	Benzyl alcohol		98.7	ug/L	6.67	22.2
85-68-7	Butylbenzylphthalate		100	ug/L	6.67	22.2
218-01-9	Chrysene		95.7	ug/L	0.667	2.22
84-74-2	Di-n-butylphthalate		100	ug/L	6.67	22.2
117-84-0	Di-n-octylphthalate		77.0	ug/L	6.67	22.2
53-70-3	Dibenzo(a,h)anthracene		108	ug/L	0.667	2.22
132-64-9	Dibenzofuran		105	ug/L	6.67	22.2
84-66-2	Diethylphthalate		106	ug/L	6.67	22.2
131-11-3	Dimethylphthalate		108	ug/L	6.67	22.2
88-85-7	Dinoseb	U	22.2	ug/L	6.67	22.2
122-39-4	Diphenylamine		106	ug/L	6.67	22.2
206-44-0	Fluoranthene		89.9	ug/L	0.667	2.22
86-73-7	Fluorene		96.6	ug/L	0.667	2.22
118-74-1	Hexachlorobenzene		94.1	ug/L	6.67	22.2
87-68-3	Hexachlorobutadiene		77.7	ug/L	6.67	22.2
77-47-4	Hexachlorocyclopentadiene		84.2	ug/L	6.67	22.2
67-72-1	Hexachloroethane		81.3	ug/L	6.67	22.2
193-39-5	Indeno(1,2,3-cd)pyrene		101	ug/L	0.667	2.22
78-59-1	Isophorone		109	ug/L	7.78	22.2
62-75-9	N-Methyl-N-nitrosomethylamine		80.2	ug/L	6.67	22.2
924-16-3	N-Nitrosodi-n-butylamine	U	22.2	ug/L	6.67	22.2
55-18-5	N-Nitrosodiethylamine	U	22.2	ug/L	6.67	22.2
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		100	ug/L	6.67	22.2
930-55-2	N-Nitrosopyrrolidine		98.3	ug/L	6.67	22.2
91-20-3	Naphthalene		89.3	ug/L	0.667	2.22
98-95-3	Nitrobenzene		106	ug/L	6.67	22.2
608-93-5	Pentachlorobenzene	U	22.2	ug/L	6.67	22.2
87-86-5	Pentachlorophenol		83.5	ug/L	6.67	22.2
85-01-8	Phenanthrene		96.8	ug/L	0.667	2.22
108-95-2	Phenol		58.4	ug/L	6.67	22.2
129-00-0	Pyrene		109	ug/L	0.667	2.22
110-86-1	Pyridine		82.7	ug/L	6.67	22.2
108-60-1	bis(2-Chloro-1-methylethyl)ether		109	ug/L	6.67	22.2
111-91-1	bis(2-Chloroethoxy)methane		109	ug/L	6.67	22.2
111-44-4	bis(2-Chloroethyl) ether		101	ug/L	6.67	22.2
117-81-7	bis(2-Ethylhexyl)phthalate		87.1	ug/L	6.67	22.2

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**1203091095**	**Date Received:**	**05/14/2014 09:15**		
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75546MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 19:31**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1913.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		99.4	ug/L	8.22	22.2
99-09-2	3-Nitroaniline *m-Nitroaniline*		102	ug/L	6.67	22.2
95-48-7	o-Cresol		89.4	ug/L	6.67	22.2
88-74-4	2-Nitroaniline *o-Nitroaniline*		105	ug/L	6.67	22.2
100-01-6	4-Nitroaniline *p-Nitroaniline*		112	ug/L	6.67	22.2

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	190	222	ug/L	85.7	(26%-129%)
2-Fluorobiphenyl	102	111	ug/L	92.2	(32%-102%)
2-Fluorophenol	148	222	ug/L	66.4	(10%-78%)
Nitrobenzene-d5	98.1	111	ug/L	88.3	(36%-125%)
Phenol-d5	113	222	ug/L	50.9	(10%-104%)
p-Terphenyl-d14	103	111	ug/L	92.5	(34%-135%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**1203091096**	**Date Received:**	**05/14/2014 09:15**		
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75546MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 20:00**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1914.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		84.2	ug/L	6.67	22.2
120-82-1	1,2,4-Trichlorobenzene		82.2	ug/L	6.67	22.2
95-50-1	1,2-Dichlorobenzene		82.3	ug/L	6.67	22.2
122-66-7	Azobenzene		103	ug/L	6.67	22.2
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		77.0	ug/L	6.67	22.2
106-46-7	1,4-Dichlorobenzene		79.0	ug/L	6.67	22.2
123-91-1	1,4-Dioxane		76.5	ug/L	6.67	22.2
90-12-0	1-Methylnaphthalene		92.0	ug/L	0.667	2.22
58-90-2	2,3,4,6-Tetrachlorophenol		103	ug/L	6.67	22.2
95-95-4	2,4,5-Trichlorophenol		94.9	ug/L	6.67	22.2
88-06-2	2,4,6-Trichlorophenol		99.4	ug/L	6.67	22.2
120-83-2	2,4-Dichlorophenol		89.8	ug/L	6.67	22.2
105-67-9	2,4-Dimethylphenol		90.9	ug/L	6.67	22.2
51-28-5	2,4-Dinitrophenol		98.6	ug/L	11.1	44.4
121-14-2	2,4-Dinitrotoluene		112	ug/L	6.67	22.2
606-20-2	2,6-Dinitrotoluene		108	ug/L	6.67	22.2
91-58-7	2-Chloronaphthalene		93.0	ug/L	0.911	2.22
95-57-8	2-Chlorophenol		90.5	ug/L	6.67	22.2
534-52-1	2-Methyl-4,6-dinitrophenol		102	ug/L	6.67	22.2
91-57-6	2-Methylnaphthalene		86.2	ug/L	0.667	2.22
88-75-5	2-Nitrophenol		90.6	ug/L	6.67	22.2
91-94-1	3,3'-Dichlorobenzidine		89.4	ug/L	6.67	22.2
101-55-3	4-Bromophenylphenylether		103	ug/L	6.67	22.2
59-50-7	Parachlorometa cresol		91.6	ug/L	6.67	22.2
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		98.0	ug/L	7.33	22.2
7005-72-3	4-Chlorophenylphenylether		108	ug/L	6.67	22.2
100-02-7	4-Nitrophenol		53.6	ug/L	6.67	22.2
83-32-9	Acenaphthene		95.8	ug/L	0.667	2.22
208-96-8	Acenaphthylene		98.3	ug/L	0.667	2.22
62-53-3	Aniline		100	ug/L	9.33	22.2
120-12-7	Anthracene		101	ug/L	0.667	2.22
1912-24-9	Atrazine		105	ug/L	6.67	22.2
92-87-5	Benzidine		108	ug/L	8.67	22.2
56-55-3	Benzo(a)anthracene		94.0	ug/L	0.667	2.22
50-32-8	Benzo(a)pyrene		96.5	ug/L	0.667	2.22
205-99-2	Benzo(b)fluoranthene		94.7	ug/L	0.667	2.22
191-24-2	Benzo(ghi)perylene		104	ug/L	0.667	2.22

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**1203091096**	**Date Received:**	**05/14/2014 09:15**		
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75546MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 20:00**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1914.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		98.8	ug/L	0.667	2.22
65-85-0	Benzoic acid		95.1	ug/L	13.3	44.4
100-51-6	Benzyl alcohol		96.7	ug/L	6.67	22.2
85-68-7	Butylbenzylphthalate		102	ug/L	6.67	22.2
218-01-9	Chrysene		96.8	ug/L	0.667	2.22
84-74-2	Di-n-butylphthalate		110	ug/L	6.67	22.2
117-84-0	Di-n-octylphthalate		85.7	ug/L	6.67	22.2
53-70-3	Dibenzo(a,h)anthracene		103	ug/L	0.667	2.22
132-64-9	Dibenzofuran		107	ug/L	6.67	22.2
84-66-2	Diethylphthalate		110	ug/L	6.67	22.2
131-11-3	Dimethylphthalate		108	ug/L	6.67	22.2
88-85-7	Dinoseb	U	22.2	ug/L	6.67	22.2
122-39-4	Diphenylamine		103	ug/L	6.67	22.2
206-44-0	Fluoranthene		99.8	ug/L	0.667	2.22
86-73-7	Fluorene		100	ug/L	0.667	2.22
118-74-1	Hexachlorobenzene		93.2	ug/L	6.67	22.2
87-68-3	Hexachlorobutadiene		77.0	ug/L	6.67	22.2
77-47-4	Hexachlorocyclopentadiene		76.8	ug/L	6.67	22.2
67-72-1	Hexachloroethane		81.4	ug/L	6.67	22.2
193-39-5	Indeno(1,2,3-cd)pyrene		96.2	ug/L	0.667	2.22
78-59-1	Isophorone		107	ug/L	7.78	22.2
62-75-9	N-Methyl-N-nitrosomethylamine		76.6	ug/L	6.67	22.2
924-16-3	N-Nitrosodi-n-butylamine	U	22.2	ug/L	6.67	22.2
55-18-5	N-Nitrosodiethylamine	U	22.2	ug/L	6.67	22.2
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		97.5	ug/L	6.67	22.2
930-55-2	N-Nitrosopyrrolidine		97.4	ug/L	6.67	22.2
91-20-3	Naphthalene		88.2	ug/L	0.667	2.22
98-95-3	Nitrobenzene		103	ug/L	6.67	22.2
608-93-5	Pentachlorobenzene	U	22.2	ug/L	6.67	22.2
87-86-5	Pentachlorophenol		85.7	ug/L	6.67	22.2
85-01-8	Phenanthrene		99.0	ug/L	0.667	2.22
108-95-2	Phenol		57.3	ug/L	6.67	22.2
129-00-0	Pyrene		99.4	ug/L	0.667	2.22
110-86-1	Pyridine		84.5	ug/L	6.67	22.2
108-60-1	bis(2-Chloro-1-methylethyl)ether		105	ug/L	6.67	22.2
111-91-1	bis(2-Chloroethoxy)methane		105	ug/L	6.67	22.2
111-44-4	bis(2-Chloroethyl) ether		96.6	ug/L	6.67	22.2
117-81-7	bis(2-Ethylhexyl)phthalate		95.3	ug/L	6.67	22.2

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2014-3382**	**Date Collected:**	**05/12/2014 11:51**	**Matrix:**	**W**
Lab Sample ID:	**1203091096**	**Date Received:**	**05/14/2014 09:15**		
Client Sample:	**QC for batch 1388967**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAMO-14-75546MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1388968**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**05/19/2014 20:00**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**05/19/2014 06:12**	**Aliquot:**	**450 mL**	**Final Volume:**	**1 mL**
Data File:	**s051914.B\s4e1914.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		95.7	ug/L	8.22	22.2
99-09-2	3-Nitroaniline *m-Nitroaniline*		103	ug/L	6.67	22.2
95-48-7	o-Cresol		88.2	ug/L	6.67	22.2
88-74-4	2-Nitroaniline *o-Nitroaniline*		103	ug/L	6.67	22.2
100-01-6	4-Nitroaniline *p-Nitroaniline*		122	ug/L	6.67	22.2

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	196	222	ug/L	88.3	(26%-129%)
2-Fluorobiphenyl	97.1	111	ug/L	87.4	(32%-102%)
2-Fluorophenol	140	222	ug/L	63.1	(10%-78%)
Nitrobenzene-d5	92.6	111	ug/L	83.3	(36%-125%)
Phenol-d5	111	222	ug/L	50.1	(10%-104%)
p-Terphenyl-d14	96.3	111	ug/L	86.6	(34%-135%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
20-MAY-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 3510C/8270D	Liquid	ARSL(ESHL), SCPO
Batch ID:	**Sample Numbers:**		
1388968	See Below		

Potentially affected work order(s)(SDG): 348666,348686(2014-3382),348715(2014-3388),348734

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	**DER Disposition:**
1. The MS (1203091095) for 348686(ARSL) and 348715(ARSL) exceeded spike recovery limits for Hexachlorocyclopentadiene at 75.7% (SPC limits: 14.0%-73.0%).	1. Hexachlorocyclopentadiene was not detected in the parent sample, therefore the positive bias in MS spike recovery for this analyte has no adverse effect on the data. The LCS and MSD passed recovery for Hexachlorocyclopentadiene. The data are reported.

Originator's Name:

Josh Brooks 20-MAY-14

Data Validator/Group Leader:

Herbert Maier 20-MAY-14

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC-MS/MS
ARS International, LLC (ARSL)
SDG 2014-3382

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:	1385694
Prep Batch Number:	1385693

Sample Analysis

Sample ID	Client ID
348686002	CAMO-14-75550
1203082243	Interference Check Sample (ICS)
1203082239	Method Blank (MB)
1203082240	Laboratory Control Sample (LCS)
1203082241	347885002(CASA-14-75536) Matrix Spike (MS)
1203082242	347885002(CASA-14-75536) Matrix Spike Duplicate (MSD)

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

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 11.

Calibration Information

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

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

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

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

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

Quality Control (QC) Information

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

Interference Check Sample (ICS)
The ICS spike recoveries met the acceptance criteria.

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

QC Sample Designation
Client sample 347885002 (CASA-14-75536) from SDG 2014-3328 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS (1203082241) did not meet spike recovery limits for Perchlorate-101 at 73.3%. The recovery limits are 75-125%. The non-conforming spike recovery is attributed to a detection of Perchlorate-101 that exceeded the calibration range of the instrument. The LCS and MSD met acceptance criteria for both Perchlorate and Perchlorate-101. The data are reported with the appropriate DER.

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
Sample 348686002 (CAMO-14-75550) was re-analyzed to confirm potential carryover from the previous sample analysis. The re-analysis data are reported.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1296727 was generated for this SDG.

The MS (1203082241) did not meet spike recovery limits for Perchlorate-101 at 73.3%. The recovery limits are 75-125%. The non-conforming spike recovery is attributed to a detection of Perchlorate-101 that exceeded the calibration range of the instrument. The LCS and MSD met acceptance criteria for both Perchlorate and Perchlorate-101.

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: 2014-3382 GEL Work Order: 348686

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: 1385693

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-14-75550

Date Received: 14-MAY-14

GEL Job No (SDG): 2014-3382

GEL Sample ID: 348686002

Date Filtered: 14-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	0.326	ug/L		1	22-MAY-14 23:55	per0522051a
	Perchlorate Isotope Ratio			3.03			1	22-MAY-14 23:55	per0522051a
14797-73-0	Perchlorate-101	.05	.2	0.329	ug/L		1	22-MAY-14 23:55	per0522051a
	Perchlorate-O(18)			0.462	ug/L		1	22-MAY-14 23:55	per0522051a

^ 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): 2014-3382

Extract Batch Code: 1385693

Date Filtered: 14-MAY-14

Matrix: WATER

Sample ID: 1203082240

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.189	ug/L	94.5		85 - 115
Perchlorate Isotope Ratio		3.06				-
Perchlorate-101	0.200	.184	ug/L	92.1		85 - 115
Perchlorate-O(18)		.467	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): 2014-3382

Extract Batch Code: 1385693

Date Extracted: 14-MAY-14

GEL MS/PS ID: 1203082241

Client ID: CASA-14-75536

GEL MSD/PSD ID: 1203082242

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	0.900	ug/L	1.10	99.5	1.07	84.9	2.69	30	75 - 125
Perchlorate Isotope Ratio	0	2.97		3.12		2.96		5.35		-
Perchlorate-101	0.200	0.902	ug/L	1.05	73.3 *	1.08	87.5	2.66	30	75 - 125
Perchlorate-O(18)	0	0.501	ug/L	0.503		.508		1.15		-

^ 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: 1385693

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 14-MAY-14

GEL Job No (SDG): 2014-3382

GEL Sample ID: 1203082239

Date Filtered: 14-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 20:47	per0520055a
	Perchlorate Isotope Ratio						1	20-MAY-14 20:47	per0520055a
14797-73-0	Perchlorate-101	.05	.2	0.200	ug/L	U	1	20-MAY-14 20:47	per0520055a
	Perchlorate-O(18)			0.498	ug/L		1	20-MAY-14 20:47	per0520055a

^ 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: 1385693

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 14-MAY-14

GEL Job No (SDG): 2014-3382

GEL Sample ID: 1203082240

Date Filtered: 14-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	0.189	ug/L	J	1	20-MAY-14 20:55	per0520056a
	Perchlorate Isotope Ratio			3.06			1	20-MAY-14 20:55	per0520056a
14797-73-0	Perchlorate-101	.05	.2	0.184	ug/L	J	1	20-MAY-14 20:55	per0520056a
	Perchlorate-O(18)			0.467	ug/L		1	20-MAY-14 20:55	per0520056a

^ 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: 1385693

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): 2014-3382

GEL Sample ID: 1203082243

Date Filtered: 14-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	0.191	ug/L	J	1	20-MAY-14 21:04	per0520057a
	Perchlorate Isotope Ratio			3.02			1	20-MAY-14 21:04	per0520057a
14797-73-0	Perchlorate-101	.05	.2	0.189	ug/L	J	1	20-MAY-14 21:04	per0520057a
	Perchlorate-O(18)			0.504	ug/L		1	20-MAY-14 21:04	per0520057a

^ 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: 1385693

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-14-75536MS

Date Received: 02-MAY-14

GEL Job No (SDG): 2014-3382

GEL Sample ID: 1203082241

Date Filtered: 14-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	1.10	ug/L		1	20-MAY-14 21:21	per0520059a
	Perchlorate Isotope Ratio			3.12			1	20-MAY-14 21:21	per0520059a
14797-73-0	Perchlorate-101	.05	.2	1.05	ug/L		1	20-MAY-14 21:21	per0520059a
	Perchlorate-O(18)			0.503	ug/L		1	20-MAY-14 21:21	per0520059a

^ 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: 1385693

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-14-75536MSD

Date Received: 02-MAY-14

GEL Job No (SDG): 2014-3382

GEL Sample ID: 1203082242

Date Filtered: 14-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	1.07	ug/L		1	20-MAY-14 21:29	per0520060a
	Perchlorate Isotope Ratio			2.96			1	20-MAY-14 21:29	per0520060a
14797-73-0	Perchlorate-101	.05	.2	1.08	ug/L		1	20-MAY-14 21:29	per0520060a
	Perchlorate-O(18)			0.508	ug/L		1	20-MAY-14 21:29	per0520060a

^ 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 =

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

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
23-MAY-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846 6850 Modified	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1385694	1203082241		

Potentially affected work order(s)(SDG): 347885(2014-3328),348129(2014-3342),348268(2014-3352),348270(2014-3354),348391(2014-3362),348392(2014-3363),348526(2014-3373),348630(2014-3383),348686(2014-3382)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. The MS (1203082241) did not meet spike recovery limits for Perchlorate-101 at 73.3%. The recovery limits are 75-125%.	1. The non-conforming spike recovery is attributed to a detection of Perchlorate-101 that exceeded the calibration range of the instrument. The LCS ans MSD met acceptance criteria for both Perchlorate and Perchlorate-101. The data are reported with the appropriate DER.

Originator's Name:

Michael Penny 23-MAY-14

Data Validator/Group Leader:

Charles Wilson 23-MAY-14

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International, LLC (ARSL)
SDG 2014-3382

Sample Analysis

Sample ID	Client ID
348686001	CAMO-14-75546
348686002	CAMO-14-75550
1203088824	Method Blank (MB) **ICP**
1203088825	Laboratory Control Sample (LCS)
1203088829	348630002(CAMO-14-75509L) Serial Dilution (SD)
1203088826	348630002(CAMO-14-75509D) Sample Duplicate (DUP)
1203088827	348630002(CAMO-14-75509S) Matrix Spike (MS)
1203088828	348630002(CAMO-14-75509SD) Matrix Spike Duplicate (MSD)
1203088809	Method Blank (MB) **ICP-MS**
1203088810	Laboratory Control Sample (LCS)
1203088813	348630002(CAMO-14-75509L) Serial Dilution (SD)
1203088811	348630002(CAMO-14-75509D) Sample Duplicate (DUP)
1203088812	348630002(CAMO-14-75509S) Matrix Spike (MS)
1203100144	Method Blank (MB) **CVAA**
1203100145	Laboratory Control Sample (LCS)
1203100153	348630001(CAMO-14-75494L) Serial Dilution (SD)
1203100148	348715001(CAMO-14-75495L) Serial Dilution (SD)
1203100149	348630001(CAMO-14-75494D) Sample Duplicate (DUP)
1203100146	348715001(CAMO-14-75495D) Sample Duplicate (DUP)
1203100151	348630001(CAMO-14-75494S) Matrix Spike (MS)
1203100147	348715001(CAMO-14-75495S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1388087, 1388081, 1392516 and 1393227
Prep Batch :	1388086, 1388080 and 1392514
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 initial and closing CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

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

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

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

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

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 348630002 (CAMO-14-75509)-ICP and ICP-MS, 348630001 (CAMO-14-75494) and 348715001 (CAMO-14-75495)-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. Sample 348686002 (CAMO-14-75550)-ICP was 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 Steele **Date:** 06/09/2014

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: 2014-3382 GEL Work Order: 348686

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 Pat Steele 06/09/2014

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3382 **CONTRACT:** ESHL00114 **METHOD TYPE:** EPA

SAMPLE ID: 348686001 **BASIS:** As Received **DATE COLLECTED** 12−MAY−14

CLIENT ID: CAMO−14−75546 **LEVEL:** Low **DATE RECEIVED** 14−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	06/03/14 11:24	060214W1−4	1392516

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1392516	1392514	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/14	AXS5

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3382 **CONTRACT:** ESHL00114 **METHOD TYPE:** EPA

SAMPLE ID: 348686002 **BASIS:** As Received **DATE COLLECTED** 12−MAY−14

CLIENT ID: CAMO−14−75550 **LEVEL:** Low **DATE RECEIVED** 14−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	06/03/14 11:29	060214W1−4	1392516

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3382 **CONTRACT:** ESHL00114 **METHOD TYPE:** SW846

SAMPLE ID: 348686002 **BASIS:** As Received **DATE COLLECTED** 12−MAY−14

CLIENT ID: CAMO−14−75550 **LEVEL:** Low **DATE RECEIVED** 14−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	06/02/14 14:00	060214A−1	1388087
7440−36−0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7440−38−2	Arsenic	1.76	ug/L	J	1.7	5	5	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7440−39−3	Barium	24.6	ug/L		1	5	5	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7440−41−7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7440−42−8	Boron	50	ug/L	U	15	50	50	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7440−43−9	Cadmium	0.378	ug/L	J	0.11	1	1	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7440−70−2	Calcium	10400	ug/L		50	200	200	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7440−47−3	Chromium	5.1	ug/L	J	2	10	10	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7440−48−4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7440−50−8	Copper	10	ug/L	U	3	10	10	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7439−89−6	Iron	100	ug/L	U	30	100	100	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7439−92−1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7439−95−4	Magnesium	3660	ug/L		110	300	300	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7439−96−5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7439−98−7	Molybdenum	0.917	ug/L		0.165	0.5	0.5	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7440−02−0	Nickel	0.834	ug/L	J	0.5	2	2	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7440−09−7	Potassium	1870	ug/L		50	150	150	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7782−49−2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7631−86−9	Silica	74900	ug/L		53	213	213	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7440−22−4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7440−23−5	Sodium	10500	ug/L		100	300	300	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7440−24−6	Strontium	46.8	ug/L		1	5	5	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7440−28−0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	06/06/14 02:25	140605−2	1388081
7440−31−5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	06/02/14 14:25	060214A−1	1388087
7440−61−1	Uranium	0.572	ug/L		0.067	0.2	0.2	1	MS	BAJ	06/07/14 15:28	140607−3	1388081
7440−62−2	Vanadium	7.78	ug/L		1	5	5	1	P	HSC	06/02/14 14:00	060214A−1	1388087
7440−66−6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	06/02/14 14:00	060214A−1	1388087

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2014−3382 **CONTRACT:** ESHL00114 **METHOD TYPE:**

SAMPLE ID: 348686002 **BASIS:** As Received **DATE COLLECTED** 12−MAY−14

CLIENT ID: CAMO−14−75550 **LEVEL:** Low **DATE RECEIVED** 14−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	41	mg/L		0.453	1.24	1.24	1		JJ2	06/04/14 12:39		1393227

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1388081	1388080	SW846 3005A	50	mL	50	mL	05/27/14	KXP3
1388087	1388086	SW846 3005A	50	mL	50	mL	05/23/14	MTM1
1392516	1392514	EPA 245.1/245.2 Prep	20	mL	20	mL	06/02/14	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. 2014−3382
Contract: ESHL00114
Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1203088809								
	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	0.219	ug/L	+/−0.5	J	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
1203088824								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	4.65	ug/L	+/−10	J	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1203100144								
	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. 2014−3382 **Client ID** CAMO−14−75509S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 348630002 **Spike ID:** 1203088812

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	50.9		1	U	50	102		MS
Arsenic	ug/L	75−125	49.2		1.7	U	50	95.9		MS
Cadmium	ug/L	75−125	48.8		0.11	U	50	97.5		MS
Chromium	ug/L	75−125	55.4		6.51	J	50	97.9		MS
Lead	ug/L	75−125	50.7		0.5	U	50	101		MS
Molybdenum	ug/L	75−125	49.3		1.2		50	96.2		MS
Nickel	ug/L	75−125	50		1.01	J	50	97.9		MS
Selenium	ug/L	75−125	48.7		1.5	U	50	96.8		MS
Silver	ug/L	75−125	50.4		0.2	U	50	101		MS
Thallium	ug/L	75−125	49.7		0.45	U	50	99.3		MS
Uranium	ug/L	75−125	54.7		0.165	J	50	109		MS

***Analytical Methods:**

MS SW846 3005A/6020A

METALS
−5a−

Matrix Spike Summary

SDG NO. 2014−3382 **Client ID** CAMO−14−75509S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 348630002 **Spike ID:** 1203088827

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Zinc	ug/L	75−125	507		3.3	U	500	101		P
Aluminum	ug/L	75−125	5210		72.1	J	5000	103		P
Barium	ug/L	75−125	526		16.3		500	102		P
Beryllium	ug/L	75−125	515		1	U	500	103		P
Boron	ug/L	75−125	532		21.7	J	500	102		P
Calcium	ug/L		25800		20300		5000	110	N/A	P
Cobalt	ug/L	75−125	499		1	U	500	99.8		P
Copper	ug/L	75−125	536		3	U	500	107		P
Iron	ug/L	75−125	5280		30	U	5000	106		P
Magnesium	ug/L	75−125	9200		3910		5000	106		P
Manganese	ug/L	75−125	510		2	U	500	102		P
Potassium	ug/L	75−125	5860		504		5000	107		P
Silica	ug/L		79100		67600		10700	107	N/A	P
Sodium	ug/L	75−125	19800		13800		5000	120		P
Strontium	ug/L	75−125	622		92.9		500	106		P
Tin	ug/L	75−125	481		12.5	U	500	96.3		P
Vanadium	ug/L	75−125	539		1.91	J	500	107		P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−5a−

Matrix Spike Duplicate Summary

SDG NO. 2014−3382 **Client ID** CAMO−14−75509SD

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 348630002 **Spike ID:** 1203088828

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5170		72.1	J	5000	102		P
Barium	ug/L	75−125	520		16.3		500	101		P
Beryllium	ug/L	75−125	512		1	U	500	102		P
Boron	ug/L	75−125	526		21.7	J	500	101		P
Calcium	ug/L		25100		20300		5000	96	N/A	P
Cobalt	ug/L	75−125	494		1	U	500	98.9		P
Copper	ug/L	75−125	529		3	U	500	105		P
Iron	ug/L	75−125	5210		30	U	5000	104		P
Magnesium	ug/L	75−125	9070		3910		5000	103		P
Manganese	ug/L	75−125	508		2	U	500	102		P
Potassium	ug/L	75−125	5760		504		5000	105		P
Silica	ug/L		77300		67600		10700	90.9	N/A	P
Sodium	ug/L	75−125	19400		13800		5000	113		P
Strontium	ug/L	75−125	613		92.9		500	104		P
Tin	ug/L	75−125	481		12.5	U	500	96.2		P
Vanadium	ug/L	75−125	533		1.91	J	500	106		P
Zinc	ug/L	75−125	502		3.3	U	500	100		P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2014−3382 **Client ID** CAMO−14−75495S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 348715001 **Spike ID:** 1203100147

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.07		0.067	U	2	104		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2014−3382 **Client ID** CAMO−14−75494S

Contract: ESHL00114 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 348630001 **Spike ID:** 1203100151

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.08		0.067	U	2	104		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3382 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75509D

Matrix: WATER **Level:** Low

Sample ID: 348630002 **Duplicate ID:** 1203088811 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	6.51	J	6.17	J	5.3		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.2		1.14		5.14		MS
Nickel	ug/L	+/−2	1.01	J	0.902	J	10.8		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	0.165	J	0.15	J	9.52		MS

***Analytical Methods:**

MS SW846 3005A/6020A

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3382 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75509D

Matrix: WATER **Level:** Low

Sample ID: 348630002 **Duplicate ID:** 1203088826 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		72.1	J	68	U	200		P
Barium	ug/L	+/−5	16.3		16.1		1.11		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L	+/−50	21.7	J	20.8	J	4.21		P
Calcium	ug/L	+/−20%	20300		20100		.88		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%	3910		3850		1.42		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−150	504		502		.559		P
Silica	ug/L	+/−20%	67600		67300		.425		P
Sodium	ug/L	+/−20%	13800		13700		.479		P
Strontium	ug/L	+/−20%	92.9		92.2		.758		P
Tin	ug/L		12.5	U	12.5	U			P
Vanadium	ug/L	+/−5	1.91	J	1.95	J	1.94		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005A/6010C

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3382 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75509SD

Matrix: WATER **Level:** Low

Sample ID: 1203088827 **Duplicate ID:** 1203088828 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L	+/−20	5210		5170		.817		P
Barium	ug/L	+/−20	526		520		1.24		P
Beryllium	ug/L	+/−20	515		512		.53		P
Boron	ug/L	+/−20	532		526		1.1		P
Calcium	ug/L	+/−20	25800		25100		2.77		P
Cobalt	ug/L	+/−20	499		494		.902		P
Copper	ug/L	+/−20	536		529		1.29		P
Iron	ug/L	+/−20	5280		5210		1.35		P
Magnesium	ug/L	+/−20	9200		9070		1.47		P
Manganese	ug/L	+/−20	510		508		.532		P
Potassium	ug/L	+/−20	5860		5760		1.76		P
Silica	ug/L	+/−20	79100		77300		2.24		P
Sodium	ug/L	+/−20	19800		19400		1.86		P
Strontium	ug/L	+/−20	622		613		1.56		P
Tin	ug/L	+/−20	481		481		.129		P
Vanadium	ug/L	+/−20	539		533		1.19		P
Zinc	ug/L	+/−20	507		502		.934		P

***Analytical Methods:**

P SW846 3005A/6010C

Metals
−6−
Duplicate Sample Summary

SDG No.: 2014−3382 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75495D

Matrix: WATER **Level:** Low

Sample ID: 348715001 **Duplicate ID:** 1203100146 **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
−6−
Duplicate Sample Summary

SDG No.: 2014−3382 **Lab Code:** GEL

Contract: ESHL00114 **Client ID:** CAMO−14−75494D

Matrix: WATER **Level:** Low

Sample ID: 348630001 **Duplicate ID:** 1203100149 **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. 2014−3382

Contract: ESHL00114

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203088810								
	Antimony	ug/L	50	49.4		98.8	80−120	MS
	Arsenic	ug/L	50	48.3		96.7	80−120	MS
	Cadmium	ug/L	50	49.3		98.6	80−120	MS
	Chromium	ug/L	50	49.7		99.5	80−120	MS
	Lead	ug/L	50	53.5		107	80−120	MS
	Molybdenum	ug/L	50	49.5		99	80−120	MS
	Nickel	ug/L	50	50.5		101	80−120	MS
	Selenium	ug/L	50	48.5		97	80−120	MS
	Silver	ug/L	50	52.9		106	80−120	MS
	Thallium	ug/L	50	53.5		107	80−120	MS
	Uranium	ug/L	50	52.8		106	80−120	MS

***Analytical Methods:**

MS **SW846 3005A/6020A**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2014−3382

Contract: ESHL00114

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203088825								
	Copper	ug/L	500	510		102	80−120	P
	Iron	ug/L	5000	5170		103	80−120	P
	Magnesium	ug/L	5000	5220		104	80−120	P
	Manganese	ug/L	500	505		101	80−120	P
	Potassium	ug/L	5000	5330		107	80−120	P
	Silica	ug/L	10700	10700		100	80−120	P
	Sodium	ug/L	5000	5510		110	80−120	P
	Strontium	ug/L	500	517		103	80−120	P
	Tin	ug/L	500	510		102	80−120	P
	Vanadium	ug/L	500	526		105	80−120	P
	Zinc	ug/L	500	499		99.9	80−120	P
	Aluminum	ug/L	5000	5110		102	80−120	P
	Barium	ug/L	500	502		100	80−120	P
	Beryllium	ug/L	500	503		101	80−120	P
	Boron	ug/L	500	491		98.2	80−120	P
	Calcium	ug/L	5000	4950		99	80−120	P
	Cobalt	ug/L	500	496		99.2	80−120	P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2014−3382

Contract: ESHL00114

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203100145								
	Mercury	ug/L	2	2.05		103	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2014−3382 **Client ID** CAMO−14−75509L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 348630002 **Serial Dilution ID:** 1203088813

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	6.51	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.2		1.46	J	21.6			MS
Nickel	1.01	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	.165	J	.335	U	100			MS

***Analytical Methods:**

MS **SW846 3005A/6020A**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2014−3382 **Client ID** CAMO−14−75509L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 348630002 **Serial Dilution ID:** 1203088829

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	72.1	J	340	U	100			P
Barium	16.3		16.4	J	1.18			P
Beryllium	1	U	5	U				P
Boron	21.7	J	75	U	100			P
Calcium	20300		19600		3.29		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3910		3970		1.47			P
Manganese	2	U	10	U				P
Potassium	504		673	J	33.5			P
Silica	67600		66600		1.49		10	P
Sodium	13800		13900		.63		10	P
Strontium	92.9		88.7		4.53		10	P
Tin	2.5	U	12.5	U				P
Vanadium	1.91	J	5	U	100			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005A/6010C**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2014−3382 **Client ID** CAMO−14−75495L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 348715001 **Serial Dilution ID:** 1203100148

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**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2014−3382 **Client ID** CAMO−14−75494L

Contract: ESHL00114

Matrix: LIQUID **Level:** Low

Sample ID: 348630001 **Serial Dilution ID:** 1203100153

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 2014-3382

Method/Analysis Information

Product:	**Carbon and Total Organic**		
Analytical Batch:	1389294	**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
348686001	CAMO-14-75546
1203091903	Method Blank (MB)
1203091904	348686001(CAMO-14-75546) Sample Duplicate (DUP)
1203091906	348686001(CAMO-14-75546) Post Spike (PS)
1203091908	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 sample was selected for QC analysis: 348686001 (CAMO-14-75546).

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 values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1203091904 (CAMO-14-75546).

Technical Information

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

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

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

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

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

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

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

Method/Analysis Information

Product:	**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
348686002	CAMO-14-75550
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
348686002	CAMO-14-75550
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 sample from this sample group was received by the lab outside of the method specified holding time: 348686002 (CAMO-14-75550).

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. 348686002 (CAMO-14-75550).

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:	1388571	**Method:**	WSP-CN(T)
Prep Batch :	1388569	**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
348686001	CAMO-14-75546
1203090112	Method Blank (MB)
1203090113	348630001(CAMO-14-75494) Sample Duplicate (DUP)
1203090114	348630001(CAMO-14-75494) Matrix Spike (MS)
1203090115	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.

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: 348630001 (CAMO-14-75494).

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

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

Technical Information

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

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

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

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

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

Miscellaneous Information

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

Additional Comments
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
348686002	CAMO-14-75550
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) and 348686002 (CAMO-14-75550).

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:	1388633	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1388631	**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
348686002	CAMO-14-75550
1203090273	Method Blank (MB)
1203090274	348686002(CAMO-14-75550) Sample Duplicate (DUP)
1203090276	348686002(CAMO-14-75550) Matrix Spike (MS)
1203090278	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: 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. 1203090274 (CAMO-14-75550).

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 CCV failure. The reanalysis data with passing instrument QC was reported. 1203090274 (CAMO-14-75550), 1203090276 (CAMO-14-75550) and 348686002 (CAMO-14-75550). The following sample was re-analyzed due to (its) proximity to an overrange sample. The results from the reanalysis are reported. 1203090273 (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. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1388638	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1388637	**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
348686001	CAMO-14-75546
1203090285	Method Blank (MB)
1203090286	348686001(CAMO-14-75546) Sample Duplicate (DUP)
1203090288	348686001(CAMO-14-75546) Matrix Spike (MS)
1203090290	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: 348686001 (CAMO-14-75546).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1203090288 (CAMO-14-75546).

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: 1203090286 (CAMO-14-75546).

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: 1295105 1203090286 (CAMO-14-75546) and 1203090288 (CAMO-14-75546).

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:	1388628	**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
348686002	CAMO-14-75550
1203090253	Method Blank (MB)
1203090255	348686002(CAMO-14-75550) Sample Duplicate (DUP)
1203090257	348686002(CAMO-14-75550) Post Spike (PS)
1203090258	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: 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 Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

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

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

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

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1389727	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1389725	**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
348686002	CAMO-14-75550
1203092976	Method Blank (MB)
1203092977	Laboratory Control Sample (LCS)
1203092980	348686002(CAMO-14-75550) Sample Duplicate (DUP)
1203092981	348686002(CAMO-14-75550) 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 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 Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

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

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will

always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids and Total Dissolved**		
Analytical Batch:	1388163	**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
348686002	CAMO-14-75550
1203089005	Method Blank (MB)
1203089006	348630002(CAMO-14-75509) Sample Duplicate (DUP)
1203089010	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: 348630002 (CAMO-14-75509).

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: 1203089006 (CAMO-14-75509).

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
The following DER was generated for this SDG: 1297133. 1203089006 (CAMO-14-75509).

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
348686002	CAMO-14-75550
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.

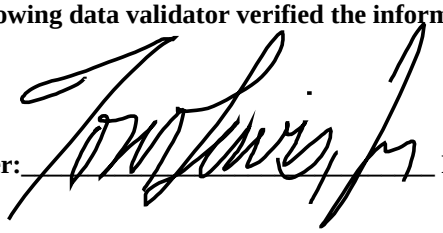
Certification Statement

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: 2014-3382 GEL Work Order: 348686

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: 2014-3382

Client Sample ID: CAMO-14-75546
Sample ID: 348686001
Matrix: W
Collect Date: 12-MAY-14 11:51
Receive Date: 14-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	U	ND	0.330	1.00	mg/L	1	TSM	05/20/14	1818	1389294	1
Flow Injection Analysis											
WSP-CN(T) "As Received"											
Cyanide, Total	U	ND	1.67	5.00	ug/L	1	AXH3	05/20/14	1022	1388571	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	1111	1388638	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	05/20/14	0926	1388569
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	05/19/14	1700	1388637

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: 2014-3382

Client Sample ID: CAMO-14-75550
Sample ID: 348686002
Matrix: W
Collect Date: 12-MAY-14 11:51
Receive Date: 14-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		121	1.00	1.00	umhos/cm	1	PXO1	05/30/14	1349	1391989	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 16.2C	H	8.08	0.010	0.100	SU	1	PXO1	05/23/14	1656	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	1832	1387241	3
Chloride		1.92	0.067	0.200	mg/L	1					
Fluoride		0.110	0.033	0.100	mg/L	1					
Sulfate		2.05	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	05/19/14	1424	1388633	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.475	0.017	0.050	mg/L	1	AXH3	05/20/14	1336	1388628	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	05/28/14	1403	1389727	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		120	3.40	14.3	mg/L		LYG1	05/15/14	1007	1388163	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		58.3	0.725	1.00	mg/L		LXA1	05/22/14	1531	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	1308	1388631
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	05/27/14	1600	1389725

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: 2014-3382

Client Sample ID:	CAMO-14-75550	Project:	ESHL00114
Sample ID:	348686002	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: **348686**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis											
Batch 1389294											
QC1203091904 348686001 DUP											
Total Organic Carbon Average	U	ND	U	ND	mg/L	N/A			TSM	05/20/14	18:51
QC1203091908 LCS											
Total Organic Carbon Average	10.0			10.4	mg/L		104	(85%-115%)		05/20/14	17:36
QC1203091903 MB											
Total Organic Carbon Average			U	ND	mg/L					05/20/14	17:27
QC1203091906 348686001 PS											
Total Organic Carbon Average	10.0 U	ND		10.9	mg/L		106	(65%-120%)		05/20/14	19:11
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 1388571											
QC1203090113 348630001 DUP											
Cyanide, Total	U	ND	U	ND	ug/L	N/A			AXH3	05/20/14	10:20
QC1203090115 LCS											
Cyanide, Total	50.0			51.3	ug/L		103	(90%-110%)		05/20/14	10:18
QC1203090112 MB											
Cyanide, Total			U	ND	ug/L					05/20/14	10:18
QC1203090114 348630001 MS											
Cyanide, Total	100 U	ND		107	ug/L		107	(90%-110%)		05/20/14	10:21
Ion Chromatography											

QC Summary

Workorder: **348686**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
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
Chloride	5.00		3.00		8.22	mg/L		105	(90%-110%)		
Fluoride	2.50		0.459		2.96	mg/L		100	(90%-110%)		
Sulfate	10.0		3.54		13.8	mg/L		102	(90%-110%)		
QC1203088765 348686002 PS											

QC Summary

Workorder: **348686**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1387241											
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%)	DM	
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 1388628											
QC1203090255 348686002 DUP											
Nitrogen, Nitrate/Nitrite			0.475		0.466	mg/L	1.91		(0%-20%)	AXH3	05/20/14 13:37
QC1203090258 LCS											
Nitrogen, Nitrate/Nitrite	1.00				0.979	mg/L		97.9	(90%-110%)		05/20/14 13:33
QC1203090253 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					05/20/14 13:32
QC1203090257 348686002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.475		1.41	mg/L		93.5	(90%-110%)		05/20/14 13:43
Batch 1388633											
QC1203090274 348686002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A			KLP1	05/19/14 14:25
QC1203090278 LCS											
Nitrogen, Ammonia	1.00				1.04	mg/L		104	(90%-110%)		05/19/14 13:47
QC1203090273 MB											
Nitrogen, Ammonia				U	ND	mg/L					05/19/14 13:54
QC1203090276 348686002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.05	mg/L		103	(90%-110%)		05/19/14 14:25
Batch 1388638											
QC1203090286 348686001 DUP											
Nitrogen, Total Kjeldahl		U	ND		0.339	mg/L	171*		(+/-0.100)	KLP1	05/20/14 11:15
QC1203090290 LCS											
Nitrogen, Total Kjeldahl	1.00				0.962	mg/L		96.2	(90%-110%)		05/20/14 10:54
QC1203090285 MB											
Nitrogen, Total Kjeldahl				J	0.0337	mg/L					05/20/14 10:54
QC1203090288 348686001 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		0.836	mg/L		81*	(90%-110%)		05/20/14 11:16

QC Summary

Workorder: **348686**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis										
Batch 1388638										
Batch 1389727										
QC1203092980 348686002 DUP										
Phosphorus, Total as P	U	ND	U	ND	mg/L	N/A			KLP1	05/28/14 14:04
QC1203092977 LCS										
Phosphorus, Total as P	1.00			1.14	mg/L		114	(79%-126%)		05/28/14 13:58
QC1203092976 MB										
Phosphorus, Total as P			U	ND	mg/L					05/28/14 13:57
QC1203092981 348686002 MS										
Phosphorus, Total as P	1.00 U	ND		1.10	mg/L		109	(64%-134%)		05/28/14 14:04
Solids Analysis										
Batch 1388163										
QC1203089006 348630002 DUP										
Total Dissolved Solids		377		176	mg/L	72.9*		(0%-10%)	LYG1	05/15/14 10:07
QC1203089010 LCS										
Total Dissolved Solids	300			291	mg/L		97.1	(95%-105%)		05/15/14 10:07
QC1203089005 MB										
Total Dissolved Solids			U	ND	mg/L					05/15/14 10:07
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										
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					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:

QC Summary

Workorder: **348686**

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

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
20-MAY-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2, EPA 351.2 SC	Liquid	BETT, ESHL, STOL, TOHH,
Batch ID:	**Sample Numbers:**		
1388638	See Below		

Potentially affected work order(s)(SDG): 348630(2014-3383),348636(14046126),348637,348642,348686(2014-3382),348806

Application Issues:

Failed Recovery for MS/PS

Failed RPD for DUP

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MS/PS: QC 1203090288MS,1203090289MS 2. Failed RPD for DUP: QC 1203090286DUP	1. The spike recovery falls outside of the established acceptance limits due to matrix interference: 1203090289 The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1203090288 2. 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: 1203090286

Originator's Name:

Kristen Parson 20-MAY-14

Data Validator/Group Leader:

Aubrey Kingsbury 20-MAY-14

DATA EXCEPTION REPORT

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

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
27-MAY-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
BALANCE	EPA 160.1, SM 2540C	Drinking Water	BATL, BETT, ESHL, NEVA,
Batch ID:	**Sample Numbers:**		
1388163	See Below		

Potentially affected work order(s)(SDG): 348630(2014-3383),348634,348642,348652,348671(V3952),348686(2014-3382)

Application Issues:

Failed RPD for DUP

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed RPD for DUP: QC 1203089006DUP 2. Consecutive weight check criteria not met. 348642002,348642006	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. 2. In order to meet consecutive weight check criteria, weight events must be within 0.0005g of each other. After initial weight checks failed this criteria, the analyst performed two additional weight events for Total Dissolved Solids. After four weight events, the analyst was unable to get the samples to conform to the criteria. The failure to meet weighback criteria is attributed to the matrix of the samples.

Originator's Name:

Morgan Buckner 27-MAY-14

Data Validator/Group Leader:

Elzbieta Szulc 28-MAY-14