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

Chain of Custody/Analysis Request

COC/Lab Request #: 12-1482

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

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-GENINORG	WSP-GrossA/B	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-12-21741	Aug 8 2012	17:40	W	2	3	3		1	2			1	1	
CAMO-12-21749	Aug 8 2012	17:40	W				1			1	1			
CAMO-12-21750	Aug 8 2012	17:40	W	2										
CAMO-12-22384	Aug 8 2012	17:40	W	2	3									

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 8/9/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3955 **EVENT NAME:** Mortandad (Chromium Monitoring) Q4 Watershed Sampling

SAMPLE ID: CAMO-12-21749 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		08/08/2012	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1740	**MEDIA:**	UA	↓
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-62		**FIELD PREP:**	F	OK
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GENINORG	1 LITER POLY	1	ICE	Y	7 day turn
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	7 day turn
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		7 day turn

SAMPLE COMMENTS: see CAMO-12-21741

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) David Fellenz **(Signature)**	**Date/Time** 8/9/12 0940	**RECEIVED BY (Printed Name)** M. Martin **(Signature)**	**Date/Time** 8/9/12 940
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 07/30/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3955 **EVENT NAME:** Mortandad (Chromium Monitoring) Q4 Watershed Sampling

SAMPLE ID: CAMO-12-21741 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		08/08/2012	**FIELD MATRIX:** WG		ok
TIME COLLECTED (HH:MM):		1740	**MEDIA:** UA		↓
PRS ID:		ok	**SAMPLE TECH CODE:** UA		605P
LOCATION ID: R-62			**FIELD PREP:** UF		ok
LOCATION TYPE: MON			**FIELD QC TYPE:** REG		↓
PORT: SINGLE COMPLETION		↓	**SAMPLE USAGE:** INV		↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	7 day turn
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	7 day turn
	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	3	ICE		7 day turn
	WSP-GrossA/B	1 LITER POLY	1	NONE		7 day turn
	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE		7 day turn
	WSP-LL-H-3	1 LITER POLY	1	NONE		7 day turn
	WSP-RAD	1 GAL POLY	1	HNO3		7 day turn
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		7 day turn

SAMPLE COMMENTS: Sampled at 9 CVs. Samples collected within 50 ft of running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.01 mg/L Oxidation-Reduction Potential 72.7 MV pH 8.31 SU

Specific Conductance 165 uS/cm Temperature 21.83 deg C Turbidity 0.65 NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
David Fellenz	8/9/12 0940	M. Martin	8/9/12 940
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3955 **EVENT NAME:** Mortandad (Chromium Monitoring) Q4 Watershed Sampling

SAMPLE ID: CAMO-12-22384 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		08/08/2012	**FIELD MATRIX:** WG		GK
TIME COLLECTED (HH:MM):		1740	**MEDIA:** UA		↓
PRS ID:		OK	**SAMPLE TECH CODE:** UA		GSP
LOCATION ID: R-62			**FIELD PREP:** UF		GK
LOCATION TYPE: MON		↓	**FIELD QC TYPE:** FB		↓
PORT: SINGLE COMPLETION			**SAMPLE USAGE:** QC		↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	7 days
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	1 2	ICE	↓	7 days

1 liter plastic

SAMPLE COMMENTS: See CAMO-12-21741

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) David Fellenz **(Signature)**	**Date/Time** 8/9/12 0940	**RECEIVED BY (Printed Name)** M. Martin **(Signature)**	**Date/Time** 8/9/12 940
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 07/30/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3955 **EVENT NAME:** Mortandad (Chromium Monitoring) Q4 Watershed Sampling

SAMPLE ID: CAMO-12-21750 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		08/08/2012	**FIELD MATRIX:**	WG	GW
TIME COLLECTED (HH:MM):		1740	**MEDIA:**	UA	↓
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-62		**FIELD PREP:**	UF	OK
LOCATION TYPE:	MON		**FIELD QC TYPE:**	FTB	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
M	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	7day turn

SAMPLE COMMENTS: See CAMW-12-21741

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) David Fellenz **(Signature)**	**Date/Time** 8/9/12 0940	**RECEIVED BY (Printed Name)** **(Signature)**	**Date/Time** 8/9/12 940
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 07/30/2012

Data Validation Report

Chain Of Custody No. 12-1482

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
309455	EPA:120.1	1				
309455	EPA:150.1	1				
309455	EPA:160.1	1				
309455	EPA:245.2	1				
309455	EPA:300.0	1				
309455	EPA:310.1	1				
309455	EPA:350.1	1				
309455	EPA:351.2	1				
309455	EPA:353.2	1				
309455	EPA:365.4	1				
309455	EPA:900	1				
309455	EPA:901.1	1				
309455	EPA:905.0	1				
309455	HASL-300:AM-241	1				
309455	HASL-300:ISOPU	1				
309455	HASL-300:ISOU	1				
309455	SM:A2340B	1				
309455	SW-846:6010B	1				
309455	SW-846:6020	1				
309455	SW-846:6850	1				
309455	SW-846:8260B	1		1	1	
309455	SW-846:8270C	1			1	
309455	SW-846:8321A_MOD	1				
309455	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
309455	EPA:120.1	1239221	1239221	1							
309455	EPA:150.1	1239874	1239874	1							
309455	EPA:160.1	1238352	1238352	1					1		
309455	EPA:245.2	1237657	1237654	1					1	2	
309455	EPA:300.0	1237343	1237343	1					1		
309455	EPA:310.1	1239254	1239254	1					2	1	
309455	EPA:350.1	1237606	1237605	1					1	2	2
309455	EPA:351.2	1240586	1240585	1					1	2	2
309455	EPA:353.2	1237559	1237559	1					1		
309455	EPA:365.4	1237597	1237594						1		
309455	EPA:365.4	1240581	1240580	1					1	2	2
309455	EPA:900	1239941	1239941	1					1	1	1
309455	EPA:901.1	1238310	1238310	1					1		
309455	EPA:905.0	1239939	1239939	1					1	1	
309455	HASL-300:AM-241	1237713	1237713	1					1		
309455	HASL-300:ISOPU	1237714	1237714	1					1		
309455	HASL-300:ISOU	1237715	1237715	1					1		
309455	SM:A2340B	1242418	1242418	1							
309455	SW-846:6010B	1237410	1237409	1					1	1	
309455	SW-846:6020	1237412	1237411	1					1	1	

Data Validation Report for:

Chain Of Custody No. 12-1482

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				1			
		1				2			
		1				1			
		1				2			
		1				1			
		2				1			
		1				2			
		1				2			
		1				1			
		1							
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			

309455	SW-846:6850	1238723	1238722	1					1	1	1
309455	SW-846:8260B	1239569	1239569	1		1	1		1		
309455	SW-846:8270C	1238167	1238166	1			1		1	1	1
309455	SW-846:8321A_MOD	1237503	1237502	1					1	1	1
309455	SW-846:9060	1237582	1237582	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-12-21743	1202721941	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-12-21749	309455003	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202721942	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-12-21743	1202723542	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-12-21749	309455003	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-12-21649	1202723543	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202723544	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-12-21743	1202719898	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-12-21749	309455003	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202719901	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202719897	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-12-21749	1202717966	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-12-21749	1202717967	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-12-21749	309455003	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202717965	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202717964	MB	1	0	0	0
EPA:245.2	INORGANIC	WTLAP-12-14611	1202717968	DUP	1	0	0	0
EPA:245.2	INORGANIC	WTLAP-12-14611	1202717969	MS	0	0	1	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-12-21743	1202717117	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-12-21749	309455003	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202717119	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202717116	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-12-21743	1202722038	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-12-21743	1202722039	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-12-21749	309455003	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202722033	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202722103	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202722032	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202722102	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-12-21743	1202717811	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-12-21743	1202717812	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-12-21743	1202717813	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-12-21749	309455003	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-12-21794	1202720910	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-12-21794	1202720911	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-12-21794	1202720912	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202717814	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202717810	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-12-21734	1202730363	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-12-21734	1202730364	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-12-21734	1202730365	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-12-21741	309455001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202725437	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202725433	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	SWWS46-12-22930	1202725434	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	SWWS46-12-22930	1202725435	MS	0	0	1	0

Data Validation Report for:

Chain Of Custody No. 12-1482

		1							
		2							
		1							
		1							
		1				1			

EPA:351.2	GENERAL CHEMISTRY	SWWS46-12-22930	1202725436	MSD	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-12-21743	1202717658	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-12-21749	309455003	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202717662	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202717655	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-12-21743	1202725413	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-12-21743	1202725414	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-12-21743	1202725415	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-12-21744	1202730366	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-12-21744	1202730367	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-12-21744	1202730368	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-12-21749	309455003	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202717787	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202725416	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202717780	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202725412	MB	1	0	0	0
EPA:900	RAD	CAMO-12-21736	1202723793	DUP	2	0	0	0
EPA:900	RAD	CAMO-12-21736	1202723796	MS	0	0	2	0
EPA:900	RAD	CAMO-12-21736	1202723797	MSD	0	0	2	0
EPA:900	RAD	CAMO-12-21741	309455001	REG	2	0	0	0
EPA:900	RAD	LCS	1202723798	LCS	0	0	2	0
EPA:900	RAD	MB	1202723792	MB	2	0	0	0
EPA:901.1	RAD	CAMO-12-21741	309455001	REG	5	0	0	0
EPA:901.1	RAD	CAMO-12-21785	1202719792	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202719793	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202719791	MB	6	0	0	0
EPA:905.0	RAD	CAMO-12-21741	309455001	REG	1	0	0	0
EPA:905.0	RAD	CASA-12-21643	1202723780	DUP	1	0	0	0
EPA:905.0	RAD	CASA-12-21643	1202723781	MS	0	0	1	0
EPA:905.0	RAD	LCS	1202723782	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202723779	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-12-21741	1202718141	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-12-21741	309455001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202718142	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202718140	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-12-21741	1202718144	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-12-21741	309455001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202718145	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202718143	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-12-21741	1202718147	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-12-21741	309455001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202718148	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202718146	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-12-21749	309455003	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-12-21749	1202717281	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-12-21749	1202717282	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-12-21749	309455003	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202717280	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202717279	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-12-21749	1202717286	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-12-21749	1202717287	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-12-21749	309455003	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202717285	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202717284	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-12-21749	309455003	REG	1	0	0	0

Data Validation Report for:

Chain Of Custody No. 12-1482

SW-846:6850	LCMS/MS PERCHLORATE	CASA-12-21649	1202720854	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-12-21649	1202720855	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202720853	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202720852	MB	1	0	0	0
SW-846:8260B	VOC	CAMO-12-21741	309455001	REG	80	3	0	0
SW-846:8260B	VOC	CAMO-12-21750	309455004	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-12-22384	309455005	FB	80	3	0	0
SW-846:8260B	VOC	LCS	1202722750	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202722751	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202722747	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-12-21741	1202719303	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-12-21741	1202719304	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-12-21741	309455001	REG	80	6	0	0
SW-846:8270C	SVOC	CAMO-12-22384	309455005	FB	80	6	0	0
SW-846:8270C	SVOC	LCS	1202719302	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202719301	MB	80	6	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-12-21741	1202717516	MS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-12-21741	1202717517	MSD	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-12-21741	309455002	REG	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	LCS	1202717515	LCS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	MB	1202717514	MB	23	2	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-12-21735	1202717717	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-12-21741	309455001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202717721	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202717716	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202717284	METHOD BLANK	SW-846:6020	W	Molybdenum	0.204	J	ug/L	0.5
MB	1202717284	METHOD BLANK	SW-846:6020	W	Uranium	0.097	J	ug/L	0.2
MB	1202717964	METHOD BLANK	EPA:245.2	W	Mercury	-0.122	J	ug/L	0.2
MB	1202725412	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0454	J	mg/L	0.05

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected

Data Validation Report for:

Chain Of Custody No. 12-1482

Correction Factor (ND)	Correction Factor (J)	Use Factors

CAMO-12-21749	MB	1202717964	METHOD BLANK	EPA:245.2	Mercury	ug/L	-0.122	0.067	U	0.2	N
CAMO-12-21749	MB	1202725412	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	mg/L	0.0454	0.0573		0.05	Y

6. Any surrogate recoveries outside the control limits?

No.

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

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-12-21794	1202720911	1202720912	EPA:350.1	Ammonia as Nitrogen	1237605	8/21/2012	W	105	114	110	90
CAMO-12-21734	1202730364	1202730365	EPA:351.2	Total Kjeldahl Nitrogen	1240585	9/5/2012	W	85.7	90	110	90
CAMO-12-21741	1202719303	1202719304	SW-846:8270C	Benzidine	1238166	8/16/2012	W	30	46	127	30

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

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

Field Sample ID	Lab SampleID	Lab Duplicate Sample ID	Analytical Method	Parameter Name	Sample Matrix	Sample Result	Dup Sample Result	Units	Detected In Sample	Detected In Dup	RPD
CAMO-12-21741	309455001	1202718147	HASL-300:ISOU	Uranium-234	W	0.605	0.615	pCi/L	Y	Y	1.58
CAMO-12-21741	309455001	1202718147	HASL-300:ISOU	Uranium-238	W	0.268	0.264	pCi/L	Y	Y	1.3

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N

5		Y
5		Y

Rejection Limit	RPD	RPD Limit
10	8	15
10	4.42	20
10	43	22

RPD Limit
0.0508
0.0258

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.00885	pCi/L	0.00885	pCi/L	0.0404	0.0078	W	8/8/2012		1237713	VAL	Y
3.55	pCi/L	3.55	pCi/L	6.11	1.38	W	8/8/2012		1238310	VAL	Y
0.822	pCi/L	0.822	pCi/L	5.96	1.39	W	8/8/2012		1238310	VAL	Y
1.91	pCi/L	1.91	pCi/L	2.24	0.822	W	8/8/2012		1239941	VAL	Y
1.2	pCi/L	1.2	pCi/L	2.17	0.677	W	8/8/2012		1239941	VAL	Y
4.26	pCi/L	4.26	pCi/L	10.8	2.75	W	8/8/2012		1238310	VAL	Y
0	pCi/L	0	pCi/L	0.0197	0.00414	W	8/8/2012		1237714	VAL	Y
0.0117	pCi/L	0.0117	pCi/L	0.0353	0.00926	W	8/8/2012		1237714	VAL	Y
16.9	pCi/L	16.9	pCi/L	71.7	17	W	8/8/2012		1238310	VAL	Y
1.09	pCi/L	1.09	pCi/L	5.73	1.3	W	8/8/2012		1238310	VAL	Y

R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	HASL-300:ISOU	Uranium-234		J	R10	Y
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-62	12-1482	CAMO-12-21741	REG	INIT	RAD	HASL-300:ISOU	Uranium-238		J	R10	Y
R-62	12-1482	CAMO-12-21749	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus		U	I4	N

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R10	Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-12-21741	R-62	REG	EPA:351.2	0	1
CAMO-12-21741	R-62	REG	EPA:900	0	2
CAMO-12-21741	R-62	REG	EPA:901.1	0	5
CAMO-12-21741	R-62	REG	EPA:905.0	0	1
CAMO-12-21741	R-62	REG	HASL-300:AM-241	0	1
CAMO-12-21741	R-62	REG	HASL-300:ISOPU	0	2
CAMO-12-21741	R-62	REG	HASL-300:ISOU	0	3
CAMO-12-21741	R-62	REG	SW-846:8260B	0	80
CAMO-12-21741	R-62	REG	SW-846:8270C	0	80
CAMO-12-21741	R-62	REG	SW-846:8321A_MOD	0	23
CAMO-12-21741	R-62	REG	SW-846:9060	0	1
CAMO-12-21749	R-62	REG	EPA:120.1	0	1
CAMO-12-21749	R-62	REG	EPA:150.1	0	1
CAMO-12-21749	R-62	REG	EPA:160.1	0	1
CAMO-12-21749	R-62	REG	EPA:245.2	0	1
CAMO-12-21749	R-62	REG	EPA:300.0	0	4
CAMO-12-21749	R-62	REG	EPA:310.1	0	2
CAMO-12-21749	R-62	REG	EPA:350.1	0	1
CAMO-12-21749	R-62	REG	EPA:353.2	0	1
CAMO-12-21749	R-62	REG	EPA:365.4	0	1
CAMO-12-21749	R-62	REG	SM:A2340B	0	1
CAMO-12-21749	R-62	REG	SW-846:6010B	0	17
CAMO-12-21749	R-62	REG	SW-846:6020	0	11
CAMO-12-21749	R-62	REG	SW-846:6850	0	1
CAMO-12-21750	R-62	FTB	SW-846:8260B	0	80
CAMO-12-22384	R-62	FB	SW-846:8260B	0	80
CAMO-12-22384	R-62	FB	SW-846:8270C	0	80

-0.232	pCi/L	-0.232	pCi/L	0.482	0.131	W	8/8/2012		1239939	VAL	Y
0.605	pCi/L	0.605	pCi/L	0.0538	0.0359	W	8/8/2012		1237715	VAL	Y
0.00995	pCi/L	0.00995	pCi/L	0.0347	0.00609	W	8/8/2012		1237715	VAL	Y
0.268	pCi/L	0.268	pCi/L	0.0273	0.0236	W	8/8/2012		1237715	VAL	Y
0.0573	mg/L	0.0573	mg/L			W	8/8/2012		1240581	VAL	Y

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

September 06, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 309455
SDG: 12-1482

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on August 10, 2012, and analyzed for Explosives by LCMSMS, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 12-1482
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 309455
SDG: 12-1482

Table of Contents

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 309455
SDG # : 12-1482

September 06, 2012

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 August 10, 2012 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. Container preservative did not match the chain of custody for the following samples:. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry were received with a temperature of 21/22C. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
309455001	CAMO-12-21741
309455002	CAMO-12-21741
309455003	CAMO-12-21749
309455004	CAMO-12-21750
309455005	CAMO-12-22384

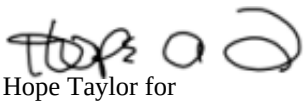
Case Narrative

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

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Explosives by LCMSMS, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

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



Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 06 September 2012

State	Certification
Arizona	AZ0766
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−09−00191
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
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
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
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

209455

COC/Lab Request #: 12-1482

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

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-GENINORG	WSP-GrossA/B	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-12-21741	Aug 8 2012	17:40	W	2	3	3		1	2			1	1	
CAMO-12-21749	Aug 8 2012	17:40	W				1			1	1			
CAMO-12-21750	Aug 8 2012	17:40	W	2										
CAMO-12-22384	Aug 8 2012	17:40	W	2	3									

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Melissa Montoya		8/9/12 3:00	P. Ulert	8-10-12 0900
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

Subject: Re: ISSUES FROM 08/09/2012
From: Pat Dent <Pat.Dent@gel.com>
Date: 8/10/2012 2:42 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: LANL@amrad.com, "team.davis" <team.davis@gel.com>

Correction to the 1st E-mail RN#2012-2174 for Ra226+Ra228 WTRO-12-22686 the lab received (1) container COC indicated (4).

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

On 8/9/2012 6:34 PM, Pat Dent wrote:

> Good Afternoon all listed below are today's Issues
>
> RN#**2012-2168 the lab received (1) Ra226+Ra228 container for WT_IPLAP-12-13120, COC indicated (2).
>
> **the lab received (1) SW-Metals-Dissolved container for WT_IPLAP-12-13126, COC indicated (2).
>
> Thanks!! Pat Dent

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL			**SDG/AR/COC/Work Order:12-1482**
Received By: Patricia Dent			**Date Received: AUGUST 10, 2012**
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): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
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)
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 **2,3,21,22C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
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: **CAMO-12-21741 for Gross A/B** If Preservation added, Lot# **L03022**
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-12-21750 for 8260B lab rec'd (1) container COC indicated (2),CAMO-12-22384 for SVOA lab rec'd (1) Amber jar COC indicated (3)**
12	Are sample containers identifiable as GEL provided?			X	**CLIENT**
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 **7209 7856 8790 2C 7209 7856 8757 3C 7209 7856 8768 3C 7209 7856 8780 3C 7209 7856 8816 3C 7209 7856 8805 21C 7209 7856 8779 22C**

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials SD Date 8.15.12 Page 1 of 1

LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MROA00205BD0

3c

FedEx Express

1 of 3
TRK# 0201 7209 7856 8757
MASTER

FRI - 10 AUG A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MROA00205BD0

3c

FedEx Express

2 of 3
MPS# 0263 7209 7856 8768
Mstr# 7209 7856 8757
0201

FRI - 10 AUG A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09AUG12
ACTWGT: 54.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

3c

FedEx Express

1 of 2
TRK# 0201 7209 7856 8780
MASTER

FRI - 10 AUG A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09AUG12
ACTWGT: 56.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

2c

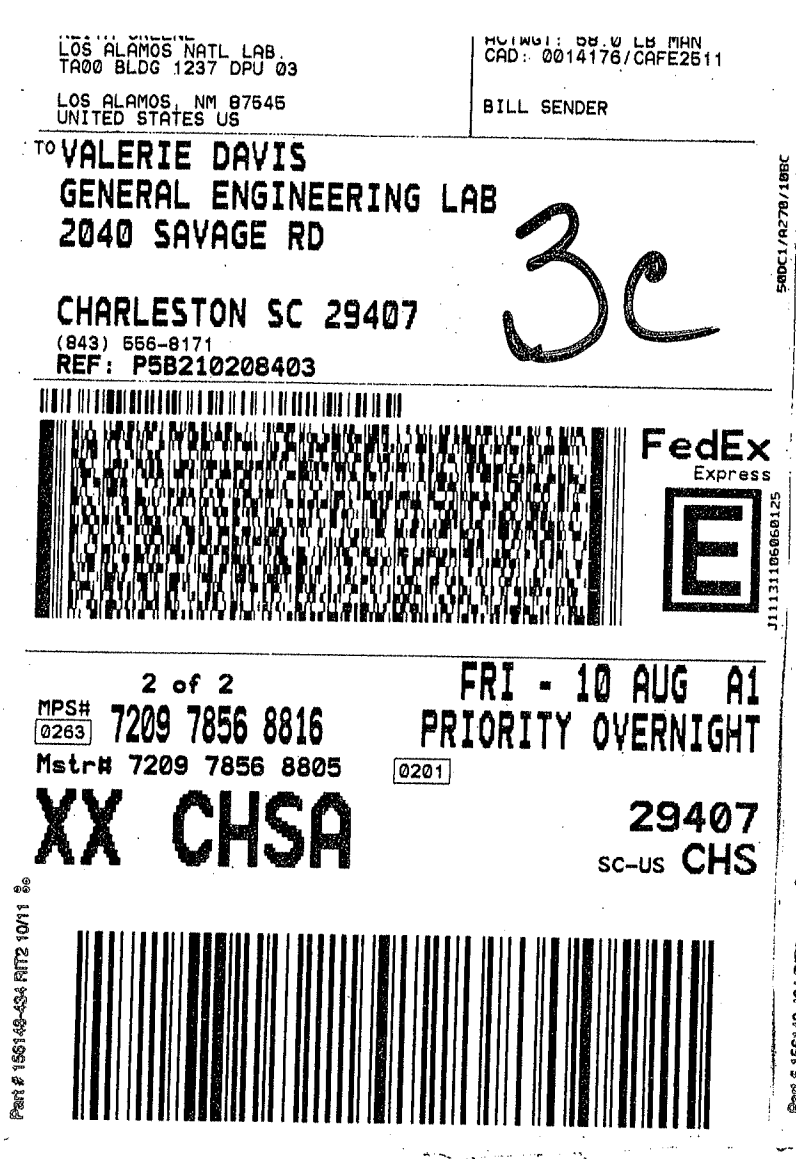
FedEx Express

2 of 2
MPS# 0263 7209 7856 8790
Mstr# 7209 7856 8780
0201

FRI - 10 AUG A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS


LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

ACTWGT: 58.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: P5B210208403

3c

58DC1/A270/18BC

FedEx Express

J111311060601 25

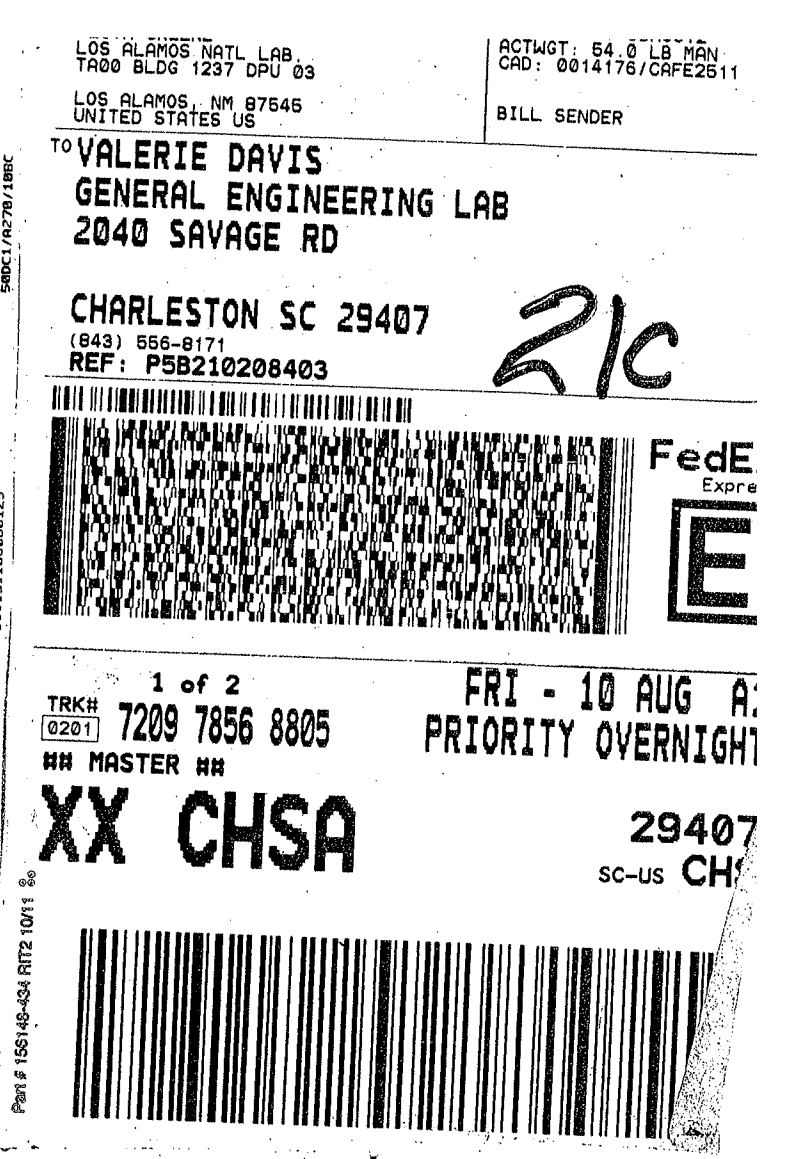
2 of 2
MPS# 0263 7209 7856 8816
Mstr# 7209 7856 8805

FRI - 10 AUG A1
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 10/11


LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

ACTWGT: 54.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: P5B210208403

21c

58DC1/A270/18BC

FedE
Expre

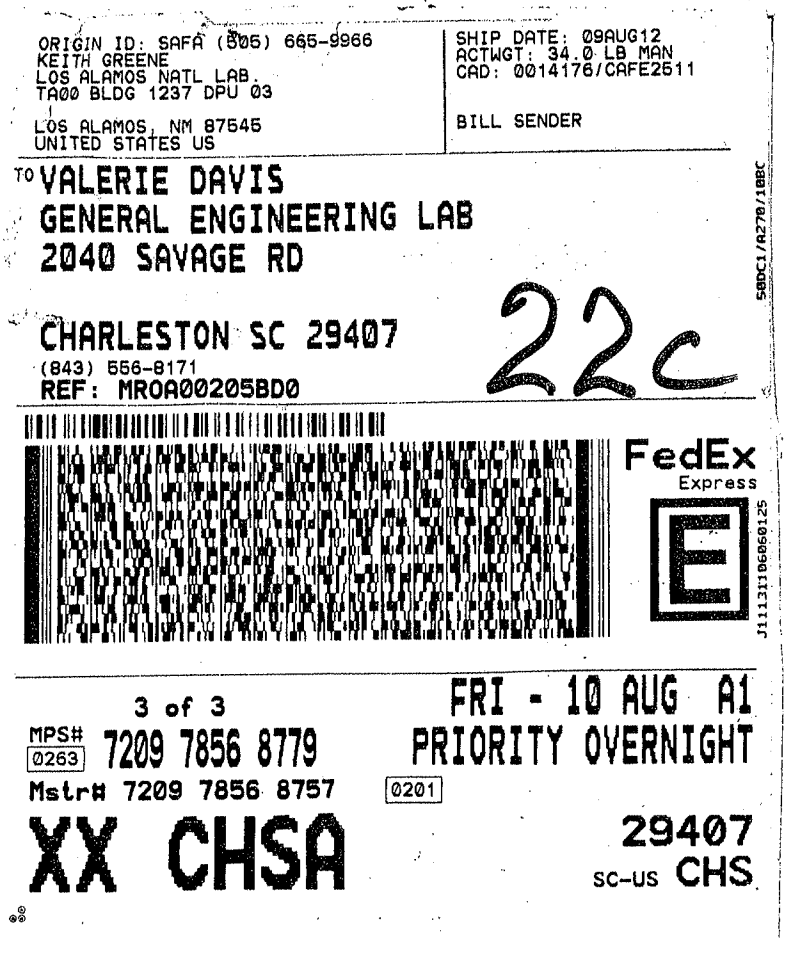
1 of 2
TRK# 0201 7209 7856 8805
MASTER

FRI - 10 AUG A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CH

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: 09AUG12
ACTWGT: 34.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MROA00205BD0

22c

58DC1/A270/18BC

FedEx Express

J111311060601 25

3 of 3
MPS# 0263 7209 7856 8779
Mstr# 7209 7856 8757

FRI - 10 AUG A1
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

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.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 12-1482

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1239569

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
309455001	CAMO-12-21741
309455004	CAMO-12-21750
309455005	CAMO-12-22384
1202722747	Method Blank (MB)
1202722748	309455001(CAMO-12-21741) Post Spike (PS)
1202722749	309455001(CAMO-12-21741) Post Spike Duplicate (PSD)
1202722750	Laboratory Control Sample (LCS)
1202722751	Laboratory Control Sample (LCS)

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

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

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

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 spike recoveries met the acceptance limits.

QC Sample Designation
Sample 309455001 (CAMO-12-21741) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike recoveries were within the required acceptance limits.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

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

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

TIC Comment
Tentatively identified compounds (TIC) may be requested for 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, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Additional Comments
Additional comments were not required for this SDG.

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

System Configuration

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA3.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all 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

ARSL001 ARS International (63641-10)

Client SDG: 12-1482 GEL Work Order: 309455

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: Erin Haubert **Name: Erin Haubert**

Date: 05 SEP 2012 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455001**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-21741**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 12:59**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 12:59**				
Data File:	**082012V3\3Y113.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	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
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	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
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	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
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	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
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455001**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-21741**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 12:59**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 12:59**				
Data File:	**082012V3\3Y113.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	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
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	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
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	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
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455001**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-21741**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 12:59**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 12:59**				
Data File:	**082012V3\3Y113.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	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
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.2	50.0	ug/L	108	(80%-123%)
Bromofluorobenzene	47.0	50.0	ug/L	93.9	(80%-120%)
Toluene-d8	51.4	50.0	ug/L	103	(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:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455004**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-21750**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 11:03**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 11:03**				
Data File:	**082012V3\3Y109.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	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
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	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
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	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
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	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
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455004**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-21750**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 11:03**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 11:03**				
Data File:	**082012V3\3Y109.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	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
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	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
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	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
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455004**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-21750**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 11:03**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 11:03**				
Data File:	**082012V3\3Y109.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	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
95-50-1	1,2-Dichlorobenzene	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	(80%-123%)
Bromofluorobenzene	47.2	50.0	ug/L	94.4	(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:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455005**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-22384**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 13:28**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 13:28**				
Data File:	**082012V3\3Y114.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	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
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	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
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	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
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	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
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455005**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-22384**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 13:28**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 13:28**				
Data File:	**082012V3\3Y114.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	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
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	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
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	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
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455005**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-22384**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 13:28**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 13:28**				
Data File:	**082012V3\3Y114.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	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
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.5	50.0	ug/L	101	(80%-123%)
Bromofluorobenzene	45.4	50.0	ug/L	90.7	(80%-120%)
Toluene-d8	51.8	50.0	ug/L	104	(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: 12-1482

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202722750	LCS for batch 1239569	97	100	104
1202722751	LCS for batch 1239569	99	101	93
1202722747	MB for batch 1239569	115	102	97
309455004	CAMO-12-21750	108	99	94
309455001	CAMO-12-21741	108	103	94
309455005	CAMO-12-22384	101	104	91
1202722748	CAMO-12-21741PS	102	100	102
1202722749	CAMO-12-21741PSD	100	101	100

Surrogate			Acceptance Limits
DCED4	=	1,2-Dichloroethane-d4	(80%-123%)
TOL	=	Toluene-d8	(80%-120%)
BFB	=	Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Post Spike**
Client ID: **CAMO-12-21741PS**
Matrix: **W**
Lab Sample ID: **1202722748**
Instrument: **VOA3.I**
Analysis Date: **08/20/2012 16:22**
Dilution: **1**
Analyst: **CDS1**
Prep Batch ID **1239569**
Purge Vol: **5 mL**
Batch ID: **1239569**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	53.0	106	39-118
74-87-3	PS	Chloromethane	50.0	0.00	U	57.1	114	52-135
75-01-4	PS	Vinyl chloride	50.0	0.00	U	51.2	102	52-125
74-83-9	PS	Bromomethane	50.0	0.00	U	56.9	114	68-122
75-00-3	PS	Chloroethane	50.0	0.00	U	53.9	108	75-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	51.1	102	58-135
60-29-7	PS	Ethyl ether	50.0	0.00	U	47.4	95	71-114
67-64-1	PS	Acetone	250	0.00	U	214	85	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1110	89	65-126
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	51.1	102	67-129
74-88-4	PS	Iodomethane	250	0.00	U	252	101	74-134
75-09-2	PS	Methylene chloride	50.0	0.00	U	48.8	98	73-118
75-15-0	PS	Carbon disulfide	250	0.00	U	252	101	66-143
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	46.8	94	71-122
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	48.5	97	58-125
108-05-4	PS	Vinyl acetate	250	0.00	U	289	116	49-162
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	48.3	97	75-124
78-93-3	PS	2-Butanone	250	0.00	U	251	100	30-136
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	48.7	97	69-141
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	52.1	104	70-134
67-66-3	PS	Chloroform	50.0	0.00	U	48.4	97	76-123
74-97-5	PS	Bromochloromethane	50.0	0.00	U	49.9	100	80-121

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482 **Sample Type:** Post Spike
Client ID: CAMO-12-21741PS **Matrix:** W
Lab Sample ID: 1202722748
Instrument: VOA3.I **Analysis Date:** 08/20/2012 16:22 **Dilution:** 1
Analyst: CDS1 **Prep Batch ID** 1239569
Purge Vol: 5 mL **Batch ID:** 1239569

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	52.0	104	73-132
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	48.6	97	73-128
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5400	108	66-134
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	49.9	100	71-139
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	49.1	98	70-124
71-43-2	PS	Benzene	50.0	0.00	U	47.4	95	74-118
79-01-6	PS	Trichloroethylene	50.0	0.00	U	48.7	97	70-130
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	47.6	95	77-124
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	51.0	102	78-130
74-95-3	PS	Dibromomethane	50.0	0.00	U	48.8	98	78-121
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	247	99	68-132
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	52.4	105	79-129
108-88-3	PS	Toluene	50.0	0.00	U	47.5	95	69-119
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	51.8	104	78-126
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	49.6	99	75-118
591-78-6	PS	2-Hexanone	250	0.00	U	222	89	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	48.7	97	75-119
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	46.2	92	66-127
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	51.3	103	75-123
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	50.0	100	80-119
108-90-7	PS	Chlorobenzene	50.0	0.00	U	49.2	98	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	48.6	97	69-123

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482 **Sample Type:** Post Spike
Client ID: CAMO-12-21741PS **Matrix:** W
Lab Sample ID: 1202722748
Instrument: VOA3.I **Analysis Date:** 08/20/2012 16:22 **Dilution:** 1
Analyst: CDS1 **Prep Batch ID** 1239569
Purge Vol: 5 mL **Batch ID:** 1239569

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	96.6	97	69-124
95-47-6	PS	o-Xylene	50.0	0.00	U	48.4	97	72-124
100-42-5	PS	Styrene	50.0	0.00	U	48.6	97	73-125
75-25-2	PS	Bromoform	50.0	0.00	U	49.6	99	69-123
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	53.5	107	67-124
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	52.8	106	73-122
108-86-1	PS	Bromobenzene	50.0	0.00	U	50.6	101	70-121
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	50.5	101	59-128
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	51.6	103	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	49.0	98	66-127
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	50.3	101	65-128
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	50.1	100	63-122
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	52.4	105	67-127
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	48.0	96	65-126
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	49.3	99	63-129
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	50.8	102	62-134
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	46.6	93	66-122
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	49.5	99	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	49.9	100	56-135
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	51.9	104	62-129
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	45.6	91	52-133
91-20-3	PS	Naphthalene	50.0	0.00	U	44.6	89	66-127

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Post Spike**
Client ID: **CAMO-12-21741PS**
Matrix: **W**
Lab Sample ID: **1202722748**
Instrument: **VOA3.I**
Analysis Date: **08/20/2012 16:22**
Dilution: **1**
Analyst: **CDS1**
Prep Batch ID **1239569**
Purge Vol: **5 mL**
Batch ID: **1239569**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	42.0	84	63-126
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	51.1	102	80-126
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	45.7	91	60-123
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	47.4	95	69-119

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482 **Sample Type:** Post Spike Duplicate
Client ID: CAMO-12-21741PSD **Matrix:** W
Lab Sample ID: 1202722749
Instrument: VOA3.I **Analysis Date:** 08/20/2012 16:51 **Dilution:** 1
Analyst: CDS1 **Prep Batch ID** 1239569
Purge Vol: 5 mL **Batch ID:** 1239569

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	51.5	103	39-118	3	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	57.1	114	52-135	0	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	49.6	99	52-125	3	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	55.9	112	68-122	2	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	51.8	104	75-122	4	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	49.4	99	58-135	3	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	45.8	92	71-114	4	0-20
67-64-1	PSD	Acetone	250	0.00	U	196	78	30-143	9	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1010	81	65-126	9	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	49.7	99	67-129	3	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	247	99	74-134	2	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	48.0	96	73-118	2	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	244	98	66-143	3	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	46.3	93	71-122	1	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	48.0	96	58-125	1	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	273	109	49-162	6	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	47.0	94	75-124	3	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	238	95	30-136	5	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	48.6	97	69-141	0	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	53.3	107	70-134	2	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	47.7	95	76-123	2	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	49.2	98	80-121	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482
Sample Type: Post Spike Duplicate
Client ID: CAMO-12-21741PSD
Matrix: W
Lab Sample ID: 1202722749
Instrument: VOA3.I
Analysis Date: 08/20/2012 16:51
Dilution: 1
Analyst: CDS1
Prep Batch ID 1239569
Purge Vol: 5 mL
Batch ID: 1239569

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	51.9	104	73-132	0	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	48.0	96	73-128	1	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	4990	100	66-134	8	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	49.4	99	71-139	1	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	47.8	96	70-124	3	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	46.6	93	74-118	2	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	48.7	97	70-130	0	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	46.3	93	77-124	3	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	49.8	100	78-130	2	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	47.5	95	78-121	3	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	233	93	68-132	6	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	51.9	104	79-129	1	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	47.5	95	69-119	0	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	51.7	103	78-126	0	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	48.6	97	75-118	2	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	209	84	31-132	6	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	47.8	96	75-119	2	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	45.6	91	66-127	1	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	50.8	102	75-123	1	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	49.1	98	80-119	2	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	47.6	95	73-119	3	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	46.7	93	69-123	4	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482
Sample Type: Post Spike Duplicate
Client ID: CAMO-12-21741PSD
Matrix: W
Lab Sample ID: 1202722749
Instrument: VOA3.I
Analysis Date: 08/20/2012 16:51
Dilution: 1
Analyst: CDS1
Prep Batch ID 1239569
Purge Vol: 5 mL
Batch ID: 1239569

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	92.9	93	69-124	4	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	47.5	95	72-124	2	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	47.6	95	73-125	2	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	47.4	95	69-123	5	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	50.7	101	67-124	5	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	50.4	101	73-122	5	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	49.5	99	70-121	2	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	49.3	99	59-128	3	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	50.3	101	66-126	3	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	49.4	99	66-127	1	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	48.9	98	65-128	3	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	47.8	96	63-122	5	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	49.5	99	67-127	6	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	47.0	94	65-126	2	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	47.4	95	63-129	4	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	49.0	98	62-134	4	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	46.4	93	66-122	1	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	48.6	97	65-119	2	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	50.5	101	56-135	1	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	50.4	101	62-129	3	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	45.9	92	52-133	0	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	42.8	86	66-127	4	0-20

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Post Spike Duplicate**
Client ID: **CAMO-12-21741PSD**
Matrix: **W**
Lab Sample ID: **1202722749**
Instrument: **VOA3.I**
Analysis Date: **08/20/2012 16:51**
Dilution: **1**
Analyst: **CDS1**
Prep Batch ID **1239569**
Purge Vol: **5 mL**
Batch ID: **1239569**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	42.9	86	63-126	2	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	48.5	97	80-126	5	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	45.8	92	60-123	0	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	47.1	94	69-119	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1239569
Matrix: WATER
Lab Sample ID: 1202722750
Instrument: VOA3.I
Analysis Date: 08/20/2012 07:41
Dilution: 1
Analyst: CDS1
Prep Batch ID 1239569
Purge Vol: 5 mL
Batch ID: 1239569

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	50.3	101	41-125
74-87-3	LCS	Chloromethane	50.0	0.0	52.7	105	57-131
75-01-4	LCS	Vinyl chloride	50.0	0.0	47.1	94	60-122
74-83-9	LCS	Bromomethane	50.0	0.0	54.0	108	71-121
75-00-3	LCS	Chloroethane	50.0	0.0	52.3	105	78-123
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	49.0	98	62-138
60-29-7	LCS	Ethyl ether	50.0	0.0	45.8	92	73-120
67-64-1	LCS	Acetone	250	0.0	226	91	32-151
75-05-8	LCS	Acetonitrile	1250	0.0	992	79	68-122
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	48.6	97	73-127
74-88-4	LCS	Iodomethane	250	0.0	244	97	79-132
75-09-2	LCS	Methylene chloride	50.0	0.0	49.1	98	75-120
75-15-0	LCS	Carbon disulfide	250	0.0	239	96	73-142
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	46.9	94	75-120
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	47.3	95	62-125
108-05-4	LCS	Vinyl acetate	250	0.0	277	111	71-153
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	46.3	93	79-122
78-93-3	LCS	2-Butanone	250	0.0	232	93	35-150
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	48.7	97	72-140
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	52.3	105	78-138
67-66-3	LCS	Chloroform	50.0	0.0	47.2	94	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	49.1	98	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1239569
Matrix: WATER
Lab Sample ID: 1202722750
Instrument: VOA3.I
Analysis Date: 08/20/2012 07:41
Dilution: 1
Analyst: CDS1
Prep Batch ID 1239569
Purge Vol: 5 mL
Batch ID: 1239569

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	47.5	95	80-132
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	47.3	95	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5090	102	71-129
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	48.8	98	78-140
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	46.2	92	74-120
71-43-2	LCS	Benzene	50.0	0.0	45.9	92	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	47.6	95	80-122
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	47.2	94	80-121
75-27-4	LCS	Bromodichloromethane	50.0	0.0	50.1	100	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	47.4	95	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	232	93	71-132
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	48.1	96	80-128
108-88-3	LCS	Toluene	50.0	0.0	45.4	91	76-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	49.7	99	80-125
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	48.3	97	79-120
591-78-6	LCS	2-Hexanone	250	0.0	248	99	42-150
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	44.4	89	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	42.7	85	79-124
124-48-1	LCS	Dibromochloromethane	50.0	0.0	49.6	99	78-122
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	49.2	98	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	47.2	94	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	46.4	93	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1239569
Matrix: WATER
Lab Sample ID: 1202722750
Instrument: VOA3.I
Analysis Date: 08/20/2012 07:41
Dilution: 1
Analyst: CDS1
Prep Batch ID 1239569
Purge Vol: 5 mL
Batch ID: 1239569

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	94.1	94	80-121
95-47-6	LCS	o-Xylene	50.0	0.0	48.0	96	80-121
100-42-5	LCS	Styrene	50.0	0.0	47.9	96	80-123
75-25-2	LCS	Bromoform	50.0	0.0	47.8	96	74-122
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	50.9	102	75-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	52.9	106	76-120
108-86-1	LCS	Bromobenzene	50.0	0.0	50.5	101	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	50.1	100	74-123
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	51.7	103	78-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	49.7	99	77-124
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	50.0	100	78-124
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	50.1	100	76-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	52.6	105	80-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	48.8	98	79-120
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	50.0	100	79-123
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	52.0	104	80-128
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	47.9	96	80-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	50.4	101	78-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	50.4	101	77-128
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	51.2	102	65-129
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	47.3	95	78-126
91-20-3	LCS	Naphthalene	50.0	0.0	43.6	87	73-127

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1239569**
Matrix: **WATER**
Lab Sample ID: **1202722750**
Instrument: **VOA3.I**
Analysis Date: **08/20/2012 07:41**
Dilution: **1**
Analyst: **CDS1**
Prep Batch ID **1239569**
Purge Vol: **5 mL**
Batch ID: **1239569**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	42.7	85	77-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	49.2	98	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	46.6	93	78-122
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	47.9	96	80-120

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1239569**
Matrix: **WATER**
Lab Sample ID: **1202722751**
Instrument: **VOA3.I**
Analysis Date: **08/20/2012 09:08**
Dilution: **1**
Analyst: **CDS1**
Prep Batch ID **1239569**
Purge Vol: **5 mL**
Batch ID: **1239569**

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	235	94	40-157
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	235	94	69-162
107-05-1	LCS	Allyl chloride	250	0.0	223	89	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	220	88	71-120
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	48.4	97	54-129
107-12-0	LCS	Propionitrile	250	0.0	214	86	76-124
126-98-7	LCS	Methacrylonitrile	250	0.0	213	85	70-120
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2040	81	70-130
80-62-6	LCS	Methyl methacrylate	250	0.0	209	84	72-124
97-63-2	LCS	Ethyl methacrylate	250	0.0	228	91	68-125

Method Blank Summary

SDG Number:	**12-1482**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1239569**	**Instrument ID:**	**VOA3.I**	**Data File:**	**082012V3\3Y107B2.D**
Lab Sample ID:	**1202722747**	**Prep Date:**	**08/20/2012 09:37**	**Analyzed:**	**08/20/12 09:37**
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 1239569	1202722750	082012V3\3Y103L2.D	08/20/12	0741
02	LCS for batch 1239569	1202722751	082012V3\3Y106SL2.D	08/20/12	0908
03	CAMO-12-21750	309455004	082012V3\3Y109.D	08/20/12	1103
04	CAMO-12-21741	309455001	082012V3\3Y113.D	08/20/12	1259
05	CAMO-12-22384	309455005	082012V3\3Y114.D	08/20/12	1328
06	CAMO-12-21741PS	1202722748	082012V3\3Y120.D	08/20/12	1622
07	CAMO-12-21741PSD	1202722749	082012V3\3Y121.D	08/20/12	1651

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202722747**				
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1239569**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 09:37**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 09:37**				
Data File:	**082012V3\3Y107B2.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	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
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	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
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	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
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	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
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202722747**				
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1239569**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 09:37**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 09:37**				
Data File:	**082012V3\3Y107B2.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	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
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	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
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	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
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202722747**				
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1239569**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 09:37**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 09:37**				
Data File:	**082012V3\3Y107B2.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	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
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	57.5	50.0	ug/L	115	(80%-123%)
Bromofluorobenzene	48.5	50.0	ug/L	96.9	(80%-120%)
Toluene-d8	50.9	50.0	ug/L	102	(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:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202722748**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 16:22**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 16:22**				
Data File:	**082012V3\3Y120.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		53.0	ug/L	0.300	1.00
74-87-3	Chloromethane		57.1	ug/L	0.300	1.00
75-01-4	Vinyl chloride		51.2	ug/L	0.300	1.00
74-83-9	Bromomethane		56.9	ug/L	0.300	1.00
75-00-3	Chloroethane		53.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		51.1	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.4	ug/L	0.300	1.00
67-64-1	Acetone		214	ug/L	3.00	10.0
75-05-8	Acetonitrile		1110	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		51.1	ug/L	0.300	1.00
74-88-4	Iodomethane		252	ug/L	1.50	5.00
75-09-2	Methylene chloride		48.8	ug/L	3.00	10.0
75-15-0	Carbon disulfide		252	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		46.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		48.5	ug/L	0.300	1.00
108-05-4	Vinyl acetate		289	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		48.3	ug/L	0.300	1.00
78-93-3	2-Butanone		251	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		48.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		52.1	ug/L	0.300	1.00
67-66-3	Chloroform		48.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.9	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		52.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.6	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5400	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		49.9	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		49.1	ug/L	0.300	1.00
71-43-2	Benzene		47.4	ug/L	0.300	1.00
79-01-6	Trichloroethylene		48.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		47.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.0	ug/L	0.300	1.00
74-95-3	Dibromomethane		48.8	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		247	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		52.4	ug/L	0.300	1.00
108-88-3	Toluene		47.5	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		49.6	ug/L	0.300	1.00
591-78-6	2-Hexanone		222	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202722748**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 16:22**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 16:22**				
Data File:	**082012V3\3Y120.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		48.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		46.2	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		51.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		50.0	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		48.6	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		96.6	ug/L	0.300	2.00
95-47-6	o-Xylene		48.4	ug/L	0.300	1.00
100-42-5	Styrene		48.6	ug/L	0.300	1.00
75-25-2	Bromoform		49.6	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		53.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		52.8	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		51.6	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		49.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.3	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		50.1	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		52.4	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		48.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		49.3	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		50.8	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.6	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		49.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		49.9	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		51.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		45.6	ug/L	0.300	1.00
91-20-3	Naphthalene		44.6	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		42.0	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202722748**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 16:22**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 16:22**				
Data File:	**082012V3\3Y120.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		51.1	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		45.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.4	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	(80%-123%)
Bromofluorobenzene	50.8	50.0	ug/L	102	(80%-120%)
Toluene-d8	50.2	50.0	ug/L	100	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202722749**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 16:51**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 16:51**				
Data File:	**082012V3\3Y121.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		51.5	ug/L	0.300	1.00
74-87-3	Chloromethane		57.1	ug/L	0.300	1.00
75-01-4	Vinyl chloride		49.6	ug/L	0.300	1.00
74-83-9	Bromomethane		55.9	ug/L	0.300	1.00
75-00-3	Chloroethane		51.8	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		49.4	ug/L	0.300	1.00
60-29-7	Ethyl ether		45.8	ug/L	0.300	1.00
67-64-1	Acetone		196	ug/L	3.00	10.0
75-05-8	Acetonitrile		1010	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		49.7	ug/L	0.300	1.00
74-88-4	Iodomethane		247	ug/L	1.50	5.00
75-09-2	Methylene chloride		48.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide		244	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		46.3	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		48.0	ug/L	0.300	1.00
108-05-4	Vinyl acetate		273	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		47.0	ug/L	0.300	1.00
78-93-3	2-Butanone		238	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		48.6	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		53.3	ug/L	0.300	1.00
67-66-3	Chloroform		47.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		51.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		4990	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		49.4	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.8	ug/L	0.300	1.00
71-43-2	Benzene		46.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene		48.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.8	ug/L	0.300	1.00
74-95-3	Dibromomethane		47.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		233	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		51.9	ug/L	0.300	1.00
108-88-3	Toluene		47.5	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.6	ug/L	0.300	1.00
591-78-6	2-Hexanone		209	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202722749**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 16:51**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 16:51**				
Data File:	**082012V3\3Y121.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		47.8	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		45.6	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		50.8	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		49.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.6	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.7	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		92.9	ug/L	0.300	2.00
95-47-6	o-Xylene		47.5	ug/L	0.300	1.00
100-42-5	Styrene		47.6	ug/L	0.300	1.00
75-25-2	Bromoform		47.4	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		50.7	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.4	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.5	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		49.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.3	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		49.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		48.9	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		47.8	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.5	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		47.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		47.4	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		49.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.4	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.6	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		50.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		50.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		45.9	ug/L	0.300	1.00
91-20-3	Naphthalene		42.8	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		42.9	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202722749**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 16:51**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 16:51**				
Data File:	**082012V3\3Y121.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		48.5	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		45.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.1	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.8	50.0	ug/L	99.6	(80%-123%)
Bromofluorobenzene	49.8	50.0	ug/L	99.6	(80%-120%)
Toluene-d8	50.5	50.0	ug/L	101	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202722750**				
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1239569**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 07:41**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 07:41**				
Data File:	**082012V3\3Y103L2.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		50.3	ug/L	0.300	1.00
74-87-3	Chloromethane		52.7	ug/L	0.300	1.00
75-01-4	Vinyl chloride		47.1	ug/L	0.300	1.00
74-83-9	Bromomethane		54.0	ug/L	0.300	1.00
75-00-3	Chloroethane		52.3	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		49.0	ug/L	0.300	1.00
60-29-7	Ethyl ether		45.8	ug/L	0.300	1.00
67-64-1	Acetone		226	ug/L	3.00	10.0
75-05-8	Acetonitrile		992	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		48.6	ug/L	0.300	1.00
74-88-4	Iodomethane		244	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		239	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		46.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.3	ug/L	0.300	1.00
108-05-4	Vinyl acetate		277	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		46.3	ug/L	0.300	1.00
78-93-3	2-Butanone		232	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		48.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		52.3	ug/L	0.300	1.00
67-66-3	Chloroform		47.2	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.1	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		47.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		47.3	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5090	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		48.8	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.2	ug/L	0.300	1.00
71-43-2	Benzene		45.9	ug/L	0.300	1.00
79-01-6	Trichloroethylene		47.6	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		47.2	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		50.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		47.4	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		232	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		48.1	ug/L	0.300	1.00
108-88-3	Toluene		45.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.3	ug/L	0.300	1.00
591-78-6	2-Hexanone		248	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202722750**				
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1239569**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 07:41**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 07:41**				
Data File:	**082012V3\3Y103L2.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		44.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		42.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		49.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		49.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		94.1	ug/L	0.300	2.00
95-47-6	o-Xylene		48.0	ug/L	0.300	1.00
100-42-5	Styrene		47.9	ug/L	0.300	1.00
75-25-2	Bromoform		47.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		50.9	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		52.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.5	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.1	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		51.7	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		49.7	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.0	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		50.1	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		52.6	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		48.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.0	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		52.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.9	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		50.4	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		50.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		51.2	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		47.3	ug/L	0.300	1.00
91-20-3	Naphthalene		43.6	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		42.7	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202722750**				
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1239569**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 07:41**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 07:41**				
Data File:	**082012V3\3Y103L2.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		49.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.6	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.9	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.4	50.0	ug/L	96.8	(80%-123%)
Bromofluorobenzene	52.1	50.0	ug/L	104	(80%-120%)
Toluene-d8	49.9	50.0	ug/L	99.8	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202722751**				
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1239569**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 09:08**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 09:08**				
Data File:	**082012V3\3Y106SL2.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	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
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	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
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	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
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	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
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202722751**				
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1239569**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 09:08**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 09:08**				
Data File:	**082012V3\3Y106SL2.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	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
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	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
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	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
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		235	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		235	ug/L	1.50	5.00
107-05-1	Allyl chloride		223	ug/L	1.50	5.00
107-13-1	Acrylonitrile		220	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		48.4	ug/L	0.300	1.00
107-12-0	Propionitrile		214	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		213	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2040	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		209	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202722751**				
Client Sample:	**QC for batch 1239569**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1239569**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1239569**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**08/20/2012 09:08**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**08/20/2012 09:08**				
Data File:	**082012V3\3Y106SL2.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		228	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	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
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.4	50.0	ug/L	98.7	(80%-123%)
Bromofluorobenzene	46.7	50.0	ug/L	93.4	(80%-120%)
Toluene-d8	50.3	50.0	ug/L	101	(80%-120%)

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 12-1482

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1238167
Prep Batch Number:	1238166

Sample Analysis

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

Sample ID	Client ID
309455001	CAMO-12-21741
309455005	CAMO-12-22384
1202719301	Method Blank (MB)
1202719302	Laboratory Control Sample (LCS)
1202719303	309455001(CAMO-12-21741) Matrix Spike (MS)
1202719304	309455001(CAMO-12-21741) 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# 28.

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) section 18.2.

Calibration Information

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

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

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

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

Quality Control (QC) Information

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

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

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

QC Sample Designation
Sample 309455001 (CAMO-12-21741) was selected for analysis as the matrix spike and matrix spike duplicate.

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

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

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202719303(CAMO-12-21741))/MSD(1202719304(CAMO-12-21741)) RPD value for Benzidine was 43%. The limit is 22%. Since Benzidine was individually within the acceptance limits for the MS and MSD, the data was not adversely impact by the non-conformance and the data results have been reported.

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 1111160 was generated for this SDG.

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

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample 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
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

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

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

System Configuration

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

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

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 12-1482 GEL Work Order: 309455

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: 06 SEP 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455001**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-21741**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 10:37**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**810 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1606.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	12.3	ug/L	3.70	12.3
110-86-1	Pyridine	U	12.3	ug/L	3.70	12.3
62-53-3	Aniline	U	12.3	ug/L	3.70	12.3
108-95-2	Phenol	U	12.3	ug/L	3.70	12.3
111-44-4	bis(2-Chloroethyl) ether	U	12.3	ug/L	3.70	12.3
95-57-8	2-Chlorophenol	U	12.3	ug/L	3.70	12.3
541-73-1	1,3-Dichlorobenzene	U	12.3	ug/L	3.70	12.3
106-46-7	1,4-Dichlorobenzene	U	12.3	ug/L	3.70	12.3
95-50-1	1,2-Dichlorobenzene	U	12.3	ug/L	3.70	12.3
39638-32-9	bis(2-Chloroisopropyl)ether	U	12.3	ug/L	3.70	12.3
100-51-6	Benzyl alcohol	U	12.3	ug/L	3.70	12.3
95-48-7	o-Cresol	U	12.3	ug/L	3.70	12.3
65794-96-9	m,p-Cresols	U	12.3	ug/L	3.70	12.3
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	12.3	ug/L	3.70	12.3
67-72-1	Hexachloroethane	U	12.3	ug/L	3.70	12.3
98-95-3	Nitrobenzene	U	12.3	ug/L	3.70	12.3
78-59-1	Isophorone	U	12.3	ug/L	3.70	12.3
88-75-5	2-Nitrophenol	U	12.3	ug/L	3.70	12.3
105-67-9	2,4-Dimethylphenol	U	12.3	ug/L	3.70	12.3
111-91-1	bis(2-Chloroethoxy)methane	U	12.3	ug/L	3.70	12.3
120-83-2	2,4-Dichlorophenol	U	12.3	ug/L	3.70	12.3
65-85-0	Benzoic acid	U	24.7	ug/L	7.41	24.7
106-47-8	4-Chloroaniline	U	12.3	ug/L	4.07	12.3
87-68-3	Hexachlorobutadiene	U	12.3	ug/L	3.70	12.3
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	12.3	ug/L	3.70	12.3
91-57-6	2-Methylnaphthalene	U	1.23	ug/L	0.370	1.23
91-20-3	Naphthalene	U	1.23	ug/L	0.370	1.23
90-12-0	1-Methylnaphthalene	U	1.23	ug/L	0.370	1.23
77-47-4	Hexachlorocyclopentadiene	U	12.3	ug/L	3.70	12.3
88-06-2	2,4,6-Trichlorophenol	U	12.3	ug/L	3.70	12.3
95-95-4	2,4,5-Trichlorophenol	U	12.3	ug/L	3.70	12.3
91-58-7	2-Chloronaphthalene	U	1.23	ug/L	0.370	1.23
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	12.3	ug/L	3.70	12.3
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	12.3	ug/L	3.70	12.3
131-11-3	Dimethylphthalate	U	12.3	ug/L	3.70	12.3
606-20-2	2,6-Dinitrotoluene	U	12.3	ug/L	3.70	12.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455001**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-21741**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 10:37**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**810 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1606.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	12.3	ug/L	3.70	12.3
208-96-8	Acenaphthylene	U	1.23	ug/L	0.370	1.23
83-32-9	Acenaphthene	U	1.23	ug/L	0.370	1.23
51-28-5	2,4-Dinitrophenol	U	24.7	ug/L	6.17	24.7
132-64-9	Dibenzofuran	U	12.3	ug/L	3.70	12.3
58-90-2	2,3,4,6-Tetrachlorophenol	U	12.3	ug/L	3.70	12.3
84-66-2	Diethylphthalate	U	12.3	ug/L	3.70	12.3
100-02-7	4-Nitrophenol	U	12.3	ug/L	3.70	12.3
86-73-7	Fluorene	U	1.23	ug/L	0.370	1.23
7005-72-3	4-Chlorophenylphenylether	U	12.3	ug/L	3.70	12.3
100-01-6	4-Nitroaniline *p-Nitroaniline*	U	12.3	ug/L	3.70	12.3
534-52-1	2-Methyl-4,6-dinitrophenol	U	12.3	ug/L	3.70	12.3
122-39-4	Diphenylamine	U	12.3	ug/L	3.70	12.3
122-66-7	Azobenzene *1,2-Diphenylhydrazine*	U	12.3	ug/L	3.70	12.3
101-55-3	4-Bromophenylphenylether	U	12.3	ug/L	3.70	12.3
118-74-1	Hexachlorobenzene	U	12.3	ug/L	3.70	12.3
87-86-5	Pentachlorophenol	U	12.3	ug/L	3.70	12.3
88-85-7	Dinoseb	U	12.3	ug/L	3.70	12.3
85-01-8	Phenanthrene	U	1.23	ug/L	0.370	1.23
120-12-7	Anthracene	U	1.23	ug/L	0.370	1.23
84-74-2	Di-n-butylphthalate	U	12.3	ug/L	3.70	12.3
206-44-0	Fluoranthene	U	1.23	ug/L	0.370	1.23
129-00-0	Pyrene	U	1.23	ug/L	0.370	1.23
85-68-7	Butylbenzylphthalate	U	12.3	ug/L	3.70	12.3
117-81-7	bis(2-Ethylhexyl)phthalate	U	12.3	ug/L	3.70	12.3
56-55-3	Benzo(a)anthracene	U	1.23	ug/L	0.370	1.23
218-01-9	Chrysene	U	1.23	ug/L	0.370	1.23
117-84-0	Di-n-octylphthalate	U	12.3	ug/L	3.70	12.3
205-99-2	Benzo(b)fluoranthene	U	1.23	ug/L	0.370	1.23
207-08-9	Benzo(k)fluoranthene	U	1.23	ug/L	0.370	1.23
50-32-8	Benzo(a)pyrene	U	1.23	ug/L	0.543	1.23
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.23	ug/L	0.370	1.23
53-70-3	Dibenzo(a,h)anthracene	U	1.23	ug/L	0.370	1.23
191-24-2	Benzo(ghi)perylene	U	1.23	ug/L	0.370	1.23
123-91-1	1,4-Dioxane	U	12.3	ug/L	3.70	12.3
55-18-5	N-Nitrosodiethylamine	U	12.3	ug/L	3.70	12.3
930-55-2	N-Nitrosopyrrolidine	U	12.3	ug/L	3.70	12.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455001**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-21741**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 10:37**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**810 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1606.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	12.3	ug/L	3.70	12.3
95-94-3	1,2,4,5-Tetrachlorobenzene	U	12.3	ug/L	3.70	12.3
608-93-5	Pentachlorobenzene	U	12.3	ug/L	3.70	12.3
1912-24-9	Atrazine	U	12.3	ug/L	3.70	12.3
92-87-5	Benzidine	U	12.3	ug/L	3.70	12.3
91-94-1	3,3'-Dichlorobenzidine	U	12.3	ug/L	3.70	12.3
120-82-1	1,2,4-Trichlorobenzene	U	12.3	ug/L	3.70	12.3

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	92.5	123	ug/L	74.9	(26%-131%)
2-Fluorobiphenyl	46.7	61.7	ug/L	75.6	(29%-102%)
2-Fluorophenol	67.6	123	ug/L	54.8	(15%-78%)
Nitrobenzene-d5	52.5	61.7	ug/L	85.1	(36%-125%)
Phenol-d5	36.4	123	ug/L	29.5	(10%-72%)
p-Terphenyl-d14	55.1	61.7	ug/L	89.3	(31%-133%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.952	15.9	ug/L	0	J
000110-83-8	Cyclohexene	2.267	19	ug/L	95	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455005**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-22384**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 12:17**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1610.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.6	ug/L	3.19	10.6
110-86-1	Pyridine	U	10.6	ug/L	3.19	10.6
62-53-3	Aniline	U	10.6	ug/L	3.19	10.6
108-95-2	Phenol	U	10.6	ug/L	3.19	10.6
111-44-4	bis(2-Chloroethyl) ether	U	10.6	ug/L	3.19	10.6
95-57-8	2-Chlorophenol	U	10.6	ug/L	3.19	10.6
541-73-1	1,3-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
106-46-7	1,4-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
95-50-1	1,2-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.6	ug/L	3.19	10.6
100-51-6	Benzyl alcohol	U	10.6	ug/L	3.19	10.6
95-48-7	o-Cresol	U	10.6	ug/L	3.19	10.6
65794-96-9	m,p-Cresols	U	10.6	ug/L	3.19	10.6
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.6	ug/L	3.19	10.6
67-72-1	Hexachloroethane	U	10.6	ug/L	3.19	10.6
98-95-3	Nitrobenzene	U	10.6	ug/L	3.19	10.6
78-59-1	Isophorone	U	10.6	ug/L	3.19	10.6
88-75-5	2-Nitrophenol	U	10.6	ug/L	3.19	10.6
105-67-9	2,4-Dimethylphenol	U	10.6	ug/L	3.19	10.6
111-91-1	bis(2-Chloroethoxy)methane	U	10.6	ug/L	3.19	10.6
120-83-2	2,4-Dichlorophenol	U	10.6	ug/L	3.19	10.6
65-85-0	Benzoic acid	U	21.3	ug/L	6.38	21.3
106-47-8	4-Chloroaniline	U	10.6	ug/L	3.51	10.6
87-68-3	Hexachlorobutadiene	U	10.6	ug/L	3.19	10.6
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.6	ug/L	3.19	10.6
91-57-6	2-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
91-20-3	Naphthalene	U	1.06	ug/L	0.319	1.06
90-12-0	1-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
77-47-4	Hexachlorocyclopentadiene	U	10.6	ug/L	3.19	10.6
88-06-2	2,4,6-Trichlorophenol	U	10.6	ug/L	3.19	10.6
95-95-4	2,4,5-Trichlorophenol	U	10.6	ug/L	3.19	10.6
91-58-7	2-Chloronaphthalene	U	1.06	ug/L	0.319	1.06
88-74-4	2-Nitroaniline	U	10.6	ug/L	3.19	10.6
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.6	ug/L	3.19	10.6
131-11-3	Dimethylphthalate	U	10.6	ug/L	3.19	10.6
606-20-2	2,6-Dinitrotoluene	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455005**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-22384**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 12:17**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1610.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.6	ug/L	3.19	10.6
208-96-8	Acenaphthylene	U	1.06	ug/L	0.319	1.06
83-32-9	Acenaphthene	U	1.06	ug/L	0.319	1.06
51-28-5	2,4-Dinitrophenol	U	21.3	ug/L	5.32	21.3
132-64-9	Dibenzofuran	U	10.6	ug/L	3.19	10.6
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.6	ug/L	3.19	10.6
84-66-2	Diethylphthalate	U	10.6	ug/L	3.19	10.6
100-02-7	4-Nitrophenol	U	10.6	ug/L	3.19	10.6
86-73-7	Fluorene	U	1.06	ug/L	0.319	1.06
7005-72-3	4-Chlorophenylphenylether	U	10.6	ug/L	3.19	10.6
100-01-6	4-Nitroaniline *p-Nitroaniline*	U	10.6	ug/L	3.19	10.6
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.6	ug/L	3.19	10.6
122-39-4	Diphenylamine	U	10.6	ug/L	3.19	10.6
122-66-7	Azobenzene *1,2-Diphenylhydrazine*	U	10.6	ug/L	3.19	10.6
101-55-3	4-Bromophenylphenylether	U	10.6	ug/L	3.19	10.6
118-74-1	Hexachlorobenzene	U	10.6	ug/L	3.19	10.6
87-86-5	Pentachlorophenol	U	10.6	ug/L	3.19	10.6
88-85-7	Dinoseb	U	10.6	ug/L	3.19	10.6
85-01-8	Phenanthrene	U	1.06	ug/L	0.319	1.06
120-12-7	Anthracene	U	1.06	ug/L	0.319	1.06
84-74-2	Di-n-butylphthalate	U	10.6	ug/L	3.19	10.6
206-44-0	Fluoranthene	U	1.06	ug/L	0.319	1.06
129-00-0	Pyrene	U	1.06	ug/L	0.319	1.06
85-68-7	Butylbenzylphthalate	U	10.6	ug/L	3.19	10.6
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.6	ug/L	3.19	10.6
56-55-3	Benzo(a)anthracene	U	1.06	ug/L	0.319	1.06
218-01-9	Chrysene	U	1.06	ug/L	0.319	1.06
117-84-0	Di-n-octylphthalate	U	10.6	ug/L	3.19	10.6
205-99-2	Benzo(b)fluoranthene	U	1.06	ug/L	0.319	1.06
207-08-9	Benzo(k)fluoranthene	U	1.06	ug/L	0.319	1.06
50-32-8	Benzo(a)pyrene	U	1.06	ug/L	0.468	1.06
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.06	ug/L	0.319	1.06
53-70-3	Dibenzo(a,h)anthracene	U	1.06	ug/L	0.319	1.06
191-24-2	Benzo(ghi)perylene	U	1.06	ug/L	0.319	1.06
123-91-1	1,4-Dioxane	U	10.6	ug/L	3.19	10.6
55-18-5	N-Nitrosodiethylamine	U	10.6	ug/L	3.19	10.6
930-55-2	N-Nitrosopyrrolidine	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**309455005**	**Date Received:**	**08/10/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-12-22384**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 12:17**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1610.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.6	ug/L	3.19	10.6
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.6	ug/L	3.19	10.6
608-93-5	Pentachlorobenzene	U	10.6	ug/L	3.19	10.6
1912-24-9	Atrazine	U	10.6	ug/L	3.19	10.6
92-87-5	Benzidine	U	10.6	ug/L	3.19	10.6
91-94-1	3,3'-Dichlorobenzidine	U	10.6	ug/L	3.19	10.6
120-82-1	1,2,4-Trichlorobenzene	U	10.6	ug/L	3.19	10.6

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	53.4	106	ug/L	50.2	(26%-131%)
2-Fluorobiphenyl	31.9	53.2	ug/L	60.0	(29%-102%)
2-Fluorophenol	45.0	106	ug/L	42.3	(15%-78%)
Nitrobenzene-d5	34.1	53.2	ug/L	64.2	(36%-125%)
Phenol-d5	23.9	106	ug/L	22.5	(10%-72%)
p-Terphenyl-d14	32.6	53.2	ug/L	61.3	(31%-133%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.949	11.9	ug/L	0	J
000110-83-8	Cyclohexene	2.261	14.6	ug/L	95	NJ

Quality Control Summary

Surrogate Recovery Report

SDG Number: 12-1482

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202719301	MB for batch 1238166	56	28	93	83	72	97
1202719302	LCS for batch 1238166	45	24	69	68	75	74
309455001	CAMO-12-21741	55	30	85	76	75	89
1202719303	CAMO-12-21741MS	58	37	64	64	68	71
1202719304	CAMO-12-21741MSD	64	40	71	69	75	76
309455005	CAMO-12-22384	42	22	64	60	50	61

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(15%-78%)
PHL	=	Phenol-d5	(10%-72%)
NBZ	=	Nitrobenzene-d5	(36%-125%)
FBP	=	2-Fluorobiphenyl	(29%-102%)
TBP	=	2,4,6-Tribromophenol	(26%-131%)
TPH	=	p-Terphenyl-d14	(31%-133%)

* 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: 12-1482
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1238166
Matrix: WATER
Lab Sample ID: 1202719302
Instrument: MSD3.I
Analysis Date: 08/16/2012 10:12
Dilution: 1
Analyst: JLD1
Prep Batch ID 1238166
Inj. Vol: 1 uL
Batch ID: 1238167

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	20.9	42	36-80
110-86-1	LCS	Pyridine	50.0	0.0	23.2	46	30-95
62-53-3	LCS	Aniline	50.0	0.0	37.7	75	40-114
108-95-2	LCS	Phenol	50.0	0.0	13.3	27	15-103
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	33.2	66	40-116
95-57-8	LCS	2-Chlorophenol	50.0	0.0	32.0	64	48-105
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	25.7	51	39-85
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	25.9	52	37-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	26.3	53	39-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	32.8	66	29-126
100-51-6	LCS	Benzyl alcohol	50.0	0.0	32.0	64	41-95
95-48-7	LCS	o-Cresol	50.0	0.0	28.7	57	40-93
65794-96-9	LCS	m,p-Cresols	50.0	0.0	31.5	63	39-100
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	34.4	69	49-120
67-72-1	LCS	Hexachloroethane	50.0	0.0	24.4	49	36-88
98-95-3	LCS	Nitrobenzene	50.0	0.0	32.2	64	45-118
78-59-1	LCS	Isophorone	50.0	0.0	37.0	74	59-118
88-75-5	LCS	2-Nitrophenol	50.0	0.0	32.8	66	49-111
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	32.4	65	50-105
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	32.4	65	51-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	32.0	64	51-109
65-85-0	LCS	Benzoic acid	100	0.0	32.0	32	25-100

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1238166**
Matrix: **WATER**
Lab Sample ID: **1202719302**
Instrument: **MSD3.I**
Analysis Date: **08/16/2012 10:12**
Dilution: **1**
Analyst: **JLD1**
Prep Batch ID **1238166**
Inj. Vol: **1 uL**
Batch ID: **1238167**

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	40.0	80	55-115
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	21.1	42	35-91
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	33.3	67	53-116
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	28.3	57	41-92
91-20-3	LCS	Naphthalene	50.0	0.0	29.6	59	40-90
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	29.7	59	42-97
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	20.5	41	25-102
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	35.1	70	45-113
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	35.7	71	43-114
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	32.3	65	39-102
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	37.5	75	46-122
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	43.3	87	48-118
131-11-3	LCS	Dimethylphthalate	50.0	0.0	37.1	74	57-115
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	36.1	72	53-113
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	36.7	73	49-117
208-96-8	LCS	Acenaphthylene	50.0	0.0	35.1	70	47-102
83-32-9	LCS	Acenaphthene	50.0	0.0	33.6	67	43-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	28.7	57	30-129
132-64-9	LCS	Dibenzofuran	50.0	0.0	38.1	76	48-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	37.7	75	44-116
84-66-2	LCS	Diethylphthalate	50.0	0.0	36.5	73	56-118
100-02-7	LCS	4-Nitrophenol	50.0	0.0	10.8	22	15-103

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1238166
Matrix: WATER
Lab Sample ID: 1202719302
Instrument: MSD3.I
Analysis Date: 08/16/2012 10:12
Dilution: 1
Analyst: JLD1
Prep Batch ID 1238166
Inj. Vol: 1 uL
Batch ID: 1238167

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	34.1	68	47-109
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	32.9	66	43-110
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	39.8	80	44-140
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	33.2	66	41-126
122-39-4	LCS	Diphenylamine	50.0	0.0	34.7	69	51-110
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	36.0	72	47-118
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	33.2	66	44-112
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	32.9	66	45-120
87-86-5	LCS	Pentachlorophenol	50.0	0.0	30.4	61	35-114
85-01-8	LCS	Phenanthrene	50.0	0.0	36.6	73	51-108
120-12-7	LCS	Anthracene	50.0	0.0	36.2	72	51-108
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	34.0	68	53-120
206-44-0	LCS	Fluoranthene	50.0	0.0	32.8	66	47-118
129-00-0	LCS	Pyrene	50.0	0.0	38.3	77	38-119
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	32.4	65	45-123
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	30.3	61	43-125
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	34.1	68	51-108
218-01-9	LCS	Chrysene	50.0	0.0	33.1	66	51-108
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	29.8	60	41-126
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	32.8	66	45-115
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	32.6	65	47-114
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	33.5	67	48-108

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1238166**
Matrix: **WATER**
Lab Sample ID: **1202719302**
Instrument: **MSD3.I**
Analysis Date: **08/16/2012 10:12**
Dilution: **1**
Analyst: **JLD1**
Prep Batch ID **1238166**
Inj. Vol: **1 uL**
Batch ID: **1238167**

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	38.9	78	42-121
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	39.7	79	42-123
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	39.8	80	38-122
123-91-1	LCS	1,4-Dioxane	50.0	0.0	19.3	39	39-76
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	36.1	72	50-120
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	27.0	54	40-94
1912-24-9	LCS	Atrazine	50.0	0.0	34.8	70	46-122
92-87-5	LCS	Benzidine	100	0.0	35.5	36	21-134
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	33.5	67	39-126
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	24.7	49	39-83

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Matrix Spike**
Client ID: **CAMO-12-21741MS**
Matrix: **W**
Lab Sample ID: **1202719303**
Instrument: **MSD3.I**
Analysis Date: **08/16/2012 11:02**
Dilution: **1**
Analyst: **JLD1**
Prep Batch ID **1238166**
Inj. Vol: **1 uL**
Batch ID: **1238167**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	100	0.00	U	54.2	54	26-96
110-86-1	MS	Pyridine	100	0.00	U	50.3	50	15-105
62-53-3	MS	Aniline	100	0.00	U	73.3	73	28-115
108-95-2	MS	Phenol	100	0.00	U	41.5	41	21-71
111-44-4	MS	bis(2-Chloroethyl) ether	100	0.00	U	62.1	62	30-113
95-57-8	MS	2-Chlorophenol	100	0.00	U	62.6	63	34-108
541-73-1	MS	1,3-Dichlorobenzene	100	0.00	U	50.3	50	24-84
106-46-7	MS	1,4-Dichlorobenzene	100	0.00	U	50.2	50	25-88
95-50-1	MS	1,2-Dichlorobenzene	100	0.00	U	51.5	52	27-87
39638-32-9	MS	bis(2-Chloroisopropyl)ether	100	0.00	U	61.2	61	19-121
100-51-6	MS	Benzyl alcohol	100	0.00	U	69.4	69	32-105
95-48-7	MS	o-Cresol	100	0.00	U	61.3	61	28-101
65794-96-9	MS	m,p-Cresols	100	0.00	U	72.4	72	26-113
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	100	0.00	U	63.7	64	36-121
67-72-1	MS	Hexachloroethane	100	0.00	U	47.6	48	21-89
98-95-3	MS	Nitrobenzene	100	0.00	U	61.2	61	38-121
78-59-1	MS	Isophorone	100	0.00	U	70.3	70	42-123
88-75-5	MS	2-Nitrophenol	100	0.00	U	61.9	62	31-118
105-67-9	MS	2,4-Dimethylphenol	100	0.00	U	64.4	64	30-113
111-91-1	MS	bis(2-Chloroethoxy)methane	100	0.00	U	61.5	61	40-109
120-83-2	MS	2,4-Dichlorophenol	100	0.00	U	61.2	61	33-116
65-85-0	MS	Benzoic acid	200	0.00	U	90.4	45	10-109

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Matrix Spike**
Client ID: **CAMO-12-21741MS**
Matrix: **W**
Lab Sample ID: **1202719303**
Instrument: **MSD3.I**
Analysis Date: **08/16/2012 11:02**
Dilution: **1**
Analyst: **JLD1**
Prep Batch ID **1238166**
Inj. Vol: **1 uL**
Batch ID: **1238167**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	100	0.00	U	81.8	82	34-119
87-68-3	MS	Hexachlorobutadiene	100	0.00	U	41.8	42	15-100
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	100	0.00	U	63.8	64	36-123
91-57-6	MS	2-Methylnaphthalene	100	0.00	U	52.4	52	31-96
91-20-3	MS	Naphthalene	100	0.00	U	57.0	57	27-100
90-12-0	MS	1-Methylnaphthalene	100	0.00	U	55.3	55	32-100
77-47-4	MS	Hexachlorocyclopentadiene	100	0.00	U	35.2	35	10-92
88-06-2	MS	2,4,6-Trichlorophenol	100	0.00	U	66.1	66	33-115
95-95-4	MS	2,4,5-Trichlorophenol	100	0.00	U	66.9	67	31-118
91-58-7	MS	2-Chloronaphthalene	100	0.00	U	58.9	59	33-98
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	100	0.00	U	68.9	69	32-119
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	100	0.00	U	84.9	85	33-119
131-11-3	MS	Dimethylphthalate	100	0.00	U	69.9	70	40-120
606-20-2	MS	2,6-Dinitrotoluene	100	0.00	U	66.8	67	42-114
121-14-2	MS	2,4-Dinitrotoluene	100	0.00	U	68.5	69	42-115
208-96-8	MS	Acenaphthylene	100	0.00	U	63.9	64	33-107
83-32-9	MS	Acenaphthene	100	0.00	U	61.0	61	31-104
51-28-5	MS	2,4-Dinitrophenol	100	0.00	U	53.2	53	19-130
132-64-9	MS	Dibenzofuran	100	0.00	U	69.3	69	37-108
58-90-2	MS	2,3,4,6-Tetrachlorophenol	100	0.00	U	69.8	70	28-120
84-66-2	MS	Diethylphthalate	100	0.00	U	68.5	69	43-120
100-02-7	MS	4-Nitrophenol	100	0.00	U	45.3	45	13-75

Quality Control Summary
Spike Recovery Report

SDG Number: **12-1482**
Sample Type: **Matrix Spike**
Client ID: **CAMO-12-21741MS**
Matrix: **W**
Lab Sample ID: **1202719303**
Instrument: **MSD3.I**
Analysis Date: **08/16/2012 11:02**
Dilution: **1**
Analyst: **JLD1**
Prep Batch ID **1238166**
Inj. Vol: **1 uL**
Batch ID: **1238167**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	100	0.00	U	61.8	62	32-114
7005-72-3	MS	4-Chlorophenylphenylether	100	0.00	U	59.4	59	32-109
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	100	0.00	U	69.9	70	30-135
534-52-1	MS	2-Methyl-4,6-dinitrophenol	100	0.00	U	64.5	65	28-129
122-39-4	MS	Diphenylamine	100	0.00	U	65.5	65	31-115
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	100	0.00	U	68.2	68	35-117
101-55-3	MS	4-Bromophenylphenylether	100	0.00	U	62.6	63	32-113
118-74-1	MS	Hexachlorobenzene	100	0.00	U	63.6	64	33-126
87-86-5	MS	Pentachlorophenol	100	0.00	U	58.6	59	23-123
85-01-8	MS	Phenanthrene	100	0.00	U	69.4	69	37-112
120-12-7	MS	Anthracene	100	0.00	U	68.7	69	35-112
84-74-2	MS	Di-n-butylphthalate	100	0.00	U	66.7	67	40-121
206-44-0	MS	Fluoranthene	100	0.00	U	65.6	66	29-125
129-00-0	MS	Pyrene	100	0.00	U	72.3	72	26-121
85-68-7	MS	Butylbenzylphthalate	100	0.00	U	63.8	64	33-122
117-81-7	MS	bis(2-Ethylhexyl)phthalate	100	0.00	U	59.8	60	29-128
56-55-3	MS	Benzo(a)anthracene	100	0.00	U	66.9	67	32-116
218-01-9	MS	Chrysene	100	0.00	U	64.0	64	32-118
117-84-0	MS	Di-n-octylphthalate	100	0.00	U	59.9	60	30-125
205-99-2	MS	Benzo(b)fluoranthene	100	0.00	U	67.7	68	34-116
207-08-9	MS	Benzo(k)fluoranthene	100	0.00	U	63.9	64	33-118
50-32-8	MS	Benzo(a)pyrene	100	0.00	U	64.4	64	34-111

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482 **Sample Type:** Matrix Spike

Client ID: CAMO-12-21741MS **Matrix:** W

Lab Sample ID: 1202719303

Instrument: MSD3.I **Analysis Date:** 08/16/2012 11:02 **Dilution:** 1

Analyst: JLD1 **Prep Batch ID** 1238166

Inj. Vol: 1 uL **Batch ID:** 1238167

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	100	0.00	U	69.8	70	26-124
53-70-3	MS	Dibenzo(a,h)anthracene	100	0.00	U	70.7	71	26-127
191-24-2	MS	Benzo(ghi)perylene	100	0.00	U	69.4	69	21-126
123-91-1	MS	1,4-Dioxane	100	0.00	U	48.6	49	27-97
930-55-2	MS	N-Nitrosopyrrolidine	100	0.00	U	72.4	72	42-125
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	100	0.00	U	50.0	50	25-97
1912-24-9	MS	Atrazine	100	0.00	U	66.7	67	32-120
92-87-5	MS	Benzidine	200	0.00	U	59.0	30	30-127
91-94-1	MS	3,3'-Dichlorobenzidine	100	0.00	U	65.4	65	18-128
120-82-1	MS	1,2,4-Trichlorobenzene	100	0.00	U	47.9	48	24-87

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482 **Sample Type:** Matrix Spike Duplicate
Client ID: CAMO-12-21741MSD **Matrix:** W
Lab Sample ID: 1202719304
Instrument: MSD3.I **Analysis Date:** 08/16/2012 11:52 **Dilution:** 1
Analyst: JLD1 **Prep Batch ID** 1238166
Inj. Vol: 1 uL **Batch ID:** 1238167

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	100	0.00	U	56.9	57	26-96	5	0-22
110-86-1	MSD	Pyridine	100	0.00	U	60.2	60	15-105	18	0-30
62-53-3	MSD	Aniline	100	0.00	U	80.3	80	28-115	9	0-25
108-95-2	MSD	Phenol	100	0.00	U	45.3	45	21-71	9	0-25
111-44-4	MSD	bis(2-Chloroethyl) ether	100	0.00	U	69.7	70	30-113	12	0-23
95-57-8	MSD	2-Chlorophenol	100	0.00	U	70.1	70	34-108	11	0-24
541-73-1	MSD	1,3-Dichlorobenzene	100	0.00	U	55.3	55	24-84	10	0-23
106-46-7	MSD	1,4-Dichlorobenzene	100	0.00	U	55.1	55	25-88	9	0-24
95-50-1	MSD	1,2-Dichlorobenzene	100	0.00	U	56.6	57	27-87	9	0-24
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	100	0.00	U	67.8	68	19-121	10	0-23
100-51-6	MSD	Benzyl alcohol	100	0.00	U	72.9	73	32-105	5	0-23
95-48-7	MSD	o-Cresol	100	0.00	U	65.7	66	28-101	7	0-25
65794-96-9	MSD	m,p-Cresols	100	0.00	U	77.2	77	26-113	6	0-25
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	100	0.00	U	70.1	70	36-121	9	0-22
67-72-1	MSD	Hexachloroethane	100	0.00	U	52.4	52	21-89	10	0-25
98-95-3	MSD	Nitrobenzene	100	0.00	U	66.8	67	38-121	9	0-22
78-59-1	MSD	Isophorone	100	0.00	U	75.4	75	42-123	7	0-21
88-75-5	MSD	2-Nitrophenol	100	0.00	U	68.6	69	31-118	10	0-25
105-67-9	MSD	2,4-Dimethylphenol	100	0.00	U	67.4	67	30-113	4	0-23
111-91-1	MSD	bis(2-Chloroethoxy)methane	100	0.00	U	66.9	67	40-109	8	0-21
120-83-2	MSD	2,4-Dichlorophenol	100	0.00	U	66.8	67	33-116	9	0-23
65-85-0	MSD	Benzoic acid	200	0.00	U	88.8	44	10-109	2	0-28

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482
Sample Type: Matrix Spike Duplicate
Client ID: CAMO-12-21741MSD
Matrix: W
Lab Sample ID: 1202719304
Instrument: MSD3.I
Analysis Date: 08/16/2012 11:52
Dilution: 1
Analyst: JLD1
Prep Batch ID 1238166
Inj. Vol: 1 uL
Batch ID: 1238167

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD 4-Chloroaniline	100	0.00	U	81.3	81	34-119	1	0-22
87-68-3	MSD Hexachlorobutadiene	100	0.00	U	44.5	44	15-100	6	0-25
59-50-7	MSD Parachlorometa cresol *4-Chloro-3-methylphenol*	100	0.00	U	67.0	67	36-123	5	0-25
91-57-6	MSD 2-Methylnaphthalene	100	0.00	U	56.8	57	31-96	8	0-22
91-20-3	MSD Naphthalene	100	0.00	U	60.8	61	27-100	7	0-23
90-12-0	MSD 1-Methylnaphthalene	100	0.00	U	59.4	59	32-100	7	0-22
77-47-4	MSD Hexachlorocyclopentadiene	100	0.00	U	38.8	39	10-92	10	0-28
88-06-2	MSD 2,4,6-Trichlorophenol	100	0.00	U	70.6	71	33-115	7	0-23
95-95-4	MSD 2,4,5-Trichlorophenol	100	0.00	U	71.5	71	31-118	7	0-25
91-58-7	MSD 2-Chloronaphthalene	100	0.00	U	63.7	64	33-98	8	0-20
88-74-4	MSD 2-Nitroaniline *o-Nitroaniline*	100	0.00	U	73.0	73	32-119	6	0-21
99-09-2	MSD 3-Nitroaniline *m-Nitroaniline*	100	0.00	U	85.6	86	33-119	1	0-22
131-11-3	MSD Dimethylphthalate	100	0.00	U	74.9	75	40-120	7	0-21
606-20-2	MSD 2,6-Dinitrotoluene	100	0.00	U	72.2	72	42-114	8	0-21
121-14-2	MSD 2,4-Dinitrotoluene	100	0.00	U	73.5	74	42-115	7	0-22
208-96-8	MSD Acenaphthylene	100	0.00	U	68.8	69	33-107	7	0-21
83-32-9	MSD Acenaphthene	100	0.00	U	65.2	65	31-104	7	0-20
51-28-5	MSD 2,4-Dinitrophenol	100	0.00	U	53.6	54	19-130	1	0-26
132-64-9	MSD Dibenzofuran	100	0.00	U	74.0	74	37-108	7	0-19
58-90-2	MSD 2,3,4,6-Tetrachlorophenol	100	0.00	U	75.2	75	28-120	7	0-24
84-66-2	MSD Diethylphthalate	100	0.00	U	74.3	74	43-120	8	0-20
100-02-7	MSD 4-Nitrophenol	100	0.00	U	45.9	46	13-75	1	0-29

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482 **Sample Type:** Matrix Spike Duplicate
Client ID: CAMO-12-21741MSD **Matrix:** W
Lab Sample ID: 1202719304
Instrument: MSD3.I **Analysis Date:** 08/16/2012 11:52 **Dilution:** 1
Analyst: JLD1 **Prep Batch ID** 1238166
Inj. Vol: 1 uL **Batch ID:** 1238167

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	100	0.00	U	66.6	67	32-114	8	0-21
7005-72-3	MSD	4-Chlorophenylphenylether	100	0.00	U	64.0	64	32-109	7	0-20
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	100	0.00	U	78.4	78	30-135	11	0-25
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	100	0.00	U	65.1	65	28-129	1	0-25
122-39-4	MSD	Diphenylamine	100	0.00	U	69.3	69	31-115	6	0-20
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	100	0.00	U	70.4	70	35-117	3	0-20
101-55-3	MSD	4-Bromophenylphenylether	100	0.00	U	64.5	64	32-113	3	0-21
118-74-1	MSD	Hexachlorobenzene	100	0.00	U	66.9	67	33-126	5	0-21
87-86-5	MSD	Pentachlorophenol	100	0.00	U	60.8	61	23-123	4	0-23
85-01-8	MSD	Phenanthrene	100	0.00	U	73.6	74	37-112	6	0-20
120-12-7	MSD	Anthracene	100	0.00	U	73.4	73	35-112	7	0-22
84-74-2	MSD	Di-n-butylphthalate	100	0.00	U	73.2	73	40-121	9	0-21
206-44-0	MSD	Fluoranthene	100	0.00	U	75.3	75	29-125	14	0-23
129-00-0	MSD	Pyrene	100	0.00	U	78.1	78	26-121	8	0-25
85-68-7	MSD	Butylbenzylphthalate	100	0.00	U	72.2	72	33-122	12	0-22
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	100	0.00	U	68.0	68	29-128	13	0-22
56-55-3	MSD	Benzo(a)anthracene	100	0.00	U	70.8	71	32-116	6	0-20
218-01-9	MSD	Chrysene	100	0.00	U	68.2	68	32-118	6	0-22
117-84-0	MSD	Di-n-octylphthalate	100	0.00	U	65.5	65	30-125	9	0-24
205-99-2	MSD	Benzo(b)fluoranthene	100	0.00	U	70.0	70	34-116	3	0-22
207-08-9	MSD	Benzo(k)fluoranthene	100	0.00	U	68.3	68	33-118	7	0-22
50-32-8	MSD	Benzo(a)pyrene	100	0.00	U	68.3	68	34-111	6	0-22

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 12-1482 **Sample Type:** Matrix Spike Duplicate

Client ID: CAMO-12-21741MSD **Matrix:** W

Lab Sample ID: 1202719304

Instrument: MSD3.I **Analysis Date:** 08/16/2012 11:52 **Dilution:** 1

Analyst: JLD1 **Prep Batch ID** 1238166

Inj. Vol: 1 uL **Batch ID:** 1238167

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD Indeno(1,2,3-cd)pyrene	100	0.00	U	74.9	75	26-124	7	0-26
53-70-3	MSD Dibenzo(a,h)anthracene	100	0.00	U	75.0	75	26-127	6	0-26
191-24-2	MSD Benzo(ghi)perylene	100	0.00	U	72.9	73	21-126	5	0-27
123-91-1	MSD 1,4-Dioxane	100	0.00	U	48.9	49	27-97	1	0-22
930-55-2	MSD N-Nitrosopyrrolidine	100	0.00	U	75.3	75	42-125	4	0-22
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	100	0.00	U	54.1	54	25-97	8	0-23
1912-24-9	MSD Atrazine	100	0.00	U	70.6	71	32-120	6	0-20
92-87-5	MSD Benzidine	200	0.00	U	91.5	46	30-127	43 *	0-22
91-94-1	MSD 3,3'-Dichlorobenzidine	100	0.00	U	67.9	68	18-128	4	0-24
120-82-1	MSD 1,2,4-Trichlorobenzene	100	0.00	U	51.0	51	24-87	6	0-22

Method Blank Summary

SDG Number:	**12-1482**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1238166**	**Instrument ID:**	**MSD3.I**	**Data File:**	**S081612.B\s3h1604.D**
Lab Sample ID:	**1202719301**	**Prep Date:**	**08/15/2012 11:20**	**Analyzed:**	**08/16/12 09:46**
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 1238166	1202719302	S081612.B\s3h1605.D	08/16/12	1012
02	CAMO-12-21741	309455001	S081612.B\s3h1606.D	08/16/12	1037
03	CAMO-12-21741MS	1202719303	S081612.B\s3h1607.D	08/16/12	1102
04	CAMO-12-21741MSD	1202719304	S081612.B\s3h1609.D	08/16/12	1152
05	CAMO-12-22384	309455005	S081612.B\s3h1610.D	08/16/12	1217

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202719301**				
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1238166**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 09:46**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1604.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	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
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
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
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	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
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	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
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	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
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202719301**				
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1238166**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 09:46**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1604.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	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
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene *1,2-Diphenylhydrazine*	U	10.0	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	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
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202719301**				
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1238166**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 09:46**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1604.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	72.2	100	ug/L	72.2	(26%-131%)
2-Fluorobiphenyl	41.7	50.0	ug/L	83.5	(29%-102%)
2-Fluorophenol	55.5	100	ug/L	55.5	(15%-78%)
Nitrobenzene-d5	46.3	50.0	ug/L	92.6	(36%-125%)
Phenol-d5	28.5	100	ug/L	28.5	(10%-72%)
p-Terphenyl-d14	48.3	50.0	ug/L	96.7	(31%-133%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.955	16	ug/L	0	J
000110-83-8	Cyclohexene	2.273	18.1	ug/L	97	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202719302**				
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1238166**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 10:12**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1605.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		20.9	ug/L	3.00	10.0
110-86-1	Pyridine		23.2	ug/L	3.00	10.0
62-53-3	Aniline		37.7	ug/L	3.00	10.0
108-95-2	Phenol		13.3	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		33.2	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		32.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		25.7	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		25.9	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		26.3	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		32.8	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		32.0	ug/L	3.00	10.0
95-48-7	o-Cresol		28.7	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		31.5	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		34.4	ug/L	3.00	10.0
67-72-1	Hexachloroethane		24.4	ug/L	3.00	10.0
98-95-3	Nitrobenzene		32.2	ug/L	3.00	10.0
78-59-1	Isophorone		37.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		32.8	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		32.4	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		32.4	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		32.0	ug/L	3.00	10.0
65-85-0	Benzoic acid		32.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		40.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		21.1	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		33.3	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		28.3	ug/L	0.300	1.00
91-20-3	Naphthalene		29.6	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		29.7	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		20.5	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		35.1	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		35.7	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		32.3	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		37.5	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		43.3	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		37.1	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		36.1	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202719302**				
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1238166**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 10:12**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1605.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		36.7	ug/L	3.00	10.0
208-96-8	Acenaphthylene		35.1	ug/L	0.300	1.00
83-32-9	Acenaphthene		33.6	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		28.7	ug/L	5.00	20.0
132-64-9	Dibenzofuran		38.1	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		37.7	ug/L	3.00	10.0
84-66-2	Diethylphthalate		36.5	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		10.8	ug/L	3.00	10.0
86-73-7	Fluorene		34.1	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		32.9	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		39.8	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		33.2	ug/L	3.00	10.0
122-39-4	Diphenylamine		34.7	ug/L	3.00	10.0
122-66-7	Azobenzene		36.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		33.2	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		32.9	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		30.4	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		36.6	ug/L	0.300	1.00
120-12-7	Anthracene		36.2	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		34.0	ug/L	3.00	10.0
206-44-0	Fluoranthene		32.8	ug/L	0.300	1.00
129-00-0	Pyrene		38.3	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		32.4	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		30.3	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		34.1	ug/L	0.300	1.00
218-01-9	Chrysene		33.1	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		29.8	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		32.8	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		32.6	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		33.5	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		38.9	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		39.7	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		39.8	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		19.3	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		36.1	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**			**Matrix:**	**WATER**
Lab Sample ID:	**1202719302**				
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1238166**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 10:12**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1605.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		27.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		34.8	ug/L	3.00	10.0
92-87-5	Benzidine		35.5	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		33.5	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		24.7	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	75.0	100	ug/L	75.0	(26%-131%)
2-Fluorobiphenyl	33.8	50.0	ug/L	67.5	(29%-102%)
2-Fluorophenol	45.2	100	ug/L	45.2	(15%-78%)
Nitrobenzene-d5	34.3	50.0	ug/L	68.7	(36%-125%)
Phenol-d5	23.8	100	ug/L	23.8	(10%-72%)
p-Terphenyl-d14	37.1	50.0	ug/L	74.1	(31%-133%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202719303**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 11:02**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**500 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1607.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		54.2	ug/L	6.00	20.0
110-86-1	Pyridine		50.3	ug/L	6.00	20.0
62-53-3	Aniline		73.3	ug/L	6.00	20.0
108-95-2	Phenol		41.5	ug/L	6.00	20.0
111-44-4	bis(2-Chloroethyl) ether		62.1	ug/L	6.00	20.0
95-57-8	2-Chlorophenol		62.6	ug/L	6.00	20.0
541-73-1	1,3-Dichlorobenzene		50.3	ug/L	6.00	20.0
106-46-7	1,4-Dichlorobenzene		50.2	ug/L	6.00	20.0
95-50-1	1,2-Dichlorobenzene		51.5	ug/L	6.00	20.0
39638-32-9	bis(2-Chloroisopropyl)ether		61.2	ug/L	6.00	20.0
100-51-6	Benzyl alcohol		69.4	ug/L	6.00	20.0
95-48-7	o-Cresol		61.3	ug/L	6.00	20.0
65794-96-9	m,p-Cresols		72.4	ug/L	6.00	20.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		63.7	ug/L	6.00	20.0
67-72-1	Hexachloroethane		47.6	ug/L	6.00	20.0
98-95-3	Nitrobenzene		61.2	ug/L	6.00	20.0
78-59-1	Isophorone		70.3	ug/L	6.00	20.0
88-75-5	2-Nitrophenol		61.9	ug/L	6.00	20.0
105-67-9	2,4-Dimethylphenol		64.4	ug/L	6.00	20.0
111-91-1	bis(2-Chloroethoxy)methane		61.5	ug/L	6.00	20.0
120-83-2	2,4-Dichlorophenol		61.2	ug/L	6.00	20.0
65-85-0	Benzoic acid		90.4	ug/L	12.0	40.0
106-47-8	4-Chloroaniline		81.8	ug/L	6.60	20.0
87-68-3	Hexachlorobutadiene		41.8	ug/L	6.00	20.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		63.8	ug/L	6.00	20.0
91-57-6	2-Methylnaphthalene		52.4	ug/L	0.600	2.00
91-20-3	Naphthalene		57.0	ug/L	0.600	2.00
90-12-0	1-Methylnaphthalene		55.3	ug/L	0.600	2.00
77-47-4	Hexachlorocyclopentadiene		35.2	ug/L	6.00	20.0
88-06-2	2,4,6-Trichlorophenol		66.1	ug/L	6.00	20.0
95-95-4	2,4,5-Trichlorophenol		66.9	ug/L	6.00	20.0
91-58-7	2-Chloronaphthalene		58.9	ug/L	0.600	2.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		68.9	ug/L	6.00	20.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		84.9	ug/L	6.00	20.0
131-11-3	Dimethylphthalate		69.9	ug/L	6.00	20.0
606-20-2	2,6-Dinitrotoluene		66.8	ug/L	6.00	20.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202719303**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 11:02**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**500 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1607.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		68.5	ug/L	6.00	20.0
208-96-8	Acenaphthylene		63.9	ug/L	0.600	2.00
83-32-9	Acenaphthene		61.0	ug/L	0.600	2.00
51-28-5	2,4-Dinitrophenol		53.2	ug/L	10.0	40.0
132-64-9	Dibenzofuran		69.3	ug/L	6.00	20.0
58-90-2	2,3,4,6-Tetrachlorophenol		69.8	ug/L	6.00	20.0
84-66-2	Diethylphthalate		68.5	ug/L	6.00	20.0
100-02-7	4-Nitrophenol		45.3	ug/L	6.00	20.0
86-73-7	Fluorene		61.8	ug/L	0.600	2.00
7005-72-3	4-Chlorophenylphenylether		59.4	ug/L	6.00	20.0
100-01-6	4-Nitroaniline *p-Nitroaniline*		69.9	ug/L	6.00	20.0
534-52-1	2-Methyl-4,6-dinitrophenol		64.5	ug/L	6.00	20.0
122-39-4	Diphenylamine		65.5	ug/L	6.00	20.0
122-66-7	Azobenzene *1,2-Diphenylhydrazine*		68.2	ug/L	6.00	20.0
101-55-3	4-Bromophenylphenylether		62.6	ug/L	6.00	20.0
118-74-1	Hexachlorobenzene		63.6	ug/L	6.00	20.0
87-86-5	Pentachlorophenol		58.6	ug/L	6.00	20.0
88-85-7	Dinoseb	U	20.0	ug/L	6.00	20.0
85-01-8	Phenanthrene		69.4	ug/L	0.600	2.00
120-12-7	Anthracene		68.7	ug/L	0.600	2.00
84-74-2	Di-n-butylphthalate		66.7	ug/L	6.00	20.0
206-44-0	Fluoranthene		65.6	ug/L	0.600	2.00
129-00-0	Pyrene		72.3	ug/L	0.600	2.00
85-68-7	Butylbenzylphthalate		63.8	ug/L	6.00	20.0
117-81-7	bis(2-Ethylhexyl)phthalate		59.8	ug/L	6.00	20.0
56-55-3	Benzo(a)anthracene		66.9	ug/L	0.600	2.00
218-01-9	Chrysene		64.0	ug/L	0.600	2.00
117-84-0	Di-n-octylphthalate		59.9	ug/L	6.00	20.0
205-99-2	Benzo(b)fluoranthene		67.7	ug/L	0.600	2.00
207-08-9	Benzo(k)fluoranthene		63.9	ug/L	0.600	2.00
50-32-8	Benzo(a)pyrene		64.4	ug/L	0.880	2.00
193-39-5	Indeno(1,2,3-cd)pyrene		69.8	ug/L	0.600	2.00
53-70-3	Dibenzo(a,h)anthracene		70.7	ug/L	0.600	2.00
191-24-2	Benzo(ghi)perylene		69.4	ug/L	0.600	2.00
123-91-1	1,4-Dioxane		48.6	ug/L	6.00	20.0
55-18-5	N-Nitrosodiethylamine	U	20.0	ug/L	6.00	20.0
930-55-2	N-Nitrosopyrrolidine		72.4	ug/L	6.00	20.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202719303**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 11:02**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**500 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1607.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	20.0	ug/L	6.00	20.0
95-94-3	1,2,4,5-Tetrachlorobenzene		50.0	ug/L	6.00	20.0
608-93-5	Pentachlorobenzene	U	20.0	ug/L	6.00	20.0
1912-24-9	Atrazine		66.7	ug/L	6.00	20.0
92-87-5	Benzidine		59.0	ug/L	6.00	20.0
91-94-1	3,3'-Dichlorobenzidine		65.4	ug/L	6.00	20.0
120-82-1	1,2,4-Trichlorobenzene		47.9	ug/L	6.00	20.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	136	200	ug/L	68.0	(26%-131%)
2-Fluorobiphenyl	63.6	100	ug/L	63.6	(29%-102%)
2-Fluorophenol	115	200	ug/L	57.5	(15%-78%)
Nitrobenzene-d5	64.2	100	ug/L	64.2	(36%-125%)
Phenol-d5	73.5	200	ug/L	36.7	(10%-72%)
p-Terphenyl-d14	71.2	100	ug/L	71.2	(31%-133%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202719304**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 11:52**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**500 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1609.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		56.9	ug/L	6.00	20.0
110-86-1	Pyridine		60.2	ug/L	6.00	20.0
62-53-3	Aniline		80.3	ug/L	6.00	20.0
108-95-2	Phenol		45.3	ug/L	6.00	20.0
111-44-4	bis(2-Chloroethyl) ether		69.7	ug/L	6.00	20.0
95-57-8	2-Chlorophenol		70.1	ug/L	6.00	20.0
541-73-1	1,3-Dichlorobenzene		55.3	ug/L	6.00	20.0
106-46-7	1,4-Dichlorobenzene		55.1	ug/L	6.00	20.0
95-50-1	1,2-Dichlorobenzene		56.6	ug/L	6.00	20.0
39638-32-9	bis(2-Chloroisopropyl)ether		67.8	ug/L	6.00	20.0
100-51-6	Benzyl alcohol		72.9	ug/L	6.00	20.0
95-48-7	o-Cresol		65.7	ug/L	6.00	20.0
65794-96-9	m,p-Cresols		77.2	ug/L	6.00	20.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		70.1	ug/L	6.00	20.0
67-72-1	Hexachloroethane		52.4	ug/L	6.00	20.0
98-95-3	Nitrobenzene		66.8	ug/L	6.00	20.0
78-59-1	Isophorone		75.4	ug/L	6.00	20.0
88-75-5	2-Nitrophenol		68.6	ug/L	6.00	20.0
105-67-9	2,4-Dimethylphenol		67.4	ug/L	6.00	20.0
111-91-1	bis(2-Chloroethoxy)methane		66.9	ug/L	6.00	20.0
120-83-2	2,4-Dichlorophenol		66.8	ug/L	6.00	20.0
65-85-0	Benzoic acid		88.8	ug/L	12.0	40.0
106-47-8	4-Chloroaniline		81.3	ug/L	6.60	20.0
87-68-3	Hexachlorobutadiene		44.5	ug/L	6.00	20.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		67.0	ug/L	6.00	20.0
91-57-6	2-Methylnaphthalene		56.8	ug/L	0.600	2.00
91-20-3	Naphthalene		60.8	ug/L	0.600	2.00
90-12-0	1-Methylnaphthalene		59.4	ug/L	0.600	2.00
77-47-4	Hexachlorocyclopentadiene		38.8	ug/L	6.00	20.0
88-06-2	2,4,6-Trichlorophenol		70.6	ug/L	6.00	20.0
95-95-4	2,4,5-Trichlorophenol		71.5	ug/L	6.00	20.0
91-58-7	2-Chloronaphthalene		63.7	ug/L	0.600	2.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		73.0	ug/L	6.00	20.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		85.6	ug/L	6.00	20.0
131-11-3	Dimethylphthalate		74.9	ug/L	6.00	20.0
606-20-2	2,6-Dinitrotoluene		72.2	ug/L	6.00	20.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202719304**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 11:52**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**500 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1609.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		73.5	ug/L	6.00	20.0
208-96-8	Acenaphthylene		68.8	ug/L	0.600	2.00
83-32-9	Acenaphthene		65.2	ug/L	0.600	2.00
51-28-5	2,4-Dinitrophenol		53.6	ug/L	10.0	40.0
132-64-9	Dibenzofuran		74.0	ug/L	6.00	20.0
58-90-2	2,3,4,6-Tetrachlorophenol		75.2	ug/L	6.00	20.0
84-66-2	Diethylphthalate		74.3	ug/L	6.00	20.0
100-02-7	4-Nitrophenol		45.9	ug/L	6.00	20.0
86-73-7	Fluorene		66.6	ug/L	0.600	2.00
7005-72-3	4-Chlorophenylphenylether		64.0	ug/L	6.00	20.0
100-01-6	4-Nitroaniline *p-Nitroaniline*		78.4	ug/L	6.00	20.0
534-52-1	2-Methyl-4,6-dinitrophenol		65.1	ug/L	6.00	20.0
122-39-4	Diphenylamine		69.3	ug/L	6.00	20.0
122-66-7	Azobenzene *1,2-Diphenylhydrazine*		70.4	ug/L	6.00	20.0
101-55-3	4-Bromophenylphenylether		64.5	ug/L	6.00	20.0
118-74-1	Hexachlorobenzene		66.9	ug/L	6.00	20.0
87-86-5	Pentachlorophenol		60.8	ug/L	6.00	20.0
88-85-7	Dinoseb	U	20.0	ug/L	6.00	20.0
85-01-8	Phenanthrene		73.6	ug/L	0.600	2.00
120-12-7	Anthracene		73.4	ug/L	0.600	2.00
84-74-2	Di-n-butylphthalate		73.2	ug/L	6.00	20.0
206-44-0	Fluoranthene		75.3	ug/L	0.600	2.00
129-00-0	Pyrene		78.1	ug/L	0.600	2.00
85-68-7	Butylbenzylphthalate		72.2	ug/L	6.00	20.0
117-81-7	bis(2-Ethylhexyl)phthalate		68.0	ug/L	6.00	20.0
56-55-3	Benzo(a)anthracene		70.8	ug/L	0.600	2.00
218-01-9	Chrysene		68.2	ug/L	0.600	2.00
117-84-0	Di-n-octylphthalate		65.5	ug/L	6.00	20.0
205-99-2	Benzo(b)fluoranthene		70.0	ug/L	0.600	2.00
207-08-9	Benzo(k)fluoranthene		68.3	ug/L	0.600	2.00
50-32-8	Benzo(a)pyrene		68.3	ug/L	0.880	2.00
193-39-5	Indeno(1,2,3-cd)pyrene		74.9	ug/L	0.600	2.00
53-70-3	Dibenzo(a,h)anthracene		75.0	ug/L	0.600	2.00
191-24-2	Benzo(ghi)perylene		72.9	ug/L	0.600	2.00
123-91-1	1,4-Dioxane		48.9	ug/L	6.00	20.0
55-18-5	N-Nitrosodiethylamine	U	20.0	ug/L	6.00	20.0
930-55-2	N-Nitrosopyrrolidine		75.3	ug/L	6.00	20.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1482**	**Date Collected:**	**08/08/2012 17:40**	**Matrix:**	**W**
Lab Sample ID:	**1202719304**	**Date Received:**	**08/10/2012 09:00**		
Client Sample:	**QC for batch 1238166**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-12-21741MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1238167**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**08/16/2012 11:52**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**08/15/2012 11:20**	**Aliquot:**	**500 mL**	**Final Volume:**	**1 mL**
Data File:	**S081612.B\s3h1609.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	20.0	ug/L	6.00	20.0
95-94-3	1,2,4,5-Tetrachlorobenzene		54.1	ug/L	6.00	20.0
608-93-5	Pentachlorobenzene	U	20.0	ug/L	6.00	20.0
1912-24-9	Atrazine		70.6	ug/L	6.00	20.0
92-87-5	Benzidine		91.5	ug/L	6.00	20.0
91-94-1	3,3'-Dichlorobenzidine		67.9	ug/L	6.00	20.0
120-82-1	1,2,4-Trichlorobenzene		51.0	ug/L	6.00	20.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	150	200	ug/L	74.8	(26%-131%)
2-Fluorobiphenyl	69.3	100	ug/L	69.3	(29%-102%)
2-Fluorophenol	128	200	ug/L	64.1	(15%-78%)
Nitrobenzene-d5	70.9	100	ug/L	70.9	(36%-125%)
Phenol-d5	80.5	200	ug/L	40.2	(10%-72%)
p-Terphenyl-d14	76.3	100	ug/L	76.3	(31%-133%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
16-AUG-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1238167	See Below		

Potentially affected work order(s)(SDG): 309455(12-1482),309548(12-1492)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. The MS(1202719303)/MSD(1202719304) RPD value for Benzidine was 43%. The limit is 22%.	1. Since Benzidine was individually within the acceptance limits for the MS and MSD, the data was not adversely impact by the non-conformance and the data results have been reported.

Originator's Name:

Jennifer Dunagan Jones 16-AUG-12

Data Validator/Group Leader:

Barbara Bailey 17-AUG-12

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 12-1482

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:	1238723
Prep Batch Number:	1238722

Sample Analysis

Sample ID	Client ID
309455003	CAMO-12-21749
1202720856	Interference Check Sample (ICS)
1202720852	Method Blank (MB)
1202720853	Laboratory Control Sample (LCS)
1202720854	309669002(CASA-12-21649) Matrix Spike (MS)
1202720855	309669002(CASA-12-21649) 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# 9.

Calibration Information

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

ICV Requirements
The initial calibration verification standard (ICV) met the acceptance criteria.

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

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

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

Quality Control (QC) Information

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

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

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

QC Sample Designation
Client sample 309669002 (CASA-12-21649) from SDG 12-1495 was chosen for matrix spike and matrix spike duplicate analysis.

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

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

MS/MSD Relative Percent Difference (RPD) Statement
The RPD(s) 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 309455003 (CAMO-12-21749)was re-analyzed to confirm the potential of carryover from the previous sample. The re-analysis data are reported.

Miscellaneous Information

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

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

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

ARSL001 ARS International (63641-10)

Client SDG: 12-1482 GEL Work Order: 309455

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 AUG 2012 **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: 1238722

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-12-21749

Date Received: 10-AUG-12

GEL Job No (SDG): 12-1482

GEL Sample ID: 309455003

Date Filtered: 22-AUG-12

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	0.819	ug/L		1	22-AUG-12 18:42	per0822041a
	Perchlorate Isotope Ratio			3.24			1	22-AUG-12 18:42	per0822041a
14797-73-0	Perchlorate-101	.05	.2	0.873	ug/L		1	22-AUG-12 18:42	per0822041a
	Perchlorate-O(18)			0.559	ug/L		1	22-AUG-12 18:42	per0822041a

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

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

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 12-1482

Extract Batch Code: 1238722

Date Filtered: 22-AUG-12

Matrix: WATER

Sample ID: 1202720853

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.196	ug/L	98.0		85 - 115
Perchlorate Isotope Ratio		3.15				-
Perchlorate-101	0.200	.215	ug/L	108		85 - 115
Perchlorate-O(18)		.51	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): 12-1482

Extract Batch Code: 1238722

Date Extracted: 22-AUG-12

GEL MS/PS ID: 1202720854

Client ID: CASA-12-21649

GEL MSD/PSD ID: 1202720855

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	0.497	ug/L	0.684	93.4	.705	104	2.96	30	75 - 125
Perchlorate Isotope Ratio	0	3.25		3.27		3.3		.742		-
Perchlorate-101	0.200	0.529	ug/L	0.723	96.9	.739	105	2.21	30	75 - 125
Perchlorate-O(18)	0	0.556	ug/L	0.550		.558		1.52		-

^ 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: 1238722

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 22-AUG-12

GEL Job No (SDG): 12-1482

GEL Sample ID: 1202720852

Date Filtered: 22-AUG-12

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	0.050	ug/L	U	1	22-AUG-12 15:03	per0822012a
	Perchlorate Isotope Ratio						1	22-AUG-12 15:03	per0822012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	22-AUG-12 15:03	per0822012a
	Perchlorate-O(18)			0.503	ug/L		1	22-AUG-12 15:03	per0822012a

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

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1238722

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 22-AUG-12

GEL Job No (SDG): 12-1482

GEL Sample ID: 1202720853

Date Filtered: 22-AUG-12

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	0.196	ug/L	J	1	22-AUG-12 15:10	per0822013a
	Perchlorate Isotope Ratio			3.15			1	22-AUG-12 15:10	per0822013a
14797-73-0	Perchlorate-101	.05	.2	0.215	ug/L		1	22-AUG-12 15:10	per0822013a
	Perchlorate-O(18)			0.510	ug/L		1	22-AUG-12 15:10	per0822013a

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

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1238722

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): 12-1482

GEL Sample ID: 1202720856

Date Filtered: 22-AUG-12

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	0.228	ug/L		1	22-AUG-12 15:18	per0822014a
	Perchlorate Isotope Ratio			3.21			1	22-AUG-12 15:18	per0822014a
14797-73-0	Perchlorate-101	.05	.2	0.245	ug/L		1	22-AUG-12 15:18	per0822014a
	Perchlorate-O(18)			0.555	ug/L		1	22-AUG-12 15:18	per0822014a

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

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1238722

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-12-21649MS

Date Received: 15-AUG-12

GEL Job No (SDG): 12-1482

GEL Sample ID: 1202720854

Date Filtered: 22-AUG-12

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	0.684	ug/L		1	22-AUG-12 16:41	per0822025a
	Perchlorate Isotope Ratio			3.27			1	22-AUG-12 16:41	per0822025a
14797-73-0	Perchlorate-101	.05	.2	0.723	ug/L		1	22-AUG-12 16:41	per0822025a
	Perchlorate-O(18)			0.550	ug/L		1	22-AUG-12 16:41	per0822025a

^ 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: 1238722

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-12-21649MSD

Date Received: 15-AUG-12

GEL Job No (SDG): 12-1482

GEL Sample ID: 1202720855

Date Filtered: 22-AUG-12

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	0.705	ug/L		1	22-AUG-12 16:48	per0822026a
	Perchlorate Isotope Ratio			3.3			1	22-AUG-12 16:48	per0822026a
14797-73-0	Perchlorate-101	.05	.2	0.739	ug/L		1	22-AUG-12 16:48	per0822026a
	Perchlorate-O(18)			0.558	ug/L		1	22-AUG-12 16:48	per0822026a

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

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

Explosives by LCMSMS Analysis

Case Narrative

LC/MS/MS Case Narrative
ARS International (ARSL)
SDG 12-1482

Method/Analysis Information

Procedure:	**Definitive Low Level Analysis of Nitroaromatic Explosives Utilizing Liquid Chromatography / Mass Spectrometry / Mass Spectrometry (LC/MS/MS) by SW-846 Method 8321 Modified (8321M)**
Analytical Method:	SW846 3535/8321A Modified
Prep Method:	SW846 Method 3535
Analytical Batch Number:	1237503
Prep Batch Number:	1237502

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535/8321A Modified :

Sample ID	Client ID
309455002	CAMO-12-21741
1202717514	Method Blank (MB)
1202717515	Laboratory Control Sample (LCS)
1202717516	309455002(CAMO-12-21741) Matrix Spike (MS)
1202717517	309455002(CAMO-12-21741) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-056 REV# 17.

Primary Analyte Analysis

Calibration Information

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

Calibration Verification Standard Requirements
All associated calibration verification standards (ICV and CCV) for the Primary analyte analysis met the acceptance criteria.

Calibration Blank Requirements
All initial and continuing calibration blanks (ICB and CCB) bracketing the analyses associated with this batch for this analysis were within acceptance criteria.

Due to software limitations, the CCBs and/or the ICBs may have a concentration for target analytes in the Found column. These values should be zero.

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

Quality Control (QC) Information

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

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria in this SDG in this analytical batch for this analysis.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries were within the established acceptance limits.

QC Sample Designation
Client sample 309455002 (CAMO-12-21741) was chosen for matrix spike and matrix spike duplicate analysis.

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

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

MS/MSD Relative Percent Difference (RPD) Statement
The RPD(s) between the MS and MSD met the acceptance limits for this analysis.

Internal Standard (ISTD) Acceptance
The internal standard responses were within the required acceptance criteria for all samples and QC in this SDG.

Technical Information

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

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

Sample Dilutions
According to the GEL SOP for Method 8321A, all sample and QC extracts are diluted 1:1 v/v with HPLC grade water.

The samples in this SDG in this analytical batch for this analysis did not require any additional dilutions.

Sample Re-extraction/Re-analysis
The LCS (1202717515) was re-analyzed for Primary analytes due to low recoveries in the first analysis. The low recoveries were not confirmed. The re-analysis data are reported.

Secondary Analyte Analysis

Calibration Information

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

Calibration Verification Standard Requirements
All calibration verification standards for the Secondary analyte analysis have not met requirements for this SDG. Calibration verification standard EXS08150020 did not meet acceptance criteria of 80-120% for 2,4-Diamino-6-nitrotoluene at 78.3%. The data are Q qualified and are reported as stated in the SOP.

All other associated calibration verification standards (ICV and CCV) for the Secondary analyte analysis met the acceptance criteria.

Calibration Blank Requirements
All initial and continuing calibration blanks (ICB and CCB) bracketing the analyses associated with this batch for this analysis were within acceptance criteria.

Due to software limitations, the CCBs and/or the ICBs may have a concentration for target analytes in the Found column. These values should be zero.

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

Quality Control (QC) Information

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

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria in this SDG in this analytical batch for this analysis.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries were within the established acceptance limits.

QC Sample Designation
Client sample 309455002 (CAMO-12-21741) was chosen for matrix spike and matrix spike duplicate analysis.

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

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

MS/MSD Relative Percent Difference (RPD) Statement
The RPD(s) between the MS and MSD met the acceptance limits for this analysis.

Internal Standard (ISTD) Acceptance
The internal standards were not added to the Secondary analyte extracts.

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
According to the GEL SOP for Method 8321A, all sample and QC extracts are diluted 1:1 v/v with HPLC grade water.

The samples in this SDG in this analytical batch for this analysis did not require any additional dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch for this Secondary analyte 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
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Flagging Convention
The samples were not originally analyzed using SW-846 Method 8330.

Additional Comments
Due to software limitations, all initial calibration blanks must be designated as XIB001 in order for the forms to be correct.

Due to software limitations in the Secondary analyte analysis, false positives and analytes detected below the MDL cannot be deleted from the raw data.

Due to software limitations, file extensions such as DL, RE, etc. may not appear on the generated forms and/or raw data.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Primary analyte 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 APCI (Atmospheric Pressure chemical Ionization) probe that is operated in the negative ionization mode for the Primary analyte analysis.

The laboratory also utilizes an Agilent 1100 liquid chromatography instrument for either Primary or Secondary analyte analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as either LCMSMS #3 or LCMSMS #4. It is fitted with an APCI (Atmospheric Pressure chemical Ionization) probe that is operated in the negative ionization mode for both the Primary and Secondary analyte analysis.

Electronic Packaging Comment

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

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

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

Chromatographic Columns

The detection of the Primary analyte Nitroaromatic and Nitramines is accomplished through analysis on the following reversed phase column:

Phenomenex: Ultracarb 5u ODS (20), 250 x 4.60 mm ID.

The detection of the Secondary analytes is accomplished through analysis on the following reversed phase column:

YMC: J'sphere ODS-H80, 150 x 4.6mm I.D.

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

ARSL001 ARS International (63641-10)

Client SDG: 12-1482 GEL Work Order: 309455

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

Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

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: 06 SEP 2012 **Title: Group Leader**

Sample Data Summary

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-12-21741

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 309455002

Sample Amount 880 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0830033.wiff

Date Analyzed: 31-AUG-12 05:37

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.284	U	0.0909	0.284
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.284	U	0.0909	0.284
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.284	U	0.0909	0.284
121-82-4	*RDX*				
13980-04-6	TNX	0.284	U	0.0909	0.284
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.284	U	0.0909	0.284
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.284	U	0.0909	0.284
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.284	U	0.0909	0.284
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.284	U	0.0909	0.284
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.284	U	0.0909	0.284
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.284	U	0.0909	0.284
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.284	U	0.0932	0.284
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.284	U	0.0909	0.284
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.284	U	0.0909	0.284
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-12-21741

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 309455002

Sample Amount 880 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.284	U	0.0909	0.284
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.284	U	0.0909	0.284
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.568	U	0.0909	0.568
479-45-8	*Tetryl*				
78-11-5	PETN	0.568	U	0.114	0.568
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.568	U	0.170	0.568
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-12-21741

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 309455002

Sample Amount 880 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS08150025.wiff

Date Analyzed: 15-AUG-12 21:09

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.14	U	0.341	1.14
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.14	U	0.341	1.14
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.14	U	0.341	1.14
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.84	U	0.568	2.84
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.84	QU	0.568	2.84
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLC **GEL Job No (SDG):** 12-1482

Lab Code: GEL **HPLC Column:** Phenomenex Ultracarb 5u ODS(20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
309455002	CAMO-12-21741	81.6	68 - 122	
309455002	CAMO-12-21741	98	68 - 122	
1202717514	MB for batch 1237502	92	68 - 122	
1202717514	MB for batch 1237502	104	68 - 122	
1202717515	LCS for batch 1237502	102	68 - 122	
1202717515	LCS for batch 1237502	109	68 - 122	
1202717516	CAMO-12-21741(309455002MS)	78.4	68 - 122	
1202717516	CAMO-12-21741(309455002MS)	106	68 - 122	
1202717517	CAMO-12-21741(309455002MSD)	75.6	68 - 122	
1202717517	CAMO-12-21741(309455002MSD)	112	68 - 122	

DNT = 3,4-Dinitrotoluene

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 12-1482

Extract Batch Code: 1237502

Date Extracted:

GEL LCS ID: 1202717515

GEL LCSDUP ID:

Analysis Date/Time: 04-SEP-12 22:04

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
1,3,5-Trinitrobenzene	5	5.58	112					60 - 115
2,4,6-Trinitrotoluene	5	5.84	117					77 - 132
2,4-Dinitrotoluene	5	4.37	87.4					78 - 125
2,6-Dinitrotoluene	5	4.37	87.4					82 - 111
2-Amino-4,6-dinitrotoluene	5	5.27	105					75 - 129
4-Amino-2,6-dinitrotoluene	5	4.71	94.2					78 - 125
DNX	5	5.34	107					73 - 117
HMX	5	4.63	92.6					65 - 112
MNX	5	4.76	95.2					68 - 129
Nitrobenzene	5	4.5	90					63 - 110
PETN	5	4.82	96.4					61 - 138
RDX	5	5.06	101					79 - 128
TNX	5	4.15	83					66 - 118
Tetryl	5	4.88	97.6					38 - 150
m-Dinitrobenzene	5	4.64	92.8					86 - 119
m-Nitrotoluene	5	4.37	87.4					63 - 109
o-Nitrotoluene	5	4.34	86.8					61 - 109
p-Nitrotoluene	5	4.47	89.4					64 - 112

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 12-1482

Extract Batch Code: 1237502

Date Extracted:

GEL LCS ID: 1202717515

GEL LCSDUP ID:

Analysis Date/Time: 15-AUG-12 20:52

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
2,4-Diamino-6-nitrotoluene	5	3.39	67.8					49 - 112
2,6-Diamino-4-nitrotoluene	5	3.89	77.8					61 - 116
3,5-Dinitroaniline	5	4.12	82.4					66 - 119
TATB	5	1.89	37.8					32 - 169
tris(o-cresyl) phosphate	5	3.66	73.2					38 - 87

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAMO-12-21741

Lab Code: GEL

GEL Job No (SDG) 12-1482

Extract Batch Code: 1237502

Date Extracted: 31-AUG-12

GEL Spike ID: 1202717516

GEL SpikeDup ID: 1202717517

Analysis Date/Time: 31-AUG-12 06:12

MSD Analysis Date/Time: 31-AUG-12 06:47

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Rec Limits
o-Nitrotoluene	5.31915	0	4.77	89.6	4.32	80	9.72	25	57 - 119
p-Nitrotoluene	5.31915	0	5.07	95.4	4.77	88.2	6.24	25	57 - 124
1,3,5-Trinitrobenzene	5.31915	0	4.38	82.4	5.11	94.6	15.4	25	58 - 114
2,6-Dinitrotoluene	5.31915	0	4.4	82.8	4.44	82.2	.881	25	79 - 115
2,4-Dinitrotoluene	5.31915	0	4.91	92.4	4.45	82.4	9.84	25	73 - 128
2,4,6-Trinitrotoluene	5.31915	0	4.64	87.2	4.25	78.6	8.77	25	65 - 140
2-Amino-4,6-dinitrotoluene	5.31915	0	5.4	102	5.36	99.2	.782	25	66 - 137
DNX	5.31915	0	4.5	84.6	4.91	90.8	8.68	34	67 - 126
MNX	5.31915	0	4.61	86.6	4.9	90.6	6.12	25	74 - 127
m-Nitrotoluene	5.31915	0	4.26	80	4	74	6.19	25	55 - 123
m-Dinitrobenzene	5.31915	0	4.85	91.2	5.15	95.2	5.9	25	79 - 126
Tetryl	5.31915	0	3.95	74.2	3.54	65.4	11	28	31 - 119
TNX	5.31915	0	4.21	79.2	4.81	89	13.3	31	51 - 133
RDX	5.31915	0	4.44	83.4	4.93	91.2	10.5	25	63 - 145
PETN	5.31915	0	4.66	87.6	4.35	80.4	6.97	27	53 - 143
Nitrobenzene	5.31915	0	4.77	89.6	4.69	86.8	1.57	25	61 - 118
HMX	5.31915	0	4.19	78.8	4.61	85.2	9.41	25	51 - 128
4-Amino-2,6-dinitrotoluene	5.31915	0	5.04	94.8	4.98	92.2	1.17	25	65 - 137

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

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAMO-12-21741

Lab Code: GEL

GEL Job No (SDG) 12-1482

Extract Batch Code: 1237502

Date Extracted: 15-AUG-12

GEL Spike ID: 1202717516

GEL SpikeDup ID: 1202717517

Analysis Date/Time: 15-AUG-12 21:25

MSD Analysis Date/Time: 15-AUG-12 21:42

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Rec Limits
2,4-Diamino-6-nitrotoluene	5.31915	0	4.17	78.4		4.36	80.6		4.38		25	42 - 117
2,6-Diamino-4-nitrotoluene	5.31915	0	4.6	86.4		5.35	99		15.2		25	50 - 121
3,5-Dinitroaniline	5.31915	0	4.33	81.4		4.71	87.2		8.49		25	59 - 125
TATB	5.31915	0	1.86	35		2.09	38.6		11.4		25	30 - 169
tris(o-cresyl) phosphate	5.31915	0	3.48	65.4		3.79	70.2		8.69		25	28 - 87

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

Quality Control Data

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1237502

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717514

Sample Amount 1000 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0830031.wiff

Date Analyzed: 31-AUG-12 04:28

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.250	U	0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.250	U	0.080	0.250
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.250	U	0.080	0.250
121-82-4	*RDX*				
13980-04-6	TNX	0.250	U	0.080	0.250
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.250	U	0.080	0.250
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.250	U	0.080	0.250
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.250	U	0.080	0.250
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.250	U	0.080	0.250
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.250	U	0.080	0.250
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.250	U	0.080	0.250
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.250	U	0.082	0.250
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.250	U	0.080	0.250
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.250	U	0.080	0.250
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1237502

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717514

Sample Amount 1000 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.250	U	0.080	0.250
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.250	U	0.080	0.250
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.500	U	0.080	0.500
479-45-8	*Tetryl*				
78-11-5	PETN	0.500	U	0.100	0.500
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.500	U	0.150	0.500
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1237502

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717514

Sample Amount 1000 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS08150023.wiff

Date Analyzed: 15-AUG-12 20:35

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.00	U	0.300	1.00
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.00	U	0.300	1.00
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.00	U	0.300	1.00
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.50	U	0.500	2.50
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.50	QU	0.500	2.50
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1237502

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717515

Sample Amount 1000 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0904016.wiff

Date Analyzed: 04-SEP-12 22:04

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
13980-04-6	TNX	4.15		0.080	0.250
13980-04-6	*TNX*				
88-72-2	o-Nitrotoluene	4.34		0.082	0.250
88-72-2	*o-Nitrotoluene*				
121-14-2	2,4-Dinitrotoluene	4.37		0.080	0.250
121-14-2	*2,4-Dinitrotoluene*				
606-20-2	2,6-Dinitrotoluene	4.37		0.080	0.250
606-20-2	*2,6-Dinitrotoluene*				
99-08-1	m-Nitrotoluene	4.37		0.080	0.250
99-08-1	*m-Nitrotoluene*				
99-99-0	p-Nitrotoluene	4.47		0.150	0.500
99-99-0	*p-Nitrotoluene*				
98-95-3	Nitrobenzene	4.5		0.080	0.250
98-95-3	*Nitrobenzene*				
2691-41-0	HMX	4.63		0.080	0.250
2691-41-0	*HMX*				
99-65-0	m-Dinitrobenzene	4.64		0.080	0.250
99-65-0	*m-Dinitrobenzene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.71		0.080	0.250
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
5755-27-1	MNX	4.76		0.080	0.250
5755-27-1	*MNX*				
78-11-5	PETN	4.82		0.100	0.500
78-11-5	*PETN*				
479-45-8	Tetryl	4.88		0.080	0.500
479-45-8	*Tetryl*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1237502

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717515

Sample Amount 1000 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	5.06		0.080	0.250
121-82-4	*RDX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.27		0.080	0.250
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
80251-29-2	DNX	5.34		0.080	0.250
80251-29-2	*DNX*				
99-35-4	1,3,5-Trinitrobenzene	5.58		0.080	0.250
99-35-4	*1,3,5-Trinitrobenzene*				
118-96-7	2,4,6-Trinitrotoluene	5.84		0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1237502

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717515

Sample Amount 1000 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS08150024.wiff

Date Analyzed: 15-AUG-12 20:52

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.89		0.300	1.00
3058-38-6	*TATB*				
6629-29-4	2,4-Diamino-6-nitrotoluene	3.39	Q	0.500	2.50
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
78-30-8	tris(o-cresyl) phosphate	3.66		0.300	1.00
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	3.89		0.500	2.50
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.12		0.300	1.00
618-87-1	*3,5-Dinitroaniline*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-12-21741(309455002MS)MS

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717516

Sample Amount 940 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0830034.wiff

Date Analyzed: 31-AUG-12 06:12

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
479-45-8	Tetryl	3.95		0.0851	0.532
479-45-8	*Tetryl*				
2691-41-0	HMX	4.19		0.0851	0.266
2691-41-0	*HMX*				
13980-04-6	TNX	4.21		0.0851	0.266
13980-04-6	*TNX*				
99-08-1	m-Nitrotoluene	4.26		0.0851	0.266
99-08-1	*m-Nitrotoluene*				
99-35-4	1,3,5-Trinitrobenzene	4.38		0.0851	0.266
99-35-4	*1,3,5-Trinitrobenzene*				
606-20-2	2,6-Dinitrotoluene	4.4		0.0851	0.266
606-20-2	*2,6-Dinitrotoluene*				
121-82-4	RDX	4.44		0.0851	0.266
121-82-4	*RDX*				
80251-29-2	DNX	4.5		0.0851	0.266
80251-29-2	*DNX*				
5755-27-1	MNX	4.61		0.0851	0.266
5755-27-1	*MNX*				
118-96-7	2,4,6-Trinitrotoluene	4.64		0.0851	0.266
118-96-7	*2,4,6-Trinitrotoluene*				
78-11-5	PETN	4.66		0.106	0.532
78-11-5	*PETN*				
88-72-2	o-Nitrotoluene	4.77		0.0872	0.266
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	4.77		0.0851	0.266
98-95-3	*Nitrobenzene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-12-21741(309455002MS)MS

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717516

Sample Amount 940 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-65-0	m-Dinitrobenzene	4.85		0.0851	0.266
99-65-0	*m-Dinitrobenzene*				
121-14-2	2,4-Dinitrotoluene	4.91		0.0851	0.266
121-14-2	*2,4-Dinitrotoluene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.04		0.0851	0.266
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
99-99-0	p-Nitrotoluene	5.07		0.160	0.532
99-99-0	*p-Nitrotoluene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.4		0.0851	0.266
35572-78-2	*2-Amino-4,6-dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-12-21741(309455002MS)MS

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717516

Sample Amount 940 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS08150026.wiff

Date Analyzed: 15-AUG-12 21:25

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.86		0.319	1.06
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.48		0.319	1.06
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.17	Q	0.532	2.66
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.33		0.319	1.06
618-87-1	*3,5-Dinitroaniline*				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.6		0.532	2.66
59229-75-3	*2,6-Diamino-4-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-12-21741(309455002MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717517

Sample Amount 925 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0830035.wiff

Date Analyzed: 31-AUG-12 06:47

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
479-45-8	Tetryl	3.54		0.0865	0.541
479-45-8	*Tetryl*				
99-08-1	m-Nitrotoluene	4		0.0865	0.270
99-08-1	*m-Nitrotoluene*				
118-96-7	2,4,6-Trinitrotoluene	4.25		0.0865	0.270
118-96-7	*2,4,6-Trinitrotoluene*				
88-72-2	o-Nitrotoluene	4.32		0.0886	0.270
88-72-2	*o-Nitrotoluene*				
78-11-5	PETN	4.35		0.108	0.541
78-11-5	*PETN*				
606-20-2	2,6-Dinitrotoluene	4.44		0.0865	0.270
606-20-2	*2,6-Dinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	4.45		0.0865	0.270
121-14-2	*2,4-Dinitrotoluene*				
2691-41-0	HMX	4.61		0.0865	0.270
2691-41-0	*HMX*				
98-95-3	Nitrobenzene	4.69		0.0865	0.270
98-95-3	*Nitrobenzene*				
99-99-0	p-Nitrotoluene	4.77		0.162	0.541
99-99-0	*p-Nitrotoluene*				
13980-04-6	TNX	4.81		0.0865	0.270
13980-04-6	*TNX*				
5755-27-1	MNX	4.9		0.0865	0.270
5755-27-1	*MNX*				
80251-29-2	DNX	4.91		0.0865	0.270
80251-29-2	*DNX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-12-21741(309455002MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717517

Sample Amount 925 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	4.93		0.0865	0.270
121-82-4	*RDX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.98		0.0865	0.270
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
99-35-4	1,3,5-Trinitrobenzene	5.11		0.0865	0.270
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	5.15		0.0865	0.270
99-65-0	*m-Dinitrobenzene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.36		0.0865	0.270
35572-78-2	*2-Amino-4,6-dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-12-21741(309455002MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 12-1482

Matrix: WATER

GEL Sample ID: 1202717517

Sample Amount 925 mL

Date Received: 10-AUG-12

Moisture:

Extraction Batch ID: 1237502

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS08150027.wiff

Date Analyzed: 15-AUG-12 21:42

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	2.09		0.324	1.08
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.79		0.324	1.08
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.36	Q	0.541	2.70
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.71		0.324	1.08
618-87-1	*3,5-Dinitroaniline*				
59229-75-3	2,6-Diamino-4-nitrotoluene	5.35		0.541	2.70
59229-75-3	*2,6-Diamino-4-nitrotoluene*				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 12-1482

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 30-AUG-12 10:59

GEL Data File: EXP0830001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 12-1482

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 30-AUG-12 11:34

GEL Data File: EXP0830002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 12-1482

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 04-SEP-12 13:20

GEL Data File: EXP0904001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 12-1482

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 04-SEP-12 13:55

GEL Data File: EXP0904002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 12-1482

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 15-AUG-12 14:27

GEL Data File: EXS08150001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	132
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 12-1482

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 15-AUG-12 14:44

GEL Data File: EXS08150002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 12-1482

Lab Code: GEL **Lab Sample ID:** XIBLK02

Analysis Date: 30-AUG-12 15:38 **GEL Data File:** EXP0830009.wiff

Instrument ID: LCMSMS **Column:** Phenomenex Ultracarb 5u ODS(20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 12-1482

Lab Code: GEL **Lab Sample ID:** XIBLK04

Analysis Date: 30-AUG-12 22:03 **GEL Data File:** EXP0830020.wiff

Instrument ID: LCMSMS **Column:** Phenomenex Ultracarb 5u ODS(20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 12-1482

Lab Code: GEL **Lab Sample ID:** XIBLK05

Analysis Date: 31-AUG-12 03:18 **GEL Data File:** EXP0830029.wiff

Instrument ID: LCMSMS **Column:** Phenomenex Ultracarb 5u ODS(20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 12-1482

Lab Code: GEL **Lab Sample ID:** XIBLK06

Analysis Date: 31-AUG-12 07:57 **GEL Data File:** EXP0830037.wiff

Instrument ID: LCMSMS **Column:** Phenomenex Ultracarb 5u ODS(20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 12-1482

Lab Code: GEL **Lab Sample ID:** XIBLK02

Analysis Date: 04-SEP-12 17:59 **GEL Data File:** EXP0904009.wiff

Instrument ID: LCMSMS **Column:** Phenomenex Ultracarb 5u ODS(20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 12-1482

Lab Code: GEL **Lab Sample ID:** XIBLK03

Analysis Date: 04-SEP-12 19:09 **GEL Data File:** EXP0904011.wiff

Instrument ID: LCMSMS **Column:** Phenomenex Ultracarb 5u ODS(20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 12-1482

Lab Code: GEL **Lab Sample ID:** XIBLK04

Analysis Date: 04-SEP-12 23:14 **GEL Data File:** EXP0904018.wiff

Instrument ID: LCMSMS **Column:** Phenomenex Ultracarb 5u ODS(20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 12-1482

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 15-AUG-12 16:58

GEL Data File: EXS08150010.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	10.6
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 12-1482

Lab Code: GEL **Lab Sample ID:** XIBLK03

Analysis Date: 15-AUG-12 17:31 **GEL Data File:** EXS08150012.wiff

Instrument ID: LCMSMS **Column:** Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	4.55
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 12-1482

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 15-AUG-12 20:02

GEL Data File: EXS08150021.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	4.33
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 12-1482

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 15-AUG-12 22:15

GEL Data File: EXS08150029.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	4.96
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 12-1482

Sample Analysis

Sample ID	Client ID
309455003	CAMO-12-21749
1202717279	Method Blank (MB) **ICP**
1202717280	Laboratory Control Sample (LCS)
1202717283	309455003(CAMO-12-21749L) Serial Dilution (SD)
1202717281	309455003(CAMO-12-21749D) Sample Duplicate (DUP)
1202717282	309455003(CAMO-12-21749S) Matrix Spike (MS)
1202717284	Method Blank (MB) **ICP-MS**
1202717285	Laboratory Control Sample (LCS)
1202717288	309455003(CAMO-12-21749L) Serial Dilution (SD)
1202717286	309455003(CAMO-12-21749D) Sample Duplicate (DUP)
1202717287	309455003(CAMO-12-21749S) Matrix Spike (MS)
1202717964	Method Blank (MB) **CVAA**
1202717965	Laboratory Control Sample (LCS)
1202717970	309440007(WTLAP-12-14611L) Serial Dilution (SD)
1202717971	309455003(CAMO-12-21749L) Serial Dilution (SD)
1202717968	309440007(WTLAP-12-14611D) Sample Duplicate (DUP)
1202717966	309455003(CAMO-12-21749D) Sample Duplicate (DUP)
1202717969	309440007(WTLAP-12-14611S) Matrix Spike (MS)
1202717967	309455003(CAMO-12-21749S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1237410, 1237412, 1237657 and 1242418
Prep Batch :	1237409, 1237411 and 1237654
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7

Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, 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 a Burgener nebulizer, 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 1.4L/min, argon gas flows of 15 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 Requirements
All CRDL standard(s) 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 Blank (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: 309455003 (CAMO-12-21749)-ICP, ICP-MS and CVAA and 309440007 (WTLAP-12-14611)-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.

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 detection 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 that are 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 acceptance criteria of less than 10% difference (%D).

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 instruments. Dilutions were required for sample 309455003 (CAMO-12-21749) in order to minimize tin 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 (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.
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:_____ **Date:** 9/6/12

Sample Data Summary

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 12-1482 GEL Work Order: 309455

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.

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 detection limit.

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 _____ 9/6/12

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 12−1482 **METHOD TYPE:** EPA

SAMPLE ID: 309455003 **CLIENT ID:** CAMO−12−21749

CONTRACT: ESHL00210

MATRIX: W **DATE RECEIVED** 10−AUG−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−97−6	Mercury	0.067	ug/L	U		AV	0.067	1	MER536	081412W2−5
7631−86−9	Silica	60.9	mg/L			P	0.053	1	OPTIMA3	082212−1
7429−90−5	Aluminum	68	ug/L	U		P	68	1	OPTIMA3	082212−1
7440−36−0	Antimony	1	ug/L	U		MS	1	1	ICPMS5	120824−2
7440−38−2	Arsenic	1.7	ug/L	U		MS	1.7	1	ICPMS5	120827−4
7440−39−3	Barium	23	ug/L			P	1	1	OPTIMA3	082212−1
7440−41−7	Beryllium	1	ug/L	U		P	1	1	OPTIMA3	082212−1
7440−42−8	Boron	15	ug/L	U		P	15	1	OPTIMA3	082212−1
7440−43−9	Cadmium	0.11	ug/L	U		MS	0.11	1	ICPMS5	120824−2
7440−70−2	Calcium	16100	ug/L			P	50	1	OPTIMA3	082212−1
7440−47−3	Chromium	175	ug/L			MS	2	1	ICPMS5	120827−3
7440−48−4	Cobalt	1	ug/L	U		P	1	1	OPTIMA3	082212−1
7440−50−8	Copper	3	ug/L	U		P	3	1	OPTIMA3	082212−1
7439−89−6	Iron	30	ug/L	U		P	30	1	OPTIMA3	082212−1
7439−92−1	Lead	0.5	ug/L	U		MS	0.5	1	ICPMS5	120827−3
7439−95−4	Magnesium	4400	ug/L			P	110	1	OPTIMA3	082212−1
7439−96−5	Manganese	2	ug/L	U		P	2	1	OPTIMA3	082212−1
7439−98−7	Molybdenum	1.61	ug/L			MS	0.165	1	ICPMS5	120824−2
7440−02−0	Nickel	2.15	ug/L			MS	0.5	1	ICPMS5	120827−3
7440−09−7	Potassium	1420	ug/L			P	50	1	OPTIMA3	082212−1
7782−49−2	Selenium	1.5	ug/L	U		MS	1.5	1	ICPMS5	120827−4
7440−22−4	Silver	0.2	ug/L	U		MS	0.2	1	ICPMS5	120824−2
7440−23−5	Sodium	13300	ug/L			P	100	1	OPTIMA3	082212−1
7440−24−6	Strontium	77.5	ug/L			P	1	1	OPTIMA3	082212−1
7440−28−0	Thallium	0.45	ug/L	U		MS	0.45	1	ICPMS5	120827−3
7440−31−5	Tin	12.5	ug/L	U		P	12.5	5	OPTIMA3	082212−1

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 12−1482 **METHOD TYPE:** EPA

SAMPLE ID: 309455003 **CLIENT ID:** CAMO−12−21749

CONTRACT: ESHL00210

MATRIX: W **DATE RECEIVED** 10−AUG−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−61−1	Uranium	0.957	ug/L			MS	0.067	1	ICPMS5	120827−3
7440−62−2	Vanadium	2.95	ug/L	J		P	1	1	OPTIMA3	082212−1
7440−66−6	Zinc	16.8	ug/L			P	3.3	1	OPTIMA3	082212−1
	Hardness as CaCO3	58.3	mg/L				0.453	1	CALC001	

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**
	SM 2340 B

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 12−1482
Contract: ESHL00210
Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202717279								
	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	0.053	mg/L	+/−0.213	U	P	0.053	0.213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202717284								
	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	0.204	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	0.097	ug/L	+/−0.2	J	MS	0.067	0.2
1202717964								
	Mercury	−0.122	ug/L	+/−0.2	J	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 12−1482 **Client ID** CAMO−12−21749S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 309455003 **Spike ID:** 1202717282

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	4930		68	U	5000	98.1		P
Barium	ug/L	75−125	520		23		500	99.4		P
Beryllium	ug/L	75−125	504		1	U	500	101		P
Boron	ug/L	75−125	511		15	U	500	99.5		P
Calcium	ug/L	75−125	21800		16100		5000	115		P
Cobalt	ug/L	75−125	503		1	U	500	101		P
Copper	ug/L	75−125	510		3	U	500	102		P
Iron	ug/L	75−125	5070		30	U	5000	101		P
Magnesium	ug/L	75−125	9600		4400		5000	104		P
Manganese	ug/L	75−125	486		2	U	500	97.1		P
Potassium	ug/L	75−125	6390		1420		5000	99.3		P
Silica	mg/L		73		60.9		10.7	113	N/A	P
Sodium	ug/L	75−125	19000		13300		5000	113		P
Strontium	ug/L	75−125	572		77.5		500	98.8		P
Tin	ug/L	75−125	508		12.5	U	500	102		P
Vanadium	ug/L	75−125	511		2.95	J	500	102		P
Zinc	ug/L	75−125	499		16.8		500	96.4		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 12−1482 **Client ID** CAMO−12−21749S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 309455003 **Spike ID:** 1202717287

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	203		1	U	200	101		MS
Arsenic	ug/L	75−125	82.3		1.7	U	80	101		MS
Cadmium	ug/L	75−125	10.4		0.11	U	10	104		MS
Chromium	ug/L	75−125	218		175		50	86.9		MS
Lead	ug/L	75−125	42.6		0.5	U	40	106		MS
Molybdenum	ug/L	75−125	53.7		1.61		50	104		MS
Nickel	ug/L	75−125	55.7		2.15		50	107		MS
Selenium	ug/L	75−125	20.3		1.5	U	20	98.2		MS
Silver	ug/L	75−125	51.6		0.2	U	50	103		MS
Thallium	ug/L	75−125	104		0.45	U	100	104		MS
Uranium	ug/L	75−125	53.8		0.957		50	106		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 12−1482 **Client ID** CAMO−12−21749S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 309455003 **Spike ID:** 1202717967

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.11		0.067	U	2	106		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 12−1482 **Client ID** WTLAP−12−14611S

Contract: ESHL00510 **Level:** Low

Matrix: STORM WATER **% Solids:**

Sample ID: 309440007 **Spike ID:** 1202717969

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.98		0.067	U	2	98.9		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 12−1482 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−12−21749D

Matrix: LIQUID **Level:** Low

Sample ID: 309455003 **Duplicate ID:** 1202717281 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	23		24.4		5.69		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	16100		17000		5.71		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%	4400		4670		5.97		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1420		1490		4.74		P
Silica	mg/L	+/−20%	60.9		64.3		5.4		P
Sodium	ug/L	+/−20%	13300		14100		5.65		P
Strontium	ug/L	+/−20%	77.5		82		5.57		P
Tin	ug/L		12.5	U	12.5	U			P
Vanadium	ug/L	+/−5	2.95	J	3.4	J	14.3		P
Zinc	ug/L	+/−10	16.8		16.8		.179		P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 12−1482 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−12−21749D

Matrix: LIQUID **Level:** Low

Sample ID: 309455003 **Duplicate ID:** 1202717286 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−20%	175		171		2.15		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.61		1.57		2.45		MS
Nickel	ug/L	+/−2	2.15		2.07		3.7		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	0.957		0.928		3.08		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 12−1482 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−12−21749D

Matrix: LIQUID **Level:** Low

Sample ID: 309455003 **Duplicate ID:** 1202717966 **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.: 12−1482 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** WTLAP−12−14611D

Matrix: LIQUID **Level:** Low

Sample ID: 309440007 **Duplicate ID:** 1202717968 **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. 12−1482

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202717280								
	Aluminum	ug/L	5000	4910		98.2	80−120	P
	Barium	ug/L	500	499		99.8	80−120	P
	Beryllium	ug/L	500	502		100	80−120	P
	Boron	ug/L	500	492		98.5	80−120	P
	Calcium	ug/L	5000	4990		99.7	80−120	P
	Cobalt	ug/L	500	511		102	80−120	P
	Copper	ug/L	500	502		100	80−120	P
	Iron	ug/L	5000	4990		99.8	80−120	P
	Magnesium	ug/L	5000	5080		102	80−120	P
	Manganese	ug/L	500	489		97.8	80−120	P
	Potassium	ug/L	5000	4940		98.8	80−120	P
	Silica	mg/L	10.7	10.7		99.9	80−120	P
	Sodium	ug/L	5000	5060		101	80−120	P
	Strontium	ug/L	500	490		98	80−120	P
	Tin	ug/L	500	502		100	80−120	P
	Vanadium	ug/L	500	506		101	80−120	P
	Zinc	ug/L	500	486		97.2	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 12−1482

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202717285								
	Antimony	ug/L	50	46		91.9	80−120	MS
	Arsenic	ug/L	50	51.1		102	80−120	MS
	Cadmium	ug/L	50	48.5		97	80−120	MS
	Chromium	ug/L	50	52.4		105	80−120	MS
	Lead	ug/L	50	53.2		106	80−120	MS
	Molybdenum	ug/L	50	46.5		92.9	80−120	MS
	Nickel	ug/L	50	53.2		106	80−120	MS
	Selenium	ug/L	50	52.1		104	80−120	MS
	Silver	ug/L	50	48.5		96.9	80−120	MS
	Thallium	ug/L	50	51.4		103	80−120	MS
	Uranium	ug/L	50	50.7		101	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 12−1482

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202717965								
	Mercury	ug/L	2	2.04		102	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 12−1482 **Client ID** CAMO−12−21749L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 309455003 **Serial Dilution ID:** 1202717283

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	23		22.7	J	1.34			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	16100		15700		2.3		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	4400		4400		.076			P
Manganese	2	U	10	U				P
Potassium	1420		1490		4.5			P
Silica	60900		57400		5.72		10	P
Sodium	13300		13200		1.04		10	P
Strontium	77.5		75.4		2.77		10	P
Tin	2.5	U	12.5	U				P
Vanadium	2.95	J	5	U	100			P
Zinc	16.8		16.5	U	100			P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 12−1482 **Client ID** CAMO−12−21749L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 309455003 **Serial Dilution ID:** 1202717288

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	175		171		2.24			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.61		1.82	J	13			MS
Nickel	2.15		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	.957		.975	J	1.88			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 12−1482 **Client ID** WTLAP−12−14611L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 309440007 **Serial Dilution ID:** 1202717970

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. 12−1482 **Client ID** CAMO−12−21749L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 309455003 **Serial Dilution ID:** 1202717971

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 (ARSL)
SDG 12-1482

Method/Analysis Information

Product:	**Carbon, Total Organic**		
Analytical Batch:	1237582	**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
309455001	CAMO-12-21741
1202717716	Method Blank (MB)
1202717717	309454001(CAMO-12-21735) Sample Duplicate (DUP)
1202717719	309454001(CAMO-12-21735) Post Spike (PS)
1202717721	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# 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 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: 309454001 (CAMO-12-21735).

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

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

Technical Information

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

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

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

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

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

Miscellaneous Information

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

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

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

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

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1239221	**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
309455003	CAMO-12-21749
1202721941	309454002(CAMO-12-21743) Sample Duplicate (DUP)
1202721942	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: 309454002 (CAMO-12-21743).

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: 1239874 **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
309455003	CAMO-12-21749
1202723542	309454002(CAMO-12-21743) Sample Duplicate (DUP)
1202723543	309669002(CASA-12-21649) Sample Duplicate (DUP)
1202723544	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-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 PerpHect pH Meter Orion 370.

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 samples were selected for QC analysis: 309454002 (CAMO-12-21743) and 309669002 (CASA-12-21649).

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: 309455003 (CAMO-12-21749).

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: 1112791 309455003 (CAMO-12-21749).

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:	1237343	**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
309455003	CAMO-12-21749
1202717116	Method Blank (MB)
1202717117	309454002(CAMO-12-21743) Sample Duplicate (DUP)
1202717118	309454002(CAMO-12-21743) Post Spike (PS)
1202717119	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-086 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 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 sample was selected for QC analysis: 309454002 (CAMO-12-21743).

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
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202717117 (CAMO-12-21743).

Technical Information

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

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

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202717117 (CAMO-12-21743) and 1202717118 (CAMO-12-21743).

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: 1202717117 (CAMO-12-21743), 1202717118 (CAMO-12-21743) and 309455003 (CAMO-12-21749).

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:	1237606	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1237605	**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
309455003	CAMO-12-21749
1202717810	Method Blank (MB)
1202717811	309454002(CAMO-12-21743) Sample Duplicate (DUP)
1202717812	309454002(CAMO-12-21743) Matrix Spike (MS)
1202717813	309454002(CAMO-12-21743) Matrix Spike Duplicate (MSD)
1202717814	Laboratory Control Sample (LCS)
1202720910	309548002(CAMO-12-21794) Sample Duplicate (DUP)
1202720911	309548002(CAMO-12-21794) Matrix Spike (MS)
1202720912	309548002(CAMO-12-21794) Matrix Spike Duplicate (MSD)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 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+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following samples were selected for QC analysis: 309454002 (CAMO-12-21743) and 309548002 (CAMO-12-21794).

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

Matrix Spike Duplicate (MSD) Recovery Statement
The spike duplicate recovery falls outside of the established acceptance limits. Since both the spike recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202720912 (CAMO-12-21794).

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

Duplicate Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202717811 (CAMO-12-21743). The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202720910 (CAMO-12-21794).

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 to verify the results: 1202717811 (CAMO-12-21743), 1202717812 (CAMO-12-21743) and 1202717813 (CAMO-12-21743).

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1112653 1202717811 (CAMO-12-21743) and 1202720912 (CAMO-12-21794).

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:	1240586	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1240585	**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
309455001	CAMO-12-21741
1202725433	Method Blank (MB)
1202725434	309791001(SWWS46-12-22930) Sample Duplicate (DUP)
1202725435	309791001(SWWS46-12-22930) Matrix Spike (MS)
1202725436	309791001(SWWS46-12-22930) Matrix Spike Duplicate (MSD)
1202725437	Laboratory Control Sample (LCS)
1202730363	309910001(CAMO-12-21734) Sample Duplicate (DUP)
1202730364	309910001(CAMO-12-21734) Matrix Spike (MS)
1202730365	309910001(CAMO-12-21734) Matrix Spike Duplicate (MSD)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 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 Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following samples were selected for QC analysis: 309791001 (SWWS46-12-22930) and 309910001 (CAMO-12-21734).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202730364 (CAMO-12-21734).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the 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. 1202730363 (CAMO-12-21734).

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: 1117440 1202730364 (CAMO-12-21734).

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:	1237559	**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
309455003	CAMO-12-21749
1202717655	Method Blank (MB)
1202717658	309454002(CAMO-12-21743) Sample Duplicate (DUP)
1202717661	309454002(CAMO-12-21743) Post Spike (PS)
1202717662	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# 7.

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.

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: 309454002 (CAMO-12-21743).

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

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

Technical Information

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

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

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

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202717658 (CAMO-12-21743) and 1202717661 (CAMO-12-21743). The following sample in this sample group was diluted due to matrix interference: 309455003 (CAMO-12-21749).

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:	1240581	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1240580	**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
309455003	CAMO-12-21749
1202725412	Method Blank (MB)
1202725413	309454002(CAMO-12-21743) Sample Duplicate (DUP)
1202725414	309454002(CAMO-12-21743) Matrix Spike (MS)
1202725415	309454002(CAMO-12-21743) Matrix Spike Duplicate (MSD)
1202725416	Laboratory Control Sample (LCS)
1202730366	309454004(CAMO-12-21744) Sample Duplicate (DUP)
1202730367	309454004(CAMO-12-21744) Matrix Spike (MS)
1202730368	309454004(CAMO-12-21744) Matrix Spike Duplicate (MSD)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 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+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following samples were selected for QC analysis: 309454002 (CAMO-12-21743) and 309454004 (CAMO-12-21744).

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

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

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

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202730366 (CAMO-12-21744).

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, Total Dissolved**		
Analytical Batch:	1238352	**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
309455003	CAMO-12-21749
1202719897	Method Blank (MB)
1202719898	309454002(CAMO-12-21743) Sample Duplicate (DUP)
1202719901	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# 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 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: 309454002 (CAMO-12-21743).

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

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

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

Method/Analysis Information

Product:	**Alkalinity**		
Analytical Batch:	1239254	**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
309455003	CAMO-12-21749
1202722033	Laboratory Control Sample (LCS)
1202722038	309454002(CAMO-12-21743) Sample Duplicate (DUP)
1202722039	309454002(CAMO-12-21743) Matrix Spike (MS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 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 Titration analysis was performed on a Manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 309454002 (CAMO-12-21743).

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 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.

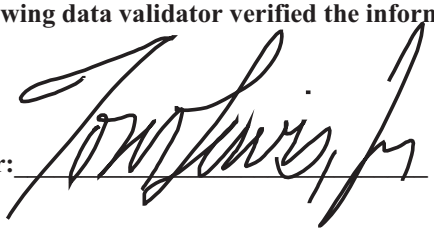
Certification Statement

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:** 06Sep12

Sample Data Summary

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

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 12-1482 GEL Work Order: 309455

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

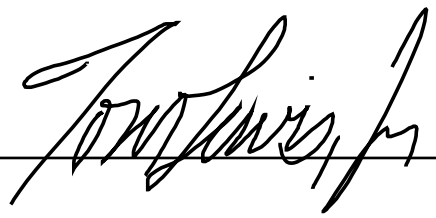
Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

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 detection limit.

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: September 6, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 12-1482

Client Sample ID:	CAMO-12-21741	Project:	ESHL00210
Sample ID:	309455001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	08-AUG-12 17:40		
Receive Date:	10-AUG-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.589	0.330	1.00	mg/L	1	TSM	08/13/12	2202	1237582	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	09/05/12	1425	1240586	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	09/04/12	1700	1240585

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

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

Certificate of Analysis

Report Date: September 6, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 12-1482

Client Sample ID:	CAMO-12-21749	Project:	ESHL00210
Sample ID:	309455003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	08-AUG-12 17:40		
Receive Date:	10-AUG-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		192	1.00	1.00	umhos/cm	1	TXT1	08/17/12	1434	1239221	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 8.80C	H	8.45	0.010	0.100	SU	1	LXA1	08/21/12	1130	1239874	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.118	0.067	0.200	mg/L	1	VH1	08/14/12	0159	1237343	3
Chloride		8.74	0.067	0.200	mg/L	1					
Fluoride		0.202	0.033	0.100	mg/L	1					
Sulfate		14.6	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.148	0.017	0.050	mg/L	1	KLP1	08/21/12	1119	1237606	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		1.33	0.085	0.250	mg/L	5	AXH3	08/16/12	1407	1237559	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0573	0.017	0.050	mg/L	1	KLP1	09/05/12	1101	1240581	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		141	3.40	14.3	mg/L		LYG1	08/15/12	0943	1238352	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		64.5	0.725	1.00	mg/L		LXA1	08/17/12	1425	1239254	8
Carbonate alkalinity (CaCO3)		2.12	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	KLP1	08/20/12	1645	1237605
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	09/04/12	1700	1240580

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

Certificate of Analysis

Report Date: September 6, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 12-1482

Client Sample ID:	CAMO-12-21749	Project:	ESHL00210
Sample ID:	309455003	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

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	

Quality Control Summary

QC Summary

Report Date: September 6, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **309455**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1237582											
QC1202717717 309454001 DUP											
Total Organic Carbon Average			1.10		1.08	mg/L	1.01 ^		(+/-1.00)	TSM	08/13/12 21:00
QC1202717721 LCS											
Total Organic Carbon Average	10.0				9.60	mg/L		96	(85%-115%)		08/13/12 20:18
QC1202717716 MB											
Total Organic Carbon Average				U	ND	mg/L					08/13/12 20:09
QC1202717719 309454001 PS											
Total Organic Carbon Average	10.0		1.10		9.80	mg/L		87	(65%-120%)		08/13/12 21:20
Conductivity Analysis											
Batch 1239221											
QC1202721941 309454002 DUP											
Conductivity			415		416	umhos/cm	0.241		(0%-10%)	TXT1	08/17/12 14:34
QC1202721942 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		08/17/12 14:30
Electrode Analysis											
Batch 1239874											
QC1202723542 309454002 DUP											
pH		H	7.77	H	7.80	SU	0.385		(0%-10%)	LXA1	08/21/12 11:26
QC1202723543 309669002 DUP											
pH		H	8.71	H	8.73	SU	0.229		(0%-10%)		08/21/12 12:05
QC1202723544 LCS											
pH	7.00				7.02	SU		100	(99%-101%)		08/21/12 11:12
Ion Chromatography											
Batch 1237343											
QC1202717117 309454002 DUP											
Bromide			0.295		0.241	mg/L	20.1 ^		(+/-0.200)	VH1	08/14/12 00:34
Chloride			32.9		33.2	mg/L	0.974		(0%-20%)		08/14/12 20:16
Fluoride			0.271		0.279	mg/L	2.73 ^		(+/-0.100)		08/14/12 00:34
Sulfate			47.3		48.4	mg/L	2.31		(0%-20%)		08/14/12 20:16
QC1202717119 LCS											
Bromide	2.50				2.59	mg/L		103	(90%-110%)		08/13/12 23:38
Chloride	10.0				9.68	mg/L		96.8	(90%-110%)		
Fluoride	5.00				5.03	mg/L		101	(90%-110%)		
Sulfate	20.0				19.5	mg/L		97.6	(90%-110%)		
QC1202717116 MB											
Bromide				U	ND	mg/L					08/13/12 23:10
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202717118 309454002 PS											
Bromide	2.50		0.295		2.83	mg/L		101	(90%-110%)		08/14/12 01:02

QC Summary

Workorder: 309455

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1237343											
Chloride	10.0		3.29		13.7	mg/L		104	(90%-110%)		08/14/12 20:44
Fluoride	5.00		0.271		5.08	mg/L		96.2	(90%-110%)	VH1	08/14/12 01:02
Sulfate	20.0		4.73		24.7	mg/L		99.8	(90%-110%)		08/14/12 20:44
Nutrient Analysis											
Batch 1237559											
QC1202717658 309454002 DUP											
Nitrogen, Nitrate/Nitrite			3.74		3.57	mg/L	4.66		(0%-20%)	AXH3	08/16/12 14:20
QC1202717662 LCS											
Nitrogen, Nitrate/Nitrite	1.00				0.996	mg/L		99.6	(90%-110%)		08/16/12 13:45
QC1202717655 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					08/16/12 13:43
QC1202717661 309454002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.747		1.71	mg/L		96.3	(90%-110%)		08/16/12 14:22
Batch 1237606											
QC1202717811 309454002 DUP											
Nitrogen, Ammonia			0.144		0.217	mg/L	40.4* ^		(+/-0.050)	KLP1	08/21/12 12:40
QC1202720910 309548002 DUP											
Nitrogen, Ammonia		J	0.0328	J	0.0235	mg/L	33.0 ^		(+/-0.050)		08/21/12 11:25
QC1202717814 LCS											
Nitrogen, Ammonia	1.00				1.09	mg/L		109	(90%-110%)		08/21/12 11:14
QC1202717810 MB											
Nitrogen, Ammonia				U	ND	mg/L					08/21/12 11:13
QC1202717812 309454002 MS											
Nitrogen, Ammonia	1.00		0.144		1.13	mg/L		98.6	(90%-110%)		08/21/12 12:41
QC1202720911 309548002 MS											
Nitrogen, Ammonia	1.00	J	0.0328		1.08	mg/L		105	(90%-110%)		08/21/12 11:26
QC1202717813 309454002 MSD											
Nitrogen, Ammonia	1.00		0.144		1.07	mg/L	5.45	92.6	(0%-15%)		08/21/12 12:42
QC1202720912 309548002 MSD											
Nitrogen, Ammonia	1.00	J	0.0328		1.17	mg/L	8.00	114*	(0%-15%)		08/21/12 11:26
Batch 1240581											
QC1202725413 309454002 DUP											
Phosphorus, Total as P		J	0.0443	J	0.0428	mg/L	3.44 ^		(+/-0.050)	KLP1	09/05/12 10:51
QC1202730366 309454004 DUP											
Phosphorus, Total as P			0.071	J	0.0419	mg/L	51.6 ^		(+/-0.050)		09/05/12 10:55
QC1202725416 LCS											
Phosphorus, Total as P	1.00				1.11	mg/L		111	(84%-122%)		09/05/12 10:50
QC1202725412 MB											
Phosphorus, Total as P				J	0.0454	mg/L					09/05/12 10:49
QC1202725414 309454002 MS											
Phosphorus, Total as P	1.00	J	0.0443		1.07	mg/L		103	(46%-146%)		09/05/12 10:52
QC1202730367 309454004 MS											
Phosphorus, Total as P	1.00		0.071		1.13	mg/L		106	(46%-146%)		09/05/12 10:55
QC1202725415 309454002 MSD											
Phosphorus, Total as P	1.00	J	0.0443		1.10	mg/L	2.76	106	(0%-21%)		09/05/12 10:53
QC1202730368 309454004 MSD											
Phosphorus, Total as P	1.00		0.071		1.11	mg/L	1.79	104	(0%-21%)		09/05/12 10:56

QC Summary

Workorder: 309455

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1240586											
QC1202725434 309791001 DUP											
Nitrogen, Total Kjeldahl			0.887		0.880	mg/L	0.792		(0%-20%)	KLP1	09/05/12 14:30
QC1202730363 309910001 DUP											
Nitrogen, Total Kjeldahl		J	0.0945	J	0.0605	mg/L	43.9 ^		(+/-0.100)		09/05/12 14:33
QC1202725437 LCS											
Nitrogen, Total Kjeldahl	1.00				0.923	mg/L		92.3	(90%-110%)		09/05/12 14:24
QC1202725433 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					09/05/12 14:23
QC1202725435 309791001 MS											
Nitrogen, Total Kjeldahl	1.00		0.887		1.88	mg/L		99.3	(90%-110%)		09/05/12 14:31
QC1202730364 309910001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0945		0.951	mg/L		85.7 *	(90%-110%)		09/05/12 14:34
QC1202725436 309791001 MSD											
Nitrogen, Total Kjeldahl	1.00		0.887		1.93	mg/L	2.62	104	(0%-20%)		09/05/12 14:32
QC1202730365 309910001 MSD											
Nitrogen, Total Kjeldahl	1.00	J	0.0945		0.994	mg/L	4.42	90	(0%-20%)		09/05/12 14:35
Solids Analysis											
Batch 1238352											
QC1202719898 309454002 DUP											
Total Dissolved Solids			287		284	mg/L	1.00		(0%-10%)	LYG1	08/15/12 09:43
QC1202719901 LCS											
Total Dissolved Solids	300				286	mg/L		95.2	(95%-105%)		08/15/12 09:43
QC1202719897 MB											
Total Dissolved Solids				U	ND	mg/L					08/15/12 09:43
Titration Analysis											
Batch 1239254											
QC1202722038 309454002 DUP											
Alkalinity, Total as CaCO3			78.3		78.3	mg/L	0.00		(0%-20%)	LXA1	08/17/12 14:12
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202722033 LCS											
Alkalinity, Total as CaCO3	50.0				52.9	mg/L		106	(90%-110%)		08/17/12 13:30
QC1202722039 309454002 MS											
Alkalinity, Total as CaCO3	50.0		78.3		131	mg/L		105	(80%-120%)		08/17/12 14:15

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- 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

QC Summary

Workorder: 309455

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

E	General Chemistry--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
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
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	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
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
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
h	Preparation or preservation holding time was exceeded

QC Summary

Workorder: **309455**

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ 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:**
21-AUG-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL, ORNL, UDSL
Batch ID:	**Sample Numbers:**		
1237606	See below.		

Potentially affected work order(s)(SDG): 309454(12-1481),309455(12-1482),309477,309548(12-1492),309643,309669(12-1495),309704(12-1496),309709(12-1498)

Application Issues:

Failed RPD for DUP

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed RPD for DUP: QC 1202717811DUP 2. Failed Recovery for MSD: QC 1202720912MSD	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. The spike duplicate recovery falls outside of the established acceptance limits. Since both the spike recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:

Kristen Parson 21-AUG-12

Data Validator/Group Leader:

Julia Hamilton 21-AUG-12

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
21-AUG-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	BRKL, DMAX, ESHL, FDAN
Batch ID:	**Sample Numbers:**		
1239874	See below.		

Potentially affected work order(s)(SDG): 309321,309454(12-1481),309455(12-1482),309497(2012-2174),309548(12-1492),309550(2012-2188),309641(32181),309648(32182),309669(12-1495),309704(12-1496),309709(12-1498),309866

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	**DER Disposition:**
1. Sample received out of holding: 309321 006,007,008,009 309454 002,004 309455 003 309497 006 309548 002,005 309550 006,016 309641 001 309648 001 309669 002,004,006 309704 002 309709 002 309866 001	1. Samples were received out of holding.

Originator's Name:
Lindsey Jensen 21-AUG-12

Data Validator/Group Leader:
Julia Hamilton 24-AUG-12

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
05-SEP-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1240586	See below.		

Potentially affected work order(s)(SDG): 309455(12-1482),309791(12-1502),309910(12-1509),309911(12-1508),309996(12-1510),310070(12-1511),310346(12-1519),310348(12-1518)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MS: QC 1202730364MS	1. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:

Kristen Parson 05-SEP-12

Data Validator/Group Leader:

Julia Hamilton 05-SEP-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 12-1482
Work Order 309455

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1237713

Sample ID	Client ID
309455001	CAMO-12-21741
1202718140	Method Blank (MB)
1202718141	309455001(CAMO-12-21741) Sample Duplicate (DUP)
1202718142	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-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202718140 (MB) and 1202718142 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 309455001 (CAMO-12-21741). The QC was from ARSL work order 309455.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

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

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1237714

Sample ID	Client ID
309455001	CAMO-12-21741
1202718143	Method Blank (MB)
1202718144	309455001(CAMO-12-21741) Sample Duplicate (DUP)
1202718145	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-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202718143 (MB) and 1202718145 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 309455001 (CAMO-12-21741). The QC was from ARSL work order 309455.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result for Plutonium-239 is greater than 1.65 times the CSU but less than the MDC.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

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

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result for Plutonium-239 is greater than the decision level but less than the MDC.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1237715

Sample ID	Client ID
309455001	CAMO-12-21741
1202718146	Method Blank (MB)
1202718147	309455001(CAMO-12-21741) Sample Duplicate (DUP)
1202718148	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-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202718146 (MB) and 1202718148 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 309455001 (CAMO-12-21741). The QC was from ARSL work order 309455.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result for Uranium-238 is greater than 1.65 times the CSU but less than the MDC.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

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

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1238310

Sample ID	Client ID
309455001	CAMO-12-21741
1202719791	Method Blank (MB)
1202719792	309548001(CAMO-12-21785) Sample Duplicate (DUP)
1202719793	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-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 309548001 (CAMO-12-21785). The QC was from ARSL work order 309548.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

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

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1239939

Sample ID	Client ID
309455001	CAMO-12-21741
1202723779	Method Blank (MB)
1202723780	309911001(CASA-12-21643) Sample Duplicate (DUP)
1202723781	309911001(CASA-12-21643) Matrix Spike (MS)
1202723782	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-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202723779 (MB) and 1202723782 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 309911001 (CASA-12-21643). The QC was from ARSL work order 309911.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

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

Sample Re-prep/Re-analysis
Sample 1202723780 (CASA-12-21643) was recounted due to high MDC. The recount is reported.

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

Miscellaneous Information:

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

Additional Comments
The matrix spike, 1202723781 (CASA-12-21643), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1239941

Sample ID	Client ID
309455001	CAMO-12-21741
1202723792	Method Blank (MB)
1202723793	309454003(CAMO-12-21736) Sample Duplicate (DUP)
1202723796	309454003(CAMO-12-21736) Matrix Spike (MS)
1202723797	309454003(CAMO-12-21736) Matrix Spike Duplicate (MSD)
1202723798	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-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha

crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202723792 (MB) and 1202723798 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 309454003 (CAMO-12-21736). The QC was from ARSL work order 309454.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

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

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

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

Additional Comments
The matrix spike and matrix spike duplicate, 1202723796 (CAMO-12-21736) and 1202723797 (CAMO-12-21736), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 12-1482 GEL Work Order: 309455

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.

Review/Validation

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

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

Signature:  **Name: Kate Gellatly**

Date: 06 SEP 2012 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: September 6, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-12-21741
Sample ID: 309455001
Matrix: W
Collect Date: 08-AUG-12
Receive Date: 10-AUG-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00885	+/-0.0078	0.0404	+/-0.00781	0.050	pCi/L		NXP2	08/17/12	1003	1237713	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00	+/-0.00414	0.0197	+/-0.00415	0.050	pCi/L		NXP2	08/17/12	1003	1237714	2
Plutonium-239/240	U	0.0117	+/-0.00926	0.0353	+/-0.00928	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.605	+/-0.0359	0.0538	+/-0.0526	1.00	pCi/L		NXP2	08/17/12	1505	1237715	3
Uranium-235/236	U	0.00995	+/-0.00609	0.0347	+/-0.00612	1.00	pCi/L						
Uranium-238		0.268	+/-0.0236	0.0273	+/-0.0289	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	3.55	+/-1.38	6.11	+/-1.38	8.00	pCi/L		KXG3	08/24/12	0947	1238310	4
Cobalt-60	U	0.822	+/-1.39	5.96	+/-1.39	8.00	pCi/L						
Neptunium-237	U	4.26	+/-2.75	10.8	+/-2.75	10.0	pCi/L						
Potassium-40	U	16.9	+/-17.0	71.7	+/-17.0	10.0	pCi/L						
Sodium-22	U	1.09	+/-1.30	5.73	+/-1.30	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.232	+/-0.131	0.482	+/-0.131	0.500	pCi/L		VXC2	08/29/12	2322	1239939	5
WSP-GrossA/B "As Received"													
Beta	U	1.20	+/-0.677	2.17	+/-0.686	3.00	pCi/L		DYT1	08/31/12	0935	1239941	6
Alpha	U	1.91	+/-0.822	2.24	+/-0.838	3.00	pCi/L		DYT1	09/01/12	1917	1239941	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1237713	74.0	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1237714	71.8	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1237715	88.1	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1239939	78.6	(50%-105%)

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

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: September 6, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-12-21741
Sample ID: 309455001

Project: ESHL00210
Client ID: ARSL001

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

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: September 6, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **309455**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1237713										
QC1202718141 309455001 DUP										
Americium-241	U	0.00885	U	0.00269	pCi/L	0.247		(0-1)	NXP2	08/17/1210:03
	Uncert:	+/-0.0078		+/-0.00466						
	TPU:	+/-0.00781		+/-0.00466						
**Americium-243 Tracer	2.67	1.98		2.18	pCi/L		81.6	(50%-105%)		
	Uncert:	+/-0.089		+/-0.0849						
	TPU:	+/-0.148		+/-0.143						
QC1202718142 LCS										
Americium-241	1.42			1.31	pCi/L		92.5	(80%-120%)		08/17/1210:03
	Uncert:			+/-0.0532						
	TPU:			+/-0.0777						
**Americium-243 Tracer	2.14			1.73	pCi/L		80.8	(50%-105%)		
	Uncert:			+/-0.0677						
	TPU:			+/-0.115						
QC1202718140 MB										
Americium-241			U	0.00235	pCi/L					08/17/1210:03
	Uncert:			+/-0.00408						
	TPU:			+/-0.00408						
**Americium-243 Tracer	2.14			1.60	pCi/L		74.9	(50%-105%)		
	Uncert:			+/-0.0711						
	TPU:			+/-0.119						
Batch 1237714										
QC1202718144 309455001 DUP										
Plutonium-238	U	0.00	U	-0.0026	pCi/L	0.130		(0-1)	NXP2	08/17/1210:03
	Uncert:	+/-0.00414		+/-0.00581						
	TPU:	+/-0.00415		+/-0.00581						
Plutonium-239/240	U	0.0117	U	0.0104	pCi/L	0.0378		(0-1)		
	Uncert:	+/-0.00926		+/-0.00822						
	TPU:	+/-0.00928		+/-0.00823						
**Plutonium-242 Tracer	2.41	1.73		2.00	pCi/L		82.9	(50%-105%)		
	Uncert:	+/-0.0842		+/-0.0793						
	TPU:	+/-0.138		+/-0.132						
QC1202718145 LCS										
Plutonium-238			U	0.00215	pCi/L			(80%-120%)		08/17/1210:03
	Uncert:			+/-0.00373						
	TPU:			+/-0.00373						
Plutonium-239/240	2.03			2.02	pCi/L		99.9	(80%-120%)		
	Uncert:			+/-0.066						
	TPU:			+/-0.111						
**Plutonium-242 Tracer	1.93			1.53	pCi/L		79.5	(50%-105%)		
	Uncert:			+/-0.0646						
	TPU:			+/-0.107						
QC1202718143 MB										

QC Summary

Workorder: 309455

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1237714										
Plutonium-238			U	-0.0062	pCi/L					
	Uncert:			+/-0.00547						
	TPU:			+/-0.00547						
Plutonium-239/240			U	0.0124	pCi/L					
	Uncert:			+/-0.00654						
	TPU:			+/-0.00656						
**Plutonium-242 Tracer	1.93			1.62	pCi/L		83.9	(50%-105%)		
	Uncert:			+/-0.0636						
	TPU:			+/-0.106						
Batch 1237715										
QC1202718147 309455001 DUP										
Uranium-234		0.605		0.615	pCi/L	0.0459		(0-1)	NXP2	08/17/1212:18
	Uncert:	+/-0.0359		+/-0.0353						
	TPU:	+/-0.0526		+/-0.0524						
Uranium-235/236	U	0.00995	U	0.0211	pCi/L	0.330		(0-1)		
	Uncert:	+/-0.00609		+/-0.0108						
	TPU:	+/-0.00612		+/-0.0108						
Uranium-238		0.268		0.264	pCi/L	0.0302		(0-1)		
	Uncert:	+/-0.0236		+/-0.023						
	TPU:	+/-0.0289		+/-0.0283						
**Uranium-232 Tracer	2.74	2.41		2.42	pCi/L		88.2	(50%-105%)		
	Uncert:	+/-0.0748		+/-0.0726						
	TPU:	+/-0.187		+/-0.185						
QC1202718148 LCS										
Uranium-234				2.53	pCi/L					
	Uncert:			+/-0.0605						
	TPU:			+/-0.168						
Uranium-235/236				0.138	pCi/L					
	Uncert:			+/-0.016						
	TPU:			+/-0.0181						
Uranium-238	2.67			2.49	pCi/L		93.5	(80%-120%)		
	Uncert:			+/-0.0598						
	TPU:			+/-0.166						
**Uranium-232 Tracer	2.19			1.97	pCi/L		89.9	(50%-105%)		
	Uncert:			+/-0.0562						
	TPU:			+/-0.147						
QC1202718146 MB										
Uranium-234			U	-0.00487	pCi/L					08/20/1212:01
	Uncert:			+/-0.00625						
	TPU:			+/-0.00625						
Uranium-235/236			U	0.00233	pCi/L					
	Uncert:			+/-0.00404						
	TPU:			+/-0.00404						
Uranium-238			U	0.00943	pCi/L					
	Uncert:			+/-0.00566						
	TPU:			+/-0.00569						
**Uranium-232 Tracer	2.19			2.05	pCi/L		93.4	(50%-105%)		
	Uncert:			+/-0.0648						

QC Summary

Workorder: **309455**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1237715										
	TPU:			+/-0.154						
Rad Gamma Spec										
Batch 1238310										
QC1202719792 309548001 DUP										
Cesium-137	U	-0.869	U	1.93	pCi/L	0.435		(0-1)	KXG3	08/25/1210:29
	Uncert:	+/-1.62		+/-1.60						
	TPU:	+/-1.62		+/-1.60						
Cobalt-60	U	-2.42	U	-1.15	pCi/L	0.200		(0-1)		
	Uncert:	+/-1.62		+/-1.55						
	TPU:	+/-1.62		+/-1.55						
Neptunium-237	U	0.880	U	-3.39	pCi/L	0.348		(0-1)		
	Uncert:	+/-3.18		+/-2.96						
	TPU:	+/-3.18		+/-2.96						
Potassium-40	U	6.77	U	-13.6	pCi/L	0.220		(0-1)		
	Uncert:	+/-23.4		+/-22.8						
	TPU:	+/-23.4		+/-22.8						
Sodium-22	U	1.04	U	1.50	pCi/L	0.0733		(0-1)		
	Uncert:	+/-1.56		+/-1.55						
	TPU:	+/-1.56		+/-1.55						
QC1202719793 LCS										
Americium-241	2780			2760	pCi/L		99.1	(80%-120%)		08/24/1211:46
	Uncert:			+/-156						
	TPU:			+/-156						
Cesium-137	6120			6240	pCi/L		102	(80%-120%)		
	Uncert:			+/-258						
	TPU:			+/-258						
Cobalt-60	5830			5670	pCi/L		97.1	(80%-120%)		
	Uncert:			+/-237						
	TPU:			+/-237						
Neptunium-237			U	47.1	pCi/L					
	Uncert:			+/-20.3						
	TPU:			+/-20.3						
Potassium-40			U	28.9	pCi/L					
	Uncert:			+/-37.8						
	TPU:			+/-37.8						
Sodium-22			U	-1.49	pCi/L					
	Uncert:			+/-6.05						
	TPU:			+/-6.05						
QC1202719791 MB										
Cesium-137			U	-1.69	pCi/L					08/24/1211:45
	Uncert:			+/-1.16						
	TPU:			+/-1.16						
Cobalt-60			U	-1.49	pCi/L					
	Uncert:			+/-1.09						
	TPU:			+/-1.09						
Neptunium-237			U	-4.41	pCi/L					
	Uncert:			+/-2.42						
	TPU:			+/-2.42						

QC Summary

Workorder: 309455

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1238310										
Potassium-40			U	7.75	pCi/L					
Uncert:				+/-15.4						
TPU:				+/-15.4						
Sodium-22			U	0.0894	pCi/L					
Uncert:				+/-1.04						
TPU:				+/-1.04						
Rad Gas Flow										
Batch 1239939										
QC1202723780 309911001 DUP										
Strontium-90	U	0.149	U	0.293	pCi/L	0.251		(0-1)	VXC2	09/05/1213:07
Uncert:		+/-0.135		+/-0.149						
TPU:		+/-0.135		+/-0.151						
**Strontium Carrier	8.14	6.30		6.80	mg		83.5	(50%-105%)		
QC1202723782 LCS										
Strontium-90	25.0			27.5	pCi/L		110	(80%-120%)		08/30/1217:07
Uncert:				+/-0.613						
TPU:				+/-2.37						
**Strontium Carrier	8.14			6.70	mg		82.3	(50%-105%)		
QC1202723779 MB										
Strontium-90			U	-0.0406	pCi/L					08/30/1217:06
Uncert:				+/-0.0673						
TPU:				+/-0.0673						
**Strontium Carrier	8.14			6.70	mg		82.3	(50%-105%)		
QC1202723781 309911001 MS										
Strontium-90	125 U	0.149		130	pCi/L		104	(75%-125%)		08/30/1217:07
Uncert:		+/-0.135		+/-2.96						
TPU:		+/-0.135		+/-10.8						
**Strontium Carrier	8.14	6.30		6.90	mg		84.8	(50%-105%)		
Batch 1239941										
QC1202723793 309454003 DUP										
Alpha	U	-0.106	U	0.181	pCi/L	0.177		(0-1)	DYT1	09/01/1219:27
Uncert:		+/-0.385		+/-0.423						
TPU:		+/-0.386		+/-0.424						
Beta	U	1.37	U	1.70	pCi/L	0.129		(0-1)		08/31/1209:35
Uncert:		+/-0.619		+/-0.637						
TPU:		+/-0.630		+/-0.652						
QC1202723798 LCS										
Alpha	12.0			11.2	pCi/L		92.9	(80%-120%)		09/01/1219:17
Uncert:				+/-0.627						
TPU:				+/-1.23						
Beta	49.9			47.7	pCi/L		95.5	(80%-120%)		08/31/1209:48
Uncert:				+/-0.865						
TPU:				+/-4.03						
QC1202723792 MB										
Alpha			U	0.0052	pCi/L					09/01/1219:17
Uncert:				+/-0.0545						
TPU:				+/-0.0546						
Beta			U	0.189	pCi/L					08/31/1209:33

QC Summary

Workorder: 309455

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1239941										
	Uncert:			+/-0.180						
	TPU:			+/-0.180						
QC1202723796 309454003 MS										
Alpha	481 U	-0.106		448	pCi/L		93	(75%-125%)		09/01/1219:17
	Uncert:	+/-0.385		+/-25.5						
	TPU:	+/-0.386		+/-45.6						
Beta	2000 U	1.37		2020	pCi/L		101	(75%-125%)		08/31/1209:48
	Uncert:	+/-0.619		+/-37.0						
	TPU:	+/-0.630		+/-171						
QC1202723797 309454003 MSD										
Alpha	481 U	-0.106		456	pCi/L	0.0453	94.7	(0-1)		09/01/1219:17
	Uncert:	+/-0.385		+/-26.1						
	TPU:	+/-0.386		+/-46.6						
Beta	2000 U	1.37		2140	pCi/L	0.174	107	(0-1)		08/31/1209:48
	Uncert:	+/-0.619		+/-37.6						
	TPU:	+/-0.630		+/-181						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
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
E	General Chemistry--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
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
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	RPD or %Recovery limits do not apply.

QC Summary

Workorder: **309455**

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

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
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
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
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.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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