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

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-271

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, Received

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24276	Nov 5 2012	10:09	W	2	3		1			1	1
CAMO-13-24280	Nov 5 2012	10:09	W			1		1	1		
CAMO-13-24275	Nov 5 2012	10:09	W	2							

Special Instructions:

Special Instructions:

Relinquished by: S. Sherwood	S. Sherwood	Date/Time: 11/6/12 3pm	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24276 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/05/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1009	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-14 S1		FIELD PREP:	UF	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

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

SAMPLE COMMENTS:
N/A

LOCATION COMMENTS:
N/A

FIELD PARAMETERS:

Dissolved Oxygen 5.64 mg/L Oxidation-Reduction Potential 184.3 MV pH 8.26 SU

Specific Conductance 134 uS/cm Temperature 22.09 deg C Turbidity 0.51 NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrew Stocker	11/5/12 1115		11/5/12 1115
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24275 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/5/2012	**FIELD MATRIX:**	WG	ok
TIME COLLECTED (HH:MM):		1009	**MEDIA:**	UA	↓
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	DC
LOCATION ID:	R-14 S1		**FIELD PREP:**	UF	ok
LOCATION TYPE:			**FIELD QC TYPE:**	FTB	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NM	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL 11/5/12	Y	NM

SAMPLE COMMENTS:

LOCATION COMMENTS: Refer to CAMO-13-24276

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) Andrew Stokes **(Signature)**	**Date/Time** 11/5/12 1115	**RECEIVED BY (Printed Name)** M. Martinez **(Signature)**	**Date/Time** 11/5/12 1115
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24280 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/05/2012	FIELD MATRIX:	WG	dk
TIME COLLECTED (HH:MM):		1009	MEDIA:	UA	
PRS ID:		dk	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-14 S1		FIELD PREP:	F	dk
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

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

SAMPLE COMMENTS: refer to CAMO-13-24276

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) Andrea Stokes **(Signature)**	**Date/Time** 11/5/12 1115	**RECEIVED BY (Printed Name)** **(Signature)**	**Date/Time** 11/5 1115
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-271

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314637	EPA:120.1	1				
314637	EPA:150.1	1				
314637	EPA:160.1	1				
314637	EPA:245.2	1				
314637	EPA:300.0	1				
314637	EPA:310.1	1				
314637	EPA:350.1	1				
314637	EPA:351.2	1				
314637	EPA:353.2	1				
314637	EPA:365.4	1				
314637	EPA:900	1				
314637	EPA:901.1	1				
314637	EPA:905.0	1				
314637	HASL-300:AM-241	1				
314637	HASL-300:ISOPU	1				
314637	HASL-300:ISOU	1				
314637	SM:A2340B	1				
314637	SW-846:6010B	1				
314637	SW-846:6020	1				
314637	SW-846:8260B	1		1		
314637	SW-846:8270C	1				
314637	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
314637	EPA:120.1	1265843	1265843	1							
314637	EPA:150.1	1261553	1261553	1							
314637	EPA:160.1	1261522	1261522	1					1		
314637	EPA:245.2	1264600	1264596	1					1	2	
314637	EPA:300.0	1261315	1261315	1					1		
314637	EPA:310.1	1263936	1263936	1					2	1	
314637	EPA:350.1	1261640	1261639	1					1	1	1
314637	EPA:351.2	1261638	1261637	1					1	1	1
314637	EPA:353.2	1261528	1261528	1					1		
314637	EPA:365.4	1261643	1261641	1					1	1	1
314637	EPA:900	1263054	1263054	1					1	1	1
314637	EPA:901.1	1261091	1261091	1					1		
314637	EPA:905.0	1263026	1263026	1					1	1	
314637	HASL-300:AM-241	1261192	1261192	1					1		
314637	HASL-300:ISOPU	1261194	1261194	1					1		
314637	HASL-300:ISOU	1261195	1261195	1					1		
314637	SM:A2340B	1267632	1267632	1							
314637	SW-846:6010B	1261333	1261332	1					1	1	
314637	SW-846:6020	1261331	1261330	1					1	1	
314637	SW-846:8260B	1263542	1263542	1		1			1		
314637	SW-846:8270C	1262245	1262244	1					1	1	1
314637	SW-846:9060	1260735	1260735	1					1		

Data Validation Report for:

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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				2			
		1				1			
		1				1			
		1				2			
		1				1			
		2				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		2							
		1							
		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-13-24264	1202785832	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	1202785831	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202785833	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24217	1202775968	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202775970	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24280	1202775862	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202775864	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202775861	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24256	1202775359	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202775361	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202775358	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781593	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781606	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202781586	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202782634	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202781585	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202782633	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776123	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776124	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776125	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202776126	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202776122	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776118	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776119	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776120	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24276	314637001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202776121	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202776117	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24256	1202775881	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202775885	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202775880	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776128	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776130	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776132	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202776134	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202776127	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24276	314637001	REG	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779587	DUP	2	0	0	0

Data Validation Report for:

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EPA:900	RAD	CASA-13-24214	1202779588	MS	0	0	2	0
EPA:900	RAD	CASA-13-24214	1202779589	MSD	0	0	2	0
EPA:900	RAD	LCS	1202779590	LCS	0	0	2	0
EPA:900	RAD	MB	1202779586	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24276	1202774852	DUP	6	0	0	0
EPA:901.1	RAD	CAMO-13-24276	314637001	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202774853	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202774851	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779528	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779529	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24276	314637001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202779530	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202779527	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24276	314637001	REG	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24209	1202775076	DUP	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202775077	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202775075	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24276	314637001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24209	1202775079	DUP	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202775080	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202775078	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24276	314637001	REG	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24209	1202775082	DUP	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202775083	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202775081	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24280	314637002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775410	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775411	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-13-24280	314637002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202775409	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202775408	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24280	1202775405	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24280	1202775406	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24280	314637002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202775404	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202775403	MB	11	0	0	0
SW-846:8260B	VOC	CAMO-13-24275	314637003	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24276	314637001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202780641	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202780642	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202780640	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24276	1202777625	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24276	1202777626	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24276	314637001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202777624	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202777623	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24276	314637001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	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	1202773871	METHOD BLANK	SW-846:9060	W	Total Organic Carbon	0.488	J	mg/L	1
MB	1202775408	METHOD BLANK	SW-846:6010B	W	Potassium	81.8	J	ug/L	150

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
CAMO-13-24276	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	0.398	J	1	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-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CASA-13-24214	1202779588	1202779589	EPA:900	Gross alpha	1263054	11/27/2012	W	86.3	103	125	75
CAMO-13-24280	1202775411		SW-846:6010B	Silicon Dioxide	1261332	11/17/2012	W	178		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Silicon Dioxide	1261332	11/17/2012	W	178		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Sodium	1261332	11/17/2012	W	132		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Sodium	1261332	11/17/2012	W	132		125	75
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Benzidine	1262244	11/13/2012	W	0	94	125	10
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Benzoic Acid	1262244	11/13/2012	W	80	53	108	12
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Bis(2-chloroethoxy)methane	1262244	11/13/2012	W	97	66	112	35
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Dichlorophenol[2,4-]	1262244	11/13/2012	W	106	75	110	36
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Dimethylphenol[2,4-]	1262244	11/13/2012	W	96	60	106	31
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Hexachlorocyclopentadiene	1262244	11/13/2012	W	16	15	75	25
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Nitrophenol[2-]	1262244	11/13/2012	W	112	70	115	33
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Pyridine	1262244	11/13/2012	W	13	78	93	21

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

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202777624		SW-846:8270C	Aniline	1262244	11/13/2012	W	127		105	38	10
1202777624		SW-846:8270C	Hexachlorocyclopentadiene	1262244	11/13/2012	W	22		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

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

Rejection Limit	RPD	RPD Limit
10	17.2	15
10	0.939	20
10	17.6	11.5
10		
10		
10		
10		
10	200	30
10	40	30
10	38	30
10	34	30
10	47	30
10	4	30
10	45	30
10	142	30

Upper Reject Limit	RPD	RPD Limit

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

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-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	J	U	I4	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24280	REG	INIT	INORGANIC	SW-846:6010B	Silicon Dioxide		J+	I6b	Y
R-14 S1	2013-271	CAMO-13-24280	REG	INIT	INORGANIC	SW-846:6010B	Sodium	N	J+	I6b	Y

Reason Code	Description
I4	the sample result is =<Sx the concentration of related analyte in the method blank.
I6b	The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
RS	Analyte is not detected because the amount reported is less than the MDC.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
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-13-24275	R-14 S1	FTB	SW-846:8260B	0	80

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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
0.00559	pCi/L	0.00559	pCi/L	0.0318	0.00559	W	11/5/2012		1261192	VAL	Y
-2.29	pCi/L	-2.29	pCi/L	4.65	1.46	W	11/5/2012		1261091	VAL	Y
-1.01	pCi/L	-1.01	pCi/L	5.01	1.43	W	11/5/2012		1261091	VAL	Y
0.88	pCi/L	0.88	pCi/L	2.84	0.814	W	11/5/2012		1263054	VAL	Y
1.5	pCi/L	1.5	pCi/L	2.49	0.776	W	11/5/2012		1263054	VAL	Y
3	ug/L	3	ug/L			W	11/5/2012		1262245	VAL	Y
-2.08	pCi/L	-2.08	pCi/L	10.1	2.92	W	11/5/2012		1261091	VAL	Y
-0.0208	pCi/L	-0.0208	pCi/L	0.0222	0.00834	W	11/5/2012		1261194	VAL	Y
0.00694	pCi/L	0.00694	pCi/L	0.0369	0.00834	W	11/5/2012		1261194	VAL	Y
-17.6	pCi/L	-17.6	pCi/L	52.1	15.8	W	11/5/2012		1261091	VAL	Y
-0.457	pCi/L	-0.457	pCi/L	3.82	1.03	W	11/5/2012		1261091	VAL	Y
0.0232	pCi/L	0.0232	pCi/L	0.44	0.119	W	11/5/2012		1263026	VAL	Y
0.398	mg/L	0.398	mg/L			W	11/5/2012		1260735	VAL	Y
0.00659	pCi/L	0.00659	pCi/L	0.0386	0.00659	W	11/5/2012		1261195	VAL	Y
86300	ug/L	86.3	mg/L			W	11/5/2012		1261333	VAL	Y
11300	ug/L	11.3	mg/L			W	11/5/2012		1261333	VAL	Y

CAMO-13-24276	R-14 S1	REG	EPA:351.2	0	1
CAMO-13-24276	R-14 S1	REG	EPA:900	0	2
CAMO-13-24276	R-14 S1	REG	EPA:901.1	0	5
CAMO-13-24276	R-14 S1	REG	EPA:905.0	0	1
CAMO-13-24276	R-14 S1	REG	HASL-300:AM-241	0	1
CAMO-13-24276	R-14 S1	REG	HASL-300:ISOPU	0	2
CAMO-13-24276	R-14 S1	REG	HASL-300:ISOU	0	3
CAMO-13-24276	R-14 S1	REG	SW-846:8260B	0	80
CAMO-13-24276	R-14 S1	REG	SW-846:8270C	0	80
CAMO-13-24276	R-14 S1	REG	SW-846:9060	0	1
CAMO-13-24280	R-14 S1	REG	EPA:120.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:150.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:160.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:245.2	0	1
CAMO-13-24280	R-14 S1	REG	EPA:300.0	0	4
CAMO-13-24280	R-14 S1	REG	EPA:310.1	0	2
CAMO-13-24280	R-14 S1	REG	EPA:350.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:353.2	0	1
CAMO-13-24280	R-14 S1	REG	EPA:365.4	0	1
CAMO-13-24280	R-14 S1	REG	SM:A2340B	0	1
CAMO-13-24280	R-14 S1	REG	SW-846:6010B	0	17
CAMO-13-24280	R-14 S1	REG	SW-846:6020	0	11

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1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
314637	EPA:120.1	1				
314637	EPA:150.1	1				
314637	EPA:160.1	1				
314637	EPA:245.2	1				
314637	EPA:300.0	1				
314637	EPA:310.1	1				
314637	EPA:350.1	1				
314637	EPA:351.2	1				
314637	EPA:353.2	1				
314637	EPA:365.4	1				
314637	EPA:900	1				
314637	EPA:901.1	1				
314637	EPA:905.0	1				
314637	HASL-300:AM-241	1				
314637	HASL-300:ISOPU	1				
314637	HASL-300:ISOU	1				
314637	SM:A2340B	1				
314637	SW-846:6010B	1				
314637	SW-846:6020	1				
314637	SW-846:8260B	1		1		
314637	SW-846:8270C	1				
314637	SW-846:9060	1				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
314637	EPA:120.1	1265843	1265843	1							
314637	EPA:150.1	1261553	1261553	1							
314637	EPA:160.1	1261522	1261522	1					1		
314637	EPA:245.2	1264600	1264596	1					1	2	
314637	EPA:300.0	1261315	1261315	1					1		
314637	EPA:310.1	1263936	1263936	1					2	1	
314637	EPA:350.1	1261640	1261639	1					1	1	1
314637	EPA:351.2	1261638	1261637	1					1	1	1
314637	EPA:353.2	1261528	1261528	1					1		
314637	EPA:365.4	1261643	1261641	1					1	1	1
314637	EPA:900	1263054	1263054	1					1	1	1
314637	EPA:901.1	1261091	1261091	1					1		
314637	EPA:905.0	1263026	1263026	1					1	1	
314637	HASL-300:AM-241	1261192	1261192	1					1		
314637	HASL-300:ISOPU	1261194	1261194	1					1		
314637	HASL-300:ISOU	1261195	1261195	1					1		
314637	SM:A2340B	1267632	1267632	1							
314637	SW-846:6010B	1261333	1261332	1					1	1	
314637	SW-846:6020	1261331	1261330	1					1	1	
314637	SW-846:8260B	1263542	1263542	1		1			1		
314637	SW-846:8270C	1262245	1262244	1					1	1	1
314637	SW-846:9060	1260735	1260735	1					1		

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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				2			
		1				1			
		1				1			
		1				2			
		1				1			
		2				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		2							
		1							
		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-13-24264	1202785832	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	1202785831	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202785833	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24217	1202775968	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202775970	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24280	1202775862	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202775864	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202775861	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24256	1202775359	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202775361	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202775358	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781593	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781606	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202781586	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202782634	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202781585	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202782633	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776123	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776124	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776125	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202776126	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202776122	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776118	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776119	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776120	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24276	314637001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202776121	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202776117	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24256	1202775881	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202775885	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202775880	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776128	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776130	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776132	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202776134	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202776127	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24276	314637001	REG	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779587	DUP	2	0	0	0

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EPA:900	RAD	CASA-13-24214	1202779588	MS	0	0	2	0
EPA:900	RAD	CASA-13-24214	1202779589	MSD	0	0	2	0
EPA:900	RAD	LCS	1202779590	LCS	0	0	2	0
EPA:900	RAD	MB	1202779586	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24276	1202774852	DUP	6	0	0	0
EPA:901.1	RAD	CAMO-13-24276	314637001	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202774853	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202774851	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779528	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779529	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24276	314637001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202779530	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202779527	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24276	314637001	REG	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24209	1202775076	DUP	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202775077	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202775075	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24276	314637001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24209	1202775079	DUP	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202775080	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202775078	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24276	314637001	REG	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24209	1202775082	DUP	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202775083	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202775081	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24280	314637002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775410	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775411	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-13-24280	314637002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202775409	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202775408	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24280	1202775405	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24280	1202775406	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24280	314637002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202775404	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202775403	MB	11	0	0	0
SW-846:8260B	VOC	CAMO-13-24275	314637003	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24276	314637001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202780641	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202780642	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202780640	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24276	1202777625	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24276	1202777626	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24276	314637001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202777624	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202777623	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24276	314637001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

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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	1202773871	METHOD BLANK	SW-846:9060	W	Total Organic Carbon	0.488	J	mg/L	1
MB	1202775408	METHOD BLANK	SW-846:6010B	W	Potassium	81.8	J	ug/L	150

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
CAMO-13-24276	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	0.398	J	1	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-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CASA-13-24214	1202779588	1202779589	EPA:900	Gross alpha	1263054	11/27/2012	W	86.3	103	125	75
CAMO-13-24280	1202775411		SW-846:6010B	Silicon Dioxide	1261332	11/17/2012	W	178		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Silicon Dioxide	1261332	11/17/2012	W	178		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Sodium	1261332	11/17/2012	W	132		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Sodium	1261332	11/17/2012	W	132		125	75
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Benzidine	1262244	11/13/2012	W	0	94	125	10
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Benzoic Acid	1262244	11/13/2012	W	80	53	108	12
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Bis(2-chloroethoxy)methane	1262244	11/13/2012	W	97	66	112	35
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Dichlorophenol[2,4-]	1262244	11/13/2012	W	106	75	110	36
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Dimethylphenol[2,4-]	1262244	11/13/2012	W	96	60	106	31
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Hexachlorocyclopentadiene	1262244	11/13/2012	W	16	15	75	25
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Nitrophenol[2-]	1262244	11/13/2012	W	112	70	115	33
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Pyridine	1262244	11/13/2012	W	13	78	93	21

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

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202777624		SW-846:8270C	Aniline	1262244	11/13/2012	W	127		105	38	10
1202777624		SW-846:8270C	Hexachlorocyclopentadiene	1262244	11/13/2012	W	22		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

Data Validation Report for:

Chain Of Custody No. 2013-271

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

Rejection Limit	RPD	RPD Limit
10	17.2	15
10	0.939	20
10	17.6	11.5
10		
10		
10		
10		
10	200	30
10	40	30
10	38	30
10	34	30
10	47	30
10	4	30
10	45	30
10	142	30

Upper Reject Limit	RPD	RPD Limit

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

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-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	J	U	I4	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24280	REG	INIT	INORGANIC	SW-846:6010B	Silicon Dioxide		J+	I6b	Y
R-14 S1	2013-271	CAMO-13-24280	REG	INIT	INORGANIC	SW-846:6010B	Sodium	N	J+	I6b	Y

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
I6b	The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
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-13-24275	R-14 S1	FTB	SW-846:8260B	0	80

Data Validation Report for:

Chain Of Custody No. 2013-271

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
0.00559	pCi/L	0.00559	pCi/L	0.0318	0.00559	W	11/5/2012		1261192	VAL	Y
-2.29	pCi/L	-2.29	pCi/L	4.65	1.46	W	11/5/2012		1261091	VAL	Y
-1.01	pCi/L	-1.01	pCi/L	5.01	1.43	W	11/5/2012		1261091	VAL	Y
0.88	pCi/L	0.88	pCi/L	2.84	0.814	W	11/5/2012		1263054	VAL	Y
1.5	pCi/L	1.5	pCi/L	2.49	0.776	W	11/5/2012		1263054	VAL	Y
3	ug/L	3	ug/L			W	11/5/2012		1262245	VAL	Y
-2.08	pCi/L	-2.08	pCi/L	10.1	2.92	W	11/5/2012		1261091	VAL	Y
-0.0208	pCi/L	-0.0208	pCi/L	0.0222	0.00834	W	11/5/2012		1261194	VAL	Y
0.00694	pCi/L	0.00694	pCi/L	0.0369	0.00834	W	11/5/2012		1261194	VAL	Y
-17.6	pCi/L	-17.6	pCi/L	52.1	15.8	W	11/5/2012		1261091	VAL	Y
-0.457	pCi/L	-0.457	pCi/L	3.82	1.03	W	11/5/2012		1261091	VAL	Y
0.0232	pCi/L	0.0232	pCi/L	0.44	0.119	W	11/5/2012		1263026	VAL	Y
0.398	mg/L	0.398	mg/L			W	11/5/2012		1260735	VAL	Y
0.00659	pCi/L	0.00659	pCi/L	0.0386	0.00659	W	11/5/2012		1261195	VAL	Y
86300	ug/L	86.3	mg/L			W	11/5/2012		1261333	VAL	Y
11300	ug/L	11.3	mg/L			W	11/5/2012		1261333	VAL	Y

CAMO-13-24276	R-14 S1	REG	EPA:351.2	0	1
CAMO-13-24276	R-14 S1	REG	EPA:900	0	2
CAMO-13-24276	R-14 S1	REG	EPA:901.1	0	5
CAMO-13-24276	R-14 S1	REG	EPA:905.0	0	1
CAMO-13-24276	R-14 S1	REG	HASL-300:AM-241	0	1
CAMO-13-24276	R-14 S1	REG	HASL-300:ISOPU	0	2
CAMO-13-24276	R-14 S1	REG	HASL-300:ISOU	0	3
CAMO-13-24276	R-14 S1	REG	SW-846:8260B	0	80
CAMO-13-24276	R-14 S1	REG	SW-846:8270C	0	80
CAMO-13-24276	R-14 S1	REG	SW-846:9060	0	1
CAMO-13-24280	R-14 S1	REG	EPA:120.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:150.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:160.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:245.2	0	1
CAMO-13-24280	R-14 S1	REG	EPA:300.0	0	4
CAMO-13-24280	R-14 S1	REG	EPA:310.1	0	2
CAMO-13-24280	R-14 S1	REG	EPA:350.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:353.2	0	1
CAMO-13-24280	R-14 S1	REG	EPA:365.4	0	1
CAMO-13-24280	R-14 S1	REG	SM:A2340B	0	1
CAMO-13-24280	R-14 S1	REG	SW-846:6010B	0	17
CAMO-13-24280	R-14 S1	REG	SW-846:6020	0	11

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

November 29, 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: 314637
SDG: 2013-271

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 07, 2012, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals 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: 2013-271
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314637
SDG: 2013-271

Table of Contents

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314637
SDG # : 2013-271

November 29, 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 November 07, 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. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry analysis were received at a temperature of 19C. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314637001	CAMO-13-24276
314637002	CAMO-13-24280
314637003	CAMO-13-24275

Case Narrative

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

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and 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 29 November 2012

State	Certification
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	P330−12−00283, P330−12−00284
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
Plant Material Permit	PDEP−12−00260
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	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC. 2040 Savage Rd Charleston SC 29407	**Chain of Custody/Analysis Request** 314639	**COC/Lab Request #:** 2013-271 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, Received

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24276	Nov 5 2012	10:09	W	2	3		1			1	1
CAMO-13-24280	Nov 5 2012	10:09	W			1		1	1		
CAMO-13-24275	Nov 5 2012	10:09	W	2							

Special Instructions:

Relinquished by: Sherwood	S. Sherwood	Date/Time: 11/6/12 3pm	Received by: P. Vlent	11-7-12 09:00
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL			**SDG/AR/COC/Work Order: 2013-271**
Received By: Patricia Dent			**Date Received:November 7, 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	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
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 **2-4,19**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):
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-13-24276, for Gross A/B** 34209,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-13-24275 the lab received 1 8260B container COC indicates 2.**
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5013 2C 5462 9832 5002 4C 5462 9832 5024 19C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials P.D. Date 11-7-12 Page 1 of 1

Subject: Sample Issues from today 11/07/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/7/2012 4:54 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good Afternoon all listed below are today's Issues

Containers received for Gross A/B was preserved prior to analysis
RN#2013-270
Sample Id CASA-13-24216 the lab received 2 8082-PCB containers, COC indicates 3.

RN#2013-271
Sample Id CAMO-13-24275 the lab received 1 8260b container, coc indicates 2.

Thanks!

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

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 06NOV12
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MP5R13AAV000

2c

58DC1/6713/18BC

FedEx Express

J111311866B125

2 of 3
MPS# 0263 5462 9832 5013
Mstr# 5462 9832 5002 0201

WED - 07 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

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: 06NOV12
ACTWGT: 55.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MP5R13AAV000

4c

FedEx Express

1 of 3
TRK# 0201 5462 9832 5002
MASTER

WED - 07 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

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: 06NOV12
ACTWGT: 41.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MP5R13AAV000

19c

58DC1/6713/18BC

FedEx Express

J111311866B125

3 of 3
MPS# 0263 5462 9832 5024
Mstr# 5462 9832 5002 0201

WED - 07 NOV A1
PRIORITY OVERNIGHT

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 2013-271

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1263542

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
314637001	CAMO-13-24276
314637003	CAMO-13-24275
1202780640	Method Blank (MB)
1202780641	Laboratory Control Sample (LCS)
1202780642	Laboratory Control Sample (LCS)
1202780643	314637001(CAMO-13-24276) Post Spike (PS)
1202780644	314637001(CAMO-13-24276) Post Spike Duplicate (PSD)

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

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

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 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 314637001 (CAMO-13-24276) 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
VOA1.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	RTX-624	Restek, 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: 2013-271 GEL Work Order: 314637

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: 04 DEC 2012 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:05**				
Data File:	**111412V1\1M311.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:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:05**				
Data File:	**111412V1\1M311.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:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:05**				
Data File:	**111412V1\1M311.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	53.4	50.0	ug/L	107	(78%-124%)
Bromofluorobenzene	50.1	50.0	ug/L	100	(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:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637003**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24275**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:35**				
Data File:	**111412V1\1M312.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:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637003**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24275**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:35**				
Data File:	**111412V1\1M312.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:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637003**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24275**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:35**				
Data File:	**111412V1\1M312.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	(78%-124%)
Bromofluorobenzene	48.5	50.0	ug/L	96.9	(80%-120%)
Toluene-d8	50.8	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		

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-271

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202780641	LCS for batch 1263542	105	102	95
1202780642	LCS for batch 1263542	104	101	98
1202780640	MB for batch 1263542	109	103	98
314637001	CAMO-13-24276	107	102	100
314637003	CAMO-13-24275	108	102	97
1202780643	CAMO-13-24276PS	102	102	95
1202780644	CAMO-13-24276PSD	102	101	95

Surrogate			Acceptance Limits
DCED4	=	1,2-Dichloroethane-d4	(78%-124%)
TOL	=	Toluene-d8	(80%-120%)
BFB	=	Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1263542
Matrix: WATER
Lab Sample ID: 1202780641
Instrument: VOA1.I
Analysis Date: 11/14/2012 12:01
Dilution: 1
Analyst: ACJ
Prep Batch ID 1263542
Purge Vol: 5 mL
Batch ID: 1263542

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	54.6	109	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	53.2	106	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	47.9	96	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	51.8	104	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	53.4	107	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	59.9	120	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	47.1	94	74-120
67-64-1	LCS	Acetone	250	0.0	338	135	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1220	98	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	56.5	113	76-127
74-88-4	LCS	Iodomethane	250	0.0	279	111	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	49.1	98	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	279	112	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	51.7	103	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	52.5	105	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	258	103	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	50.0	100	79-120
78-93-3	LCS	2-Butanone	250	0.0	369	148	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	50.8	102	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	60.6	121	76-145
67-66-3	LCS	Chloroform	50.0	0.0	49.8	100	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	49.4	99	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1263542
Matrix: WATER
Lab Sample ID: 1202780641
Instrument: VOA1.I
Analysis Date: 11/14/2012 12:01
Dilution: 1
Analyst: ACJ
Prep Batch ID 1263542
Purge Vol: 5 mL
Batch ID: 1263542

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	58.1	116	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	54.6	109	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	6390	128	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	59.6	119	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	48.5	97	75-121
71-43-2	LCS	Benzene	50.0	0.0	48.0	96	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	51.6	103	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	46.5	93	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	49.3	99	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	49.2	98	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	306	123	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	51.8	104	80-127
108-88-3	LCS	Toluene	50.0	0.0	48.8	98	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	52.1	104	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	46.8	94	79-120
591-78-6	LCS	2-Hexanone	250	0.0	382	153	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	47.3	95	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	51.6	103	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	51.4	103	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	50.0	100	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	48.0	96	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	51.1	102	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1263542
Matrix: WATER
Lab Sample ID: 1202780641
Instrument: VOA1.I
Analysis Date: 11/14/2012 12:01
Dilution: 1
Analyst: ACJ
Prep Batch ID 1263542
Purge Vol: 5 mL
Batch ID: 1263542

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	104	104	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	53.3	107	80-120
100-42-5	LCS	Styrene	50.0	0.0	53.7	107	80-121
75-25-2	LCS	Bromoform	50.0	0.0	51.1	102	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	47.3	95	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	50.6	101	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	47.3	95	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	51.7	103	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	50.0	100	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	54.6	109	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	53.4	107	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	49.3	99	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	54.1	108	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	52.7	105	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	54.2	108	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	55.4	111	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	48.3	97	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	47.4	95	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	53.4	107	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	47.2	94	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	49.8	100	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	48.0	96	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1263542
Matrix: WATER
Lab Sample ID: 1202780641
Instrument: VOA1.I
Analysis Date: 11/14/2012 12:01
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1263542
Purge Vol: 5 mL
Batch ID: 1263542

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	48.6	97	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	51.7	103	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	49.5	99	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	47.7	95	79-120

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1263542
Matrix: WATER
Lab Sample ID: 1202780642
Instrument: VOA1.I
Analysis Date: 11/14/2012 13:32
Dilution: 1
Analyst: ACJ
Prep Batch ID 1263542
Purge Vol: 5 mL
Batch ID: 1263542

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	273	109	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	335	134	65-157
107-05-1	LCS	Allyl chloride	250	0.0	285	114	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	263	105	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	62.2	124	45-159
107-12-0	LCS	Propionitrile	250	0.0	269	108	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	265	106	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2770	111	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	279	112	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	286	114	66-132

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Post Spike
Client ID: CAMO-13-24276PS **Matrix:** W
Lab Sample ID: 1202780643
Instrument: VOA1.I **Analysis Date:** 11/14/2012 21:40 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1263542
Purge Vol: 5 mL **Batch ID:** 1263542

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	54.2	108	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	51.2	102	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	48.4	97	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	50.3	101	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	51.5	103	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	58.3	117	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	47.0	94	69-121
67-64-1	PS	Acetone	250	0.00	U	106	42	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1050	84	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	54.2	108	67-132
74-88-4	PS	Iodomethane	250	0.00	U	269	108	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	49.5	99	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	268	107	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	50.2	100	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	51.6	103	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	225	90	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	49.2	98	75-124
78-93-3	PS	2-Butanone	250	0.00	U	155	62	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	50.1	100	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	57.0	114	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	49.2	98	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	48.8	98	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Post Spike
Client ID: CAMO-13-24276PS **Matrix:** W
Lab Sample ID: 1202780643
Instrument: VOA1.I **Analysis Date:** 11/14/2012 21:40 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1263542
Purge Vol: 5 mL **Batch ID:** 1263542

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	56.0	112	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	53.0	106	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5180	104	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	57.0	114	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	47.3	95	72-126
71-43-2	PS	Benzene	50.0	0.00	U	46.6	93	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	49.5	99	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	46.2	92	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	48.3	97	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	46.8	94	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	233	93	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	48.8	98	72-134
108-88-3	PS	Toluene	50.0	0.00	U	47.1	94	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	49.7	99	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	44.6	89	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	183	73	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	45.8	92	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	51.0	102	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	49.6	99	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	47.6	95	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	46.7	93	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	49.5	99	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Post Spike
Client ID: CAMO-13-24276PS **Matrix:** W
Lab Sample ID: 1202780643
Instrument: VOA1.I **Analysis Date:** 11/14/2012 21:40 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1263542
Purge Vol: 5 mL **Batch ID:** 1263542

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	101	101	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	51.7	103	68-126
100-42-5	PS	Styrene	50.0	0.00	U	51.6	103	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	47.5	95	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	43.5	87	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	46.1	92	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	46.2	92	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	49.9	100	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	48.6	97	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	53.1	106	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	51.8	104	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	47.6	95	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	53.0	106	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	51.0	102	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	52.5	105	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	53.0	106	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	46.6	93	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	45.3	91	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	51.7	103	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	39.9	80	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	48.1	96	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	44.4	89	46-145

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Post Spike
Client ID: CAMO-13-24276PS **Matrix:** W
Lab Sample ID: 1202780643
Instrument: VOA1.I **Analysis Date:** 11/14/2012 21:40 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1263542
Purge Vol: 5 mL **Batch ID:** 1263542

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	46.1	92	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	50.8	102	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	47.7	95	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	46.8	94	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Post Spike Duplicate
Client ID: CAMO-13-24276PSD **Matrix:** W
Lab Sample ID: 1202780644
Instrument: VOA1.I **Analysis Date:** 11/14/2012 22:10 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1263542
Purge Vol: 5 mL **Batch ID:** 1263542

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	54.0	108	36-123	0	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	51.3	103	47-134	0	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	48.9	98	49-129	1	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	50.0	100	56-127	1	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	50.2	100	67-122	3	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	58.5	117	60-123	0	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	47.2	94	69-121	1	0-20
67-64-1	PSD	Acetone	250	0.00	U	110	44	30-143	3	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1080	86	60-133	2	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	53.8	108	67-132	1	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	267	107	69-147	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	49.5	99	56-135	0	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	266	106	65-153	1	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	50.4	101	73-126	0	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	51.0	102	69-128	1	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	225	90	50-143	0	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	48.9	98	75-124	1	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	158	63	30-140	2	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	49.9	100	52-147	0	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	57.1	114	67-143	0	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	48.8	98	75-125	1	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	49.2	98	80-120	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Post Spike Duplicate
Client ID: CAMO-13-24276PSD **Matrix:** W
Lab Sample ID: 1202780644
Instrument: VOA1.I **Analysis Date:** 11/14/2012 22:10 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1263542
Purge Vol: 5 mL **Batch ID:** 1263542

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	55.7	111	69-140	1	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	53.2	106	71-130	0	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	5470	109	53-150	5	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	56.9	114	69-142	0	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	47.3	95	72-126	0	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	47.1	94	73-119	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	50.0	100	54-147	1	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	45.9	92	78-123	1	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	48.9	98	76-131	1	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	47.1	94	79-120	1	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	238	95	68-136	2	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	49.6	99	72-134	2	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	47.2	94	62-126	0	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	50.5	101	72-133	2	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	45.1	90	74-120	1	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	187	75	31-132	2	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	46.4	93	73-121	1	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	50.9	102	54-139	0	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	49.9	100	74-128	1	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	47.9	96	80-120	1	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	47.2	94	73-119	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	49.9	100	66-125	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271
Sample Type: Post Spike Duplicate
Client ID: CAMO-13-24276PSD
Matrix: W
Lab Sample ID: 1202780644
Instrument: VOA1.I
Analysis Date: 11/14/2012 22:10
Dilution: 1
Analyst: ACJ
Prep Batch ID 1263542
Purge Vol: 5 mL
Batch ID: 1263542

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	101	101	56-134	1	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	51.6	103	68-126	0	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	51.7	103	57-138	0	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	49.1	98	66-129	3	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	44.3	89	44-146	2	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	46.8	94	68-129	2	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	46.8	94	70-122	1	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	50.2	100	61-131	1	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	49.0	98	66-126	1	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	53.6	107	65-130	1	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	51.8	104	58-134	0	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	48.2	96	63-125	1	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	53.0	106	66-129	0	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	51.6	103	60-131	1	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	52.1	104	62-130	1	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	53.6	107	62-132	1	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	47.2	94	66-121	1	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	46.2	92	65-119	2	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	52.2	104	55-134	1	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	41.3	83	58-137	4	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	49.6	99	49-139	3	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	45.7	91	46-145	3	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Post Spike Duplicate

Client ID: CAMO-13-24276PSD **Matrix:** W

Lab Sample ID: 1202780644

Instrument: VOA1.I **Analysis Date:** 11/14/2012 22:10 **Dilution:** 1

Analyst: ACJ **Prep Batch ID** 1263542

Purge Vol: 5 mL **Batch ID:** 1263542

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	47.2	94	54-134	2	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	50.6	101	79-128	0	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	49.0	98	55-128	3	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	47.0	94	68-121	1	0-20

Method Blank Summary

SDG Number:	**2013-271**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1263542**	**Instrument ID:**	**VOA1.I**	**Data File:**	**111412V1\1M308BA.D**
Lab Sample ID:	**1202780640**	**Prep Date:**	**11/14/2012 14:34**	**Analyzed:**	**11/14/12 14:34**
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 1263542	1202780641	111412V1\1M303LA.D	11/14/12	1201
02	LCS for batch 1263542	1202780642	111412V1\1M306LA.D	11/14/12	1332
03	CAMO-13-24276	314637001	111412V1\1M311.D	11/14/12	1605
04	CAMO-13-24275	314637003	111412V1\1M312.D	11/14/12	1635
05	CAMO-13-24276PS	1202780643	111412V1\1M322.D	11/14/12	2140
06	CAMO-13-24276PSD	1202780644	111412V1\1M323.D	11/14/12	2210

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780640**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 14:34**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 14:34**				
Data File:	**111412V1\1M308BA.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:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780640**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 14:34**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 14:34**				
Data File:	**111412V1\1M308BA.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:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780640**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 14:34**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 14:34**				
Data File:	**111412V1\1M308BA.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	54.3	50.0	ug/L	109	(78%-124%)
Bromofluorobenzene	49.2	50.0	ug/L	98.5	(80%-120%)
Toluene-d8	51.3	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:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780641**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 12:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 12:01**				
Data File:	**111412V1\1M303LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		54.6	ug/L	0.300	1.00
74-87-3	Chloromethane		53.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		47.9	ug/L	0.300	1.00
74-83-9	Bromomethane		51.8	ug/L	0.300	1.00
75-00-3	Chloroethane		53.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		59.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.1	ug/L	0.300	1.00
67-64-1	Acetone		338	ug/L	3.00	10.0
75-05-8	Acetonitrile		1220	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		56.5	ug/L	0.300	1.00
74-88-4	Iodomethane		279	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		279	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		51.7	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		52.5	ug/L	0.300	1.00
108-05-4	Vinyl acetate		258	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		50.0	ug/L	0.300	1.00
78-93-3	2-Butanone		369	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		50.8	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		60.6	ug/L	0.300	1.00
67-66-3	Chloroform		49.8	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.4	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		58.1	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		54.6	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6390	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		59.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		48.5	ug/L	0.300	1.00
71-43-2	Benzene		48.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.6	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.5	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.2	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		306	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		51.8	ug/L	0.300	1.00
108-88-3	Toluene		48.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		52.1	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.8	ug/L	0.300	1.00
591-78-6	2-Hexanone		382	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780641**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 12:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 12:01**				
Data File:	**111412V1\1M303LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		47.3	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.6	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		51.4	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		50.0	ug/L	0.300	1.00
108-90-7	Chlorobenzene		48.0	ug/L	0.300	1.00
100-41-4	Ethylbenzene		51.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		104	ug/L	0.300	2.00
95-47-6	o-Xylene		53.3	ug/L	0.300	1.00
100-42-5	Styrene		53.7	ug/L	0.300	1.00
75-25-2	Bromoform		51.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.6	ug/L	0.300	1.00
108-86-1	Bromobenzene		47.3	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		51.7	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.0	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		54.6	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		53.4	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		49.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		54.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		52.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		54.2	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		55.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.3	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		47.4	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		53.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		47.2	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		49.8	ug/L	0.300	1.00
91-20-3	Naphthalene		48.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		48.6	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:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780641**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 12:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 12:01**				
Data File:	**111412V1\1M303LA.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		51.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		49.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.4	50.0	ug/L	105	(78%-124%)
Bromofluorobenzene	47.3	50.0	ug/L	94.6	(80%-120%)
Toluene-d8	50.8	50.0	ug/L	102	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780642**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 13:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 13:32**				
Data File:	**111412V1\1M306LA.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:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780642**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 13:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 13:32**				
Data File:	**111412V1\1M306LA.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		273	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		335	ug/L	1.50	5.00
107-05-1	Allyl chloride		285	ug/L	1.50	5.00
107-13-1	Acrylonitrile		263	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		62.2	ug/L	0.300	1.00
107-12-0	Propionitrile		269	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		265	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2770	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		279	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780642**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 13:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 13:32**				
Data File:	**111412V1\1M306LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		286	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	51.8	50.0	ug/L	104	(78%-124%)
Bromofluorobenzene	49.1	50.0	ug/L	98.1	(80%-120%)
Toluene-d8	50.3	50.0	ug/L	101	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780643**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 21:40**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 21:40**				
Data File:	**111412V1\1M322.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		54.2	ug/L	0.300	1.00
74-87-3	Chloromethane		51.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		48.4	ug/L	0.300	1.00
74-83-9	Bromomethane		50.3	ug/L	0.300	1.00
75-00-3	Chloroethane		51.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		58.3	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.0	ug/L	0.300	1.00
67-64-1	Acetone		106	ug/L	3.00	10.0
75-05-8	Acetonitrile		1050	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		54.2	ug/L	0.300	1.00
74-88-4	Iodomethane		269	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.5	ug/L	3.00	10.0
75-15-0	Carbon disulfide		268	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		50.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		51.6	ug/L	0.300	1.00
108-05-4	Vinyl acetate		225	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		49.2	ug/L	0.300	1.00
78-93-3	2-Butanone		155	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		50.1	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		57.0	ug/L	0.300	1.00
67-66-3	Chloroform		49.2	ug/L	0.300	1.00
74-97-5	Bromochloromethane		48.8	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		56.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		53.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5180	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		57.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.3	ug/L	0.300	1.00
71-43-2	Benzene		46.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.2	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		48.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		46.8	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		48.8	ug/L	0.300	1.00
108-88-3	Toluene		47.1	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		44.6	ug/L	0.300	1.00
591-78-6	2-Hexanone		183	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780643**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 21:40**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 21:40**				
Data File:	**111412V1\1M322.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		45.8	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.0	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		49.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		47.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.7	ug/L	0.300	1.00
100-41-4	Ethylbenzene		49.5	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
95-47-6	o-Xylene		51.7	ug/L	0.300	1.00
100-42-5	Styrene		51.6	ug/L	0.300	1.00
75-25-2	Bromoform		47.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		43.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.1	ug/L	0.300	1.00
108-86-1	Bromobenzene		46.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		49.9	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.6	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		53.1	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.8	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		47.6	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		53.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		52.5	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		53.0	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		45.3	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		51.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		39.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.1	ug/L	0.300	1.00
91-20-3	Naphthalene		44.4	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		46.1	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:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780643**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 21:40**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 21:40**				
Data File:	**111412V1\1M322.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		50.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		47.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		46.8	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.0	50.0	ug/L	102	(78%-124%)
Bromofluorobenzene	47.7	50.0	ug/L	95.3	(80%-120%)
Toluene-d8	50.8	50.0	ug/L	102	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780644**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 22:10**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 22:10**				
Data File:	**111412V1\1M323.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		54.0	ug/L	0.300	1.00
74-87-3	Chloromethane		51.3	ug/L	0.300	1.00
75-01-4	Vinyl chloride		48.9	ug/L	0.300	1.00
74-83-9	Bromomethane		50.0	ug/L	0.300	1.00
75-00-3	Chloroethane		50.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		58.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.2	ug/L	0.300	1.00
67-64-1	Acetone		110	ug/L	3.00	10.0
75-05-8	Acetonitrile		1080	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		53.8	ug/L	0.300	1.00
74-88-4	Iodomethane		267	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.5	ug/L	3.00	10.0
75-15-0	Carbon disulfide		266	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		50.4	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		51.0	ug/L	0.300	1.00
108-05-4	Vinyl acetate		225	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		48.9	ug/L	0.300	1.00
78-93-3	2-Butanone		158	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		49.9	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		57.1	ug/L	0.300	1.00
67-66-3	Chloroform		48.8	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		55.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		53.2	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5470	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		56.9	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.3	ug/L	0.300	1.00
71-43-2	Benzene		47.1	ug/L	0.300	1.00
79-01-6	Trichloroethylene		50.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		48.9	ug/L	0.300	1.00
74-95-3	Dibromomethane		47.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		238	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		49.6	ug/L	0.300	1.00
108-88-3	Toluene		47.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		45.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		187	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780644**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 22:10**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 22:10**				
Data File:	**111412V1\1M323.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		46.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		49.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		47.9	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		49.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
95-47-6	o-Xylene		51.6	ug/L	0.300	1.00
100-42-5	Styrene		51.7	ug/L	0.300	1.00
75-25-2	Bromoform		49.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		44.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.8	ug/L	0.300	1.00
108-86-1	Bromobenzene		46.8	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.2	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		49.0	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		53.6	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.8	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		53.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.6	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		52.1	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		53.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.2	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.2	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		52.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		41.3	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		49.6	ug/L	0.300	1.00
91-20-3	Naphthalene		45.7	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		47.2	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:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780644**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 22:10**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 22:10**				
Data File:	**111412V1\1M323.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		50.6	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		49.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.1	50.0	ug/L	102	(78%-124%)
Bromofluorobenzene	47.4	50.0	ug/L	94.8	(80%-120%)
Toluene-d8	50.7	50.0	ug/L	101	(80%-120%)

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-271

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:	1262245
Prep Batch Number:	1262244

Sample Analysis

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

Sample ID	Client ID
314637001	CAMO-13-24276
1202777623	Method Blank (MB)
1202777624	Laboratory Control Sample (LCS)
1202777625	314637001(CAMO-13-24276) Matrix Spike (MS)
1202777626	314637001(CAMO-13-24276) 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# 29.

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(1202777624) did not meet spike recovery limits for Aniline at 127% (SPC limits: 38%-105%) and Hexachlorocyclopentadiene at 21.5% (SPC limits: 38%-79%). Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the LCS (as well as in the MS and MSD). The data results have been reported. Since Aniline was not detected in any of the associated client samples, the biased high recovery had no adverse impact on the data and the results have been reported.

QC Sample Designation
Sample 314637001 (CAMO-13-24276) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS(1202777625(CAMO-13-24276)) did not meet spike recovery limits for Pyridine at 13.1% (SPC limits: 20%-93%), Benzidine at 0.0% (SPC limits: 10%-125%) and Hexachlorocyclopentadiene at 16.1% (SPC limits: 25%-75%). Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the MS and MSD (as well as in the LCS). Since Pyridine and Benzidine recovered well within acceptance limits in the MSD and LCS, the failures appear to be limited to the MS only and the data results have been reported.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD(1202777626(CAMO-13-24276)) did not meet spike recovery limits for Hexachlorocyclopentadiene at 15.5% (SPC limits: 25%-75%). Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the MS and MSD (as well as in the LCS).

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202777626(CAMO-13-24276))/MSD(1202777626(CAMO-13-24276)) displayed RPD values outside of the acceptance limits. Please see the QC Summary Report for specific failures. Since the failed RPD analytes were individually within the acceptance limits for the MS and MSD, with the exception of Pyridine and Benzidine, the non-conformance had no adverse impact on the data and the results have been reported. The Pyridine and Benzidine RPD failures were attributed to the lower recoveries in the MS when compared to the MSD. 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 1139636 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 samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, 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
MSD1.I	Agilent 6890N/5973 GC/MS w/ 7683 Autosampler	HP6890/HP5973	ZB-5ms	25m x 0.2mm, 0.33um (5% Polysilarylene-95% Polydimethylsiloxane)

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: 2013-271 GEL Work Order: 314637

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: Cameron Bearden **Name: Cameron Bearden**

Date: 30 NOV 2012 **Title: Group Leader**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:33**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1306.D**	**Column:**	**25x.20x.33**		

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	U	10.0	ug/L	3.00	10.0
99-09-2	*o-Nitroaniline* 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:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:33**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1306.D**	**Column:**	**25x.20x.33**		

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:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:33**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1306.D**	**Column:**	**25x.20x.33**		

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	91.2	100	ug/L	91.2	(23%-130%)
2-Fluorobiphenyl	31.5	50.0	ug/L	62.9	(30%-104%)
2-Fluorophenol	36.5	100	ug/L	36.5	(14%-77%)
Nitrobenzene-d5	41.2	50.0	ug/L	82.5	(34%-125%)
Phenol-d5	21.7	100	ug/L	21.7	(10%-78%)
p-Terphenyl-d14	36.2	50.0	ug/L	72.4	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.034	26.1	ug/L	0	J
	unknown	2.125	12.3	ug/L	0	J
002597-49-1	Cyclobutane, ethenyl-	2.158	26.9	ug/L	94	NJ
1000154-28-6	Cyclopentene, 1,2,3,4,5-pentamethy	3.887	4.03	ug/L	87	NJ
	unknown	14.368	15.5	ug/L	0	J
	unknown	15.949	17.1	ug/L	0	J
	unknown	17.682	34.8	ug/L	0	J

Quality Control Summary

Surrogate Recovery Report

SDG Number: 2013-271

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202777623	MB for batch 1262244	30	18	99	44	84	69
1202777624	LCS for batch 1262244	56	36	68	52	101	70
314637001	CAMO-13-24276	36	22	82	63	91	72
1202777625	CAMO-13-24276MS	59	45	93	62	95	69
1202777626	CAMO-13-24276MSD	51	41	92	55	86	59

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* 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: 2013-271 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 1262244 **Matrix:** WATER

Lab Sample ID: 1202777624

Instrument: MSD1.I **Analysis Date:** 11/13/2012 09:05 **Dilution:** 1

Analyst: JMB3 **Prep Batch ID** 1262244

Inj. Vol: 1 uL **Batch ID:** 1262245

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	33.7	67	29-86
110-86-1	LCS	Pyridine	50.0	0.0	38.7	77	25-96
62-53-3	LCS	Aniline	50.0	0.0	63.3	127 *	38-105
108-95-2	LCS	Phenol	50.0	0.0	20.4	41	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	40.8	82	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	44.5	89	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	26.1	52	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	25.3	51	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	24.3	49	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	24.2	48	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	33.0	66	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	29.7	59	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	31.5	63	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	31.3	63	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	23.6	47	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	40.1	80	42-118
78-59-1	LCS	Isophorone	50.0	0.0	42.2	84	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	35.9	72	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	31.4	63	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	35.4	71	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	40.1	80	46-106
65-85-0	LCS	Benzoic acid	100	0.0	33.3	33	4-134

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1262244
Matrix: WATER
Lab Sample ID: 1202777624
Instrument: MSD1.I
Analysis Date: 11/13/2012 09:05
Dilution: 1
Analyst: JMB3
Prep Batch ID 1262244
Inj. Vol: 1 uL
Batch ID: 1262245

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	45.8	92	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	27.4	55	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	45.1	90	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	24.8	50	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	25.4	51	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	25.7	51	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	10.8	22 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	40.1	80	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	43.3	87	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	29.7	59	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	40.4	81	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	42.1	84	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	47.4	95	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	50.6	101	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	52.1	104	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	29.5	59	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	33.6	67	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	43.0	86	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	38.0	76	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	44.3	89	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	45.2	90	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	15.3	31	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Laboratory Control Sample
Client ID: LCS for batch 1262244 **Matrix:** WATER
Lab Sample ID: 1202777624
Instrument: MSD1.I **Analysis Date:** 11/13/2012 09:05 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1262244
Inj. Vol: 1 uL **Batch ID:** 1262245

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	36.3	73	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	40.1	80	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	43.8	88	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	51.2	102	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	39.3	79	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	36.8	74	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	40.2	80	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	42.4	85	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	36.5	73	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	40.2	80	47-111
120-12-7	LCS	Anthracene	50.0	0.0	40.0	80	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	42.1	84	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	44.9	90	45-118
129-00-0	LCS	Pyrene	50.0	0.0	44.8	90	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	38.4	77	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	35.7	71	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	41.1	82	49-110
218-01-9	LCS	Chrysene	50.0	0.0	41.2	82	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	34.2	68	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	42.3	85	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	41.9	84	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	39.2	78	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1262244
Matrix: WATER
Lab Sample ID: 1202777624
Instrument: MSD1.I
Analysis Date: 11/13/2012 09:05
Dilution: 1
Analyst: JMB3
Prep Batch ID 1262244
Inj. Vol: 1 uL
Batch ID: 1262245

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	41.3	83	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	37.5	75	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	42.7	85	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	34.1	68	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	37.5	75	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	31.0	62	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	37.1	74	47-115
92-87-5	LCS	Benzidine	100	0.0	65.4	65	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	37.5	75	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	28.9	58	32-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Matrix Spike

Client ID: CAMO-13-24276MS **Matrix:** W

Lab Sample ID: 1202777625

Instrument: MSD1.I **Analysis Date:** 11/13/2012 10:02 **Dilution:** 1

Analyst: JMB3 **Prep Batch ID** 1262244

Inj. Vol: 1 uL **Batch ID:** 1262245

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	118	0.00	U	79.4	67	27-85
110-86-1	MS	Pyridine	118	0.00	U	15.4	13 *	21-93
62-53-3	MS	Aniline	118	0.00	U	79.3	67	28-108
108-95-2	MS	Phenol	118	0.00	U	59.1	50	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	118	0.00	U	78.0	66	27-114
95-57-8	MS	2-Chlorophenol	118	0.00	U	81.0	69	32-103
541-73-1	MS	1,3-Dichlorobenzene	118	0.00	U	56.1	48	23-84
106-46-7	MS	1,4-Dichlorobenzene	118	0.00	U	64.0	54	23-88
95-50-1	MS	1,2-Dichlorobenzene	118	0.00	U	57.2	49	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	118	0.00	U	70.0	60	19-122
100-51-6	MS	Benzyl alcohol	118	0.00	U	91.6	78	34-98
95-48-7	MS	o-Cresol	118	0.00	U	79.6	68	29-96
65794-96-9	MS	m,p-Cresols	118	0.00	U	89.0	76	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	118	0.00	U	76.1	65	32-115
67-72-1	MS	Hexachloroethane	118	0.00	U	55.6	47	25-82
98-95-3	MS	Nitrobenzene	118	0.00	U	127	108	35-124
78-59-1	MS	Isophorone	118	0.00	U	151	129	37-140
88-75-5	MS	2-Nitrophenol	118	0.00	U	132	112	33-115
105-67-9	MS	2,4-Dimethylphenol	118	0.00	U	113	96	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	118	0.00	U	114	97	35-112
120-83-2	MS	2,4-Dichlorophenol	118	0.00	U	124	106	36-110
65-85-0	MS	Benzoic acid	235	0.00	U	187	80	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Matrix Spike

Client ID: CAMO-13-24276MS **Matrix:** W

Lab Sample ID: 1202777625

Instrument: MSD1.I **Analysis Date:** 11/13/2012 10:02 **Dilution:** 1

Analyst: JMB3 **Prep Batch ID** 1262244

Inj. Vol: 1 uL **Batch ID:** 1262245

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	118	0.00	U	102	86	33-120
87-68-3	MS	Hexachlorobutadiene	118	0.00	U	59.4	51	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	118	0.00	U	104	88	36-116
91-57-6	MS	2-Methylnaphthalene	118	0.00	U	54.9	47	27-103
91-20-3	MS	Naphthalene	118	0.00	U	58.4	50	28-99
90-12-0	MS	1-Methylnaphthalene	118	0.00	U	58.2	50	29-107
77-47-4	MS	Hexachlorocyclopentadiene	118	0.00	U	18.9	16 *	25-75
88-06-2	MS	2,4,6-Trichlorophenol	118	0.00	U	96.1	82	36-111
95-95-4	MS	2,4,5-Trichlorophenol	118	0.00	U	102	87	34-115
91-58-7	MS	2-Chloronaphthalene	118	0.00	U	68.6	58	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	118	0.00	U	91.9	78	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	118	0.00	U	96.4	82	32-123
131-11-3	MS	Dimethylphthalate	118	0.00	U	109	93	43-115
606-20-2	MS	2,6-Dinitrotoluene	118	0.00	U	113	96	42-121
121-14-2	MS	2,4-Dinitrotoluene	118	0.00	U	118	100	37-125
208-96-8	MS	Acenaphthylene	118	0.00	U	69.5	59	34-103
83-32-9	MS	Acenaphthene	118	0.00	U	76.0	65	31-104
51-28-5	MS	2,4-Dinitrophenol	118	0.00	U	92.1	78	25-108
132-64-9	MS	Dibenzofuran	118	0.00	U	88.3	75	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	118	0.00	U	103	88	33-123
84-66-2	MS	Diethylphthalate	118	0.00	U	103	87	43-116
100-02-7	MS	4-Nitrophenol	118	0.00	U	62.7	53	26-72

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Matrix Spike
Client ID: CAMO-13-24276MS **Matrix:** W
Lab Sample ID: 1202777625
Instrument: MSD1.I **Analysis Date:** 11/13/2012 10:02 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1262244
Inj. Vol: 1 uL **Batch ID:** 1262245

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	118	0.00	U	81.5	69	33-110
7005-72-3	MS	4-Chlorophenylphenylether	118	0.00	U	87.9	75	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	118	0.00	U	94.7	81	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	118	0.00	U	112	95	31-113
122-39-4	MS	Diphenylamine	118	0.00	U	89.9	76	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	118	0.00	U	83.7	71	33-110
101-55-3	MS	4-Bromophenylphenylether	118	0.00	U	86.9	74	33-111
118-74-1	MS	Hexachlorobenzene	118	0.00	U	96.8	82	36-113
87-86-5	MS	Pentachlorophenol	118	0.00	U	87.0	74	25-110
85-01-8	MS	Phenanthrene	118	0.00	U	90.6	77	36-111
120-12-7	MS	Anthracene	118	0.00	U	91.5	78	36-107
84-74-2	MS	Di-n-butylphthalate	118	0.00	U	96.2	82	38-116
206-44-0	MS	Fluoranthene	118	0.00	U	106	90	35-116
129-00-0	MS	Pyrene	118	0.00	U	104	89	28-126
85-68-7	MS	Butylbenzylphthalate	118	0.00	U	88.2	75	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	118	0.00	U	78.7	67	30-121
56-55-3	MS	Benzo(a)anthracene	118	0.00	U	95.4	81	38-110
218-01-9	MS	Chrysene	118	0.00	U	95.4	81	35-115
117-84-0	MS	Di-n-octylphthalate	118	0.00	U	72.6	62	30-115
205-99-2	MS	Benzo(b)fluoranthene	118	0.00	U	98.2	83	37-115
207-08-9	MS	Benzo(k)fluoranthene	118	0.00	U	100	85	36-118
50-32-8	MS	Benzo(a)pyrene	118	0.00	U	87.9	75	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Matrix Spike

Client ID: CAMO-13-24276MS **Matrix:** W

Lab Sample ID: 1202777625

Instrument: MSD1.I **Analysis Date:** 11/13/2012 10:02 **Dilution:** 1

Analyst: JMB3 **Prep Batch ID** 1262244

Inj. Vol: 1 uL **Batch ID:** 1262245

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	118	0.00	U	94.5	80	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	118	0.00	U	84.2	72	26-124
191-24-2	MS	Benzo(ghi)perylene	118	0.00	U	98.0	83	25-122
123-91-1	MS	1,4-Dioxane	118	0.00	U	82.8	70	26-90
930-55-2	MS	N-Nitrosopyrrolidine	118	0.00	U	89.7	76	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	118	0.00	U	69.1	59	32-94
1912-24-9	MS	Atrazine	118	0.00	U	85.5	73	36-119
92-87-5	MS	Benzidine	235	0.00	U	0.00	0 *	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	118	0.00	U	73.2	62	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	118	0.00	U	72.9	62	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Matrix Spike Duplicate
Client ID: CAMO-13-24276MSD **Matrix:** W
Lab Sample ID: 1202777626
Instrument: MSD1.I **Analysis Date:** 11/13/2012 10:30 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1262244
Inj. Vol: 1 uL **Batch ID:** 1262245

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	118	0.00	U	71.6	61	27-85	10	0-30
110-86-1	MSD Pyridine	118	0.00	U	91.6	78	21-93	142 *	0-30
62-53-3	MSD Aniline	118	0.00	U	98.0	83	28-108	21	0-30
108-95-2	MSD Phenol	118	0.00	U	52.9	45	15-100	11	0-30
111-44-4	MSD bis(2-Chloroethyl) ether	118	0.00	U	67.4	57	27-114	15	0-30
95-57-8	MSD 2-Chlorophenol	118	0.00	U	72.8	62	32-103	11	0-30
541-73-1	MSD 1,3-Dichlorobenzene	118	0.00	U	55.9	48	23-84	0	0-30
106-46-7	MSD 1,4-Dichlorobenzene	118	0.00	U	51.6	44	23-88	22	0-30
95-50-1	MSD 1,2-Dichlorobenzene	118	0.00	U	51.5	44	24-86	11	0-30
39638-32-9	MSD bis(2-Chloroisopropyl)ether	118	0.00	U	58.1	49	19-122	19	0-30
100-51-6	MSD Benzyl alcohol	118	0.00	U	78.4	67	34-98	16	0-30
95-48-7	MSD o-Cresol	118	0.00	U	68.5	58	29-96	15	0-30
65794-96-9	MSD m,p-Cresols	118	0.00	U	88.0	75	26-111	1	0-30
621-64-7	MSD N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	118	0.00	U	73.1	62	32-115	4	0-30
67-72-1	MSD Hexachloroethane	118	0.00	U	53.2	45	25-82	5	0-30
98-95-3	MSD Nitrobenzene	118	0.00	U	124	105	35-124	2	0-30
78-59-1	MSD Isophorone	118	0.00	U	112	95	37-140	30	0-30
88-75-5	MSD 2-Nitrophenol	118	0.00	U	82.9	70	33-115	45 *	0-30
105-67-9	MSD 2,4-Dimethylphenol	118	0.00	U	70.4	60	31-106	47 *	0-30
111-91-1	MSD bis(2-Chloroethoxy)methane	118	0.00	U	77.2	66	35-112	38 *	0-30
120-83-2	MSD 2,4-Dichlorophenol	118	0.00	U	88.1	75	36-110	34 *	0-30
65-85-0	MSD Benzoic acid	235	0.00	U	125	53	12-108	40 *	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Matrix Spike Duplicate
Client ID: CAMO-13-24276MSD **Matrix:** W
Lab Sample ID: 1202777626
Instrument: MSD1.I **Analysis Date:** 11/13/2012 10:30 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1262244
Inj. Vol: 1 uL **Batch ID:** 1262245

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	118	0.00	U	102	87	33-120	0	0-30
87-68-3	MSD Hexachlorobutadiene	118	0.00	U	57.8	49	19-96	3	0-30
59-50-7	MSD Parachlorometa cresol *4-Chloro-3-methylphenol*	118	0.00	U	96.8	82	36-116	7	0-30
91-57-6	MSD 2-Methylnaphthalene	118	0.00	U	52.2	44	27-103	5	0-30
91-20-3	MSD Naphthalene	118	0.00	U	54.9	47	28-99	6	0-30
90-12-0	MSD 1-Methylnaphthalene	118	0.00	U	54.7	47	29-107	6	0-30
77-47-4	MSD Hexachlorocyclopentadiene	118	0.00	U	18.2	15 *	25-75	4	0-30
88-06-2	MSD 2,4,6-Trichlorophenol	118	0.00	U	90.3	77	36-111	6	0-30
95-95-4	MSD 2,4,5-Trichlorophenol	118	0.00	U	95.2	81	34-115	7	0-30
91-58-7	MSD 2-Chloronaphthalene	118	0.00	U	63.8	54	33-96	7	0-30
88-74-4	MSD 2-Nitroaniline *o-Nitroaniline*	118	0.00	U	86.4	73	31-120	6	0-30
99-09-2	MSD 3-Nitroaniline *m-Nitroaniline*	118	0.00	U	93.3	79	32-123	3	0-30
131-11-3	MSD Dimethylphthalate	118	0.00	U	101	86	43-115	8	0-30
606-20-2	MSD 2,6-Dinitrotoluene	118	0.00	U	105	90	42-121	7	0-30
121-14-2	MSD 2,4-Dinitrotoluene	118	0.00	U	113	96	37-125	4	0-30
208-96-8	MSD Acenaphthylene	118	0.00	U	65.1	55	34-103	7	0-30
83-32-9	MSD Acenaphthene	118	0.00	U	71.2	61	31-104	6	0-30
51-28-5	MSD 2,4-Dinitrophenol	118	0.00	U	87.2	74	25-108	6	0-30
132-64-9	MSD Dibenzofuran	118	0.00	U	82.8	70	38-106	6	0-30
58-90-2	MSD 2,3,4,6-Tetrachlorophenol	118	0.00	U	95.3	81	33-123	8	0-30
84-66-2	MSD Diethylphthalate	118	0.00	U	94.5	80	43-116	8	0-30
100-02-7	MSD 4-Nitrophenol	118	0.00	U	57.8	49	26-72	8	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Matrix Spike Duplicate
Client ID: CAMO-13-24276MSD **Matrix:** W
Lab Sample ID: 1202777626
Instrument: MSD1.I **Analysis Date:** 11/13/2012 10:30 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1262244
Inj. Vol: 1 uL **Batch ID:** 1262245

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	118	0.00	U	75.4	64	33-110	8	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	118	0.00	U	82.7	70	30-112	6	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	118	0.00	U	96.5	82	28-131	2	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	118	0.00	U	106	90	31-113	6	0-30
122-39-4	MSD	Diphenylamine	118	0.00	U	82.0	70	36-110	9	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	118	0.00	U	77.3	66	33-110	8	0-30
101-55-3	MSD	4-Bromophenylphenylether	118	0.00	U	81.8	70	33-111	6	0-30
118-74-1	MSD	Hexachlorobenzene	118	0.00	U	88.0	75	36-113	10	0-30
87-86-5	MSD	Pentachlorophenol	118	0.00	U	77.9	66	25-110	11	0-30
85-01-8	MSD	Phenanthrene	118	0.00	U	83.6	71	36-111	8	0-30
120-12-7	MSD	Anthracene	118	0.00	U	84.8	72	36-107	8	0-30
84-74-2	MSD	Di-n-butylphthalate	118	0.00	U	86.0	73	38-116	11	0-30
206-44-0	MSD	Fluoranthene	118	0.00	U	96.1	82	35-116	10	0-30
129-00-0	MSD	Pyrene	118	0.00	U	86.2	73	28-126	19	0-30
85-68-7	MSD	Butylbenzylphthalate	118	0.00	U	74.7	63	32-120	17	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	118	0.00	U	69.2	59	30-121	13	0-30
56-55-3	MSD	Benzo(a)anthracene	118	0.00	U	83.9	71	38-110	13	0-30
218-01-9	MSD	Chrysene	118	0.00	U	84.6	72	35-115	12	0-30
117-84-0	MSD	Di-n-octylphthalate	118	0.00	U	67.2	57	30-115	8	0-30
205-99-2	MSD	Benzo(b)fluoranthene	118	0.00	U	83.6	71	37-115	16	0-30
207-08-9	MSD	Benzo(k)fluoranthene	118	0.00	U	86.4	73	36-118	15	0-30
50-32-8	MSD	Benzo(a)pyrene	118	0.00	U	80.2	68	36-109	9	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-271 **Sample Type:** Matrix Spike Duplicate

Client ID: CAMO-13-24276MSD **Matrix:** W

Lab Sample ID: 1202777626

Instrument: MSD1.I **Analysis Date:** 11/13/2012 10:30 **Dilution:** 1

Analyst: JMB3 **Prep Batch ID** 1262244

Inj. Vol: 1 uL **Batch ID:** 1262245

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	118	0.00	U	88.5	75	28-121	7	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	118	0.00	U	82.2	70	26-124	2	0-30
191-24-2	MSD Benzo(ghi)perylene	118	0.00	U	93.2	79	25-122	5	0-30
123-91-1	MSD 1,4-Dioxane	118	0.00	U	72.8	62	26-90	13	0-30
930-55-2	MSD N-Nitrosopyrrolidine	118	0.00	U	88.8	75	40-113	1	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	118	0.00	U	65.8	56	32-94	5	0-30
1912-24-9	MSD Atrazine	118	0.00	U	75.6	64	36-119	12	0-30
92-87-5	MSD Benzidine	235	0.00	U	221	94	10-125	200 *	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	118	0.00	U	79.7	68	27-109	9	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	118	0.00	U	60.5	51	23-90	19	0-30

Method Blank Summary

SDG Number:	**2013-271**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262244**	**Instrument ID:**	**MSD1.I**	**Data File:**	**s111312.B\s1k1304.D**
Lab Sample ID:	**1202777623**	**Prep Date:**	**11/12/2012 11:25**	**Analyzed:**	**11/13/12 08:37**
Column:	**25x.20x.33**				

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 1262244	1202777624	s111312.B\s1k1305.D	11/13/12	0905
02	CAMO-13-24276	314637001	s111312.B\s1k1306.D	11/13/12	0933
03	CAMO-13-24276MS	1202777625	s111312.B\s1k1307.D	11/13/12	1002
04	CAMO-13-24276MSD	1202777626	s111312.B\s1k1308.D	11/13/12	1030

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777623**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1304.D**	**Column:**	**25x.20x.33**		

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	U	10.0	ug/L	3.00	10.0
99-09-2	*o-Nitroaniline* 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:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777623**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1304.D**	**Column:**	**25x.20x.33**		

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:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777623**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1304.D**	**Column:**	**25x.20x.33**		

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	84.4	100	ug/L	84.4	(23%-130%)
2-Fluorobiphenyl	21.9	50.0	ug/L	43.7	(30%-104%)
2-Fluorophenol	29.6	100	ug/L	29.6	(14%-77%)
Nitrobenzene-d5	49.7	50.0	ug/L	99.4	(34%-125%)
Phenol-d5	17.9	100	ug/L	17.9	(10%-78%)
p-Terphenyl-d14	34.7	50.0	ug/L	69.3	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.039	33.7	ug/L	0	J
	unknown	2.134	11.9	ug/L	0	J
000110-83-8	Cyclohexene	2.172	20.8	ug/L	91	NJ
	unknown	3.872	4.07	ug/L	0	J
	unknown	13.706	4.93	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777624**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:05**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1305.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		33.7	ug/L	3.00	10.0
110-86-1	Pyridine		38.7	ug/L	3.00	10.0
62-53-3	Aniline		63.3	ug/L	3.00	10.0
108-95-2	Phenol		20.4	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		40.8	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		44.5	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		26.1	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		25.3	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		24.3	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		24.2	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		33.0	ug/L	3.00	10.0
95-48-7	o-Cresol		29.7	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		31.3	ug/L	3.00	10.0
	N-Nitrosodipropylamine					
67-72-1	Hexachloroethane		23.6	ug/L	3.00	10.0
98-95-3	Nitrobenzene		40.1	ug/L	3.00	10.0
78-59-1	Isophorone		42.2	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		35.9	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		31.4	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		35.4	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		40.1	ug/L	3.00	10.0
65-85-0	Benzoic acid		33.3	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		45.8	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		27.4	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol		45.1	ug/L	3.00	10.0
	4-Chloro-3-methylphenol					
91-57-6	2-Methylnaphthalene		24.8	ug/L	0.300	1.00
91-20-3	Naphthalene		25.4	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		25.7	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		10.8	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		40.1	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		43.3	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		29.7	ug/L	0.300	1.00
88-74-4	2-Nitroaniline		40.4	ug/L	3.00	10.0
	o-Nitroaniline					
99-09-2	3-Nitroaniline		42.1	ug/L	3.00	10.0
	m-Nitroaniline					
131-11-3	Dimethylphthalate		47.4	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		50.6	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777624**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:05**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1305.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		52.1	ug/L	3.00	10.0
208-96-8	Acenaphthylene		29.5	ug/L	0.300	1.00
83-32-9	Acenaphthene		33.6	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		43.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran		38.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		44.3	ug/L	3.00	10.0
84-66-2	Diethylphthalate		45.2	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		15.3	ug/L	3.00	10.0
86-73-7	Fluorene		36.3	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		40.1	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		43.8	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		51.2	ug/L	3.00	10.0
122-39-4	Diphenylamine		39.3	ug/L	3.00	10.0
122-66-7	Azobenzene		36.8	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		40.2	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		42.4	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		36.5	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		40.2	ug/L	0.300	1.00
120-12-7	Anthracene		40.0	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		42.1	ug/L	3.00	10.0
206-44-0	Fluoranthene		44.9	ug/L	0.300	1.00
129-00-0	Pyrene		44.8	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		38.4	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		35.7	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		41.1	ug/L	0.300	1.00
218-01-9	Chrysene		41.2	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		34.2	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		42.3	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		41.9	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		39.2	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		41.3	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		37.5	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		42.7	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		34.1	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		37.5	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777624**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:05**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1305.D**	**Column:**	**25x.20x.33**		

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		31.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		37.1	ug/L	3.00	10.0
92-87-5	Benzidine		65.4	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		37.5	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		28.9	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	101	100	ug/L	101	(23%-130%)
2-Fluorobiphenyl	26.2	50.0	ug/L	52.4	(30%-104%)
2-Fluorophenol	55.6	100	ug/L	55.6	(14%-77%)
Nitrobenzene-d5	34.0	50.0	ug/L	68.0	(34%-125%)
Phenol-d5	35.6	100	ug/L	35.6	(10%-78%)
p-Terphenyl-d14	34.9	50.0	ug/L	69.8	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777625**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:02**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1307.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		79.4	ug/L	7.06	23.5
110-86-1	Pyridine	J	15.4	ug/L	7.06	23.5
62-53-3	Aniline		79.3	ug/L	7.06	23.5
108-95-2	Phenol		59.1	ug/L	7.06	23.5
111-44-4	bis(2-Chloroethyl) ether		78.0	ug/L	7.06	23.5
95-57-8	2-Chlorophenol		81.0	ug/L	7.06	23.5
541-73-1	1,3-Dichlorobenzene		56.1	ug/L	7.06	23.5
106-46-7	1,4-Dichlorobenzene		64.0	ug/L	7.06	23.5
95-50-1	1,2-Dichlorobenzene		57.2	ug/L	7.06	23.5
39638-32-9	bis(2-Chloroisopropyl)ether		70.0	ug/L	7.06	23.5
100-51-6	Benzyl alcohol		91.6	ug/L	7.06	23.5
95-48-7	o-Cresol		79.6	ug/L	7.06	23.5
65794-96-9	m,p-Cresols		89.0	ug/L	7.06	23.5
621-64-7	N-Nitrosodi--n-propylamine		76.1	ug/L	7.06	23.5
	N-Nitrosodipropylamine					
67-72-1	Hexachloroethane		55.6	ug/L	7.06	23.5
98-95-3	Nitrobenzene		127	ug/L	7.06	23.5
78-59-1	Isophorone		151	ug/L	7.06	23.5
88-75-5	2-Nitrophenol		132	ug/L	7.06	23.5
105-67-9	2,4-Dimethylphenol		113	ug/L	7.06	23.5
111-91-1	bis(2-Chloroethoxy)methane		114	ug/L	7.06	23.5
120-83-2	2,4-Dichlorophenol		124	ug/L	7.06	23.5
65-85-0	Benzoic acid		187	ug/L	14.1	47.1
106-47-8	4-Chloroaniline		102	ug/L	7.76	23.5
87-68-3	Hexachlorobutadiene		59.4	ug/L	7.06	23.5
59-50-7	Parachlorometa cresol		104	ug/L	7.06	23.5
	4-Chloro-3-methylphenol					
91-57-6	2-Methylnaphthalene		54.9	ug/L	0.706	2.35
91-20-3	Naphthalene		58.4	ug/L	0.706	2.35
90-12-0	1-Methylnaphthalene		58.2	ug/L	0.706	2.35
77-47-4	Hexachlorocyclopentadiene	J	18.9	ug/L	7.06	23.5
88-06-2	2,4,6-Trichlorophenol		96.1	ug/L	7.06	23.5
95-95-4	2,4,5-Trichlorophenol		102	ug/L	7.06	23.5
91-58-7	2-Chloronaphthalene		68.6	ug/L	0.706	2.35
88-74-4	2-Nitroaniline		91.9	ug/L	7.06	23.5
	o-Nitroaniline					
99-09-2	3-Nitroaniline		96.4	ug/L	7.06	23.5
	m-Nitroaniline					
131-11-3	Dimethylphthalate		109	ug/L	7.06	23.5
606-20-2	2,6-Dinitrotoluene		113	ug/L	7.06	23.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777625**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:02**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1307.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		118	ug/L	7.06	23.5
208-96-8	Acenaphthylene		69.5	ug/L	0.706	2.35
83-32-9	Acenaphthene		76.0	ug/L	0.706	2.35
51-28-5	2,4-Dinitrophenol		92.1	ug/L	11.8	47.1
132-64-9	Dibenzofuran		88.3	ug/L	7.06	23.5
58-90-2	2,3,4,6-Tetrachlorophenol		103	ug/L	7.06	23.5
84-66-2	Diethylphthalate		103	ug/L	7.06	23.5
100-02-7	4-Nitrophenol		62.7	ug/L	7.06	23.5
86-73-7	Fluorene		81.5	ug/L	0.706	2.35
7005-72-3	4-Chlorophenylphenylether		87.9	ug/L	7.06	23.5
100-01-6	4-Nitroaniline *p-Nitroaniline*		94.7	ug/L	7.06	23.5
534-52-1	2-Methyl-4,6-dinitrophenol		112	ug/L	7.06	23.5
122-39-4	Diphenylamine		89.9	ug/L	7.06	23.5
122-66-7	Azobenzene *1,2-Diphenylhydrazine*		83.7	ug/L	7.06	23.5
101-55-3	4-Bromophenylphenylether		86.9	ug/L	7.06	23.5
118-74-1	Hexachlorobenzene		96.8	ug/L	7.06	23.5
87-86-5	Pentachlorophenol		87.0	ug/L	7.06	23.5
88-85-7	Dinoseb	U	23.5	ug/L	7.06	23.5
85-01-8	Phenanthrene		90.6	ug/L	0.706	2.35
120-12-7	Anthracene		91.5	ug/L	0.706	2.35
84-74-2	Di-n-butylphthalate		96.2	ug/L	7.06	23.5
206-44-0	Fluoranthene		106	ug/L	0.706	2.35
129-00-0	Pyrene		104	ug/L	0.706	2.35
85-68-7	Butylbenzylphthalate		88.2	ug/L	7.06	23.5
117-81-7	bis(2-Ethylhexyl)phthalate		78.7	ug/L	7.06	23.5
56-55-3	Benzo(a)anthracene		95.4	ug/L	0.706	2.35
218-01-9	Chrysene		95.4	ug/L	0.706	2.35
117-84-0	Di-n-octylphthalate		72.6	ug/L	7.06	23.5
205-99-2	Benzo(b)fluoranthene		98.2	ug/L	0.706	2.35
207-08-9	Benzo(k)fluoranthene		100	ug/L	0.706	2.35
50-32-8	Benzo(a)pyrene		87.9	ug/L	1.04	2.35
193-39-5	Indeno(1,2,3-cd)pyrene		94.5	ug/L	0.706	2.35
53-70-3	Dibenzo(a,h)anthracene		84.2	ug/L	0.706	2.35
191-24-2	Benzo(ghi)perylene		98.0	ug/L	0.706	2.35
123-91-1	1,4-Dioxane		82.8	ug/L	7.06	23.5
55-18-5	N-Nitrosodiethylamine	U	23.5	ug/L	7.06	23.5
930-55-2	N-Nitrosopyrrolidine		89.7	ug/L	7.06	23.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777625**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:02**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1307.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	23.5	ug/L	7.06	23.5
95-94-3	1,2,4,5-Tetrachlorobenzene		69.1	ug/L	7.06	23.5
608-93-5	Pentachlorobenzene	U	23.5	ug/L	7.06	23.5
1912-24-9	Atrazine		85.5	ug/L	7.06	23.5
92-87-5	Benzidine	U	23.5	ug/L	7.06	23.5
91-94-1	3,3'-Dichlorobenzidine		73.2	ug/L	7.06	23.5
120-82-1	1,2,4-Trichlorobenzene		72.9	ug/L	7.06	23.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	223	235	ug/L	94.8	(23%-130%)
2-Fluorobiphenyl	72.4	118	ug/L	61.5	(30%-104%)
2-Fluorophenol	139	235	ug/L	59.1	(14%-77%)
Nitrobenzene-d5	109	118	ug/L	93.0	(34%-125%)
Phenol-d5	107	235	ug/L	45.4	(10%-78%)
p-Terphenyl-d14	81.5	118	ug/L	69.2	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777626**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:30**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1308.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		71.6	ug/L	7.06	23.5
110-86-1	Pyridine		91.6	ug/L	7.06	23.5
62-53-3	Aniline		98.0	ug/L	7.06	23.5
108-95-2	Phenol		52.9	ug/L	7.06	23.5
111-44-4	bis(2-Chloroethyl) ether		67.4	ug/L	7.06	23.5
95-57-8	2-Chlorophenol		72.8	ug/L	7.06	23.5
541-73-1	1,3-Dichlorobenzene		55.9	ug/L	7.06	23.5
106-46-7	1,4-Dichlorobenzene		51.6	ug/L	7.06	23.5
95-50-1	1,2-Dichlorobenzene		51.5	ug/L	7.06	23.5
39638-32-9	bis(2-Chloroisopropyl)ether		58.1	ug/L	7.06	23.5
100-51-6	Benzyl alcohol		78.4	ug/L	7.06	23.5
95-48-7	o-Cresol		68.5	ug/L	7.06	23.5
65794-96-9	m,p-Cresols		88.0	ug/L	7.06	23.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		73.1	ug/L	7.06	23.5
67-72-1	Hexachloroethane		53.2	ug/L	7.06	23.5
98-95-3	Nitrobenzene		124	ug/L	7.06	23.5
78-59-1	Isophorone		112	ug/L	7.06	23.5
88-75-5	2-Nitrophenol		82.9	ug/L	7.06	23.5
105-67-9	2,4-Dimethylphenol		70.4	ug/L	7.06	23.5
111-91-1	bis(2-Chloroethoxy)methane		77.2	ug/L	7.06	23.5
120-83-2	2,4-Dichlorophenol		88.1	ug/L	7.06	23.5
65-85-0	Benzoic acid		125	ug/L	14.1	47.1
106-47-8	4-Chloroaniline		102	ug/L	7.76	23.5
87-68-3	Hexachlorobutadiene		57.8	ug/L	7.06	23.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		96.8	ug/L	7.06	23.5
91-57-6	2-Methylnaphthalene		52.2	ug/L	0.706	2.35
91-20-3	Naphthalene		54.9	ug/L	0.706	2.35
90-12-0	1-Methylnaphthalene		54.7	ug/L	0.706	2.35
77-47-4	Hexachlorocyclopentadiene	J	18.2	ug/L	7.06	23.5
88-06-2	2,4,6-Trichlorophenol		90.3	ug/L	7.06	23.5
95-95-4	2,4,5-Trichlorophenol		95.2	ug/L	7.06	23.5
91-58-7	2-Chloronaphthalene		63.8	ug/L	0.706	2.35
88-74-4	2-Nitroaniline *o-Nitroaniline*		86.4	ug/L	7.06	23.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		93.3	ug/L	7.06	23.5
131-11-3	Dimethylphthalate		101	ug/L	7.06	23.5
606-20-2	2,6-Dinitrotoluene		105	ug/L	7.06	23.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777626**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:30**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1308.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		113	ug/L	7.06	23.5
208-96-8	Acenaphthylene		65.1	ug/L	0.706	2.35
83-32-9	Acenaphthene		71.2	ug/L	0.706	2.35
51-28-5	2,4-Dinitrophenol		87.2	ug/L	11.8	47.1
132-64-9	Dibenzofuran		82.8	ug/L	7.06	23.5
58-90-2	2,3,4,6-Tetrachlorophenol		95.3	ug/L	7.06	23.5
84-66-2	Diethylphthalate		94.5	ug/L	7.06	23.5
100-02-7	4-Nitrophenol		57.8	ug/L	7.06	23.5
86-73-7	Fluorene		75.4	ug/L	0.706	2.35
7005-72-3	4-Chlorophenylphenylether		82.7	ug/L	7.06	23.5
100-01-6	4-Nitroaniline *p-Nitroaniline*		96.5	ug/L	7.06	23.5
534-52-1	2-Methyl-4,6-dinitrophenol		106	ug/L	7.06	23.5
122-39-4	Diphenylamine		82.0	ug/L	7.06	23.5
122-66-7	Azobenzene *1,2-Diphenylhydrazine*		77.3	ug/L	7.06	23.5
101-55-3	4-Bromophenylphenylether		81.8	ug/L	7.06	23.5
118-74-1	Hexachlorobenzene		88.0	ug/L	7.06	23.5
87-86-5	Pentachlorophenol		77.9	ug/L	7.06	23.5
88-85-7	Dinoseb	U	23.5	ug/L	7.06	23.5
85-01-8	Phenanthrene		83.6	ug/L	0.706	2.35
120-12-7	Anthracene		84.8	ug/L	0.706	2.35
84-74-2	Di-n-butylphthalate		86.0	ug/L	7.06	23.5
206-44-0	Fluoranthene		96.1	ug/L	0.706	2.35
129-00-0	Pyrene		86.2	ug/L	0.706	2.35
85-68-7	Butylbenzylphthalate		74.7	ug/L	7.06	23.5
117-81-7	bis(2-Ethylhexyl)phthalate		69.2	ug/L	7.06	23.5
56-55-3	Benzo(a)anthracene		83.9	ug/L	0.706	2.35
218-01-9	Chrysene		84.6	ug/L	0.706	2.35
117-84-0	Di-n-octylphthalate		67.2	ug/L	7.06	23.5
205-99-2	Benzo(b)fluoranthene		83.6	ug/L	0.706	2.35
207-08-9	Benzo(k)fluoranthene		86.4	ug/L	0.706	2.35
50-32-8	Benzo(a)pyrene		80.2	ug/L	1.04	2.35
193-39-5	Indeno(1,2,3-cd)pyrene		88.5	ug/L	0.706	2.35
53-70-3	Dibenzo(a,h)anthracene		82.2	ug/L	0.706	2.35
191-24-2	Benzo(ghi)perylene		93.2	ug/L	0.706	2.35
123-91-1	1,4-Dioxane		72.8	ug/L	7.06	23.5
55-18-5	N-Nitrosodiethylamine	U	23.5	ug/L	7.06	23.5
930-55-2	N-Nitrosopyrrolidine		88.8	ug/L	7.06	23.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777626**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:30**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1308.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	23.5	ug/L	7.06	23.5
95-94-3	1,2,4,5-Tetrachlorobenzene		65.8	ug/L	7.06	23.5
608-93-5	Pentachlorobenzene	U	23.5	ug/L	7.06	23.5
1912-24-9	Atrazine		75.6	ug/L	7.06	23.5
92-87-5	Benzidine		221	ug/L	7.06	23.5
91-94-1	3,3'-Dichlorobenzidine		79.7	ug/L	7.06	23.5
120-82-1	1,2,4-Trichlorobenzene		60.5	ug/L	7.06	23.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	203	235	ug/L	86.3	(23%-130%)
2-Fluorobiphenyl	65.1	118	ug/L	55.3	(30%-104%)
2-Fluorophenol	120	235	ug/L	51.1	(14%-77%)
Nitrobenzene-d5	108	118	ug/L	91.8	(34%-125%)
Phenol-d5	95.6	235	ug/L	40.6	(10%-78%)
p-Terphenyl-d14	69.1	118	ug/L	58.7	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1262245	See Below		

Potentially affected work order(s)(SDG): 314637(2013-271),314848(2013-285)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The LCS(1202777624) did not meet spike recovery limits for Aniline at 127% (SPC limits: 38%-105%) and Hexachlorocyclopentadiene at 21.5% (SPC limits: 38%-79%).	1. Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the LCS (as well as in the MS and MSD). The data results have been reported. Since Aniline was not detected in any of the associated client samples, the biased high recovery had no adverse impact on the data and the results have been reported.
2. The MS(1202777625) did not meet spike recovery limits for Pyridine at 13.1% (SPC limits: 20%-93%), Benzidine at 0.0% (SPC limits: 10%-125%) and Hexachlorocyclopentadiene at 16.1% (SPC limits: 25%-75%). 3. The MSD(1202777626) did not meet spike recovery limits for Hexachlorocyclopentadiene at 15.5% (SPC limits: 25%-75%).	2. & 3. Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the MS and MSD (as well as in the LCS). Since Pyridine and Benzidine recovered well within acceptance limits in the MSD and LCS, the failures appear to be limited to the MS only and the data results have been reported.
4. The MS(1202777626)/MSD(1202777626) displayed RPD values outside of the acceptance limits. Please see the QC Summary Report for specific failures.	4. Since the failed RPD analytes were individually within the acceptance limits for the MS and MSD, with the exception of Pyridine and Benzidine, the non-conformance had no adverse impact on the data and the results have been reported. The Pyridine and Benzidine RPD failures were attributed to the lower recoveries in the MS when compared to the MSD. The data results have been reported.

Originator's Name:

Josh Brooks 14-NOV-12

Data Validator/Group Leader:

Barbara Bailey 15-NOV-12

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-271

Sample Analysis

Sample ID	Client ID
314637002	CAMO-13-24280
1202775408	Method Blank (MB) **ICP**
1202775409	Laboratory Control Sample (LCS)
1202775412	314637002(CAMO-13-24280L) Serial Dilution (SD)
1202775410	314637002(CAMO-13-24280D) Sample Duplicate (DUP)
1202775411	314637002(CAMO-13-24280S) Matrix Spike (MS)
1202775403	Method Blank (MB) **ICP-MS**
1202775404	Laboratory Control Sample (LCS)
1202775407	314637002(CAMO-13-24280L) Serial Dilution (SD)
1202775405	314637002(CAMO-13-24280D) Sample Duplicate (DUP)
1202775406	314637002(CAMO-13-24280S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783066	314445002(CAMO-13-24258L) Serial Dilution (SD)
1202783064	314445002(CAMO-13-24258D) Sample Duplicate (DUP)
1202783068	314445002(CAMO-13-24258S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1261333, 1261331, 1264600 and 1267632
Prep Batch :	1261332, 1261330 and 1264596
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-ICP was performed on a PE 7300 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: 314637002 (CAMO-13-24280)-ICP and ICP-MS and 314445002 (CAMO-13-24258)-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. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exception of sodium.

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 instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

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

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

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER ID 1145271. A copy is included in the Miscellaneous Data section of this package.

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:** 12.03.12

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: 2013-271 GEL Work Order: 314637

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

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

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

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 _____ 12.03.13

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-271 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314637002 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CAMO-13-24280 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:52	112012W1-12	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-271 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314637002 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CAMO-13-24280 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/20/12 06:25	121119-3	1261331
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/20/12 16:42	121120-4	1261331
7440-39-3	Barium	28.5	ug/L		1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/20/12 17:57	121120-5	1261331
7440-70-2	Calcium	10600	ug/L		50	200	200	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-47-3	Chromium	5.68	ug/L	J	2	10	10	1	MS	BAJ	11/20/12 06:25	121119-3	1261331
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/19/12 09:43	111912-2	1261333
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 15:47	111712-1	1261333
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/21/12 09:04	121120-11	1261331
7439-95-4	Magnesium	3530	ug/L		110	300	300	1	P	HSC	11/17/12 15:47	111712-1	1261333
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/17/12 15:47	111712-1	1261333
7439-98-7	Molybdenum	1.2	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/20/12 06:25	121119-3	1261331
7440-02-0	Nickel	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/20/12 16:42	121120-4	1261331
7440-09-7	Potassium	2200	ug/L		50	150	150	1	P	HSC	11/19/12 09:43	111912-2	1261333
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/20/12 16:42	121120-4	1261331
7631-86-9	Silica	86300	ug/L		53	213	213	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/20/12 16:42	121120-4	1261331
7440-23-5	Sodium	11300	ug/L	N	100	300	300	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-24-6	Strontium	49.9	ug/L		1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/20/12 06:25	121119-3	1261331
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/19/12 09:43	111912-2	1261333
7440-61-1	Uranium	0.930	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/21/12 09:04	121120-11	1261331
7440-62-2	Vanadium	7.66	ug/L		1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/17/12 15:47	111712-1	1261333

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-271 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314637002 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CAMO-13-24280 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	40.9	mg/L		0.453	1.24	1.24	1		JJ2	12/03/12 11:12		1267632

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1261331	1261330	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1261333	1261332	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

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

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−271
Contract: ESHL00210
Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202775403								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202775408								
	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	81.8	ug/L	+/−150	J	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	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
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	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. 2013−271 **Client ID** CAMO−13−24280S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314637002 **Spike ID:** 1202775406

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	192		1	U	200	95.8		MS
Arsenic	ug/L	75−125	78.5		1.7	U	80	96.9		MS
Cadmium	ug/L	75−125	11.3		0.11	U	10	113		MS
Chromium	ug/L	75−125	55.6		5.68	J	50	99.9		MS
Lead	ug/L	75−125	45.1		0.5	U	40	113		MS
Molybdenum	ug/L	75−125	49.9		1.2		50	97.3		MS
Nickel	ug/L	75−125	49.4		0.5	U	50	98.1		MS
Selenium	ug/L	75−125	19.9		1.5	U	20	98		MS
Silver	ug/L	75−125	48.6		0.2	U	50	97.3		MS
Thallium	ug/L	75−125	98.3		0.45	U	100	98.3		MS
Uranium	ug/L	75−125	57.1		0.93		50	112		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24280S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314637002 **Spike ID:** 1202775411

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5290		68	U	5000	105		P
Barium	ug/L	75−125	548		28.5		500	104		P
Beryllium	ug/L	75−125	530		1	U	500	106		P
Boron	ug/L	75−125	537		15	U	500	105		P
Calcium	ug/L	75−125	16400		10600		5000	118		P
Cobalt	ug/L	75−125	517		1	U	500	103		P
Copper	ug/L	75−125	542		3	U	500	108		P
Iron	ug/L	75−125	5220		30	U	5000	104		P
Magnesium	ug/L	75−125	9000		3530		5000	110		P
Manganese	ug/L	75−125	522		2	U	500	104		P
Potassium	ug/L	75−125	7330		2200		5000	103		P
Silica	ug/L		105000		86300		10700	178	N/A	P
Sodium	ug/L	75−125	17900		11300		5000	132	N	P
Strontium	ug/L	75−125	568		49.9		500	104		P
Tin	ug/L	75−125	507		2.5	U	500	101		P
Vanadium	ug/L	75−125	540		7.66		500	106		P
Zinc	ug/L	75−125	516		3.3	U	500	103		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24258S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314445002 **Spike ID:** 1202783068

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.95		0.067	U	2	97.3		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−271 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24280D

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Duplicate ID:** 1202775405 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.68	J	4.97	J	13.3		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.2		1.12		7.25		MS
Nickel	ug/L		0.5	U	0.5	U			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	0.93		0.881		5.41		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−271 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24280D

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Duplicate ID:** 1202775410 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−20%	28.5		28.6		.525		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	10600		10500		.133		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%	3530		3500		.837		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	2200		2120		3.45		P
Silica	ug/L	+/−20%	86300		86300		.0243		P
Sodium	ug/L	+/−20%	11300		11200		.523		P
Strontium	ug/L	+/−20%	49.9		49.6		.541		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	7.66		7.79		1.66		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−271 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24258D

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Duplicate ID:** 1202783064 **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. 2013−271

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202775404								
	Antimony	ug/L	50	47.6		95.3	80−120	MS
	Arsenic	ug/L	50	49.2		98.3	80−120	MS
	Cadmium	ug/L	50	51.4		103	80−120	MS
	Chromium	ug/L	50	51.2		102	80−120	MS
	Lead	ug/L	50	51.6		103	80−120	MS
	Molybdenum	ug/L	50	46.6		93.1	80−120	MS
	Nickel	ug/L	50	51.1		102	80−120	MS
	Selenium	ug/L	50	50.6		101	80−120	MS
	Silver	ug/L	50	48.7		97.4	80−120	MS
	Thallium	ug/L	50	51.2		102	80−120	MS
	Uranium	ug/L	50	52.6		105	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−271

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202775409								
	Aluminum	ug/L	5000	5270		105	80−120	P
	Barium	ug/L	500	510		102	80−120	P
	Beryllium	ug/L	500	514		103	80−120	P
	Boron	ug/L	500	509		102	80−120	P
	Calcium	ug/L	5000	5180		104	80−120	P
	Cobalt	ug/L	500	511		102	80−120	P
	Copper	ug/L	500	510		102	80−120	P
	Iron	ug/L	5000	5120		102	80−120	P
	Magnesium	ug/L	5000	5250		105	80−120	P
	Manganese	ug/L	500	517		103	80−120	P
	Potassium	ug/L	5000	5070		101	80−120	P
	Silica	ug/L	10700	11000		102	80−120	P
	Sodium	ug/L	5000	5500		110	80−120	P
	Strontium	ug/L	500	508		102	80−120	P
	Tin	ug/L	500	511		102	80−120	P
	Vanadium	ug/L	500	520		104	80−120	P
	Zinc	ug/L	500	504		101	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−271

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24280L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Serial Dilution ID:** 1202775407

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	5.68	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.2		1.32	J	9.49			MS
Nickel	.5	U	2.5	U				MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.93		.92	J	1.08			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24280L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Serial Dilution ID:** 1202775412

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	28.5		28.5		.125			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	10600		10300		2.43		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3530		3550		.553			P
Manganese	2	U	10	U				P
Potassium	2200		2380		8.18			P
Silica	86300		86400		.155		10	P
Sodium	11300		11500		1.48		10	P
Strontium	49.9		54.9		9.99			P
Tin	2.5	U	12.5	U				P
Vanadium	7.66		9.56	J	24.8			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24258L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Serial Dilution ID:** 1202783066

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

***Analytical Methods:**

AV **EPA 245.1/245.2**

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
30-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ICP	SW846 3005/6010B	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261333	See Below		

Potentially affected work order(s)(SDG): 314637(2013-271),314639(2013-270)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MS/PS: QC 1202775411MS	1. The matrix spike recovery failed outside of the control limits for sodium due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported.

Originator's Name:

Helen Camello 03-DEC-12

Data Validator/Group Leader:

Theresa McKelvey 03-DEC-12

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-271

Method/Analysis Information

Product:	**Carbon, Total Organic**		
Analytical Batch:	1260735	**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
314637001	CAMO-13-24276
1202773871	Method Blank (MB)
1202773872	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202773874	314445001(CAMO-13-24241) Post Spike (PS)
1202773876	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: 314445001 (CAMO-13-24241).

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 following sample was re-analyzed due to CCV failure: 314637001 (CAMO-13-24276).

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

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

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

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265843	**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
314637002	CAMO-13-24280
1202785831	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202785832	314749002(CAMO-13-24264) Sample Duplicate (DUP)
1202785833	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 samples were selected for QC analysis: 314637002 (CAMO-13-24280) and 314749002 (CAMO-13-24264).

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: 1261553 **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
314637002	CAMO-13-24280
1202775968	314639002(CASA-13-24217) Sample Duplicate (DUP)
1202775970	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 sample was selected for QC analysis: 314639002 (CASA-13-24217).

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: 314637002 (CAMO-13-24280).

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: 1141330 314637002 (CAMO-13-24280).

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:	1261315	**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
314637002	CAMO-13-24280
1202775358	Method Blank (MB)
1202775359	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202775360	314591002(CAMO-13-24256) Post Spike (PS)
1202775361	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-5000 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: 314591002 (CAMO-13-24256).

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

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

Technical Information

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

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

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202775359 (CAMO-13-24256) and 1202775360 (CAMO-13-24256).

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: 1202775359 (CAMO-13-24256), 1202775360 (CAMO-13-24256) and 314637002 (CAMO-13-24280).

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:	1261640	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1261639	**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
314637002	CAMO-13-24280
1202776122	Method Blank (MB)
1202776123	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776124	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776125	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776126	Laboratory Control Sample (LCS)

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

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

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: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity: 1202776124 (CAMO-13-24256).

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

MS/MSD Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202776125 (CAMO-13-24256).

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. 1202776123 (CAMO-13-24256).

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: 1139508 1202776124 (CAMO-13-24256) and 1202776125 (CAMO-13-24256).

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:	1261638	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1261637	**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
314637001	CAMO-13-24276
1202776117	Method Blank (MB)
1202776118	314591001(CAMO-13-24239) Sample Duplicate (DUP)
1202776119	314591001(CAMO-13-24239) Matrix Spike (MS)
1202776120	314591001(CAMO-13-24239) Matrix Spike Duplicate (MSD)
1202776121	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 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 sample was selected for QC analysis: 314591001 (CAMO-13-24239).

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. 1202776119 (CAMO-13-24239).

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

MS/MSD Relative Percent Difference (RPD) Statement
The RPD 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. 1202776118 (CAMO-13-24239).

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: 1139938 1202776119 (CAMO-13-24239).

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:	1261528	**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
314637002	CAMO-13-24280
1202775880	Method Blank (MB)
1202775881	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202775883	314591002(CAMO-13-24256) Post Spike (PS)
1202775885	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.

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

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

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

acceptance limits.

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

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: 1202775881 (CAMO-13-24256) and 1202775883 (CAMO-13-24256).

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:	1261643	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1261641	**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
314637002	CAMO-13-24280
1202776127	Method Blank (MB)
1202776128	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776130	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776132	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776134	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-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 sample was selected for QC analysis: 314591002 (CAMO-13-24256).

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

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

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the 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 following samples were re-analyzed due to CCV failure: 1202776132 (CAMO-13-24256) and 314637002 (CAMO-13-24280).

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:	1261522	**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
314637002	CAMO-13-24280
1202775861	Method Blank (MB)
1202775862	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202775864	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: 314637002 (CAMO-13-24280).

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.

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:	1263936	**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
314637002	CAMO-13-24280
1202781586	Laboratory Control Sample (LCS)
1202781593	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202781606	314637002(CAMO-13-24280) 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: 314637002 (CAMO-13-24280).

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.

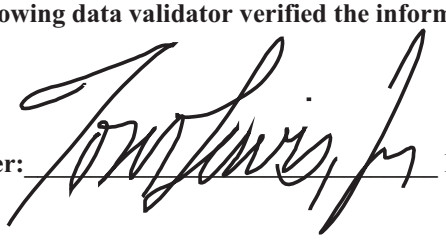
Certification Statement

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:** 03Dec12

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: 2013-271 GEL Work Order: 314637

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

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

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: November 30, 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: 2013-271

Client Sample ID:	CAMO-13-24276	Project:	ESHL00210
Sample ID:	314637001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	05-NOV-12 10:09		
Receive Date:	07-NOV-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	0.398	0.330	1.00	mg/L	1	TSM	11/09/12	1145	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/14/12	1047	1261638	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	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: November 30, 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: 2013-271

Client Sample ID:	CAMO-13-24280	Project:	ESHL00210
Sample ID:	314637002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	05-NOV-12 10:09		
Receive Date:	07-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		130	1.00	1.00	umhos/cm	1	TXT1	11/26/12	1143	1265843	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 9.50C	H	8.28	0.010	0.100	SU	1	LYG1	11/08/12	0916	1261553	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	VH1	11/09/12	0432	1261315	3
Chloride		1.64	0.067	0.200	mg/L	1					
Fluoride		0.196	0.033	0.100	mg/L	1					
Sulfate		1.98	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0341	0.017	0.050	mg/L	1	KLP1	11/13/12	1249	1261640	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.333	0.017	0.050	mg/L	1	AXH3	11/09/12	1019	1261528	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/14/12	1323	1261643	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		144	3.40	14.3	mg/L		LYG1	11/08/12	0809	1261522	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		59.0	0.725	1.00	mg/L		LXA1	11/16/12	1228	1263936	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

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

Certificate of Analysis

Report Date: November 30, 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: 2013-271

Client Sample ID:	CAMO-13-24280	Project:	ESHL00210
Sample ID:	314637002	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: November 30, 2012

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

Contact: **Keith Greene**

Workorder: **314637**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1260735											
QC1202773872 314445001 DUP											
Total Organic Carbon Average		J	0.680	J	0.815	mg/L	18.1 ^		(+/-1.00)	TSM	11/08/12 23:32
QC1202773876 LCS											
Total Organic Carbon Average	10.0				9.75	mg/L		97.5	(85%-115%)		11/08/12 18:41
QC1202773871 MB											
Total Organic Carbon Average				J	0.488	mg/L					11/08/12 18:32
QC1202773874 314445001 PS											
Total Organic Carbon Average	10.0	J	0.680		10.4	mg/L		97.7	(65%-120%)		11/08/12 23:52
Conductivity Analysis											
Batch 1265843											
QC1202785831 314637002 DUP											
Conductivity			130		129	umhos/cm	1.01		(0%-10%)	TXT1	11/26/12 11:45
QC1202785832 314749002 DUP											
Conductivity			175		177	umhos/cm	0.795		(0%-10%)		11/26/12 11:54
QC1202785833 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		11/26/12 11:39
Electrode Analysis											
Batch 1261553											
QC1202775968 314639002 DUP											
pH		H	8.09	H	8.10	SU	0.124		(0%-10%)	LYG1	11/08/12 09:19
QC1202775970 LCS											
pH	7.00				7.02	SU		100	(99%-101%)		11/08/12 09:14
Ion Chromatography											
Batch 1261315											
QC1202775359 314591002 DUP											
Bromide			0.702		0.653	mg/L	7.21 ^		(+/-0.200)	VH1	11/09/12 03:29
Chloride			58.6		58.7	mg/L	0.167		(0%-20%)		11/12/12 19:16
Fluoride			0.563		0.561	mg/L	0.374		(0%-20%)		11/09/12 03:29
Sulfate			66.1		65.2	mg/L	1.35		(0%-20%)		11/12/12 19:16
QC1202775361 LCS											
Bromide	2.50				2.76	mg/L		110	(90%-110%)		11/09/12 02:26
Chloride	10.0				9.95	mg/L		99.5	(90%-110%)		
Fluoride	5.00				5.42	mg/L		108	(90%-110%)		
Sulfate	20.0				20.6	mg/L		103	(90%-110%)		
QC1202775358 MB											
Bromide				U	ND	mg/L					11/09/12 01:55
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202775360 314591002 PS											

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1261315										
Bromide	2.50	0.702		3.31	mg/L		104	(90%-110%)		11/09/12 04:00
Chloride	10.0	5.86		16.8	mg/L		109	(90%-110%)	VH1	11/12/12 19:48
Fluoride	5.00	0.563		5.61	mg/L		101	(90%-110%)		11/09/12 04:00
Sulfate	20.0	6.61		27.2	mg/L		103	(90%-110%)		11/12/12 19:48
Nutrient Analysis										
Batch 1261528										
QC1202775881 314591002 DUP										
Nitrogen, Nitrate/Nitrite		8.50		8.20	mg/L	3.59		(0%-20%)	AXH3	11/09/12 10:17
QC1202775885 LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.02	mg/L		102	(90%-110%)		11/09/12 10:14
QC1202775880 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					11/09/12 10:13
QC1202775883 314591002 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.340		1.41	mg/L		107	(90%-110%)		11/09/12 10:18
Batch 1261638										
QC1202776118 314591001 DUP										
Nitrogen, Total Kjeldahl		0.163	J	0.0865	mg/L	61.3 ^		(+/-0.100)	KLP1	11/14/12 10:44
QC1202776121 LCS										
Nitrogen, Total Kjeldahl	1.00			1.00	mg/L		100	(90%-110%)		11/14/12 10:42
QC1202776117 MB										
Nitrogen, Total Kjeldahl			U	ND	mg/L					11/14/12 10:42
QC1202776119 314591001 MS										
Nitrogen, Total Kjeldahl	1.00	0.163		1.06	mg/L		89.7 *	(90%-110%)		11/14/12 10:45
QC1202776120 314591001 MSD										
Nitrogen, Total Kjeldahl	1.00	0.163		1.07	mg/L	0.939	90.7	(0%-20%)		11/14/12 10:46
Batch 1261640										
QC1202776123 314591002 DUP										
Nitrogen, Ammonia		0.0587	J	0.0276	mg/L	72.1 ^		(+/-0.050)	KLP1	11/13/12 12:46
QC1202776126 LCS										
Nitrogen, Ammonia	1.00			1.06	mg/L		106	(90%-110%)		11/13/12 12:45
QC1202776122 MB										
Nitrogen, Ammonia			U	ND	mg/L					11/13/12 12:44
QC1202776124 314591002 MS										
Nitrogen, Ammonia	1.00	0.0587		1.20	mg/L		114 *	(90%-110%)		11/13/12 12:47
QC1202776125 314591002 MSD										
Nitrogen, Ammonia	1.00	0.0587		1.01	mg/L	17.2*	95.1	(0%-15%)		11/13/12 12:48
Batch 1261643										
QC1202776128 314591002 DUP										
Phosphorus, Total as P		0.0976		0.0915	mg/L	6.45 ^		(+/-0.050)	KLP1	11/14/12 13:01
QC1202776134 LCS										
Phosphorus, Total as P	1.00			1.08	mg/L		108	(76%-120%)		11/14/12 12:55
QC1202776127 MB										
Phosphorus, Total as P			U	ND	mg/L					11/14/12 12:54
QC1202776130 314591002 MS										
Phosphorus, Total as P	1.00	0.0976		1.17	mg/L		107	(62%-139%)		11/14/12 13:02
QC1202776132 314591002 MSD										

QC Summary

Workorder: 314637

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1261643											
Phosphorus, Total as P	1.00		0.0976		0.986	mg/L	17.1	88.8	(0%-20%)		11/14/12 13:22
Solids Analysis											
Batch 1261522											
QC1202775862 314637002 DUP											
Total Dissolved Solids			144		143	mg/L	0.995		(0%-10%)	LYG1	11/08/12 08:09
QC1202775864 LCS											
Total Dissolved Solids	300				300	mg/L		100	(95%-105%)		11/08/12 08:09
QC1202775861 MB											
Total Dissolved Solids				U	ND	mg/L					11/08/12 08:09
Titration Analysis											
Batch 1263936											
QC1202781593 314637002 DUP											
Alkalinity, Total as CaCO3			59.0		59.5	mg/L	0.905		(0%-20%)	LXA1	11/16/12 14:21
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202781586 LCS											
Alkalinity, Total as CaCO3	50.0				52.6	mg/L		105	(90%-110%)		11/16/12 12:01
QC1202781606 314637002 MS											
Alkalinity, Total as CaCO3	50.0		59.0		111	mg/L		104	(80%-120%)		11/16/12 14:25

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
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.

QC Summary

Workorder: 314637

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

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

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:**
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261640	See below.		

Potentially affected work order(s)(SDG): 314591(2013-267),314637(2013-271),314639(2013-270),314696,314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MS: QC 1202776124MS 2. Failed RPD for MS/MSD: QC 1202776125MSD	1. The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity. 2. The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.

Originator's Name:

Kristen Parson 13-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
14-NOV-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:**		
1261638	See below.		

Potentially affected work order(s)(SDG): 314591(2013-267),314637(2013-271),314639(2013-270),314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MS: QC 1202776119MS	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 14-NOV-12

Data Validator/Group Leader:

Julia Hamilton 14-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, FBWP
Batch ID:	**Sample Numbers:**		
1261553	See below.		

Potentially affected work order(s)(SDG): 314597,314637(2013-271),314639(2013-270),314643

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	**DER Disposition:**
1. Sample received out of holding: 314597 009 314637 002 314639 002,003 314643 018	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 19-NOV-12

Data Validator/Group Leader:

Julia Hamilton 19-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-271
Work Order 314637

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1261192

Sample ID	Client ID
314637001	CAMO-13-24276
1202775075	Method Blank (MB)
1202775076	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775077	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 1202775075 (MB) and 1202775077 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

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
Samples 1202775077 (LCS) and 314637001 (CAMO-13-24276) were recounted due to poor resolution. The recounts are reported.

Miscellaneous Information:

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

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:	1261194

Sample ID	Client ID
314637001	CAMO-13-24276
1202775078	Method Blank (MB)
1202775079	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775080	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 1202775078 (MB) and 1202775080 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

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 1202775078 (MB) was recounted due to a peak shift. The recount is reported. Sample 1202775080 (LCS) was recounted due to poor resolution. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. 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 U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1261195

Sample ID	Client ID
314637001	CAMO-13-24276
1202775081	Method Blank (MB)
1202775082	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775083	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 1202775081 (MB) and 1202775083 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

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 314637001 (CAMO-13-24276) was recounted due to detector error. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. 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:	1261091

Sample ID	Client ID
314637001	CAMO-13-24276
1202774851	Method Blank (MB)
1202774852	314637001(CAMO-13-24276) Sample Duplicate (DUP)
1202774853	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, August 2012 and October 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: 314637001 (CAMO-13-24276). The QC was from ARSL work order 314637.

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:	1263026

Sample ID	Client ID
314637001	CAMO-13-24276
1202779527	Method Blank (MB)
1202779528	314987003(CAMO-13-24253) Sample Duplicate (DUP)
1202779529	314987003(CAMO-13-24253) Matrix Spike (MS)
1202779530	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 1202779527 (MB) and 1202779530 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314987003 (CAMO-13-24253). The QC was from ARSL work order 314987.

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

CSU
The blank 1202779527 (MB) result 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.

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, 1202779529 (CAMO-13-24253), 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:	1263054

Sample ID	Client ID
314637001	CAMO-13-24276
1202779586	Method Blank (MB)
1202779587	314849003(CASA-13-24214) Sample Duplicate (DUP)
1202779588	314849003(CASA-13-24214) Matrix Spike (MS)
1202779589	314849003(CASA-13-24214) Matrix Spike Duplicate (MSD)
1202779590	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 1202779586 (MB) and 1202779590 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849003 (CASA-13-24214). The QC was from ARSL work order 314849.

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, 1202779588 (CASA-13-24214) and 1202779589 (CASA-13-24214), 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: 2013-271 GEL Work Order: 314637

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: Heather McCarty **Name: Heather McCarty**

Date: 28 NOV 2012 **Title: Analyst II**

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: November 28, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24276
Sample ID: 314637001
Matrix: W
Collect Date: 05-NOV-12
Receive Date: 07-NOV-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	0.00559	+/-0.00559	0.0318	+/-0.00559	0.050	pCi/L		LYS1	11/26/12	1603	1261192	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.0208	+/-0.00834	0.0222	+/-0.00834	0.050	pCi/L		LYS1	11/21/12	1140	1261194	2
Plutonium-239/240	U	0.00694	+/-0.00834	0.0369	+/-0.00834	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.477	+/-0.0371	0.0619	+/-0.0486	1.00	pCi/L		LYS1	11/26/12	1234	1261195	3
Uranium-235/236	U	0.00659	+/-0.00659	0.0386	+/-0.00661	1.00	pCi/L						
Uranium-238		0.224	+/-0.025	0.042	+/-0.0289	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-2.29	+/-1.46	4.65	+/-1.46	8.00	pCi/L		KXG3	11/08/12	1218	1261091	4
Cobalt-60	U	-1.01	+/-1.43	5.01	+/-1.43	8.00	pCi/L						
Neptunium-237	U	-2.08	+/-2.92	10.1	+/-2.92	10.0	pCi/L						
Potassium-40	U	-17.6	+/-15.8	52.1	+/-15.8	10.0	pCi/L						
Sodium-22	U	-0.457	+/-1.03	3.82	+/-1.03	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.0232	+/-0.119	0.440	+/-0.119	0.500	pCi/L		VXC2	11/25/12	1541	1263026	5
WSP-GrossA/B "As Received"													
Beta	U	1.50	+/-0.776	2.49	+/-0.786	3.00	pCi/L		MYS1	11/26/12	1921	1263054	6
Alpha	U	0.880	+/-0.814	2.84	+/-0.818	3.00	pCi/L		MYS1	11/27/12	1955	1263054	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"	1261192	79.4	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1261194	70.3	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1261195	82.5	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	100	(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: November 28, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24276
Sample ID: 314637001

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: November 28, 2012

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

Workorder: **314637**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261192										
QC1202775076 314639001 DUP										
Americium-241	U	0.0123	U	0.0045	pCi/L	0.245		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00867		+/-0.00712						
	TPU:	+/-0.00869		+/-0.00712						
**Americium-243 Tracer	2.60	2.09		2.05	pCi/L		78.7	(50%-105%)		
	Uncert:	+/-0.0889		+/-0.0767						
	TPU:	+/-0.147		+/-0.132						
QC1202775077 LCS										
Americium-241	1.41			1.42	pCi/L		100	(80%-120%)	LYS1	11/26/1216:03
	Uncert:			+/-0.0543						
	TPU:			+/-0.0816						
**Americium-243 Tracer	2.08			1.78	pCi/L		85.2	(50%-105%)		
	Uncert:			+/-0.0652						
	TPU:			+/-0.111						
QC1202775075 MB										
Americium-241			U	-0.00174	pCi/L				LYS1	11/21/1211:40
	Uncert:			+/-0.00627						
	TPU:			+/-0.00627						
**Americium-243 Tracer	2.08			1.61	pCi/L		77.4	(50%-105%)		
	Uncert:			+/-0.060						
	TPU:			+/-0.104						
Batch 1261194										
QC1202775079 314639001 DUP										
Plutonium-238	U	-0.0105	U	-0.00459	pCi/L	0.230		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00628		+/-0.0065						
	TPU:	+/-0.00628		+/-0.0065						
Plutonium-239/240	U	0.00837	U	0.00919	pCi/L	0.0332		(0-1)		
	Uncert:	+/-0.00662		+/-0.00563						
	TPU:	+/-0.00663		+/-0.00564						
**Plutonium-242 Tracer	2.43	1.99		1.89	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.0722		+/-0.0757						
	TPU:	+/-0.124		+/-0.128						
QC1202775080 LCS										
Plutonium-238				0.0208	pCi/L			(80%-120%)	LYS1	11/26/1215:37
	Uncert:			+/-0.00779						
	TPU:			+/-0.00784						
Plutonium-239/240	2.03			2.23	pCi/L		110	(80%-120%)		
	Uncert:			+/-0.0683						
	TPU:			+/-0.119						
**Plutonium-242 Tracer	1.94			1.65	pCi/L		84.6	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.106						
QC1202775078 MB										

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261194										
Plutonium-238			U	0.00	pCi/L				LYS1	11/26/1215:37
	Uncert:			+/-0.0049						
	TPU:			+/-0.0049						
Plutonium-239/240			U	0.00	pCi/L					
	Uncert:			+/-0.00566						
	TPU:			+/-0.00566						
**Plutonium-242 Tracer	1.94			1.80	pCi/L		92.7	(50%-105%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.105						
Batch 1261195										
QC1202775082 314639001 DUP										
Uranium-234		0.516		0.547	pCi/L	0.144		(0-1)	LYS1	11/21/1211:36
	Uncert:	+/-0.039		+/-0.0427						
	TPU:	+/-0.0516		+/-0.056						
Uranium-235/236	U	0.0132	U	0.00722	pCi/L	0.129		(0-1)		
	Uncert:	+/-0.0104		+/-0.0125						
	TPU:	+/-0.0104		+/-0.0125						
Uranium-238		0.218		0.231	pCi/L	0.105		(0-1)		
	Uncert:	+/-0.0258		+/-0.0272						
	TPU:	+/-0.0294		+/-0.0311						
**Uranium-232 Tracer	2.73	2.23		2.14	pCi/L		78.4	(50%-105%)		
	Uncert:	+/-0.0859		+/-0.0899						
	TPU:	+/-0.196		+/-0.200						
QC1202775083 LCS										
Uranium-234				2.68	pCi/L				LYS1	11/21/1211:34
	Uncert:			+/-0.074						
	TPU:			+/-0.188						
Uranium-235/236				0.134	pCi/L					
	Uncert:			+/-0.0192						
	TPU:			+/-0.021						
Uranium-238	2.70			2.75	pCi/L		102	(80%-120%)		
	Uncert:			+/-0.0745						
	TPU:			+/-0.192						
**Uranium-232 Tracer	2.19			1.93	pCi/L		88.2	(50%-105%)		
	Uncert:			+/-0.0672						
	TPU:			+/-0.156						
QC1202775081 MB										
Uranium-234			U	-0.0048	pCi/L				LYS1	11/21/1211:36
	Uncert:			+/-0.0085						
	TPU:			+/-0.0085						
Uranium-235/236			U	-0.00241	pCi/L					
	Uncert:			+/-0.00539						
	TPU:			+/-0.00539						
Uranium-238			U	0.00195	pCi/L					
	Uncert:			+/-0.00338						
	TPU:			+/-0.00338						
**Uranium-232 Tracer	2.19			1.94	pCi/L		89	(50%-105%)		
	Uncert:			+/-0.0657						

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261195										
	TPU:			+/-0.154						
Rad Gamma Spec										
Batch 1261091										
QC1202774852 314637001 DUP										
Cesium-137	U	-2.29	U	-1.95	pCi/L	0.053		(0-1)	KXG3	11/09/1208:43
	Uncert:	+/-1.46		+/-1.74						
	TPU:	+/-1.46		+/-1.74						
Cobalt-60	U	-1.01	U	-0.983	pCi/L	0.00507		(0-1)		
	Uncert:	+/-1.43		+/-1.43						
	TPU:	+/-1.43		+/-1.43						
Neptunium-237	U	-2.08	U	-4.08	pCi/L	0.160		(0-1)		
	Uncert:	+/-2.92		+/-3.32						
	TPU:	+/-2.92		+/-3.32						
Potassium-40	U	-17.6	U	2.23	pCi/L	0.298		(0-1)		
	Uncert:	+/-15.8		+/-17.3						
	TPU:	+/-15.8		+/-17.3						
Sodium-22	U	-0.457	U	-0.731	pCi/L	0.0504		(0-1)		
	Uncert:	+/-1.03		+/-1.68						
	TPU:	+/-1.03		+/-1.68						
QC1202774853 LCS										
Americium-241	2780			2640	pCi/L		95	(80%-120%)	KXG3	11/09/1211:44
	Uncert:			+/-191						
	TPU:			+/-191						
Cesium-137	6090			6090	pCi/L		99.9	(80%-120%)		
	Uncert:			+/-257						
	TPU:			+/-257						
Cobalt-60	5660			5620	pCi/L		99.2	(80%-120%)		
	Uncert:			+/-235						
	TPU:			+/-235						
Neptunium-237			U	8.55	pCi/L					
	Uncert:			+/-21.9						
	TPU:			+/-21.9						
Potassium-40			U	-57.9	pCi/L					
	Uncert:			+/-50.4						
	TPU:			+/-50.4						
Sodium-22			U	4.78	pCi/L					
	Uncert:			+/-7.41						
	TPU:			+/-7.41						
QC1202774851 MB										
Cesium-137			U	0.997	pCi/L				KXG3	11/08/1212:23
	Uncert:			+/-1.34						
	TPU:			+/-1.34						
Cobalt-60			U	-2.32	pCi/L					
	Uncert:			+/-1.41						
	TPU:			+/-1.41						
Neptunium-237			U	-1.66	pCi/L					
	Uncert:			+/-2.58						
	TPU:			+/-2.58						

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1261091										
Potassium-40			U	-6.49	pCi/L					
Uncert:				+/-14.7						
TPU:				+/-14.7						
Sodium-22			U	-1.17	pCi/L					
Uncert:				+/-0.991						
TPU:				+/-0.991						
Rad Gas Flow										
Batch 1263026										
QC1202779528 314987003 DUP										
Strontium-90	U	0.0275	U	-0.0248	pCi/L	0.104		(0-1)	VXC2	11/26/1215:37
Uncert:		+/-0.123		+/-0.130						
TPU:		+/-0.123		+/-0.130						
**Strontium Carrier	7.17	7.00		7.10	mg		99.1	(50%-105%)		
QC1202779530 LCS										
Strontium-90	24.8			24.6	pCi/L		99	(80%-120%)	VXC2	11/26/1215:38
Uncert:				+/-0.498						
TPU:				+/-2.02						
**Strontium Carrier	7.17			6.40	mg		89.3	(50%-105%)		
QC1202779527 MB										
Strontium-90			U	0.162	pCi/L				VXC2	11/26/1215:37
Uncert:				+/-0.0895						
TPU:				+/-0.0904						
**Strontium Carrier	7.17			6.70	mg		93.5	(50%-105%)		
QC1202779529 314987003 MS										
Strontium-90	124 U	0.0275		122	pCi/L		98.1	(75%-125%)	VXC2	11/26/1215:38
Uncert:		+/-0.123		+/-2.49						
TPU:		+/-0.123		+/-10.2						
**Strontium Carrier	7.17	7.00		6.40	mg		89.3	(50%-105%)		
Batch 1263054										
QC1202779587 314849003 DUP										
Alpha	U	2.00	U	2.13	pCi/L	0.0316		(0-1)	MYS1	11/27/1221:14
Uncert:		+/-0.977		+/-1.00						
TPU:		+/-0.992		+/-1.02						
Beta	U	2.13	U	0.444	pCi/L	0.563		(0-1)		11/26/1219:58
Uncert:		+/-0.785		+/-0.686						
TPU:		+/-0.805		+/-0.688						
QC1202779590 LCS										
Alpha	12.0			12.1	pCi/L		101	(80%-120%)	MYS1	11/27/1220:02
Uncert:				+/-0.661						
TPU:				+/-1.27						
Beta	49.6			49.0	pCi/L		98.8	(80%-120%)		11/26/1219:56
Uncert:				+/-0.892						
TPU:				+/-4.18						
QC1202779586 MB										
Alpha			U	-0.0618	pCi/L				MYS1	11/27/1221:14
Uncert:				+/-0.0846						
TPU:				+/-0.0846						
Beta			U	0.0566	pCi/L					11/26/1219:56

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1263054										
	Uncert:			+/-0.101						
	TPU:			+/-0.101						
QC1202779588 314849003 MS										
Alpha	481 U	2.00		416	pCi/L		86.3	(75%-125%)	MYS1	11/27/1220:19
	Uncert:	+/-0.977		+/-22.5						
	TPU:	+/-0.992		+/-42.7						
Beta	1990 U	2.13		1990	pCi/L		100	(75%-125%)		11/26/1219:56
	Uncert:	+/-0.785		+/-36.5						
	TPU:	+/-0.805		+/-169						
QC1202779589 314849003 MSD										
Alpha	481 U	2.00		496	pCi/L	0.402	103	(0-1)	MYS1	11/27/1220:02
	Uncert:	+/-0.977		+/-26.2						
	TPU:	+/-0.992		+/-57.4						
Beta	1990 U	2.13		2100	pCi/L	0.153	106	(0-1)		11/26/1219:56
	Uncert:	+/-0.785		+/-38.0						
	TPU:	+/-0.805		+/-187						

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: **314637**

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.