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

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-353

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

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

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24278	Nov 16 2012	10:11	W	2	3		1			1	1	
CAMO-13-24282	Nov 16 2012	10:11	W			1		1	1			
CAMO-13-24271	Nov 16 2012	10:11	W	2	3		1			1	1	
CAMO-13-24272	Nov 16 2012	10:11	W			1		1	1			
CAMO-13-24273	Nov 16 2012	10:11	W	2								

Special Instructions:

Relinquished by: Melissa Martyn		Date/Time: 11/19/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

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

SAMPLE ID: CAMO-13-24278 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	N/A
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	2	ICE 11/15/12	↓	↓
	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: Sampled within 40' of diesel generator

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 0.50 mg/L Oxidation-Reduction Potential 176.3 MV pH 8.01 SU

Specific Conductance 121 uS/cm Temperature 18.59 deg C Turbidity 0.50 NTU

COLLECTED BY (PRINT) W. Stone

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrew Stone	11/16/12 1120	S. Sherwood	11/16/12 1120
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-13-24271 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46	↓	FIELD PREP:	UF	ok
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	N/A
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	1	ICE 11/16/12 US	↓	↓
	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: ref to CAMO-13-24278

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) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrew Stake	11/16/12 1120	S. Sherwood	11/16/12 1120
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

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-13-24282 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46		FIELD PREP:	F	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
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-13-24278

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) W. Stan

RELINQUISHED BY (Printed Name) Andrew Stocker **(Signature)**	**Date/Time** 11/16/12 1120	**RECEIVED BY (Printed Name)** S. Sherwood **(Signature)**	**Date/Time** 11/16/12 1120
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-13-24272 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46	↓	FIELD PREP:	F	ok
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

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

SAMPLE COMMENTS:

LOCATION COMMENTS: refer to CAMO-13-24278

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) W. Stein

RELINQUISHED BY (Printed Name) Andrew Stein **(Signature)**	**Date/Time** 11/16/12 1120	**RECEIVED BY (Printed Name)** S. Sherwood **(Signature)**	**Date/Time** 11/16/12 1120
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-13-24273 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	**FIELD MATRIX:**	WG	ok
TIME COLLECTED (HH:MM):		1011	**MEDIA:**	UA	↓
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	DL
LOCATION ID:	R-46		**FIELD PREP:**	UF	ok
LOCATION TYPE:			**FIELD QC TYPE:**	FTB	↓
PORT:	SINGLE COMPLETION	↓	**SAMPLE USAGE:**	QC	↓

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

SAMPLE COMMENTS:

LOCATION COMMENTS: replate CAMO-13-24278

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) N. Stair

RELINQUISHED BY (Printed Name) (Signature) Andrew Stacker	**Date/Time** 11/16/12 1120	**RECEIVED BY (Printed Name) (Signature)** Sheri Hemwood	**Date/Time** 11/16/12 1120
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. 2013-353

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
315545	EPA:120.1	1	1			
315545	EPA:150.1	1	1			
315545	EPA:160.1	1	1			
315545	EPA:245.2	1	1			
315545	EPA:300.0	1	1			
315545	EPA:310.1	1	1			
315545	EPA:350.1	1	1			
315545	EPA:351.2	1	1			
315545	EPA:353.2	1	1			
315545	EPA:365.4	1	1			
315545	EPA:900	1	1			
315545	EPA:901.1	1	1			
315545	EPA:905.0	1	1			
315545	HASL-300:AM-241	1	1			
315545	HASL-300:ISOPU	1	1			
315545	HASL-300:ISOU	1	1			
315545	SM:A2340B	1	1			
315545	SW-846:6010B	1	1			
315545	SW-846:6020	1	1			
315545	SW-846:8260B	1	1	1		
315545	SW-846:8270C	1	1			
315545	SW-846:9060	1	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
315545	EPA:120.1	1267060	1267060	1	1						
315545	EPA:150.1	1265360	1265360	1	1						
315545	EPA:160.1	1264928	1264928	1	1				1		
315545	EPA:245.2	1268112	1268111	1	1				1	1	
315545	EPA:300.0	1264118	1264118	1	1				1		
315545	EPA:310.1	1266562	1266562	1	1				2	1	
315545	EPA:350.1	1265956	1265955	1	1				1	1	1
315545	EPA:351.2	1265958	1265957	1	1				1	1	
315545	EPA:353.2	1265759	1265759	1	1				1		
315545	EPA:365.4	1263579	1263578	1	1				1	1	1
315545	EPA:900	1268150	1268150	1	1				1	1	1
315545	EPA:901.1	1265828	1265828	1	1				1		
315545	EPA:905.0	1266694	1266694	1	1				1	1	
315545	HASL-300:AM-241	1264269	1264269	1	1				1		
315545	HASL-300:ISOPU	1264270	1264270	1	1				1		
315545	HASL-300:ISOU	1264271	1264271	1	1				1		
315545	SM:A2340B	1270221	1270221	1	1						
315545	SW-846:6010B	1265069	1265068	1	1				1	1	
315545	SW-846:6020	1265063	1265062	1	1				1	1	
315545	SW-846:8260B	1266476	1266476	1	1	1			2		
315545	SW-846:8270C	1265254	1265252	1	1				1	1	1
315545	SW-846:9060	1265851	1265851	1	1				1		

Data Validation Report for:

Chain Of Custody No. 2013-353

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		2				1			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		4							
		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-13-24272	315545004	FD	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24219	1202788865	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202788867	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24219	1202784743	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202784744	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24268	1202784567	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202783778	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202783776	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24282	1202791369	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24282	1202791370	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202791368	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202791367	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24218	1202781991	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202781993	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202781990	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24268	1202787691	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24268	1202787695	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202787698	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202787699	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202787688	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202787689	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786154	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786155	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786156	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202786157	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202786153	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24271	315545003	FD	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24278	315545001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786159	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786161	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202786165	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202786158	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24268	1202785634	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24282	1202785635	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202785638	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202785633	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0

EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786124	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786125	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786126	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202780727	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202780723	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791496	DUP	2	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791497	MS	0	0	2	0
EPA:900	RAD	CAMO-13-24249	1202791498	MSD	0	0	2	0
EPA:900	RAD	CAMO-13-24271	315545003	FD	2	0	0	0
EPA:900	RAD	CAMO-13-24278	315545001	REG	2	0	0	0
EPA:900	RAD	LCS	1202791499	LCS	0	0	2	0
EPA:900	RAD	MB	1202791495	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24271	315545003	FD	5	0	0	0
EPA:901.1	RAD	CAMO-13-24278	1202785778	DUP	6	0	0	0
EPA:901.1	RAD	CAMO-13-24278	315545001	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202785779	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202785777	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24271	315545003	FD	1	0	0	0
EPA:905.0	RAD	CAMO-13-24278	1202788013	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24278	1202788014	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24278	315545001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202788015	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202788012	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24271	1202782356	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24271	315545003	FD	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24278	315545001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202782357	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202782355	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24271	1202782359	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24271	315545003	FD	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24278	315545001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202782360	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202782358	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24271	1202782362	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24271	315545003	FD	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24278	315545001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202782363	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202782361	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24272	315545004	FD	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24282	315545002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24272	315545004	FD	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24282	1202784099	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24282	1202784100	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-13-24282	315545002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202784098	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202784097	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24272	315545004	FD	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24282	1202784090	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24282	1202784091	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24282	315545002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202784089	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202784088	MB	11	0	0	0
SW-846:8260B	VOC	CAMO-13-24271	315545003	FD	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24273	315545005	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24278	315545001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202787467	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202787468	LCS	0	3	10	0

SW-846:8260B	VOC	LCS	1202788455	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202788456	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202787464	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202788454	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24271	315545003	FD	80	6	0	0
SW-846:8270C	SVOC	CAMO-13-24278	1202784550	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24278	1202784551	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24278	315545001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202784552	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202784549	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24271	315545003	FD	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24278	315545001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24211	1202785853	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202785855	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202785852	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field	Lab	Type Of	Analytical	Sample	Parameter	Lab	Lab		Lab
Sample ID	Sample ID	Blank	Method	Matrix	Name	Result	Qualifier	Units	Detection Limit
MB	1202784088	METHOD BLANK	SW-846:6020	W	Molybdenum	-0.231	J	ug/L	0.5
MB	1202784097	METHOD BLANK	SW-846:6010B	W	Sodium	-163	J	ug/L	300

Any samples affected by the presence of contaminants in blanks?

Field	Blank Field	Blank Lab	Blank	Analytical	Parameter		Blank	Sample	Lab	Detect	
Sample ID	Sample ID	Sample ID	Type	Method	Name	Units	Result	Result	Qualifier	Limit	Detected
CAMO-13-24282	MB	1202784097	METHOD BLANK	SW-846:6010B	Sodium	ug/L	-163	10600		300	Y
CAMO-13-24272	MB	1202784097	METHOD BLANK	SW-846:6010B	Sodium	ug/L	-163	10300		300	Y
CAMO-13-24282	MB	1202784088	METHOD BLANK	SW-846:6020	Molybdenum	ug/L	-0.231	0.849		0.5	Y
CAMO-13-24272	MB	1202784088	METHOD BLANK	SW-846:6020	Molybdenum	ug/L	-0.231	0.96		0.5	Y

6. Any surrogate recoveries outside the control limits?

No.

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

Field	Matrix	Matrix	Analytical	Parameter	Analysis	Analysis	Sample	MS %	MSD %	Upper	Lower
Sample ID	Spike ID	Spike Dup ID	Method	Name	Lot ID	Date	Matrix	Recvry	Recvry	Limit	Limit
CASA-13-24218	1202786155	1202786156	EPA:350.1	Ammonia as Nitrogen	1265955	11/27/2012	W	93.1	110	110	90
CASA-13-24210	1202786161		EPA:351.2	Total Kjeldahl Nitrogen	1265957	12/7/2012	W	88.1		110	90
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Benzidine	1265252	11/23/2012	W	18	41	125	10
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Benzyl Alcohol	1265252	11/23/2012	W	93	66	98	34
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Bis(2-chloroethyl)ether	1265252	11/23/2012	W	68	49	114	27

Data Validation Report for:

Chain Of Custody No. 2013-353

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

Rejection Limit	RPD	RPD Limit
10	15.9	15
10		
10	80	30
10	34	30
10	33	30

CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Bis(2-ethylhexyl)phthalate	1265252	11/23/2012	W	89	64	121	30
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Butylbenzylphthalate	1265252	11/23/2012	W	89	65	120	32
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Chloro-3-methylphenol[4-]	1265252	11/23/2012	W	96	70	116	36
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Chlorophenol[2-]	1265252	11/23/2012	W	82	58	103	32
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dibenz(a,h)anthracene	1265252	11/23/2012	W	93	135	124	26
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dichlorobenzene[1,2-]	1265252	11/23/2012	W	60	42	86	24
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dichlorobenzene[1,3-]	1265252	11/23/2012	W	60	41	84	23
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dichlorobenzene[1,4-]	1265252	11/23/2012	W	61	40	88	23
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Diethylphthalate	1265252	11/23/2012	W	96	69	116	43
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dimethyl Phthalate	1265252	11/23/2012	W	95	69	115	43
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dinitro-2-methylphenol[4,6-]	1265252	11/23/2012	W	105	76	113	31
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dinitrophenol[2,4-]	1265252	11/23/2012	W	107	74	108	25
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dinitrotoluene[2,4-]	1265252	11/23/2012	W	104	75	125	37
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Fluoranthene	1265252	11/23/2012	W	97	70	116	35
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Hexachlorobutadiene	1265252	11/23/2012	W	66	48	96	19
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Hexachlorocyclopentadiene	1265252	11/23/2012	W	39	27	75	25
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Hexachloroethane	1265252	11/23/2012	W	54	37	82	25
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Methylphenol[2-]	1265252	11/23/2012	W	81	59	96	29
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Methylphenol[4-]	1265252	11/23/2012	W	92	65	111	26
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitroaniline[2-]	1265252	11/23/2012	W	78	57	120	31
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitroaniline[3-]	1265252	11/23/2012	W	89	64	123	32
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitroaniline[4-]	1265252	11/23/2012	W	94	69	131	28
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitrosodimethylamine[N-]	1265252	11/23/2012	W	74	52	85	27
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitrosopyrrolidine[N-]	1265252	11/23/2012	W	90	66	113	40
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Pentachlorophenol	1265252	11/23/2012	W	111	83	110	25
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Phenol	1265252	11/23/2012	W	54	39	100	15
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Tetrachlorophenol[2,3,4,6-]	1265252	11/23/2012	W	116	82	123	33
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Trichlorobenzene[1,2,4-]	1265252	11/23/2012	W	66	47	90	23
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Trichlorophenol[2,4,6-]	1265252	11/23/2012	W	100	71	111	36

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
1202784552		SW-846:8270C	Hexachlorocyclopentadiene	1265252	11/23/2012	W	31		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10	31	30
10	32	30
10	31	30
10	35	30
10	36	30
10	36	30
10	38	30
10	41	30
10	33	30
10	32	30
10	32	30
10	36	30
10	32	30
10	33	30
10	33	30
10	37	30
10	37	30
10	32	30
10	34	30
10	31	30
10	32	30
10	31	30
10	35	30
10	32	30
10	29	30
10	32	30
10	34	30
10	34	30
10	33	30

Upper Reject Limit	RPD	RPD Limit

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-46	2013-353	CAMO-13-24271	FD	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
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.

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
0.01	pCi/L	0.01	pCi/L	0.0285	0.00793	W	11/16/2012		1264269	VAL	Y
1.53	pCi/L	1.53	pCi/L	4.83	1.19	W	11/16/2012		1265828	VAL	Y
-0.585	pCi/L	-0.585	pCi/L	3.18	0.871	W	11/16/2012		1265828	VAL	Y
0.773	pCi/L	0.773	pCi/L	2.32	0.651	W	11/16/2012		1268150	VAL	Y
2.06	pCi/L	2.06	pCi/L	2.43	0.802	W	11/16/2012		1268150	VAL	Y
3.09	ug/L	3.09	ug/L			W	11/16/2012		1265254	VAL	Y
0.0659	pCi/L	0.0659	pCi/L	7.74	2.13	W	11/16/2012		1265828	VAL	Y
-0.0027	pCi/L	-0.0027	pCi/L	0.0259	0.00468	W	11/16/2012		1264270	VAL	Y
0	pCi/L	0	pCi/L	0.0431	0.0054	W	11/16/2012		1264270	VAL	Y
-11.8	pCi/L	-11.8	pCi/L	65.1	16.9	W	11/16/2012		1265828	VAL	Y
1.14	pCi/L	1.14	pCi/L	4.91	1.19	W	11/16/2012		1265828	VAL	Y
-0.221	pCi/L	-0.221	pCi/L	0.488	0.131	W	11/16/2012		1266694	VAL	Y
0.00648	pCi/L	0.00648	pCi/L	0.038	0.00916	W	11/16/2012		1264271	VAL	Y
0.00233	pCi/L	0.00233	pCi/L	0.0265	0.00403	W	11/16/2012		1264269	VAL	Y
-0.0834	pCi/L	-0.0834	pCi/L	4.88	1.39	W	11/16/2012		1265828	VAL	Y
1.25	pCi/L	1.25	pCi/L	4.83	1.15	W	11/16/2012		1265828	VAL	Y
0.353	pCi/L	0.353	pCi/L	2.27	0.554	W	11/16/2012		1268150	VAL	Y
3	ug/L	3	ug/L			W	11/16/2012		1265254	VAL	Y
-2.77	pCi/L	-2.77	pCi/L	8.63	2.53	W	11/16/2012		1265828	VAL	Y
0	pCi/L	0	pCi/L	0.0294	0.00611	W	11/16/2012		1264270	VAL	Y
0.00917	pCi/L	0.00917	pCi/L	0.0488	0.00683	W	11/16/2012		1264270	VAL	Y
-28.6	pCi/L	-28.6	pCi/L	60.8	15.9	W	11/16/2012		1265828	VAL	Y
-0.152	pCi/L	-0.152	pCi/L	3.69	0.956	W	11/16/2012		1265828	VAL	Y
-0.15	pCi/L	-0.15	pCi/L	0.487	0.132	W	11/16/2012		1266694	VAL	Y
0.00334	pCi/L	0.00334	pCi/L	0.0391	0.00747	W	11/16/2012		1264271	VAL	Y

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24271	R-46	FD	EPA:351.2	0	1
CAMO-13-24271	R-46	FD	EPA:900	0	2
CAMO-13-24271	R-46	FD	EPA:901.1	0	5
CAMO-13-24271	R-46	FD	EPA:905.0	0	1
CAMO-13-24271	R-46	FD	HASL-300:AM-241	0	1
CAMO-13-24271	R-46	FD	HASL-300:ISOPU	0	2
CAMO-13-24271	R-46	FD	HASL-300:ISOU	0	3
CAMO-13-24271	R-46	FD	SW-846:8260B	0	80
CAMO-13-24271	R-46	FD	SW-846:8270C	0	80
CAMO-13-24271	R-46	FD	SW-846:9060	0	1
CAMO-13-24272	R-46	FD	EPA:120.1	0	1
CAMO-13-24272	R-46	FD	EPA:150.1	0	1
CAMO-13-24272	R-46	FD	EPA:160.1	0	1
CAMO-13-24272	R-46	FD	EPA:245.2	0	1
CAMO-13-24272	R-46	FD	EPA:300.0	0	4
CAMO-13-24272	R-46	FD	EPA:310.1	0	2
CAMO-13-24272	R-46	FD	EPA:350.1	0	1
CAMO-13-24272	R-46	FD	EPA:353.2	0	1
CAMO-13-24272	R-46	FD	EPA:365.4	0	1
CAMO-13-24272	R-46	FD	SM:A2340B	0	1
CAMO-13-24272	R-46	FD	SW-846:6010B	0	17
CAMO-13-24272	R-46	FD	SW-846:6020	0	11
CAMO-13-24273	R-46	FTB	SW-846:8260B	0	80
CAMO-13-24278	R-46	REG	EPA:351.2	0	1
CAMO-13-24278	R-46	REG	EPA:900	0	2
CAMO-13-24278	R-46	REG	EPA:901.1	0	5
CAMO-13-24278	R-46	REG	EPA:905.0	0	1
CAMO-13-24278	R-46	REG	HASL-300:AM-241	0	1
CAMO-13-24278	R-46	REG	HASL-300:ISOPU	0	2
CAMO-13-24278	R-46	REG	HASL-300:ISOU	0	3
CAMO-13-24278	R-46	REG	SW-846:8260B	0	80
CAMO-13-24278	R-46	REG	SW-846:8270C	0	80
CAMO-13-24278	R-46	REG	SW-846:9060	0	1
CAMO-13-24282	R-46	REG	EPA:120.1	0	1
CAMO-13-24282	R-46	REG	EPA:150.1	0	1
CAMO-13-24282	R-46	REG	EPA:160.1	0	1
CAMO-13-24282	R-46	REG	EPA:245.2	0	1
CAMO-13-24282	R-46	REG	EPA:300.0	0	4
CAMO-13-24282	R-46	REG	EPA:310.1	0	2
CAMO-13-24282	R-46	REG	EPA:350.1	0	1
CAMO-13-24282	R-46	REG	EPA:353.2	0	1
CAMO-13-24282	R-46	REG	EPA:365.4	0	1
CAMO-13-24282	R-46	REG	SM:A2340B	0	1
CAMO-13-24282	R-46	REG	SW-846:6010B	0	17
CAMO-13-24282	R-46	REG	SW-846:6020	0	11

GEL Laboratories LLC
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December 14, 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: 315545
SDG: 2013-353

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 20, 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,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-353
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 315545
SDG: 2013-353

Table of Contents

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 315545
SDG # : 2013-353

December 14, 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 20, 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 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
315545001	CAMO-13-24278
315545002	CAMO-13-24282
315545003	CAMO-13-24271
315545004	CAMO-13-24272
315545005	CAMO-13-24273

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.

for

Valerie Davis
Project Manager

List of current GEL Certifications as of 14 December 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

315545

COC/Lab Request #: 2013-353

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011
Project Number :
Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

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-13-24278	Nov 16 2012	10:11	W	2	3		1			1	1
CAMO-13-24282	Nov 16 2012	10:11	W			1		1	1		
CAMO-13-24271	Nov 16 2012	10:11	W	2	3		1			1	1
CAMO-13-24272	Nov 16 2012	10:11	W			1		1	1		
CAMO-13-24273	Nov 16 2012	10:11	W	2							

Special Instructions:

Relinquished by: Melissa Martyn		Date/Time: 11/19/12 3:00	Received by: P. Dent 11-20-12 09:10
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: 2013-353**
Received By: Patricia Dent			**Date Received:November 20, 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 **2,3,19C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH: **CAMO-13-24278,CAMO-13-24271 for Gross A/B** If Preservation added, Lot# **L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: **CAMO-13-24273 the lab rec'd 1 8260b container, coc indicates 2. CAMO-13-24271 the lab rec'd 1SVOA container, CAMO-13-24278 the lab rec'd 2 SVOA containers coc indicates 3 each.**
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 5653 2C 5462 9832 5664 3C 5462 9832 5675 19C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials P.D. Date 11-21-12 Page 1 of 1

Subject: Sample Issues from 11/20/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/20/2012 5:29 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.shaffer" <team.shaffer@gel.com>, LANL@amrad.com

Good Evening all listed below are issues that occurred today

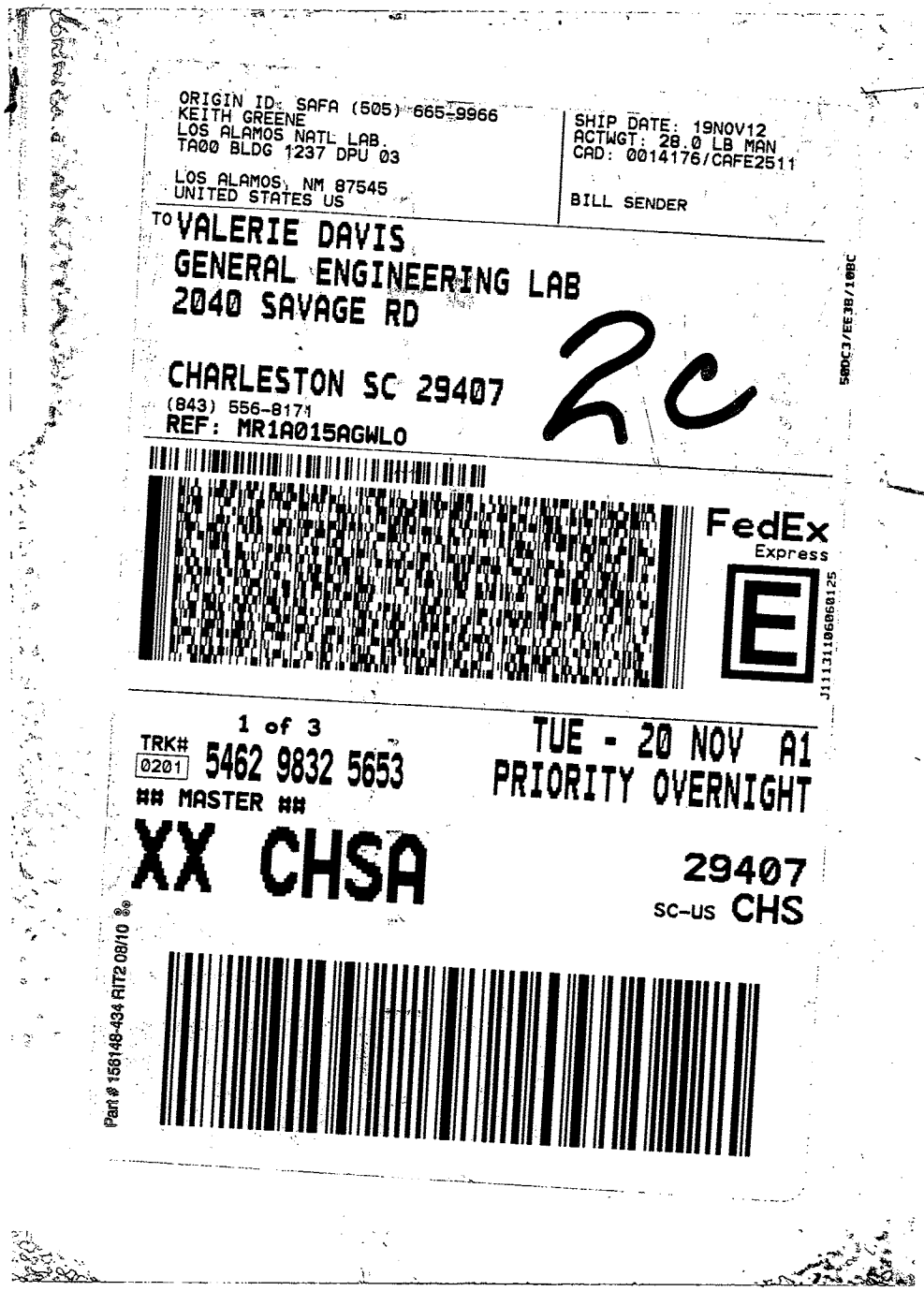
Containers received for Gross A/B was preserved prior to analysis

RN#2013-353
Sample ID-CAMO-13-24279 the lab rec'd 1 voa container instead of 2 as indicated on coc.
CAMO-13-24278 the lab received 2 SVOA, containers, CAMO-13-24271 the lab received 1 SVOA container coc indicates 3 each.

RN#2013-354
Sample ID WT_IPL-13-24803 the lab rec'd 2 containers for Ra226+Ra228 coc indicates 4.

Thanks!! Pat Dent

--
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: 19NOV12
ACTWGT: 28.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

2c

FedEx Express

1 of 3

TRK# 0201 5462 9832 5653

MASTER

XX CHSA

TUE - 20 NOV A1
PRIORITY OVERNIGHT

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: 19NOV12
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: MR1A015AGWLO

3c

FedEx Express

2 of 3

MPS# 0263 5462 9832 5664

Mstr# 5462 9832 5653

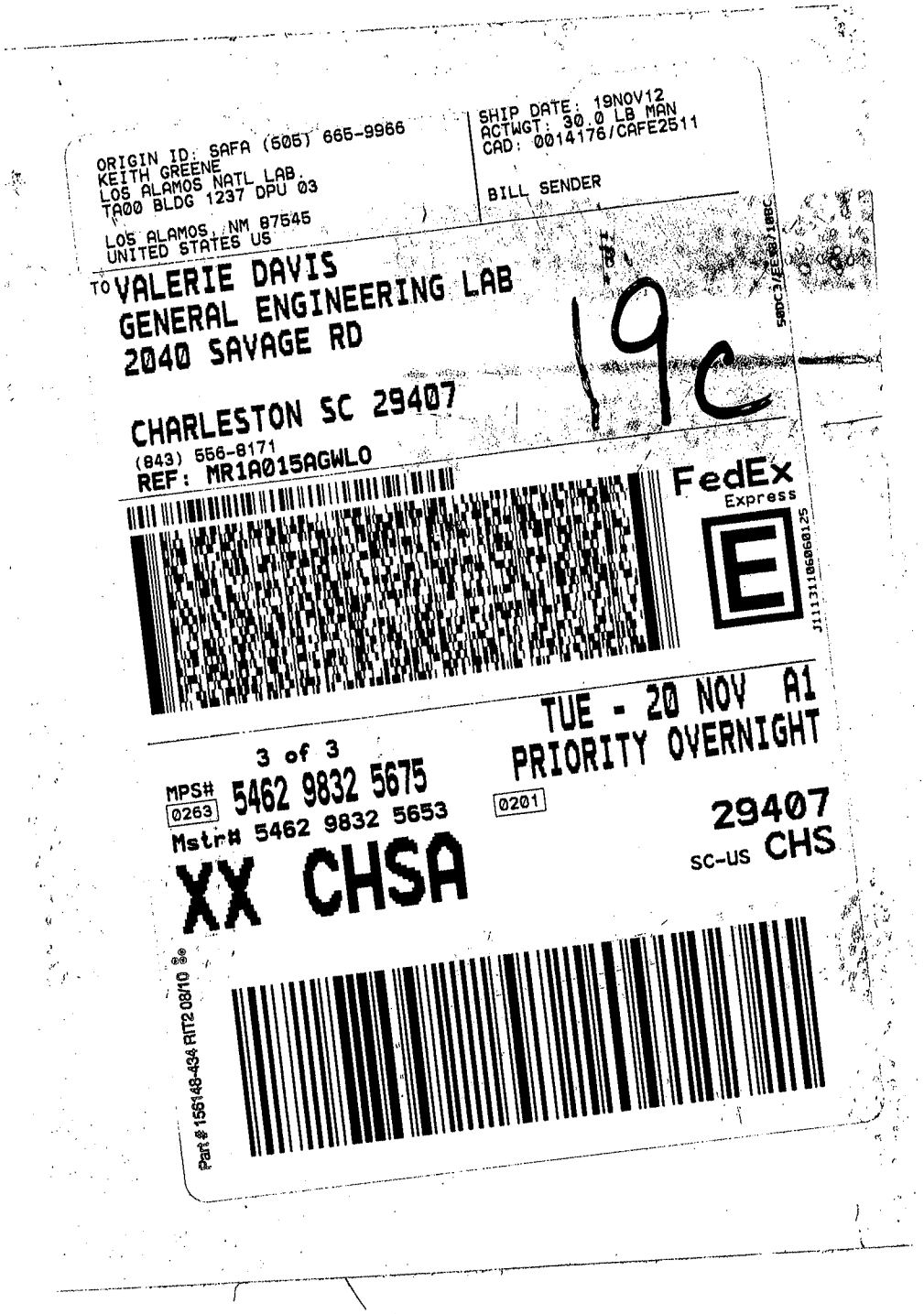
0201

XX CHSA

TUE - 20 NOV A1
PRIORITY OVERNIGHT

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: 19NOV12
ACTWGT: 30.0 LB MAN
CAD: 0014176/CAFE2511
BILL SENDER
TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD
CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWLO
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3 of 3
MPS# 5462 9832 5675
Mstr# 5462 9832 5653
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29407
SC-US CHS
XX CHSA
Part # 156148-434 RIT2 08/10

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 2013-353

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1266476

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
315545001	CAMO-13-24278
315545003	CAMO-13-24271
315545005	CAMO-13-24273
1202787464	Method Blank (MB)
1202787465	315545003(CAMO-13-24271) Post Spike (PS)
1202787466	315545003(CAMO-13-24271) Post Spike Duplicate (PSD)
1202787467	Laboratory Control Sample (LCS)
1202787468	Laboratory Control Sample (LCS)
1202788454	Method Blank (MB)
1202788455	Laboratory Control Sample (LCS)
1202788456	Laboratory Control Sample (LCS)

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

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

Preparation/Analytical Method Verification

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

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

Calibration Information

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

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

Initial Calibration
At the request of the client, linear curve fits, for target analytes that did not meet the x-intercept criteria of less than or equal to 3 times the MDL and had %RSDs less than 60%, were set to use the average response factor to quantitate data in this SDG.

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

Quality Control (QC) Information

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

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

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

QC Sample Designation
Sample 315545003 (CAMO-13-24271) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike 1202787465 (CAMO-13-24271) recoveries were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the data package.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate 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
The following DER was generated for this SDG: 1144834.

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
VOA9.I	Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

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

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-353 GEL Work Order: 315545

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: 14 DEC 2012 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 11:14**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 11:14**				
Data File:	**112912V9\9O410.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:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 11:14**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 11:14**				
Data File:	**112912V9\9O410.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:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 11:14**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 11:14**				
Data File:	**112912V9\9O410.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	44.7	50.0	ug/L	89.4	(78%-124%)
Bromofluorobenzene	48.6	50.0	ug/L	97.2	(80%-120%)
Toluene-d8	46.2	50.0	ug/L	92.4	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.315	15.6	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 15:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 15:08**				
Data File:	**112812V9\9O321.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:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 15:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 15:08**				
Data File:	**112812V9\9O321.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:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 15:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 15:08**				
Data File:	**112812V9\9O321.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	45.5	50.0	ug/L	91.1	(78%-124%)
Bromofluorobenzene	48.8	50.0	ug/L	97.6	(80%-120%)
Toluene-d8	45.3	50.0	ug/L	90.5	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.33	15.6	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545005**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24273**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 12:22**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 12:22**				
Data File:	**112812V9\9O315.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:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545005**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24273**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 12:22**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 12:22**				
Data File:	**112812V9\9O315.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:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545005**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24273**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 12:22**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 12:22**				
Data File:	**112812V9\9O315.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	46.6	50.0	ug/L	93.3	(78%-124%)
Bromofluorobenzene	51.7	50.0	ug/L	103	(80%-120%)
Toluene-d8	47.7	50.0	ug/L	95.4	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.301	11.1	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-353

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202787467	LCS for batch 1266476	91	94	96
1202787468	LCS for batch 1266476	89	92	99
1202787464	MB for batch 1266476	93	93	100
315545005	CAMO-13-24273	93	95	103
315545003	CAMO-13-24271	91	91	98
1202787465	CAMO-13-24271PS	92	96	102
1202787466	CAMO-13-24271PSD	85	88	95
1202788455	LCS for batch 1266476	86	92	97
1202788456	LCS for batch 1266476	86	91	95
1202788454	MB for batch 1266476	90	92	97
315545001	CAMO-13-24278	89	92	97

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: 2013-353 **Sample Type:** Post Spike
Client ID: CAMO-13-24271PS **Matrix:** W
Lab Sample ID: 1202787465
Instrument: VOA9.I **Analysis Date:** 11/28/2012 17:21 **Dilution:** 1
Analyst: RXY1 **Prep Batch ID** 1266476
Purge Vol: 5 mL **Batch ID:** 1266476

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	44.8	90	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	40.9	82	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	38.6	77	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	45.7	91	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	47.9	96	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	45.2	90	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	50.0	100	69-121
67-64-1	PS	Acetone	250	0.00	U	142	57	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1200	96	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	47.9	96	67-132
74-88-4	PS	Iodomethane	250	0.00	U	269	107	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	49.3	99	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	241	96	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	49.0	98	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	47.4	95	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	209	84	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	47.0	94	75-124
78-93-3	PS	2-Butanone	250	0.00	U	178	71	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	47.0	94	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	46.9	94	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	47.3	95	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	55.0	110	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Post Spike
Client ID: CAMO-13-24271PS **Matrix:** W
Lab Sample ID: 1202787465
Instrument: VOA9.I **Analysis Date:** 11/28/2012 17:21 **Dilution:** 1
Analyst: RXY1 **Prep Batch ID** 1266476
Purge Vol: 5 mL **Batch ID:** 1266476

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	48.8	98	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	48.0	96	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5440	109	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	51.3	103	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	46.7	93	72-126
71-43-2	PS	Benzene	50.0	0.00	U	48.2	96	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	49.9	100	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	48.6	97	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	53.5	107	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	52.1	104	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	244	97	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	54.7	109	72-134
108-88-3	PS	Toluene	50.0	0.00	U	45.2	90	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	51.4	103	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	48.9	98	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	182	73	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	45.4	91	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	46.7	93	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	55.9	112	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	53.3	107	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	47.1	94	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	44.1	88	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Post Spike
Client ID: CAMO-13-24271PS **Matrix:** W
Lab Sample ID: 1202787465
Instrument: VOA9.I **Analysis Date:** 11/28/2012 17:21 **Dilution:** 1
Analyst: RXY1 **Prep Batch ID** 1266476
Purge Vol: 5 mL **Batch ID:** 1266476

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	93.9	94	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	46.9	94	68-126
100-42-5	PS	Styrene	50.0	0.00	U	48.7	97	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	64.8	130 *	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	52.4	105	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	50.5	101	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	49.6	99	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	44.1	88	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	47.4	95	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	47.9	96	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	46.1	92	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	44.7	89	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	49.9	100	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	45.8	92	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	46.9	94	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	46.4	93	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	45.9	92	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	43.5	87	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	63.5	127	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	49.4	99	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	53.0	106	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Post Spike

Client ID: CAMO-13-24271PS **Matrix:** W

Lab Sample ID: 1202787465

Instrument: VOA9.I **Analysis Date:** 11/28/2012 17:21 **Dilution:** 1

Analyst: RXY1 **Prep Batch ID** 1266476

Purge Vol: 5 mL **Batch ID:** 1266476

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	48.8	98	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	49.7	99	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	46.8	94	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	48.5	97	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Post Spike Duplicate
Client ID: CAMO-13-24271PSD **Matrix:** W
Lab Sample ID: 1202787466
Instrument: VOA9.I **Analysis Date:** 11/28/2012 17:48 **Dilution:** 1
Analyst: RXY1 **Prep Batch ID** 1266476
Purge Vol: 5 mL **Batch ID:** 1266476

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	45.0	90	36-123	0	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	42.0	84	47-134	3	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	39.7	79	49-129	3	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	47.6	95	56-127	4	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	49.0	98	67-122	2	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	45.9	92	60-123	2	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	48.9	98	69-121	2	0-20
67-64-1	PSD	Acetone	250	0.00	U	133	53	30-143	6	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1160	93	60-133	4	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	49.3	99	67-132	3	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	278	111	69-147	3	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	50.3	101	56-135	2	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	249	100	65-153	3	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	49.2	98	73-126	0	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	47.9	96	69-128	1	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	200	80	50-143	4	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	47.3	95	75-124	1	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	165	66	30-140	8	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	47.0	94	52-147	0	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	47.4	95	67-143	1	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	46.8	94	75-125	1	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	54.7	109	80-120	0	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Post Spike Duplicate
Client ID: CAMO-13-24271PSD **Matrix:** W
Lab Sample ID: 1202787466
Instrument: VOA9.I **Analysis Date:** 11/28/2012 17:48 **Dilution:** 1
Analyst: RXY1 **Prep Batch ID** 1266476
Purge Vol: 5 mL **Batch ID:** 1266476

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	49.7	99	69-140	2	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	47.9	96	71-130	0	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	5060	101	53-150	7	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	53.2	106	69-142	4	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	46.1	92	72-126	1	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	47.8	96	73-119	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	49.8	100	54-147	0	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	48.5	97	78-123	0	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	53.6	107	76-131	0	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	51.0	102	79-120	2	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	220	88	68-136	10	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	54.8	110	72-134	0	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	43.4	87	62-126	4	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	49.1	98	72-133	5	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	46.2	92	74-120	6	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	165	66	31-132	10	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	43.6	87	73-121	4	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	45.7	91	54-139	2	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	53.9	108	74-128	4	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	51.1	102	80-120	4	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	46.5	93	73-119	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	43.6	87	66-125	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Post Spike Duplicate
Client ID: CAMO-13-24271PSD
Matrix: W
Lab Sample ID: 1202787466
Instrument: VOA9.I
Analysis Date: 11/28/2012 17:48
Dilution: 1
Analyst: RXY1
Prep Batch ID: 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	93.0	93	56-134	1	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	46.2	92	68-126	1	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	48.7	97	57-138	0	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	60.9	122	66-129	6	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	48.3	97	44-146	8	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	48.5	97	68-129	4	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	48.9	98	70-122	1	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	43.3	87	61-131	2	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	46.4	93	66-126	2	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	46.0	92	65-130	4	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	45.2	90	58-134	2	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	44.3	89	63-125	1	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	48.1	96	66-129	4	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	45.1	90	60-131	2	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	45.7	91	62-130	3	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	45.7	91	62-132	2	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	46.7	93	66-121	0	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	45.9	92	65-119	0	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	43.4	87	55-134	0	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	58.5	117	58-137	8	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	48.7	97	49-139	2	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	48.0	96	46-145	10	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Post Spike Duplicate

Client ID: CAMO-13-24271PSD **Matrix:** W

Lab Sample ID: 1202787466

Instrument: VOA9.I **Analysis Date:** 11/28/2012 17:48 **Dilution:** 1

Analyst: RXY1 **Prep Batch ID** 1266476

Purge Vol: 5 mL **Batch ID:** 1266476

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	45.7	91	54-134	7	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	47.8	96	79-128	4	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	44.7	89	55-128	5	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	47.6	95	68-121	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202787467
Instrument: VOA9.I
Analysis Date: 11/28/2012 07:00
Dilution: 1
Analyst: RXY1
Prep Batch ID 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	51.1	102	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	45.1	90	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	43.3	87	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	49.7	99	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	53.9	108	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	52.8	106	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	51.8	104	74-120
67-64-1	LCS	Acetone	250	0.0	258	103	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1120	90	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	54.4	109	76-127
74-88-4	LCS	Iodomethane	250	0.0	293	117	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	52.7	105	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	269	108	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	50.0	100	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	53.2	106	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	253	101	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	51.2	102	79-120
78-93-3	LCS	2-Butanone	250	0.0	263	105	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	51.7	103	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	55.4	111	76-145
67-66-3	LCS	Chloroform	50.0	0.0	50.4	101	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	55.8	112	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202787467
Instrument: VOA9.I
Analysis Date: 11/28/2012 07:00
Dilution: 1
Analyst: RXY1
Prep Batch ID: 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	55.3	111	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	53.9	108	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	4510	90	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	47.9	96	75-121
71-43-2	LCS	Benzene	50.0	0.0	51.8	104	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	54.7	109	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	50.4	101	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	55.6	111	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	51.9	104	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	248	99	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	57.1	114	80-127
108-88-3	LCS	Toluene	50.0	0.0	48.5	97	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	52.5	105	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	48.2	96	79-120
591-78-6	LCS	2-Hexanone	250	0.0	284	113	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	45.1	90	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	52.7	105	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	55.9	112	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	52.3	105	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	49.8	100	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	47.9	96	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202787467
Instrument: VOA9.I
Analysis Date: 11/28/2012 07:00
Dilution: 1
Analyst: RXY1
Prep Batch ID 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	101	101	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	50.2	100	80-120
100-42-5	LCS	Styrene	50.0	0.0	51.7	103	80-121
75-25-2	LCS	Bromoform	50.0	0.0	60.1	120	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	46.9	94	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	50.4	101	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	48.0	96	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	50.1	100	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	51.3	103	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	50.2	100	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	48.2	96	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	53.2	106	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	49.6	99	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	50.7	101	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	51.5	103	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	51.0	102	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	49.8	100	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	49.9	100	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	58.7	117	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	56.9	114	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	50.6	101	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202787467
Instrument: VOA9.I
Analysis Date: 11/28/2012 07:00
Dilution: 1
Analyst: RXY1
Prep Batch ID: 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	52.1	104	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	51.8	104	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	54.8	110	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	50.0	100	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202787468
Instrument: VOA9.I
Analysis Date: 11/28/2012 08:20
Dilution: 1
Analyst: RXY1
Prep Batch ID: 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	248	99	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	235	94	65-157
107-05-1	LCS	Allyl chloride	250	0.0	225	90	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	222	89	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	50.4	101	45-159
107-12-0	LCS	Propionitrile	250	0.0	229	92	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	212	85	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2030	81	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	216	86	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	197	79	66-132

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202788455
Instrument: VOA9.I
Analysis Date: 11/29/2012 08:08
Dilution: 1
Analyst: RXY1
Prep Batch ID 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	46.1	92	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	43.3	87	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	41.7	83	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	46.4	93	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	51.0	102	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	49.9	100	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	48.2	96	74-120
67-64-1	LCS	Acetone	250	0.0	245	98	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1100	88	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	51.2	102	76-127
74-88-4	LCS	Iodomethane	250	0.0	280	112	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	48.7	97	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	257	103	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	47.6	95	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	50.2	100	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	240	96	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	48.4	97	79-120
78-93-3	LCS	2-Butanone	250	0.0	253	101	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	48.7	97	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	52.8	106	76-145
67-66-3	LCS	Chloroform	50.0	0.0	47.9	96	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	53.2	106	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202788455
Instrument: VOA9.I
Analysis Date: 11/29/2012 08:08
Dilution: 1
Analyst: RXY1
Prep Batch ID: 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	52.2	104	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	50.7	101	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	4660	93	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	56.7	113	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	45.3	91	75-121
71-43-2	LCS	Benzene	50.0	0.0	49.5	99	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	51.5	103	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	48.4	97	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	53.3	107	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	49.5	99	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	237	95	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	55.7	111	80-127
108-88-3	LCS	Toluene	50.0	0.0	45.4	91	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	49.6	99	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	44.8	90	79-120
591-78-6	LCS	2-Hexanone	250	0.0	270	108	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	42.2	84	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	50.0	100	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	54.2	108	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	50.9	102	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	48.5	97	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	46.0	92	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202788455
Instrument: VOA9.I
Analysis Date: 11/29/2012 08:08
Dilution: 1
Analyst: RXY1
Prep Batch ID: 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	98.8	99	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	48.5	97	80-120
100-42-5	LCS	Styrene	50.0	0.0	50.7	101	80-121
75-25-2	LCS	Bromoform	50.0	0.0	58.7	117	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	46.6	93	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	46.8	94	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	48.8	98	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	46.3	93	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	48.8	98	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	49.0	98	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	48.0	96	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	46.7	93	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	50.3	101	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	48.1	96	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	48.4	97	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	49.5	99	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	49.0	98	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	48.3	97	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	47.7	95	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	58.4	117	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	52.7	105	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	47.5	95	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202788455
Instrument: VOA9.I
Analysis Date: 11/29/2012 08:08
Dilution: 1
Analyst: RXY1
Prep Batch ID 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	49.3	99	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	51.5	103	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	49.0	98	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1266476
Matrix: WATER
Lab Sample ID: 1202788456
Instrument: VOA9.I
Analysis Date: 11/29/2012 09:28
Dilution: 1
Analyst: RXY1
Prep Batch ID: 1266476
Purge Vol: 5 mL
Batch ID: 1266476

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	241	96	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	237	95	65-157
107-05-1	LCS	Allyl chloride	250	0.0	214	86	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	215	86	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	48.0	96	45-159
107-12-0	LCS	Propionitrile	250	0.0	220	88	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	203	81	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	1920	77	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	209	83	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	191	76	66-132

Method Blank Summary

SDG Number:	**2013-353**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1266476**	**Instrument ID:**	**VOA9.I**	**Data File:**	**112812V9\9O309B.D**
Lab Sample ID:	**1202787464**	**Prep Date:**	**11/28/2012 09:41**	**Analyzed:**	**11/28/12 09:41**
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 1266476	1202787467	112812V9\9O303L.D	11/28/12	0700
02	LCS for batch 1266476	1202787468	112812V9\9O306L.D	11/28/12	0820
03	CAMO-13-24273	315545005	112812V9\9O315.D	11/28/12	1222
04	CAMO-13-24271	315545003	112812V9\9O321.D	11/28/12	1508
05	CAMO-13-24271PS	1202787465	112812V9\9O326.D	11/28/12	1721
06	CAMO-13-24271PSD	1202787466	112812V9\9O327.D	11/28/12	1748

Method Blank Summary

SDG Number:	**2013-353**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1266476**	**Instrument ID:**	**VOA9.I**	**Data File:**	**112912V9\9O408B.D**
Lab Sample ID:	**1202788454**	**Prep Date:**	**11/29/2012 10:21**	**Analyzed:**	**11/29/12 10:21**
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
08	**LCS for batch 1266476**	**1202788455**	**112912V9\9O403L.D**	**11/29/12**	**0808**
09	**LCS for batch 1266476**	**1202788456**	**112912V9\9O406L.D**	**11/29/12**	**0928**
10	**CAMO-13-24278**	**315545001**	**112912V9\9O410.D**	**11/29/12**	**1114**

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787464**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 09:41**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 09:41**				
Data File:	**112812V9\9O309B.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:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787464**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 09:41**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 09:41**				
Data File:	**112812V9\9O309B.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:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787464**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 09:41**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 09:41**				
Data File:	**112812V9\9O309B.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	46.6	50.0	ug/L	93.2	(78%-124%)
Bromofluorobenzene	49.9	50.0	ug/L	99.8	(80%-120%)
Toluene-d8	46.4	50.0	ug/L	92.7	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.301	6.71	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787465**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:21**				
Data File:	**112812V9\9O326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		44.8	ug/L	0.300	1.00
74-87-3	Chloromethane		40.9	ug/L	0.300	1.00
75-01-4	Vinyl chloride		38.6	ug/L	0.300	1.00
74-83-9	Bromomethane		45.7	ug/L	0.300	1.00
75-00-3	Chloroethane		47.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		50.0	ug/L	0.300	1.00
67-64-1	Acetone		142	ug/L	3.00	10.0
75-05-8	Acetonitrile		1200	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		47.9	ug/L	0.300	1.00
74-88-4	Iodomethane		269	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.3	ug/L	3.00	10.0
75-15-0	Carbon disulfide		241	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		49.0	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.4	ug/L	0.300	1.00
108-05-4	Vinyl acetate		209	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		47.0	ug/L	0.300	1.00
78-93-3	2-Butanone		178	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		47.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		46.9	ug/L	0.300	1.00
67-66-3	Chloroform		47.3	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.0	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.8	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5440	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		51.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.7	ug/L	0.300	1.00
71-43-2	Benzene		48.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.9	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		52.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		244	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.7	ug/L	0.300	1.00
108-88-3	Toluene		45.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.9	ug/L	0.300	1.00
591-78-6	2-Hexanone		182	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787465**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:21**				
Data File:	**112812V9\9O326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		45.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		46.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.1	ug/L	0.300	1.00
100-41-4	Ethylbenzene		44.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		93.9	ug/L	0.300	2.00
95-47-6	o-Xylene		46.9	ug/L	0.300	1.00
100-42-5	Styrene		48.7	ug/L	0.300	1.00
75-25-2	Bromoform		64.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		52.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		44.1	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		47.4	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		47.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		46.1	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		46.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		46.4	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		45.9	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		43.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		63.5	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		49.4	ug/L	0.300	1.00
91-20-3	Naphthalene		53.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		48.8	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:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787465**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:21**				
Data File:	**112812V9\9O326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		49.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		48.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.9	50.0	ug/L	91.8	(78%-124%)
Bromofluorobenzene	51.1	50.0	ug/L	102	(80%-120%)
Toluene-d8	47.9	50.0	ug/L	95.8	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787466**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:48**				
Data File:	**112812V9\9O327.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		45.0	ug/L	0.300	1.00
74-87-3	Chloromethane		42.0	ug/L	0.300	1.00
75-01-4	Vinyl chloride		39.7	ug/L	0.300	1.00
74-83-9	Bromomethane		47.6	ug/L	0.300	1.00
75-00-3	Chloroethane		49.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		48.9	ug/L	0.300	1.00
67-64-1	Acetone		133	ug/L	3.00	10.0
75-05-8	Acetonitrile		1160	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		49.3	ug/L	0.300	1.00
74-88-4	Iodomethane		278	ug/L	1.50	5.00
75-09-2	Methylene chloride		50.3	ug/L	3.00	10.0
75-15-0	Carbon disulfide		249	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		49.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.9	ug/L	0.300	1.00
108-05-4	Vinyl acetate		200	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		47.3	ug/L	0.300	1.00
78-93-3	2-Butanone		165	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		47.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		47.4	ug/L	0.300	1.00
67-66-3	Chloroform		46.8	ug/L	0.300	1.00
74-97-5	Bromochloromethane		54.7	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		49.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		47.9	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5060	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		53.2	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.1	ug/L	0.300	1.00
71-43-2	Benzene		47.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.5	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.0	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		220	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.8	ug/L	0.300	1.00
108-88-3	Toluene		43.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.1	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		165	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787466**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:48**				
Data File:	**112812V9\9O327.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		43.6	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		45.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		51.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.5	ug/L	0.300	1.00
100-41-4	Ethylbenzene		43.6	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		93.0	ug/L	0.300	2.00
95-47-6	o-Xylene		46.2	ug/L	0.300	1.00
100-42-5	Styrene		48.7	ug/L	0.300	1.00
75-25-2	Bromoform		60.9	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		48.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		43.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		46.4	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		46.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.2	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		48.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.1	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		45.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		45.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		45.9	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		43.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.5	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.7	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		45.7	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787466**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:48**				
Data File:	**112812V9\9O327.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		47.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	42.5	50.0	ug/L	85.1	(78%-124%)
Bromofluorobenzene	47.4	50.0	ug/L	94.8	(80%-120%)
Toluene-d8	44.1	50.0	ug/L	88.3	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787467**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 07:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 07:00**				
Data File:	**112812V9\9O303L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		51.1	ug/L	0.300	1.00
74-87-3	Chloromethane		45.1	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.3	ug/L	0.300	1.00
74-83-9	Bromomethane		49.7	ug/L	0.300	1.00
75-00-3	Chloroethane		53.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		52.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		51.8	ug/L	0.300	1.00
67-64-1	Acetone		258	ug/L	3.00	10.0
75-05-8	Acetonitrile		1120	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		54.4	ug/L	0.300	1.00
74-88-4	Iodomethane		293	ug/L	1.50	5.00
75-09-2	Methylene chloride		52.7	ug/L	3.00	10.0
75-15-0	Carbon disulfide		269	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		50.0	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		53.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		253	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		51.2	ug/L	0.300	1.00
78-93-3	2-Butanone		263	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		51.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		55.4	ug/L	0.300	1.00
67-66-3	Chloroform		50.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.8	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		53.9	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		4510	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		47.9	ug/L	0.300	1.00
71-43-2	Benzene		51.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		54.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.4	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		55.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.9	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		248	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		57.1	ug/L	0.300	1.00
108-88-3	Toluene		48.5	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		52.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		284	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787467**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 07:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 07:00**				
Data File:	**112812V9\9O303L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		45.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		52.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		52.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.8	ug/L	0.300	1.00
100-41-4	Ethylbenzene		47.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
95-47-6	o-Xylene		50.2	ug/L	0.300	1.00
100-42-5	Styrene		51.7	ug/L	0.300	1.00
75-25-2	Bromoform		60.1	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		46.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.4	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		48.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.1	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		51.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.2	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		53.2	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		49.6	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		51.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		51.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		49.8	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		49.9	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.7	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		56.9	ug/L	0.300	1.00
91-20-3	Naphthalene		50.6	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		52.1	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:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787467**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 07:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 07:00**				
Data File:	**112812V9\9O303L.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		51.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		54.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		50.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.7	50.0	ug/L	91.3	(78%-124%)
Bromofluorobenzene	48.2	50.0	ug/L	96.4	(80%-120%)
Toluene-d8	47.2	50.0	ug/L	94.5	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787468**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 08:20**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 08:20**				
Data File:	**112812V9\9O306L.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:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787468**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 08:20**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 08:20**				
Data File:	**112812V9\9O306L.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		248	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		235	ug/L	1.50	5.00
107-05-1	Allyl chloride		225	ug/L	1.50	5.00
107-13-1	Acrylonitrile		222	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		50.4	ug/L	0.300	1.00
107-12-0	Propionitrile		229	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		212	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2030	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		216	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787468**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 08:20**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 08:20**				
Data File:	**112812V9\9O306L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		197	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	44.4	50.0	ug/L	88.8	(78%-124%)
Bromofluorobenzene	49.5	50.0	ug/L	99.0	(80%-120%)
Toluene-d8	46.0	50.0	ug/L	92.0	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788454**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 10:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 10:21**				
Data File:	**112912V9\9O408B.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:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788454**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 10:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 10:21**				
Data File:	**112912V9\9O408B.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:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788454**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 10:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 10:21**				
Data File:	**112912V9\9O408B.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	44.8	50.0	ug/L	89.6	(78%-124%)
Bromofluorobenzene	48.4	50.0	ug/L	96.7	(80%-120%)
Toluene-d8	46.1	50.0	ug/L	92.3	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.286	6.72	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788455**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 08:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 08:08**				
Data File:	**112912V9\9O403L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		46.1	ug/L	0.300	1.00
74-87-3	Chloromethane		43.3	ug/L	0.300	1.00
75-01-4	Vinyl chloride		41.7	ug/L	0.300	1.00
74-83-9	Bromomethane		46.4	ug/L	0.300	1.00
75-00-3	Chloroethane		51.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		49.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		48.2	ug/L	0.300	1.00
67-64-1	Acetone		245	ug/L	3.00	10.0
75-05-8	Acetonitrile		1100	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		51.2	ug/L	0.300	1.00
74-88-4	Iodomethane		280	ug/L	1.50	5.00
75-09-2	Methylene chloride		48.7	ug/L	3.00	10.0
75-15-0	Carbon disulfide		257	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		47.6	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		240	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		48.4	ug/L	0.300	1.00
78-93-3	2-Butanone		253	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		48.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		52.8	ug/L	0.300	1.00
67-66-3	Chloroform		47.9	ug/L	0.300	1.00
74-97-5	Bromochloromethane		53.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		52.2	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		50.7	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		4660	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		56.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.3	ug/L	0.300	1.00
71-43-2	Benzene		49.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.4	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		237	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		55.7	ug/L	0.300	1.00
108-88-3	Toluene		45.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		44.8	ug/L	0.300	1.00
591-78-6	2-Hexanone		270	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788455**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 08:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 08:08**				
Data File:	**112912V9\9O403L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		42.2	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.0	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		54.2	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		50.9	ug/L	0.300	1.00
108-90-7	Chlorobenzene		48.5	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		98.8	ug/L	0.300	2.00
95-47-6	o-Xylene		48.5	ug/L	0.300	1.00
100-42-5	Styrene		50.7	ug/L	0.300	1.00
75-25-2	Bromoform		58.7	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.6	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		48.8	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		46.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.8	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		49.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		48.0	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		46.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		50.3	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		48.1	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		48.4	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		49.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		49.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.3	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		47.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		52.7	ug/L	0.300	1.00
91-20-3	Naphthalene		47.5	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:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788455**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 08:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 08:08**				
Data File:	**112912V9\9O403L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		49.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		51.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.0	50.0	ug/L	86.0	(78%-124%)
Bromofluorobenzene	48.3	50.0	ug/L	96.6	(80%-120%)
Toluene-d8	46.1	50.0	ug/L	92.3	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788456**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 09:28**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 09:28**				
Data File:	**112912V9\9O406L.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:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788456**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 09:28**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 09:28**				
Data File:	**112912V9\9O406L.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		241	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		237	ug/L	1.50	5.00
107-05-1	Allyl chloride		214	ug/L	1.50	5.00
107-13-1	Acrylonitrile		215	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		48.0	ug/L	0.300	1.00
107-12-0	Propionitrile		220	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		203	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		1920	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		209	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788456**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 09:28**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 09:28**				
Data File:	**112912V9\9O406L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		191	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	43.2	50.0	ug/L	86.3	(78%-124%)
Bromofluorobenzene	47.3	50.0	ug/L	94.5	(80%-120%)
Toluene-d8	45.7	50.0	ug/L	91.4	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
29-NOV-12	Federal	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL 315450, 315545
Batch ID:	**Sample Numbers:**		
1266476	1202787465		

Potentially affected work order(s)(SDG): 315450(2013-334),315545(2013-353)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	**DER Disposition:**
1. The MS 1202787465 did not meet the acceptable recovery criteria for Bromoform. MS: 130% (Limits of: 66.00% - 129.00%)	1. The data were narrated and reported with an accepable MS/MSD %RPD for Bromoform.

Originator's Name:

Ramona Yarbrough 29-NOV-12

Data Validator/Group Leader:

Erin Haubert 13-DEC-12

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-353

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:	1265254
Prep Batch Number:	1265252

Sample Analysis

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

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202784549	Method Blank (MB)
1202784550	315545001(CAMO-13-24278) Matrix Spike (MS)
1202784551	315545001(CAMO-13-24278) Matrix Spike Duplicate (MSD)
1202784552	Laboratory Control Sample (LCS)

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# 30.

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(1202784552) recovered Hexachlorocyclopentadiene at 31%. The limits are 38%-79%. The LCS failure represents less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. Please note that Hexachlorocyclopentadiene is known to be a poor responding analyte as stated in the Method. This may account for the low recovery in the LCS and the low but passing recovery in the MS and MSD.

QC Sample Designation
Sample 315545001 (CAMO-13-24278) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS(1202784550(CAMO-13-24278)) recovered Pentachlorophenol at 111%. The limits are 25%-110%. Since Pentachlorophenol was not detected in the associated parent sample, the biased high recovery had no adverse impact on the data and the results have been reported.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD(1202784551(CAMO-13-24278)) recovered Dibenzo(a,h)anthracene at 135%. The limits are 26%-124%. Since Dibenzo(a,h)anthracene was not detected in the associated parent sample, the biased high recovery had no adverse impact on the data and the results have been reported.

MS/MSD Relative Percent Difference (RPD) Statement
The MSD(1202784550(CAMO-13-24278))/MSD(1202784551(CAMO-13-24278)) RPD values were 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 Dibenzo(a,h)anthracene, the non-conformance had no adverse impact on the data and the results have been reported. The Dibenzo(a,h)anthracene RPD failure was attributed to the biased high recovery in the MSD when compared to the MS. 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 1143357 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
MSD8.I	Agilent 6890/5973 GC/MS w/ 7683 Autosampler	HP6890/HP5973	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-353 GEL Work Order: 315545

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: Barbara Bailey **Name: Barbara Bailey**

Date: 13 DEC 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:49**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2318.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	J	13.1	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	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:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:49**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2318.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline *p-Nitroaniline*	U	10.0	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene *1,2-Diphenylhydrazine*	U	10.0	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	J	4.01	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	J	3.51	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:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:49**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2318.D**	**Column:**	**DB-5ms**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	117	100	ug/L	117	(23%-130%)
2-Fluorobiphenyl	43.0	50.0	ug/L	85.9	(30%-104%)
2-Fluorophenol	45.9	100	ug/L	45.9	(14%-77%)
Nitrobenzene-d5	42.3	50.0	ug/L	84.6	(34%-125%)
Phenol-d5	30.7	100	ug/L	30.7	(10%-78%)
p-Terphenyl-d14	39.8	50.0	ug/L	79.6	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.978	6.19	ug/L	91	NJ
	unknown	2.181	53.9	ug/L	0	J
	unknown	2.251	4.17	ug/L	0	J
	unknown	2.315	19.5	ug/L	0	J
000110-83-8	Cyclohexene	2.368	18.6	ug/L	91	NJ
	unknown	3.475	5.18	ug/L	0	J
000080-05-7	Phenol, 4,4'-(1-methylethylidene)b	13.755	15	ug/L	98	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 21:31**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.3	ug/L	3.09	10.3
110-86-1	Pyridine	U	10.3	ug/L	3.09	10.3
62-53-3	Aniline	U	10.3	ug/L	3.09	10.3
108-95-2	Phenol	U	10.3	ug/L	3.09	10.3
111-44-4	bis(2-Chloroethyl) ether	U	10.3	ug/L	3.09	10.3
95-57-8	2-Chlorophenol	U	10.3	ug/L	3.09	10.3
541-73-1	1,3-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
106-46-7	1,4-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
95-50-1	1,2-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.3	ug/L	3.09	10.3
100-51-6	Benzyl alcohol	U	10.3	ug/L	3.09	10.3
95-48-7	o-Cresol	U	10.3	ug/L	3.09	10.3
65794-96-9	m,p-Cresols	U	10.3	ug/L	3.09	10.3
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.3	ug/L	3.09	10.3
67-72-1	Hexachloroethane	U	10.3	ug/L	3.09	10.3
98-95-3	Nitrobenzene	U	10.3	ug/L	3.09	10.3
78-59-1	Isophorone	U	10.3	ug/L	3.09	10.3
88-75-5	2-Nitrophenol	U	10.3	ug/L	3.09	10.3
105-67-9	2,4-Dimethylphenol	U	10.3	ug/L	3.09	10.3
111-91-1	bis(2-Chloroethoxy)methane	U	10.3	ug/L	3.09	10.3
120-83-2	2,4-Dichlorophenol	U	10.3	ug/L	3.09	10.3
65-85-0	Benzoic acid	J	14.0	ug/L	6.19	20.6
106-47-8	4-Chloroaniline	U	10.3	ug/L	3.40	10.3
87-68-3	Hexachlorobutadiene	U	10.3	ug/L	3.09	10.3
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.3	ug/L	3.09	10.3
91-57-6	2-Methylnaphthalene	U	1.03	ug/L	0.309	1.03
91-20-3	Naphthalene	U	1.03	ug/L	0.309	1.03
90-12-0	1-Methylnaphthalene	U	1.03	ug/L	0.309	1.03
77-47-4	Hexachlorocyclopentadiene	U	10.3	ug/L	3.09	10.3
88-06-2	2,4,6-Trichlorophenol	U	10.3	ug/L	3.09	10.3
95-95-4	2,4,5-Trichlorophenol	U	10.3	ug/L	3.09	10.3
91-58-7	2-Chloronaphthalene	U	1.03	ug/L	0.309	1.03
88-74-4	2-Nitroaniline	U	10.3	ug/L	3.09	10.3
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.3	ug/L	3.09	10.3
131-11-3	Dimethylphthalate	U	10.3	ug/L	3.09	10.3
606-20-2	2,6-Dinitrotoluene	U	10.3	ug/L	3.09	10.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 21:31**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.3	ug/L	3.09	10.3
208-96-8	Acenaphthylene	U	1.03	ug/L	0.309	1.03
83-32-9	Acenaphthene	U	1.03	ug/L	0.309	1.03
51-28-5	2,4-Dinitrophenol	U	20.6	ug/L	5.15	20.6
132-64-9	Dibenzofuran	U	10.3	ug/L	3.09	10.3
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.3	ug/L	3.09	10.3
84-66-2	Diethylphthalate	U	10.3	ug/L	3.09	10.3
100-02-7	4-Nitrophenol	U	10.3	ug/L	3.09	10.3
86-73-7	Fluorene	U	1.03	ug/L	0.309	1.03
7005-72-3	4-Chlorophenylphenylether	U	10.3	ug/L	3.09	10.3
100-01-6	4-Nitroaniline *p-Nitroaniline*	U	10.3	ug/L	3.09	10.3
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.3	ug/L	3.09	10.3
122-39-4	Diphenylamine	U	10.3	ug/L	3.09	10.3
122-66-7	Azobenzene *1,2-Diphenylhydrazine*	U	10.3	ug/L	3.09	10.3
101-55-3	4-Bromophenylphenylether	U	10.3	ug/L	3.09	10.3
118-74-1	Hexachlorobenzene	U	10.3	ug/L	3.09	10.3
87-86-5	Pentachlorophenol	U	10.3	ug/L	3.09	10.3
88-85-7	Dinoseb	U	10.3	ug/L	3.09	10.3
85-01-8	Phenanthrene	U	1.03	ug/L	0.309	1.03
120-12-7	Anthracene	U	1.03	ug/L	0.309	1.03
84-74-2	Di-n-butylphthalate	U	10.3	ug/L	3.09	10.3
206-44-0	Fluoranthene	U	1.03	ug/L	0.309	1.03
129-00-0	Pyrene	U	1.03	ug/L	0.309	1.03
85-68-7	Butylbenzylphthalate	U	10.3	ug/L	3.09	10.3
117-81-7	bis(2-Ethylhexyl)phthalate	J	3.26	ug/L	3.09	10.3
56-55-3	Benzo(a)anthracene	U	1.03	ug/L	0.309	1.03
218-01-9	Chrysene	U	1.03	ug/L	0.309	1.03
117-84-0	Di-n-octylphthalate	U	10.3	ug/L	3.09	10.3
205-99-2	Benzo(b)fluoranthene	U	1.03	ug/L	0.309	1.03
207-08-9	Benzo(k)fluoranthene	U	1.03	ug/L	0.309	1.03
50-32-8	Benzo(a)pyrene	U	1.03	ug/L	0.454	1.03
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.03	ug/L	0.309	1.03
53-70-3	Dibenzo(a,h)anthracene	U	1.03	ug/L	0.309	1.03
191-24-2	Benzo(ghi)perylene	U	1.03	ug/L	0.309	1.03
123-91-1	1,4-Dioxane	U	10.3	ug/L	3.09	10.3
55-18-5	N-Nitrosodiethylamine	U	10.3	ug/L	3.09	10.3
930-55-2	N-Nitrosopyrrolidine	U	10.3	ug/L	3.09	10.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 21:31**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.3	ug/L	3.09	10.3
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.3	ug/L	3.09	10.3
608-93-5	Pentachlorobenzene	U	10.3	ug/L	3.09	10.3
1912-24-9	Atrazine	U	10.3	ug/L	3.09	10.3
92-87-5	Benzidine	U	10.3	ug/L	3.09	10.3
91-94-1	3,3'-Dichlorobenzidine	U	10.3	ug/L	3.09	10.3
120-82-1	1,2,4-Trichlorobenzene	U	10.3	ug/L	3.09	10.3

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	113	103	ug/L	110	(23%-130%)
2-Fluorobiphenyl	40.4	51.5	ug/L	78.4	(30%-104%)
2-Fluorophenol	46.5	103	ug/L	45.2	(14%-77%)
Nitrobenzene-d5	40.0	51.5	ug/L	77.7	(34%-125%)
Phenol-d5	28.6	103	ug/L	27.8	(10%-78%)
p-Terphenyl-d14	40.4	51.5	ug/L	78.3	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.978	8.71	ug/L	91	NJ
	unknown	2.181	55.1	ug/L	0	J
000594-36-5	Butane, 2-chloro-2-methyl-	2.251	5.33	ug/L	90	NJ
	unknown	2.315	21.4	ug/L	0	J
001528-21-8	Ethylidenecyclobutane	2.368	21.8	ug/L	94	NJ
	unknown	3.476	5.09	ug/L	0	J
000080-05-7	Phenol, 4,4'-(1-methylethylidene)b	13.756	14.7	ug/L	98	NJ

Quality Control Summary

Surrogate Recovery Report

SDG Number: 2013-353

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202784549	MB for batch 1265252	42	27	74	65	85	66
1202784552	LCS for batch 1265252	37	23	59	63	82	57
315545001	CAMO-13-24278	46	31	85	86	117	80
1202784550	CAMO-13-24278MS	67	53	86	80	108	76
1202784551	CAMO-13-24278MSD	43	35	57	56	74	53
315545003	CAMO-13-24271	45	28	78	78	110	78

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: 2013-353 **Sample Type:** Matrix Spike

Client ID: CAMO-13-24278MS **Matrix:** W

Lab Sample ID: 1202784550

Instrument: MSD8.I **Analysis Date:** 11/23/2012 20:23 **Dilution:** 1

Analyst: RMB **Prep Batch ID** 1265252

Inj. Vol: 1 uL **Batch ID:** 1265254

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	108	0.00	U	79.2	74	27-85
110-86-1	MS	Pyridine	108	0.00	U	72.6	68	21-93
62-53-3	MS	Aniline	108	0.00	U	79.4	74	28-108
108-95-2	MS	Phenol	108	0.00	U	57.6	54	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	108	0.00	U	73.6	68	27-114
95-57-8	MS	2-Chlorophenol	108	0.00	U	88.4	82	32-103
541-73-1	MS	1,3-Dichlorobenzene	108	0.00	U	64.7	60	23-84
106-46-7	MS	1,4-Dichlorobenzene	108	0.00	U	65.7	61	23-88
95-50-1	MS	1,2-Dichlorobenzene	108	0.00	U	65.0	60	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	108	0.00	U	60.7	56	19-122
100-51-6	MS	Benzyl alcohol	108	0.00	U	100	93	34-98
95-48-7	MS	o-Cresol	108	0.00	U	87.0	81	29-96
65794-96-9	MS	m,p-Cresols	108	0.00	U	98.7	92	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	108	0.00	U	92.4	86	32-115
67-72-1	MS	Hexachloroethane	108	0.00	U	57.9	54	25-82
98-95-3	MS	Nitrobenzene	108	0.00	U	102	95	35-124
78-59-1	MS	Isophorone	108	0.00	U	107	99	37-140
88-75-5	MS	2-Nitrophenol	108	0.00	U	94.7	88	33-115
105-67-9	MS	2,4-Dimethylphenol	108	0.00	U	89.5	83	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	108	0.00	U	91.8	85	35-112
120-83-2	MS	2,4-Dichlorophenol	108	0.00	U	101	94	36-110
65-85-0	MS	Benzoic acid	215	13.1	J	165	71	12-108

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Matrix Spike
Client ID: CAMO-13-24278MS **Matrix:** W
Lab Sample ID: 1202784550
Instrument: MSD8.I **Analysis Date:** 11/23/2012 20:23 **Dilution:** 1
Analyst: RMB **Prep Batch ID** 1265252
Inj. Vol: 1 uL **Batch ID:** 1265254

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	108	0.00	U	100	93	33-120
87-68-3	MS	Hexachlorobutadiene	108	0.00	U	71.4	66	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	108	0.00	U	103	96	36-116
91-57-6	MS	2-Methylnaphthalene	108	0.00	U	73.7	69	27-103
91-20-3	MS	Naphthalene	108	0.00	U	74.1	69	28-99
90-12-0	MS	1-Methylnaphthalene	108	0.00	U	77.8	72	29-107
77-47-4	MS	Hexachlorocyclopentadiene	108	0.00	U	41.8	39	25-75
88-06-2	MS	2,4,6-Trichlorophenol	108	0.00	U	107	100	36-111
95-95-4	MS	2,4,5-Trichlorophenol	108	0.00	U	114	106	34-115
91-58-7	MS	2-Chloronaphthalene	108	0.00	U	78.3	73	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	108	0.00	U	83.7	78	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	108	0.00	U	95.7	89	32-123
131-11-3	MS	Dimethylphthalate	108	0.00	U	103	95	43-115
606-20-2	MS	2,6-Dinitrotoluene	108	0.00	U	107	100	42-121
121-14-2	MS	2,4-Dinitrotoluene	108	0.00	U	112	104	37-125
208-96-8	MS	Acenaphthylene	108	0.00	U	87.9	82	34-103
83-32-9	MS	Acenaphthene	108	0.00	U	78.9	73	31-104
51-28-5	MS	2,4-Dinitrophenol	108	0.00	U	115	107	25-108
132-64-9	MS	Dibenzofuran	108	0.00	U	97.4	91	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	108	0.00	U	124	116	33-123
84-66-2	MS	Diethylphthalate	108	0.00	U	103	96	43-116
100-02-7	MS	4-Nitrophenol	108	0.00	U	70.7	66	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Matrix Spike
Client ID: CAMO-13-24278MS **Matrix:** W
Lab Sample ID: 1202784550
Instrument: MSD8.I **Analysis Date:** 11/23/2012 20:23 **Dilution:** 1
Analyst: RMB **Prep Batch ID** 1265252
Inj. Vol: 1 uL **Batch ID:** 1265254

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	108	0.00	U	90.4	84	33-110
7005-72-3	MS	4-Chlorophenylphenylether	108	0.00	U	90.0	84	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	108	0.00	U	101	94	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	108	0.00	U	113	105	31-113
122-39-4	MS	Diphenylamine	108	0.00	U	93.1	87	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	108	0.00	U	86.6	81	33-110
101-55-3	MS	4-Bromophenylphenylether	108	0.00	U	95.8	89	33-111
118-74-1	MS	Hexachlorobenzene	108	0.00	U	97.0	90	36-113
87-86-5	MS	Pentachlorophenol	108	0.00	U	119	111 *	25-110
85-01-8	MS	Phenanthrene	108	0.00	U	96.6	90	36-111
120-12-7	MS	Anthracene	108	0.00	U	96.2	89	36-107
84-74-2	MS	Di-n-butylphthalate	108	4.01	J	103	92	38-116
206-44-0	MS	Fluoranthene	108	0.00	U	105	97	35-116
129-00-0	MS	Pyrene	108	0.00	U	91.8	85	28-126
85-68-7	MS	Butylbenzylphthalate	108	0.00	U	95.9	89	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	108	3.51	J	99.3	89	30-121
56-55-3	MS	Benzo(a)anthracene	108	0.00	U	101	94	38-110
218-01-9	MS	Chrysene	108	0.00	U	97.9	91	35-115
117-84-0	MS	Di-n-octylphthalate	108	0.00	U	97.1	90	30-115
205-99-2	MS	Benzo(b)fluoranthene	108	0.00	U	97.7	91	37-115
207-08-9	MS	Benzo(k)fluoranthene	108	0.00	U	94.6	88	36-118
50-32-8	MS	Benzo(a)pyrene	108	0.00	U	94.3	88	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Matrix Spike

Client ID: CAMO-13-24278MS **Matrix:** W

Lab Sample ID: 1202784550

Instrument: MSD8.I **Analysis Date:** 11/23/2012 20:23 **Dilution:** 1

Analyst: RMB **Prep Batch ID** 1265252

Inj. Vol: 1 uL **Batch ID:** 1265254

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	108	0.00	U	98.0	91	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	108	0.00	U	100	93	26-124
191-24-2	MS	Benzo(ghi)perylene	108	0.00	U	99.8	93	25-122
123-91-1	MS	1,4-Dioxane	108	0.00	U	77.2	72	26-90
930-55-2	MS	N-Nitrosopyrrolidine	108	0.00	U	97.3	90	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	108	0.00	U	78.2	73	32-94
1912-24-9	MS	Atrazine	108	0.00	U	73.6	68	36-119
92-87-5	MS	Benzidine	215	0.00	U	38.0	18	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	108	0.00	U	88.0	82	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	108	0.00	U	71.4	66	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Matrix Spike Duplicate
Client ID: CAMO-13-24278MSD **Matrix:** W
Lab Sample ID: 1202784551
Instrument: MSD8.I **Analysis Date:** 11/23/2012 20:57 **Dilution:** 1
Analyst: RMB **Prep Batch ID** 1265252
Inj. Vol: 1 uL **Batch ID:** 1265254

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	108	0.00	U	55.4	52	27-85	35 *	0-30
110-86-1	MSD	Pyridine	108	0.00	U	62.8	58	21-93	14	0-30
62-53-3	MSD	Aniline	108	0.00	U	65.7	61	28-108	19	0-30
108-95-2	MSD	Phenol	108	0.00	U	41.8	39	15-100	32 *	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	108	0.00	U	52.6	49	27-114	33 *	0-30
95-57-8	MSD	2-Chlorophenol	108	0.00	U	61.8	58	32-103	35 *	0-30
541-73-1	MSD	1,3-Dichlorobenzene	108	0.00	U	44.3	41	23-84	38 *	0-30
106-46-7	MSD	1,4-Dichlorobenzene	108	0.00	U	43.3	40	23-88	41 *	0-30
95-50-1	MSD	1,2-Dichlorobenzene	108	0.00	U	45.2	42	24-86	36 *	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	108	0.00	U	45.2	42	19-122	29	0-30
100-51-6	MSD	Benzyl alcohol	108	0.00	U	70.9	66	34-98	34 *	0-30
95-48-7	MSD	o-Cresol	108	0.00	U	63.3	59	29-96	32 *	0-30
65794-96-9	MSD	m,p-Cresols	108	0.00	U	70.2	65	26-111	34 *	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	108	0.00	U	70.1	65	32-115	28	0-30
67-72-1	MSD	Hexachloroethane	108	0.00	U	39.8	37	25-82	37 *	0-30
98-95-3	MSD	Nitrobenzene	108	0.00	U	75.6	70	35-124	30	0-30
78-59-1	MSD	Isophorone	108	0.00	U	81.4	76	37-140	27	0-30
88-75-5	MSD	2-Nitrophenol	108	0.00	U	69.9	65	33-115	30	0-30
105-67-9	MSD	2,4-Dimethylphenol	108	0.00	U	70.1	65	31-106	24	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	108	0.00	U	70.0	65	35-112	27	0-30
120-83-2	MSD	2,4-Dichlorophenol	108	0.00	U	74.9	70	36-110	30	0-30
65-85-0	MSD	Benzoic acid	215	13.1	J	130	54	12-108	24	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Matrix Spike Duplicate
Client ID: CAMO-13-24278MSD **Matrix:** W
Lab Sample ID: 1202784551
Instrument: MSD8.I **Analysis Date:** 11/23/2012 20:57 **Dilution:** 1
Analyst: RMB **Prep Batch ID** 1265252
Inj. Vol: 1 uL **Batch ID:** 1265254

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	108	0.00	U	75.0	70	33-120	29	0-30
87-68-3	MSD	Hexachlorobutadiene	108	0.00	U	51.2	48	19-96	33 *	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	108	0.00	U	75.3	70	36-116	31 *	0-30
91-57-6	MSD	2-Methylnaphthalene	108	0.00	U	55.2	51	27-103	29	0-30
91-20-3	MSD	Naphthalene	108	0.00	U	55.2	51	28-99	29	0-30
90-12-0	MSD	1-Methylnaphthalene	108	0.00	U	59.2	55	29-107	27	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	108	0.00	U	28.6	27	25-75	37 *	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	108	0.00	U	76.8	71	36-111	33 *	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	108	0.00	U	86.7	81	34-115	27	0-30
91-58-7	MSD	2-Chloronaphthalene	108	0.00	U	60.8	57	33-96	25	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	108	0.00	U	61.2	57	31-120	31 *	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	108	0.00	U	69.0	64	32-123	32 *	0-30
131-11-3	MSD	Dimethylphthalate	108	0.00	U	74.2	69	43-115	32 *	0-30
606-20-2	MSD	2,6-Dinitrotoluene	108	0.00	U	80.4	75	42-121	29	0-30
121-14-2	MSD	2,4-Dinitrotoluene	108	0.00	U	80.7	75	37-125	32 *	0-30
208-96-8	MSD	Acenaphthylene	108	0.00	U	66.2	62	34-103	28	0-30
83-32-9	MSD	Acenaphthene	108	0.00	U	59.5	55	31-104	28	0-30
51-28-5	MSD	2,4-Dinitrophenol	108	0.00	U	79.7	74	25-108	36 *	0-30
132-64-9	MSD	Dibenzofuran	108	0.00	U	73.4	68	38-106	28	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	108	0.00	U	88.6	82	33-123	34 *	0-30
84-66-2	MSD	Diethylphthalate	108	0.00	U	74.2	69	43-116	33 *	0-30
100-02-7	MSD	4-Nitrophenol	108	0.00	U	55.0	51	26-72	25	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Matrix Spike Duplicate
Client ID: CAMO-13-24278MSD **Matrix:** W
Lab Sample ID: 1202784551
Instrument: MSD8.I **Analysis Date:** 11/23/2012 20:57 **Dilution:** 1
Analyst: RMB **Prep Batch ID** 1265252
Inj. Vol: 1 uL **Batch ID:** 1265254

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	108	0.00	U	68.7	64	33-110	27	0-30
7005-72-3	MSD 4-Chlorophenylphenylether	108	0.00	U	68.8	64	30-112	27	0-30
100-01-6	MSD 4-Nitroaniline *p-Nitroaniline*	108	0.00	U	74.0	69	28-131	31 *	0-30
534-52-1	MSD 2-Methyl-4,6-dinitrophenol	108	0.00	U	81.6	76	31-113	32 *	0-30
122-39-4	MSD Diphenylamine	108	0.00	U	70.0	65	36-110	28	0-30
122-66-7	MSD Azobenzene *1,2-Diphenylhydrazine*	108	0.00	U	67.5	63	33-110	25	0-30
101-55-3	MSD 4-Bromophenylphenylether	108	0.00	U	71.7	67	33-111	29	0-30
118-74-1	MSD Hexachlorobenzene	108	0.00	U	73.8	69	36-113	27	0-30
87-86-5	MSD Pentachlorophenol	108	0.00	U	88.7	83	25-110	29	0-30
85-01-8	MSD Phenanthrene	108	0.00	U	71.8	67	36-111	30	0-30
120-12-7	MSD Anthracene	108	0.00	U	71.5	66	36-107	30	0-30
84-74-2	MSD Di-n-butylphthalate	108	4.01	J	79.3	70	38-116	26	0-30
206-44-0	MSD Fluoranthene	108	0.00	U	75.3	70	35-116	33 *	0-30
129-00-0	MSD Pyrene	108	0.00	U	67.9	63	28-126	30	0-30
85-68-7	MSD Butylbenzylphthalate	108	0.00	U	69.8	65	32-120	32 *	0-30
117-81-7	MSD bis(2-Ethylhexyl)phthalate	108	3.51	J	72.8	64	30-121	31 *	0-30
56-55-3	MSD Benzo(a)anthracene	108	0.00	U	76.0	71	38-110	29	0-30
218-01-9	MSD Chrysene	108	0.00	U	74.0	69	35-115	28	0-30
117-84-0	MSD Di-n-octylphthalate	108	0.00	U	72.5	67	30-115	29	0-30
205-99-2	MSD Benzo(b)fluoranthene	108	0.00	U	73.9	69	37-115	28	0-30
207-08-9	MSD Benzo(k)fluoranthene	108	0.00	U	71.8	67	36-118	27	0-30
50-32-8	MSD Benzo(a)pyrene	108	0.00	U	72.1	67	36-109	27	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Matrix Spike Duplicate
Client ID: CAMO-13-24278MSD **Matrix:** W
Lab Sample ID: 1202784551
Instrument: MSD8.I **Analysis Date:** 11/23/2012 20:57 **Dilution:** 1
Analyst: RMB **Prep Batch ID** 1265252
Inj. Vol: 1 uL **Batch ID:** 1265254

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	108	0.00	U	74.3	69	28-121	28	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	108	0.00	U	145	135 *	26-124	36 *	0-30
191-24-2	MSD Benzo(ghi)perylene	108	0.00	U	74.6	69	25-122	29	0-30
123-91-1	MSD 1,4-Dioxane	108	0.00	U	58.8	55	26-90	27	0-30
930-55-2	MSD N-Nitrosopyrrolidine	108	0.00	U	70.7	66	40-113	32 *	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	108	0.00	U	61.1	57	32-94	25	0-30
1912-24-9	MSD Atrazine	108	0.00	U	56.9	53	36-119	26	0-30
92-87-5	MSD Benzidine	215	0.00	U	88.1	41	10-125	80 *	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	108	0.00	U	68.1	63	27-109	26	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	108	0.00	U	50.7	47	23-90	34 *	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 1265252 **Matrix:** WATER

Lab Sample ID: 1202784552

Instrument: MSD8.I **Analysis Date:** 11/23/2012 19:15 **Dilution:** 1

Analyst: RMB **Prep Batch ID** 1265252

Inj. Vol: 1 uL **Batch ID:** 1265254

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	19.3	39	29-86
110-86-1	LCS	Pyridine	50.0	0.0	19.5	39	25-96
62-53-3	LCS	Aniline	50.0	0.0	27.6	55	38-105
108-95-2	LCS	Phenol	50.0	0.0	12.4	25	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	26.6	53	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	30.5	61	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	24.6	49	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	25.2	50	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	25.1	50	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	21.1	42	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	29.6	59	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	27.2	54	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	29.2	58	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	32.0	64	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	22.8	46	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	33.2	66	42-118
78-59-1	LCS	Isophorone	50.0	0.0	35.1	70	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	30.6	61	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	30.0	60	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	30.9	62	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	33.4	67	46-106
65-85-0	LCS	Benzoic acid	100	0.0	34.2	34	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1265252
Matrix: WATER
Lab Sample ID: 1202784552
Instrument: MSD8.I
Analysis Date: 11/23/2012 19:15
Dilution: 1
Analyst: RMB
Prep Batch ID 1265252
Inj. Vol: 1 uL
Batch ID: 1265254

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	32.9	66	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	25.7	51	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	32.5	65	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	25.2	50	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	25.7	51	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	26.2	52	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	15.4	31 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	37.4	75	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	40.1	80	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	28.5	57	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	30.7	61	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	33.5	67	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	35.9	72	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	38.7	77	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	38.6	77	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	31.9	64	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	28.5	57	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	37.1	74	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	34.9	70	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	42.4	85	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	35.6	71	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	15.4	31	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353 **Sample Type:** Laboratory Control Sample
Client ID: LCS for batch 1265252 **Matrix:** WATER
Lab Sample ID: 1202784552
Instrument: MSD8.I **Analysis Date:** 11/23/2012 19:15 **Dilution:** 1
Analyst: RMB **Prep Batch ID** 1265252
Inj. Vol: 1 uL **Batch ID:** 1265254

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	32.2	64	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	32.2	64	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	34.9	70	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	36.5	73	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	33.2	66	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	31.1	62	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	33.1	66	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	32.9	66	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	37.6	75	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	34.2	68	47-111
120-12-7	LCS	Anthracene	50.0	0.0	33.2	66	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	35.2	70	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	34.9	70	45-118
129-00-0	LCS	Pyrene	50.0	0.0	31.4	63	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	31.9	64	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	32.2	64	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	34.6	69	49-110
218-01-9	LCS	Chrysene	50.0	0.0	33.5	67	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	32.6	65	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	34.0	68	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	33.0	66	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	32.7	65	48-109

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-353
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1265252
Matrix: WATER
Lab Sample ID: 1202784552
Instrument: MSD8.I
Analysis Date: 11/23/2012 19:15
Dilution: 1
Analyst: RMB
Prep Batch ID 1265252
Inj. Vol: 1 uL
Batch ID: 1265254

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	33.7	67	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	46.4	93	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	34.5	69	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	21.8	44	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	32.0	64	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	29.8	60	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	27.3	55	47-115
92-87-5	LCS	Benzidine	100	0.0	41.9	42	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	31.2	62	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	24.9	50	32-92

Method Blank Summary

SDG Number:	**2013-353**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1265252**	**Instrument ID:**	**MSD8.I**	**Data File:**	**s112312.B\s8k2316.D**
Lab Sample ID:	**1202784549**	**Prep Date:**	**11/23/2012 06:35**	**Analyzed:**	**11/23/12 18:41**
Column:	**DB-5ms**				

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

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1265252	1202784552	s112312.B\s8k2317.D	11/23/12	1915
02	CAMO-13-24278	315545001	s112312.B\s8k2318.D	11/23/12	1949
03	CAMO-13-24278MS	1202784550	s112312.B\s8k2319.D	11/23/12	2023
04	CAMO-13-24278MSD	1202784551	s112312.B\s8k2320.D	11/23/12	2057
05	CAMO-13-24271	315545003	s112312.B\s8k2321.D	11/23/12	2131

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784549**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 18:41**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2316.D**	**Column:**	**DB-5ms**		

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784549**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 18:41**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2316.D**	**Column:**	**DB-5ms**		

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784549**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 18:41**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2316.D**	**Column:**	**DB-5ms**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	84.8	100	ug/L	84.8	(23%-130%)
2-Fluorobiphenyl	32.5	50.0	ug/L	64.9	(30%-104%)
2-Fluorophenol	41.7	100	ug/L	41.7	(14%-77%)
Nitrobenzene-d5	37.2	50.0	ug/L	74.5	(34%-125%)
Phenol-d5	26.7	100	ug/L	26.7	(10%-78%)
p-Terphenyl-d14	33.2	50.0	ug/L	66.3	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.978	4.88	ug/L	91	NJ
	unknown	2.186	49.5	ug/L	0	J
	unknown	2.251	4.3	ug/L	0	J
	unknown	2.315	18.5	ug/L	0	J
000110-83-8	Cyclohexene	2.374	18.3	ug/L	93	NJ
	unknown	3.475	4.4	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784550**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:23**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2319.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		79.2	ug/L	6.45	21.5
110-86-1	Pyridine		72.6	ug/L	6.45	21.5
62-53-3	Aniline		79.4	ug/L	6.45	21.5
108-95-2	Phenol		57.6	ug/L	6.45	21.5
111-44-4	bis(2-Chloroethyl) ether		73.6	ug/L	6.45	21.5
95-57-8	2-Chlorophenol		88.4	ug/L	6.45	21.5
541-73-1	1,3-Dichlorobenzene		64.7	ug/L	6.45	21.5
106-46-7	1,4-Dichlorobenzene		65.7	ug/L	6.45	21.5
95-50-1	1,2-Dichlorobenzene		65.0	ug/L	6.45	21.5
39638-32-9	bis(2-Chloroisopropyl)ether		60.7	ug/L	6.45	21.5
100-51-6	Benzyl alcohol		100	ug/L	6.45	21.5
95-48-7	o-Cresol		87.0	ug/L	6.45	21.5
65794-96-9	m,p-Cresols		98.7	ug/L	6.45	21.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		92.4	ug/L	6.45	21.5
67-72-1	Hexachloroethane		57.9	ug/L	6.45	21.5
98-95-3	Nitrobenzene		102	ug/L	6.45	21.5
78-59-1	Isophorone		107	ug/L	6.45	21.5
88-75-5	2-Nitrophenol		94.7	ug/L	6.45	21.5
105-67-9	2,4-Dimethylphenol		89.5	ug/L	6.45	21.5
111-91-1	bis(2-Chloroethoxy)methane		91.8	ug/L	6.45	21.5
120-83-2	2,4-Dichlorophenol		101	ug/L	6.45	21.5
65-85-0	Benzoic acid		165	ug/L	12.9	43.0
106-47-8	4-Chloroaniline		100	ug/L	7.10	21.5
87-68-3	Hexachlorobutadiene		71.4	ug/L	6.45	21.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		103	ug/L	6.45	21.5
91-57-6	2-Methylnaphthalene		73.7	ug/L	0.645	2.15
91-20-3	Naphthalene		74.1	ug/L	0.645	2.15
90-12-0	1-Methylnaphthalene		77.8	ug/L	0.645	2.15
77-47-4	Hexachlorocyclopentadiene		41.8	ug/L	6.45	21.5
88-06-2	2,4,6-Trichlorophenol		107	ug/L	6.45	21.5
95-95-4	2,4,5-Trichlorophenol		114	ug/L	6.45	21.5
91-58-7	2-Chloronaphthalene		78.3	ug/L	0.645	2.15
88-74-4	2-Nitroaniline *o-Nitroaniline*		83.7	ug/L	6.45	21.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		95.7	ug/L	6.45	21.5
131-11-3	Dimethylphthalate		103	ug/L	6.45	21.5
606-20-2	2,6-Dinitrotoluene		107	ug/L	6.45	21.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784550**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:23**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2319.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		112	ug/L	6.45	21.5
208-96-8	Acenaphthylene		87.9	ug/L	0.645	2.15
83-32-9	Acenaphthene		78.9	ug/L	0.645	2.15
51-28-5	2,4-Dinitrophenol		115	ug/L	10.8	43.0
132-64-9	Dibenzofuran		97.4	ug/L	6.45	21.5
58-90-2	2,3,4,6-Tetrachlorophenol		124	ug/L	6.45	21.5
84-66-2	Diethylphthalate		103	ug/L	6.45	21.5
100-02-7	4-Nitrophenol		70.7	ug/L	6.45	21.5
86-73-7	Fluorene		90.4	ug/L	0.645	2.15
7005-72-3	4-Chlorophenylphenylether		90.0	ug/L	6.45	21.5
100-01-6	4-Nitroaniline		101	ug/L	6.45	21.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		113	ug/L	6.45	21.5
122-39-4	Diphenylamine		93.1	ug/L	6.45	21.5
122-66-7	Azobenzene		86.6	ug/L	6.45	21.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		95.8	ug/L	6.45	21.5
118-74-1	Hexachlorobenzene		97.0	ug/L	6.45	21.5
87-86-5	Pentachlorophenol		119	ug/L	6.45	21.5
88-85-7	Dinoseb	U	21.5	ug/L	6.45	21.5
85-01-8	Phenanthrene		96.6	ug/L	0.645	2.15
120-12-7	Anthracene		96.2	ug/L	0.645	2.15
84-74-2	Di-n-butylphthalate		103	ug/L	6.45	21.5
206-44-0	Fluoranthene		105	ug/L	0.645	2.15
129-00-0	Pyrene		91.8	ug/L	0.645	2.15
85-68-7	Butylbenzylphthalate		95.9	ug/L	6.45	21.5
117-81-7	bis(2-Ethylhexyl)phthalate		99.3	ug/L	6.45	21.5
56-55-3	Benzo(a)anthracene		101	ug/L	0.645	2.15
218-01-9	Chrysene		97.9	ug/L	0.645	2.15
117-84-0	Di-n-octylphthalate		97.1	ug/L	6.45	21.5
205-99-2	Benzo(b)fluoranthene		97.7	ug/L	0.645	2.15
207-08-9	Benzo(k)fluoranthene		94.6	ug/L	0.645	2.15
50-32-8	Benzo(a)pyrene		94.3	ug/L	0.946	2.15
193-39-5	Indeno(1,2,3-cd)pyrene		98.0	ug/L	0.645	2.15
53-70-3	Dibenzo(a,h)anthracene		100	ug/L	0.645	2.15
191-24-2	Benzo(ghi)perylene		99.8	ug/L	0.645	2.15
123-91-1	1,4-Dioxane		77.2	ug/L	6.45	21.5
55-18-5	N-Nitrosodiethylamine	U	21.5	ug/L	6.45	21.5
930-55-2	N-Nitrosopyrrolidine		97.3	ug/L	6.45	21.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784550**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:23**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2319.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	21.5	ug/L	6.45	21.5
95-94-3	1,2,4,5-Tetrachlorobenzene		78.2	ug/L	6.45	21.5
608-93-5	Pentachlorobenzene	U	21.5	ug/L	6.45	21.5
1912-24-9	Atrazine		73.6	ug/L	6.45	21.5
92-87-5	Benzidine		38.0	ug/L	6.45	21.5
91-94-1	3,3'-Dichlorobenzidine		88.0	ug/L	6.45	21.5
120-82-1	1,2,4-Trichlorobenzene		71.4	ug/L	6.45	21.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	232	215	ug/L	108	(23%-130%)
2-Fluorobiphenyl	85.6	108	ug/L	79.6	(30%-104%)
2-Fluorophenol	143	215	ug/L	66.5	(14%-77%)
Nitrobenzene-d5	92.0	108	ug/L	85.5	(34%-125%)
Phenol-d5	114	215	ug/L	53.0	(10%-78%)
p-Terphenyl-d14	82.1	108	ug/L	76.4	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784551**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:57**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		55.4	ug/L	6.45	21.5
110-86-1	Pyridine		62.8	ug/L	6.45	21.5
62-53-3	Aniline		65.7	ug/L	6.45	21.5
108-95-2	Phenol		41.8	ug/L	6.45	21.5
111-44-4	bis(2-Chloroethyl) ether		52.6	ug/L	6.45	21.5
95-57-8	2-Chlorophenol		61.8	ug/L	6.45	21.5
541-73-1	1,3-Dichlorobenzene		44.3	ug/L	6.45	21.5
106-46-7	1,4-Dichlorobenzene		43.3	ug/L	6.45	21.5
95-50-1	1,2-Dichlorobenzene		45.2	ug/L	6.45	21.5
39638-32-9	bis(2-Chloroisopropyl)ether		45.2	ug/L	6.45	21.5
100-51-6	Benzyl alcohol		70.9	ug/L	6.45	21.5
95-48-7	o-Cresol		63.3	ug/L	6.45	21.5
65794-96-9	m,p-Cresols		70.2	ug/L	6.45	21.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		70.1	ug/L	6.45	21.5
67-72-1	Hexachloroethane		39.8	ug/L	6.45	21.5
98-95-3	Nitrobenzene		75.6	ug/L	6.45	21.5
78-59-1	Isophorone		81.4	ug/L	6.45	21.5
88-75-5	2-Nitrophenol		69.9	ug/L	6.45	21.5
105-67-9	2,4-Dimethylphenol		70.1	ug/L	6.45	21.5
111-91-1	bis(2-Chloroethoxy)methane		70.0	ug/L	6.45	21.5
120-83-2	2,4-Dichlorophenol		74.9	ug/L	6.45	21.5
65-85-0	Benzoic acid		130	ug/L	12.9	43.0
106-47-8	4-Chloroaniline		75.0	ug/L	7.10	21.5
87-68-3	Hexachlorobutadiene		51.2	ug/L	6.45	21.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		75.3	ug/L	6.45	21.5
91-57-6	2-Methylnaphthalene		55.2	ug/L	0.645	2.15
91-20-3	Naphthalene		55.2	ug/L	0.645	2.15
90-12-0	1-Methylnaphthalene		59.2	ug/L	0.645	2.15
77-47-4	Hexachlorocyclopentadiene		28.6	ug/L	6.45	21.5
88-06-2	2,4,6-Trichlorophenol		76.8	ug/L	6.45	21.5
95-95-4	2,4,5-Trichlorophenol		86.7	ug/L	6.45	21.5
91-58-7	2-Chloronaphthalene		60.8	ug/L	0.645	2.15
88-74-4	2-Nitroaniline *o-Nitroaniline*		61.2	ug/L	6.45	21.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		69.0	ug/L	6.45	21.5
131-11-3	Dimethylphthalate		74.2	ug/L	6.45	21.5
606-20-2	2,6-Dinitrotoluene		80.4	ug/L	6.45	21.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784551**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:57**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		80.7	ug/L	6.45	21.5
208-96-8	Acenaphthylene		66.2	ug/L	0.645	2.15
83-32-9	Acenaphthene		59.5	ug/L	0.645	2.15
51-28-5	2,4-Dinitrophenol		79.7	ug/L	10.8	43.0
132-64-9	Dibenzofuran		73.4	ug/L	6.45	21.5
58-90-2	2,3,4,6-Tetrachlorophenol		88.6	ug/L	6.45	21.5
84-66-2	Diethylphthalate		74.2	ug/L	6.45	21.5
100-02-7	4-Nitrophenol		55.0	ug/L	6.45	21.5
86-73-7	Fluorene		68.7	ug/L	0.645	2.15
7005-72-3	4-Chlorophenylphenylether		68.8	ug/L	6.45	21.5
100-01-6	4-Nitroaniline		74.0	ug/L	6.45	21.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		81.6	ug/L	6.45	21.5
122-39-4	Diphenylamine		70.0	ug/L	6.45	21.5
122-66-7	Azobenzene		67.5	ug/L	6.45	21.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		71.7	ug/L	6.45	21.5
118-74-1	Hexachlorobenzene		73.8	ug/L	6.45	21.5
87-86-5	Pentachlorophenol		88.7	ug/L	6.45	21.5
88-85-7	Dinoseb	U	21.5	ug/L	6.45	21.5
85-01-8	Phenanthrene		71.8	ug/L	0.645	2.15
120-12-7	Anthracene		71.5	ug/L	0.645	2.15
84-74-2	Di-n-butylphthalate		79.3	ug/L	6.45	21.5
206-44-0	Fluoranthene		75.3	ug/L	0.645	2.15
129-00-0	Pyrene		67.9	ug/L	0.645	2.15
85-68-7	Butylbenzylphthalate		69.8	ug/L	6.45	21.5
117-81-7	bis(2-Ethylhexyl)phthalate		72.8	ug/L	6.45	21.5
56-55-3	Benzo(a)anthracene		76.0	ug/L	0.645	2.15
218-01-9	Chrysene		74.0	ug/L	0.645	2.15
117-84-0	Di-n-octylphthalate		72.5	ug/L	6.45	21.5
205-99-2	Benzo(b)fluoranthene		73.9	ug/L	0.645	2.15
207-08-9	Benzo(k)fluoranthene		71.8	ug/L	0.645	2.15
50-32-8	Benzo(a)pyrene		72.1	ug/L	0.946	2.15
193-39-5	Indeno(1,2,3-cd)pyrene		74.3	ug/L	0.645	2.15
53-70-3	Dibenzo(a,h)anthracene		145	ug/L	0.645	2.15
191-24-2	Benzo(ghi)perylene		74.6	ug/L	0.645	2.15
123-91-1	1,4-Dioxane		58.8	ug/L	6.45	21.5
55-18-5	N-Nitrosodiethylamine	U	21.5	ug/L	6.45	21.5
930-55-2	N-Nitrosopyrrolidine		70.7	ug/L	6.45	21.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784551**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:57**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	21.5	ug/L	6.45	21.5
95-94-3	1,2,4,5-Tetrachlorobenzene		61.1	ug/L	6.45	21.5
608-93-5	Pentachlorobenzene	U	21.5	ug/L	6.45	21.5
1912-24-9	Atrazine		56.9	ug/L	6.45	21.5
92-87-5	Benzidine		88.1	ug/L	6.45	21.5
91-94-1	3,3'-Dichlorobenzidine		68.1	ug/L	6.45	21.5
120-82-1	1,2,4-Trichlorobenzene		50.7	ug/L	6.45	21.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	159	215	ug/L	73.8	(23%-130%)
2-Fluorobiphenyl	60.6	108	ug/L	56.3	(30%-104%)
2-Fluorophenol	92.2	215	ug/L	42.9	(14%-77%)
Nitrobenzene-d5	61.4	108	ug/L	57.1	(34%-125%)
Phenol-d5	74.3	215	ug/L	34.6	(10%-78%)
p-Terphenyl-d14	57.1	108	ug/L	53.1	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784552**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:15**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2317.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		19.3	ug/L	3.00	10.0
110-86-1	Pyridine		19.5	ug/L	3.00	10.0
62-53-3	Aniline		27.6	ug/L	3.00	10.0
108-95-2	Phenol		12.4	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		26.6	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		30.5	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		24.6	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		25.2	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		25.1	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		21.1	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		29.6	ug/L	3.00	10.0
95-48-7	o-Cresol		27.2	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		29.2	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		32.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane		22.8	ug/L	3.00	10.0
98-95-3	Nitrobenzene		33.2	ug/L	3.00	10.0
78-59-1	Isophorone		35.1	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		30.6	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		30.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		30.9	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		33.4	ug/L	3.00	10.0
65-85-0	Benzoic acid		34.2	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		32.9	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		25.7	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		32.5	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		25.2	ug/L	0.300	1.00
91-20-3	Naphthalene		25.7	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		26.2	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		15.4	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		37.4	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		40.1	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		28.5	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		30.7	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		33.5	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		35.9	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		38.7	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784552**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:15**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2317.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		38.6	ug/L	3.00	10.0
208-96-8	Acenaphthylene		31.9	ug/L	0.300	1.00
83-32-9	Acenaphthene		28.5	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		37.1	ug/L	5.00	20.0
132-64-9	Dibenzofuran		34.9	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		42.4	ug/L	3.00	10.0
84-66-2	Diethylphthalate		35.6	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		15.4	ug/L	3.00	10.0
86-73-7	Fluorene		32.2	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		32.2	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		34.9	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		36.5	ug/L	3.00	10.0
122-39-4	Diphenylamine		33.2	ug/L	3.00	10.0
122-66-7	Azobenzene		31.1	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		33.1	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		32.9	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		37.6	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		34.2	ug/L	0.300	1.00
120-12-7	Anthracene		33.2	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		35.2	ug/L	3.00	10.0
206-44-0	Fluoranthene		34.9	ug/L	0.300	1.00
129-00-0	Pyrene		31.4	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		31.9	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		32.2	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		34.6	ug/L	0.300	1.00
218-01-9	Chrysene		33.5	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		32.6	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		34.0	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		33.0	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		32.7	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		33.7	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		46.4	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		34.5	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		21.8	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		32.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784552**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:15**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2317.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		29.8	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		27.3	ug/L	3.00	10.0
92-87-5	Benzidine		41.9	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		31.2	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		24.9	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	81.8	100	ug/L	81.8	(23%-130%)
2-Fluorobiphenyl	31.3	50.0	ug/L	62.5	(30%-104%)
2-Fluorophenol	36.7	100	ug/L	36.7	(14%-77%)
Nitrobenzene-d5	29.7	50.0	ug/L	59.4	(34%-125%)
Phenol-d5	22.5	100	ug/L	22.5	(10%-78%)
p-Terphenyl-d14	28.3	50.0	ug/L	56.5	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ARSL (ESHL)
Batch ID:	**Sample Numbers:**		
1265254	See Below		

Potentially affected work order(s)(SDG): 315545(2013-353)

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(1202784552) recovered Hexachlorocyclopentadiene at 31%. The limits are 38%-79%.	1. The LCS failure represents less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. Please note that Hexachlorocyclopentadiene is known to be a poor responding analyte as stated in the Method. This may account for the low recovery in the LCS and the low but passing recovery in the MS and MSD.
2. The MS(1202784550) recovered Pentachlorophenol at 111%. The limits are 25%-110%.	2. Since Pentachlorophenol was not detected in the associated parent sample, the biased high recovery had no adverse impact on the data and the results have been reported.
3. The MSD(1202784551) recovered Dibenzo(a,h)anthracene at 135%. The limits are 26%-124%.	3. Since Dibenzo(a,h)anthracene was not detected in the associated parent sample, the biased high recovery had no adverse impact on the data and the results have been reported.
4. The MSD(1202784550)/MSD(1202784551) RPD values were 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 Dibenzo(a,h)anthracene, the non-conformance had no adverse impact on the data and the results have been reported. The Dibenzo(a,h)anthracene RPD failure was attributed to the biased high recovery in the MSD when compared to the MS. The data results have been reported.

Originator's Name:

Richard Bomar 26-NOV-12

Data Validator/Group Leader:

Barbara Bailey 27-NOV-12

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-353

Sample Analysis

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202784097	Method Blank (MB) **ICP**
1202784098	Laboratory Control Sample (LCS)
1202784101	315545002(CAMO-13-24282L) Serial Dilution (SD)
1202784099	315545002(CAMO-13-24282D) Sample Duplicate (DUP)
1202784100	315545002(CAMO-13-24282S) Matrix Spike (MS)
1202784088	Method Blank (MB) **ICP-MS**
1202784089	Laboratory Control Sample (LCS)
1202784092	315545002(CAMO-13-24282L) Serial Dilution (SD)
1202784090	315545002(CAMO-13-24282D) Sample Duplicate (DUP)
1202784091	315545002(CAMO-13-24282S) Matrix Spike (MS)
1202791367	Method Blank (MB) **CVAA**
1202791368	Laboratory Control Sample (LCS)
1202791371	315545002(CAMO-13-24282L) Serial Dilution (SD)
1202791369	315545002(CAMO-13-24282D) Sample Duplicate (DUP)
1202791370	315545002(CAMO-13-24282S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1265069, 1265063, 1268112 and 1270221
Prep Batch :	1265068, 1265062 and 1268111
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# 8
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B

Prep Method : SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

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

System Configuration

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

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

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

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

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

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this SDG: 315545002 (CAMO-13-24282)-ICP, ICP-MS and CVAA.

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

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

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

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

Certification Statement

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

Review Validation:

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

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

Reviewer:_____ **Date:** 12/17/12

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: 2013-353 GEL Work Order: 315545

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

J Value is estimated

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

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

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

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

Reviewed by 12/17/13

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315545002 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24282 **LEVEL:** Low **DATE RECEIVED** 20-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	12/06/12 10:39	120612W1-6	1268112

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315545002 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24282 **LEVEL:** Low **DATE RECEIVED** 20-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	11/27/12 20:14	112712B-1	1265069
7440-36-0	Antimony	3.48	ug/L		1	3	3	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-39-3	Barium	22.8	ug/L		1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-70-2	Calcium	10200	ug/L		50	200	200	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-47-3	Chromium	5.41	ug/L	J	2	10	10	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/10/12 13:45	121012A-2	1265069
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7439-95-4	Magnesium	3340	ug/L		110	300	300	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7439-98-7	Molybdenum	0.849	ug/L		0.165	0.5	0.5	1	MS	RMJ	12/14/12 04:23	121213-5	1265063
7440-02-0	Nickel	0.804	ug/L	J	0.5	2	2	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-09-7	Potassium	1990	ug/L		50	150	150	1	P	HSC	12/10/12 13:45	121012A-2	1265069
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	RMJ	12/13/12 09:09	121212-4	1265063
7631-86-9	Silica	75800	ug/L		53	213	213	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-23-5	Sodium	10600	ug/L		100	300	300	1	P	HSC	12/10/12 13:45	121012A-2	1265069
7440-24-6	Strontium	47	ug/L		1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-61-1	Uranium	0.465	ug/L		0.067	0.2	0.2	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-62-2	Vanadium	8.5	ug/L		1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-66-6	Zinc	6.22	ug/L	J	3.3	10	10	1	P	HSC	11/27/12 20:14	112712B-1	1265069

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315545002 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24282 **LEVEL:** Low **DATE RECEIVED** 20-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	39.2	mg/L		0.453	1.24	1.24	1		JJ2	12/13/12 08:32		1270221

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1265063	1265062	SW846 3005A	50	mL	50	mL	11/27/12	AXG2
1265069	1265068	SW846 3005A	50	mL	50	mL	11/27/12	AXG2
1268112	1268111	EPA 245.1/245.2 Prep	20	mL	20	mL	12/05/12	AXS5

***Analytical Methods:**

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

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315545004 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24272 **LEVEL:** Low **DATE RECEIVED** 20-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	12/06/12 10:44	120612W1-6	1268112

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315545004 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24272 **LEVEL:** Low **DATE RECEIVED** 20-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	11/27/12 20:26	112712B-1	1265069
7440-36-0	Antimony	3.35	ug/L		1	3	3	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-39-3	Barium	22	ug/L		1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-70-2	Calcium	10100	ug/L		50	200	200	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-47-3	Chromium	5.5	ug/L	J	2	10	10	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/10/12 13:57	121012A-2	1265069
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7439-95-4	Magnesium	3280	ug/L		110	300	300	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7439-98-7	Molybdenum	0.960	ug/L		0.165	0.5	0.5	1	MS	RMJ	12/14/12 04:14	121213-5	1265063
7440-02-0	Nickel	0.766	ug/L	J	0.5	2	2	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-09-7	Potassium	1960	ug/L		50	150	150	1	P	HSC	12/10/12 13:57	121012A-2	1265069
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	RMJ	12/13/12 09:34	121212-4	1265063
7631-86-9	Silica	74200	ug/L		53	213	213	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-23-5	Sodium	10300	ug/L		100	300	300	1	P	HSC	12/10/12 13:57	121012A-2	1265069
7440-24-6	Strontium	45.9	ug/L		1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-61-1	Uranium	0.497	ug/L		0.067	0.2	0.2	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-62-2	Vanadium	7.99	ug/L		1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-66-6	Zinc	15	ug/L		3.3	10	10	1	P	HSC	11/27/12 20:26	112712B-1	1265069

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315545004 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24272 **LEVEL:** Low **DATE RECEIVED** 20-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	38.8	mg/L		0.453	1.24	1.24	1		JJ2	12/13/12 08:32		1270221

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1265063	1265062	SW846 3005A	50	mL	50	mL	11/27/12	AXG2
1265069	1265068	SW846 3005A	50	mL	50	mL	11/27/12	AXG2
1268112	1268111	EPA 245.1/245.2 Prep	20	mL	20	mL	12/05/12	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. 2013−353
Contract: ESHL00210
Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202784088								
	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	−0.231	ug/L	+/−0.5	J	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202784097								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	−163	ug/L	+/−300	J	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
1202791367								
	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. 2013−353 **Client ID** CAMO−13−24282S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315545002 **Spike ID:** 1202784091

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	211		3.48		200	104		MS
Arsenic	ug/L	75−125	81.6		1.7	U	80	101		MS
Cadmium	ug/L	75−125	10.9		0.11	U	10	109		MS
Chromium	ug/L	75−125	53		5.41	J	50	95.1		MS
Lead	ug/L	75−125	42.7		0.5	U	40	107		MS
Molybdenum	ug/L	75−125	57.9		0.849		50	114		MS
Nickel	ug/L	75−125	49		0.804	J	50	96.4		MS
Selenium	ug/L	75−125	24.3		1.5	U	20	120		MS
Silver	ug/L	75−125	53.4		0.2	U	50	107		MS
Thallium	ug/L	75−125	94.8		0.45	U	100	94.7		MS
Uranium	ug/L	75−125	56		0.465		50	111		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24282S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315545002 **Spike ID:** 1202784100

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5240		68	U	5000	105		P
Barium	ug/L	75−125	521		22.8		500	99.6		P
Beryllium	ug/L	75−125	507		1	U	500	101		P
Boron	ug/L	75−125	518		15	U	500	101		P
Calcium	ug/L	75−125	15200		10200		5000	99.3		P
Cobalt	ug/L	75−125	493		1	U	500	98.6		P
Copper	ug/L	75−125	543		3	U	500	108		P
Iron	ug/L	75−125	5000		30	U	5000	99.8		P
Magnesium	ug/L	75−125	8330		3340		5000	99.7		P
Manganese	ug/L	75−125	506		2	U	500	101		P
Potassium	ug/L	75−125	7200		1990		5000	104		P
Silica	ug/L		87800		75800		10700	111	N/A	P
Sodium	ug/L	75−125	16400		10600		5000	116		P
Strontium	ug/L	75−125	577		47		500	106		P
Tin	ug/L	75−125	498		2.5	U	500	99.7		P
Vanadium	ug/L	75−125	523		8.5		500	103		P
Zinc	ug/L	75−125	502		6.22	J	500	99.2		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24282S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315545002 **Spike ID:** 1202791370

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

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−353 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24282D

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Duplicate ID:** 1202784090 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L	+/−3	3.48		3.44		.954		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	5.41	J	5.45	J	.792		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	0.849		0.99		15.3		MS
Nickel	ug/L	+/−2	0.804	J	0.788	J	2.01		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	0.465		0.494		6.05		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−353 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24282D

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Duplicate ID:** 1202784099 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	22.8		22.1		2.81		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	10200		9980		2.2		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%	3340		3300		1.38		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1990		2000		.155		P
Silica	ug/L	+/−20%	75800		74400		1.95		P
Sodium	ug/L	+/−20%	10600		10400		1.41		P
Strontium	ug/L	+/−20%	47		46		2.12		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	8.5		8.68		2.15		P
Zinc	ug/L	+/−10	6.22	J	6.11	J	1.88		P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−353 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24282D

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Duplicate ID:** 1202791369 **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. 2013−353

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202784089								
	Antimony	ug/L	50	52.3		105	80−120	MS
	Arsenic	ug/L	50	52.7		105	80−120	MS
	Cadmium	ug/L	50	54.2		108	80−120	MS
	Chromium	ug/L	50	52.6		105	80−120	MS
	Lead	ug/L	50	53.7		107	80−120	MS
	Molybdenum	ug/L	50	51.3		103	80−120	MS
	Nickel	ug/L	50	55.2		110	80−120	MS
	Selenium	ug/L	50	57.4		115	80−120	MS
	Silver	ug/L	50	54.2		108	80−120	MS
	Thallium	ug/L	50	48.7		97.5	80−120	MS
	Uranium	ug/L	50	56		112	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−353

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202784098								
	Aluminum	ug/L	5000	5480		110	80−120	P
	Barium	ug/L	500	498		99.5	80−120	P
	Beryllium	ug/L	500	499		99.8	80−120	P
	Boron	ug/L	500	498		99.7	80−120	P
	Calcium	ug/L	5000	4980		99.5	80−120	P
	Cobalt	ug/L	500	490		98	80−120	P
	Copper	ug/L	500	519		104	80−120	P
	Iron	ug/L	5000	4940		98.8	80−120	P
	Magnesium	ug/L	5000	5020		100	80−120	P
	Manganese	ug/L	500	508		102	80−120	P
	Potassium	ug/L	5000	5180		104	80−120	P
	Silica	ug/L	10700	10700		99.8	80−120	P
	Sodium	ug/L	5000	5240		105	80−120	P
	Strontium	ug/L	500	532		106	80−120	P
	Tin	ug/L	500	503		101	80−120	P
	Vanadium	ug/L	500	514		103	80−120	P
	Zinc	ug/L	500	494		98.9	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−353

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202791368								
	Mercury	ug/L	2	2.11		105	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24282L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Serial Dilution ID:** 1202784092

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	3.48		5	U	100			MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.41	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	.849		.945	J	11.3			MS
Nickel	.804	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	5.67	J				MS
Uranium	.465		.525	J	12.9			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24282L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Serial Dilution ID:** 1202784101

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	22.8		22.8	J	.382			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	10200		9860		3.39		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3340		3360		.423			P
Manganese	2	U	10	U				P
Potassium	1990		2090		4.7			P
Silica	75800		75100		.955		10	P
Sodium	10600		10100		4.16		10	P
Strontium	47		46.3		1.57			P
Tin	2.5	U	12.5	U				P
Vanadium	8.5		12	J	40.7			P
Zinc	6.22	J	16.5	U	100			P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24268L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Serial Dilution ID:** 1202791371

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

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-353

Method/Analysis Information

Product:	**Carbon, Total Organic**		
Analytical Batch:	1265851	**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
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202785852	Method Blank (MB)
1202785853	315351001(CASA-13-24211) Sample Duplicate (DUP)
1202785854	315351001(CASA-13-24211) Post Spike (PS)
1202785855	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: 315351001 (CASA-13-24211).

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

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

Technical Information

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

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

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

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

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

Miscellaneous Information

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

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

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

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

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1267060	**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
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202788865	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202788867	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

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

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

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

Quality Control (QC) Information

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

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: 1265360 **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
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202784743	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202784744	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: 315351002 (CASA-13-24219).

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

Technical Information

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

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 315545002 (CAMO-13-24282) and 315545004 (CAMO-13-24272).

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: 1143472 315545002 (CAMO-13-24282) and 315545004 (CAMO-13-24272).

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:	1264118	**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
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202781990	Method Blank (MB)
1202781991	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202781992	315267002(CASA-13-24218) Post Spike (PS)
1202781993	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

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

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

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

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

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

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

Technical Information

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

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

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

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

Miscellaneous Information

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

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202781991 (CASA-13-24218), 1202781992 (CASA-13-24218), 315545002 (CAMO-13-24282) and 315545004 (CAMO-13-24272).

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:	1265956	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1265955	**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
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202786153	Method Blank (MB)
1202786154	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786155	315267002(CASA-13-24218) Matrix Spike (MS)
1202786156	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)
1202786157	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: 315267002 (CASA-13-24218).

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 relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable. 1202786156 (CASA-13-24218).

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

Technical Information

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

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

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

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

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

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1143774 1202786156 (CASA-13-24218).

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:	1265958	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1265957	**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
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202786158	Method Blank (MB)
1202786159	315267001(CASA-13-24210) Sample Duplicate (DUP)
1202786161	315267001(CASA-13-24210) Matrix Spike (MS)
1202786165	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# 13.

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: 315267001 (CASA-13-24210).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202786161 (CASA-13-24210).

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202786159 (CASA-13-24210).

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: 1147238 1202786161 (CASA-13-24210).

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:	1265759	**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
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202785633	Method Blank (MB)
1202785634	315450004(CAMO-13-24268) Sample Duplicate (DUP)
1202785635	315545002(CAMO-13-24282) Sample Duplicate (DUP)
1202785636	315450004(CAMO-13-24268) Post Spike (PS)
1202785637	315545002(CAMO-13-24282) Post Spike (PS)
1202785638	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 samples were selected for QC analysis: 315450004 (CAMO-13-24268) and 315545002 (CAMO-13-24282).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202785636 (CAMO-13-24268).

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: 1202785634 (CAMO-13-24268) and 1202785636 (CAMO-13-24268).

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: 1143441 1202785636 (CAMO-13-24268).

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:	1263579	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1263578	**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
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202780723	Method Blank (MB)
1202780727	Laboratory Control Sample (LCS)
1202786124	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786125	315267002(CASA-13-24218) Matrix Spike (MS)
1202786126	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

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

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

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 sample was re-analyzed due to instrument failure: 1202780727 (LCS). The following sample was re-analyzed due to its proximity to an overrange sample: 315545002 (CAMO-13-24282).

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:	**Solids, Total Dissolved**		
Analytical Batch:	1264928	**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
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202783776	Method Blank (MB)
1202783778	Laboratory Control Sample (LCS)
1202784567	315450004(CAMO-13-24268) Sample Duplicate (DUP)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 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: 315450004 (CAMO-13-24268).

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
The following DER was generated for this SDG: 1146449

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:	1266562	**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
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202787691	315450004(CAMO-13-24268) Sample Duplicate (DUP)
1202787695	315450004(CAMO-13-24268) Matrix Spike (MS)
1202787699	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-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: 315450004 (CAMO-13-24268).

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.

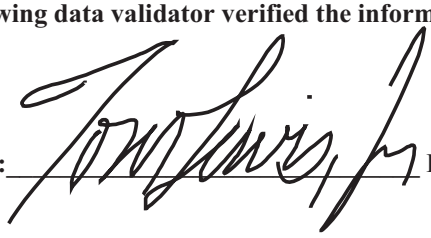
Certification Statement

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:** 17Dec12

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: 2013-353 GEL Work Order: 315545

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: December 14, 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: 2013-353

Client Sample ID:	CAMO-13-24278	Project:	ESHL00210
Sample ID:	315545001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	16-NOV-12 10:11		
Receive Date:	20-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		1.56	0.330	1.00	mg/L	1	TSM	11/29/12	1931	1265851	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	12/07/12	1515	1265958	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	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

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

Certificate of Analysis

Report Date: December 14, 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: 2013-353

Client Sample ID: CAMO-13-24282
Sample ID: 315545002
Matrix: W
Collect Date: 16-NOV-12 10:11
Receive Date: 20-NOV-12
Collector: Client
Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		121	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1427	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 13.1C	H	7.78	0.010	0.100	SU	1	LYG1	11/21/12	0900	1265360	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/30/12	2123	1264118	3
Chloride		1.77	0.067	0.200	mg/L	1					
Fluoride		0.169	0.033	0.100	mg/L	1					
Sulfate		1.92	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0897	0.017	0.050	mg/L	1	KLP1	11/27/12	1110	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.370	0.017	0.050	mg/L	1	AXH3	11/26/12	0926	1265759	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1711	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		110	3.40	14.3	mg/L		LYG1	11/20/12	1417	1264928	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		56.1	0.725	1.00	mg/L		LXA1	11/29/12	1734	1266562	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	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

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Certificate of Analysis

Report Date: December 14, 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: 2013-353

Client Sample ID:	CAMO-13-24282	Project:	ESHL00210
Sample ID:	315545002	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	

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Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-353

Client Sample ID:	CAMO-13-24271	Project:	ESHL00210
Sample ID:	315545003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	16-NOV-12 10:11		
Receive Date:	20-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		1.57	0.330	1.00	mg/L	1	TSM	11/29/12	2004	1265851	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		1.01	0.033	0.100	mg/L	1	KLP1	12/07/12	1516	1265958	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	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

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Certificate of Analysis

Report Date: December 14, 2012

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Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-353

Client Sample ID:	CAMO-13-24272	Project:	ESHL00210
Sample ID:	315545004	Client ID:	ARSL001
Matrix:	W		
Collect Date:	16-NOV-12 10:11		
Receive Date:	20-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		122	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1428	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 13.9C	H	7.64	0.010	0.100	SU	1	LYG1	11/21/12	0901	1265360	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/30/12	2152	1264118	3
Chloride		1.78	0.067	0.200	mg/L	1					
Fluoride		0.175	0.033	0.100	mg/L	1					
Sulfate		1.94	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.043	0.017	0.050	mg/L	1	KLP1	11/27/12	1111	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.370	0.017	0.050	mg/L	1	AXH3	11/26/12	0934	1265759	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1707	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		47.1	3.40	14.3	mg/L		LYG1	11/20/12	1417	1264928	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		53.6	0.725	1.00	mg/L		LXA1	11/29/12	1744	1266562	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	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

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Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory
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Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-353

Client Sample ID:	CAMO-13-24272	Project:	ESHL00210
Sample ID:	315545004	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

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

QC Summary

Report Date: December 14, 2012

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

Contact: **Keith Greene**

Workorder: **315545**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1265851											
QC1202785853 315351001 DUP											
Total Organic Carbon Average		U	ND	J	0.356	mg/L	N/A			TSM	11/29/12 15:56
QC1202785855 LCS											
Total Organic Carbon Average	10.0				10.0	mg/L		100	(85%-115%)		11/29/12 15:14
QC1202785852 MB											
Total Organic Carbon Average				U	ND	mg/L					11/29/12 15:05
QC1202785854 315351001 PS											
Total Organic Carbon Average	10.0	U	ND		10.7	mg/L		104	(65%-120%)		11/29/12 16:16
Conductivity Analysis											
Batch 1267060											
QC1202788865 315351002 DUP											
Conductivity			171		170	umhos/cm	0.294		(0%-10%)	LXA1	11/30/12 14:21
QC1202788867 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		11/30/12 14:14
Electrode Analysis											
Batch 1265360											
QC1202784743 315351002 DUP											
pH		H	7.85	H	7.85	SU	0.00		(0%-10%)	LYG1	11/21/12 08:50
QC1202784744 LCS											
pH	7.00				7.04	SU		101	(99%-101%)		11/21/12 08:40
Ion Chromatography											
Batch 1264118											
QC1202781991 315267002 DUP											
Bromide		U	ND	U	ND	mg/L	N/A			MAR1	11/30/12 16:34
Chloride			6.27		6.30	mg/L	0.352		(0%-20%)		
Fluoride			0.332		0.333	mg/L	0.271 ^		(+/-0.100)		
Sulfate			5.52		5.55	mg/L	0.524		(0%-20%)		
QC1202781993 LCS											
Bromide	2.50				2.62	mg/L		105	(90%-110%)		11/30/12 15:36
Chloride	10.0				9.24	mg/L		92.4	(90%-110%)		
Fluoride	5.00				4.89	mg/L		97.9	(90%-110%)		
Sulfate	20.0				19.3	mg/L		96.4	(90%-110%)		
QC1202781990 MB											
Bromide				U	ND	mg/L					11/30/12 15:07
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202781992 315267002 PS											
Bromide	2.50	U	ND		2.59	mg/L		101	(90%-110%)		11/30/12 17:03
Chloride	10.0		6.27		16.2	mg/L		99.7	(90%-110%)		

QC Summary

Workorder: 315545

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1264118											
Fluoride	5.00		0.332		5.12	mg/L		95.8	(90%-110%)		
Sulfate	20.0		5.52		25.0	mg/L		97.3	(90%-110%)	MAR1	11/30/12 17:03
Nutrient Analysis											
Batch 1263579											
QC1202786124 315267002 DUP											
Phosphorus, Total as P		U	ND	U	ND	mg/L	N/A			KLP1	11/27/12 16:55
QC1202780727 LCS											
Phosphorus, Total as P	1.00				0.924	mg/L		92.4	(76%-120%)		11/27/12 16:50
QC1202780723 MB											
Phosphorus, Total as P				U	ND	mg/L					11/27/12 16:37
QC1202786125 315267002 MS											
Phosphorus, Total as P	1.00	U	ND		0.850	mg/L		85	(62%-139%)		11/27/12 16:56
QC1202786126 315267002 MSD											
Phosphorus, Total as P	1.00	U	ND		0.915	mg/L	7.37	91.5	(0%-20%)		11/27/12 16:57
Batch 1265759											
QC1202785634 315450004 DUP											
Nitrogen, Nitrate/Nitrite			1.58		1.54	mg/L	2.56		(0%-20%)	AXH3	11/26/12 09:23
QC1202785635 315545002 DUP											
Nitrogen, Nitrate/Nitrite			0.370		0.371	mg/L	0.270		(0%-20%)		11/26/12 09:27
QC1202785638 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.03	mg/L		103	(90%-110%)		11/26/12 09:02
QC1202785633 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/26/12 09:01
QC1202785636 315450004 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.316		1.43	mg/L		111 *	(90%-110%)		11/26/12 09:24
QC1202785637 315545002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.370		1.43	mg/L		106	(90%-110%)		11/26/12 09:33
Batch 1265956											
QC1202786154 315267002 DUP											
Nitrogen, Ammonia		J	0.0497	J	0.0418	mg/L	17.3 ^		(+/-0.050)	KLP1	11/27/12 10:59
QC1202786157 LCS											
Nitrogen, Ammonia	1.00				1.05	mg/L		105	(90%-110%)		11/27/12 10:58
QC1202786153 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/27/12 10:57
QC1202786155 315267002 MS											
Nitrogen, Ammonia	1.00	J	0.0497		0.981	mg/L		93.1	(90%-110%)		11/27/12 11:00
QC1202786156 315267002 MSD											
Nitrogen, Ammonia	1.00	J	0.0497		1.15	mg/L	15.9*	110	(0%-15%)		11/27/12 11:01
Batch 1265958											
QC1202786159 315267001 DUP											
Nitrogen, Total Kjeldahl		U	ND	U	ND	mg/L	N/A			KLP1	12/07/12 15:02
QC1202786165 LCS											
Nitrogen, Total Kjeldahl	1.00				0.987	mg/L		98.7	(90%-110%)		12/07/12 15:00
QC1202786158 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					12/07/12 14:59
QC1202786161 315267001 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		0.881	mg/L		88.1 *	(90%-110%)		12/07/12 15:03

QC Summary

Workorder: 315545

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis											
Batch 1264928											
QC1202784567 315450004 DUP											
Total Dissolved Solids			203		200	mg/L	1.42		(0%-10%)	LYG1	11/20/12 14:17
QC1202783778 LCS											
Total Dissolved Solids	300				290	mg/L		96.7	(95%-105%)		11/20/12 07:48
QC1202783776 MB											
Total Dissolved Solids				U	ND	mg/L					11/20/12 07:48
Titration Analysis											
Batch 1266562											
QC1202787691 315450004 DUP											
Alkalinity, Total as CaCO3			41.7		41.7	mg/L	0.00		(0%-20%)	LXA1	11/29/12 13:04
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202787699 LCS											
Alkalinity, Total as CaCO3	50.0				50.5	mg/L		101	(90%-110%)		11/29/12 12:50
QC1202787695 315450004 MS											
Alkalinity, Total as CaCO3	50.0		41.7		92.7	mg/L		102	(80%-120%)		11/29/12 13:09

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.
M	M if above MDC and less than LLD
M	Matrix Related Failure

QC Summary

Workorder: 315545

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

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:**
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 353.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265759	See below.		

Potentially affected work order(s)(SDG): 315439,315450(2013-334),315545(2013-353)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for PS: QC 1202785636PS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.

Originator's Name:

Aubrey Kingsbury 26-NOV-12

Data Validator/Group Leader:

Julia Hamilton 29-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265360	See below.		

Potentially affected work order(s)(SDG): 315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	**DER Disposition:**
1. Sample received out of holding: 315351 002 315352 002,006 315353 002 315450 004,007 315545 002,004	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 26-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
27-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL, ORNL
Batch ID:	**Sample Numbers:**		
1265956	See below.		

Potentially affected work order(s)(SDG): 315267(2013-312),315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315650

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed RPD for MS/MSD: QC 1202786156MSD	1. The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable.

Originator's Name:

Kristen Parson 27-NOV-12

Data Validator/Group Leader:

Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
05-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
BALANCE	EPA 160.1	Liquid	STOL
Batch ID:	**Sample Numbers:**		
1264928	315499003, 1202783777		

Potentially affected work order(s)(SDG): 315450(2013-334),315499(12114946),315545(2013-353)

Application Issues:

Other

Specification and Requirements Exception Description:	**DER Disposition:**
1. Consecutive weight check criteria not met. 315499003, 1202783777	1. In order to meet consecutive weight check criteria, weight events must be within 0.0005g of each other. After initial weight checks failed this criteria, the analyst performed two additional weight events for Total Dissolved Solids. After four weight events, the analyst was unable to get the samples to conform to the criteria. The failure to meet weighback criteria is attributed to the matrix of the samples.

Originator's Name:

Lisa Gregory 05-DEC-12

Data Validator/Group Leader:

Thomas Lewis 13-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
07-DEC-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:**		
1265958	See below.		

Potentially affected work order(s)(SDG): 315267(2013-312),315311,315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315780

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MS: QC 1202786161MS	1. The spike recovery falls outside of the established acceptance limits due to matrix interference:

Originator's Name:

Kristen Parson 07-DEC-12

Data Validator/Group Leader:

Julia Hamilton 10-DEC-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-353
Work Order 315545

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1264269

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202782355	Method Blank (MB)
1202782356	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782357	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 1202782355 (MB) and 1202782357 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

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

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

Technical Information:

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

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

Miscellaneous Information:

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

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

Additional Comments
The MDCs are calculated using a blank population.

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

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1264270

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202782358	Method Blank (MB)
1202782359	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782360	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 1202782358 (MB) and 1202782360 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

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

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

Technical Information:

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

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

Miscellaneous Information:

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

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

Additional Comments
The MDCs are calculated using a blank population.

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

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1264271

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202782361	Method Blank (MB)
1202782362	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782363	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 1202782361 (MB) and 1202782363 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

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

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

Technical Information:

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

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

Miscellaneous Information:

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

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

Additional Comments
The MDCs are calculated using a blank population.

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

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1265828

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202785777	Method Blank (MB)
1202785778	315545001(CAMO-13-24278) Sample Duplicate (DUP)
1202785779	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 May 2012, June 2012 and August 2012.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 315545001 (CAMO-13-24278). The QC was from ARSL work order 315545.

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:	1266694

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202788012	Method Blank (MB)
1202788013	315545001(CAMO-13-24278) Sample Duplicate (DUP)
1202788014	315545001(CAMO-13-24278) Matrix Spike (MS)
1202788015	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 1202788012 (MB) and 1202788015 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545001 (CAMO-13-24278). The QC was from ARSL work order 315545.

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 1202788013 (CAMO-13-24278) and 315545001 (CAMO-13-24278) were recounted due to high relative percent difference/relative error ratio. The recounts are reported. Sample 315545003 (CAMO-13-24271) was recounted due to results more negative than the three sigma TPU. The second count is reported.

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

Miscellaneous Information:

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

Additional Comments
The matrix spike, 1202788014 (CAMO-13-24278), 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:	1268150

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202791495	Method Blank (MB)
1202791496	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202791497	315159001(CAMO-13-24249) Matrix Spike (MS)
1202791498	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202791499	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 December 2012. 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 1202791495 (MB) and 1202791499 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

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 were reprepped due to high relative percent difference/relative error ratio. The re-analysis is being reported.

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, 1202791497 (CAMO-13-24249) and 1202791498 (CAMO-13-24249), 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: 2013-353 GEL Work Order: 315545

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

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

Review/Validation

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

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

Signature:  **Name: Kate Gellatly**

Date: 12 DEC 2012 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC

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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: December 12, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24278
Sample ID: 315545001
Matrix: W
Collect Date: 16-NOV-12
Receive Date: 20-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	0.00233	+/-0.00403	0.0265	+/-0.00403	0.050	pCi/L		HAKB	11/26/12	1259	1264269	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00	+/-0.00611	0.0294	+/-0.00611	0.050	pCi/L		HAKB	11/23/12	1247	1264270	2
Plutonium-239/240	U	0.00917	+/-0.00683	0.0488	+/-0.00684	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.416	+/-0.0347	0.0627	+/-0.0442	1.00	pCi/L		HAKB	11/23/12	1246	1264271	3
Uranium-235/236	U	0.00334	+/-0.00747	0.0391	+/-0.00747	1.00	pCi/L						
Uranium-238		0.197	+/-0.024	0.0425	+/-0.0272	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.0834	+/-1.39	4.88	+/-1.39	8.00	pCi/L		KXG3	11/26/12	1247	1265828	4
Cobalt-60	U	1.25	+/-1.15	4.83	+/-1.15	8.00	pCi/L						
Neptunium-237	U	-2.77	+/-2.53	8.63	+/-2.53	10.0	pCi/L						
Potassium-40	U	-28.6	+/-15.9	60.8	+/-15.9	10.0	pCi/L						
Sodium-22	U	-0.152	+/-0.956	3.69	+/-0.956	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.15	+/-0.132	0.487	+/-0.132	0.500	pCi/L		VXC2	12/09/12	1333	1266694	5
WSP-GrossA/B "As Received"													
Beta		3.28	+/-0.876	2.39	+/-0.919	3.00	pCi/L		DYT1	12/05/12	1618	1268150	6
Alpha	U	0.353	+/-0.554	2.27	+/-0.555	3.00	pCi/L		DYT1	12/06/12	1308	1268150	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"	1264269	95.8	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1264270	70.2	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1264271	80.4	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1266694	85.1	(50%-105%)

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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: December 12, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24278
Sample ID: 315545001

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).

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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: December 12, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24271
Sample ID: 315545003
Matrix: W
Collect Date: 16-NOV-12
Receive Date: 20-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	0.010	+/-0.00793	0.0285	+/-0.00794	0.050	pCi/L		HAKB	11/26/12	1259	1264269	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.0027	+/-0.00468	0.0259	+/-0.00468	0.050	pCi/L		HAKB	11/23/12	1247	1264270	2
Plutonium-239/240	U	0.00	+/-0.0054	0.0431	+/-0.0054	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.311	+/-0.0301	0.0608	+/-0.0365	1.00	pCi/L		HAKB	11/23/12	1246	1264271	3
Uranium-235/236	U	0.00648	+/-0.00916	0.038	+/-0.00917	1.00	pCi/L						
Uranium-238		0.197	+/-0.0233	0.0413	+/-0.0265	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	1.53	+/-1.19	4.83	+/-1.19	8.00	pCi/L		KXG3	11/26/12	1247	1265828	4
Cobalt-60	U	-0.585	+/-0.871	3.18	+/-0.871	8.00	pCi/L						
Neptunium-237	U	0.0659	+/-2.13	7.74	+/-2.13	10.0	pCi/L						
Potassium-40	U	-11.8	+/-16.9	65.1	+/-16.9	10.0	pCi/L						
Sodium-22	U	1.14	+/-1.19	4.91	+/-1.19	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.221	+/-0.131	0.488	+/-0.131	0.500	pCi/L		VXC2	12/09/12	1333	1266694	5
WSP-GrossA/B "As Received"													
Beta	U	2.06	+/-0.802	2.43	+/-0.820	3.00	pCi/L		DYT1	12/05/12	1620	1268150	6
Alpha	U	0.773	+/-0.651	2.32	+/-0.654	3.00	pCi/L		DYT1	12/06/12	1307	1268150	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"	1264269	88.7	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1264270	80.3	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1264271	90.8	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1266694	82.3	(50%-105%)

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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: December 12, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24271
Sample ID: 315545003

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: December 12, 2012

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

Workorder: **315545**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264269										
QC1202782356 315545003 DUP										
Americium-241	U	0.010	U	0.00735	pCi/L	0.0927		(0-1)	HAKB	11/26/1212:59
	Uncert:	+/-0.00793		+/-0.00648						
	TPU:	+/-0.00794		+/-0.00649						
**Americium-243 Tracer	2.60	2.31		2.41	pCi/L		92.5	(50%-105%)		
	Uncert:	+/-0.0803		+/-0.0798						
	TPU:	+/-0.137		+/-0.136						
QC1202782357 LCS										
Americium-241	1.41			1.47	pCi/L		104	(80%-120%)	HAKB	11/26/1212:59
	Uncert:			+/-0.053						
	TPU:			+/-0.0813						
**Americium-243 Tracer	2.08			2.09	pCi/L		100	(50%-105%)		
	Uncert:			+/-0.0623						
	TPU:			+/-0.107						
QC1202782355 MB										
Americium-241			U	0.00	pCi/L				HAKB	11/26/1212:59
	Uncert:			+/-0.00454						
	TPU:			+/-0.00454						
**Americium-243 Tracer	2.08			1.95	pCi/L		93.7	(50%-105%)		
	Uncert:			+/-0.0619						
	TPU:			+/-0.107						
Batch 1264270										
QC1202782359 315545003 DUP										
Plutonium-238	U	-0.0027	U	-0.00277	pCi/L	0.0034		(0-1)	HAKB	11/23/1212:47
	Uncert:	+/-0.00468		+/-0.0062						
	TPU:	+/-0.00468		+/-0.0062						
Plutonium-239/240	U	0.00	U	0.00832	pCi/L	0.358		(0-1)		
	Uncert:	+/-0.0054		+/-0.0062						
	TPU:	+/-0.0054		+/-0.00621						
**Plutonium-242 Tracer	2.43	1.95		1.93	pCi/L		79.3	(50%-105%)		
	Uncert:	+/-0.0811		+/-0.0822						
	TPU:	+/-0.134		+/-0.136						
QC1202782360 LCS										
Plutonium-238			U	0.0176	pCi/L			(80%-120%)	HAKB	11/23/1212:47
	Uncert:			+/-0.00647						
	TPU:			+/-0.00652						
Plutonium-239/240	2.03			2.00	pCi/L		98.7	(80%-120%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.106						
**Plutonium-242 Tracer	1.94			1.78	pCi/L		91.5	(50%-105%)		
	Uncert:			+/-0.0617						
	TPU:			+/-0.104						
QC1202782358 MB										

QC Summary

Workorder: 315545

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264270										
Plutonium-238			U	0.00	pCi/L				HAKB	11/23/1212:47
	Uncert:			+/-0.00274						
	TPU:			+/-0.00274						
Plutonium-239/240			U	0.00387	pCi/L					
	Uncert:			+/-0.00387						
	TPU:			+/-0.00387						
**Plutonium-242 Tracer	1.94			1.73	pCi/L		89.1	(50%-105%)		
	Uncert:			+/-0.0614						
	TPU:			+/-0.103						
Batch 1264271										
QC1202782362 315545003 DUP										
Uranium-234		0.311		0.370	pCi/L	0.375		(0-1)	HAKB	11/23/1212:46
	Uncert:	+/-0.0301		+/-0.0343						
	TPU:	+/-0.0365		+/-0.0423						
Uranium-235/236	U	0.00648	U	0.0141	pCi/L	0.213		(0-1)		
	Uncert:	+/-0.00916		+/-0.00862						
	TPU:	+/-0.00917		+/-0.00867						
Uranium-238		0.197		0.199	pCi/L	0.0254		(0-1)		
	Uncert:	+/-0.0233		+/-0.0248						
	TPU:	+/-0.0265		+/-0.028						
**Uranium-232 Tracer	2.73	2.48		2.13	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.085		+/-0.0891						
	TPU:	+/-0.196		+/-0.199						
QC1202782363 LCS										
Uranium-234				2.63	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0837						
	TPU:			+/-0.194						
Uranium-235/236				0.148	pCi/L					
	Uncert:			+/-0.0228						
	TPU:			+/-0.0248						
Uranium-238	2.70			2.59	pCi/L		95.8	(80%-120%)		
	Uncert:			+/-0.0828						
	TPU:			+/-0.191						
**Uranium-232 Tracer	2.19			1.41	pCi/L		64.5	(50%-105%)		
	Uncert:			+/-0.0765						
	TPU:			+/-0.164						
QC1202782361 MB										
Uranium-234			U	0.00481	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0101						
	TPU:			+/-0.0101						
Uranium-235/236			U	0.00572	pCi/L					
	Uncert:			+/-0.007						
	TPU:			+/-0.00701						
Uranium-238			U	0.00462	pCi/L					
	Uncert:			+/-0.00731						
	TPU:			+/-0.00732						
**Uranium-232 Tracer	2.19			1.67	pCi/L		76.3	(50%-105%)		
	Uncert:			+/-0.0715						

QC Summary

Workorder: 315545

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264271										
	TPU:			+/-0.159						
Rad Gamma Spec										
Batch 1265828										
QC1202785778 315545001 DUP										
Cesium-137	U	-0.0834	U	-1.43	pCi/L	0.244		(0-1)	KXG3	11/27/1208:06
	Uncert:	+/-1.39		+/-1.37						
	TPU:	+/-1.39		+/-1.37						
Cobalt-60	U	1.25	U	0.334	pCi/L	0.178		(0-1)		
	Uncert:	+/-1.15		+/-1.41						
	TPU:	+/-1.15		+/-1.41						
Neptunium-237	U	-2.77	U	-0.613	pCi/L	0.207		(0-1)		
	Uncert:	+/-2.53		+/-2.69						
	TPU:	+/-2.53		+/-2.69						
Potassium-40	U	-28.6	U	-29.1	pCi/L	0.00734		(0-1)		
	Uncert:	+/-15.9		+/-16.1						
	TPU:	+/-15.9		+/-16.1						
Sodium-22	U	-0.152	U	-0.463	pCi/L	0.0705		(0-1)		
	Uncert:	+/-0.956		+/-1.25						
	TPU:	+/-0.956		+/-1.25						
QC1202785779 LCS										
Americium-241	2780			2550	pCi/L		91.5	(80%-120%)	KXG3	11/27/1208:09
	Uncert:			+/-165						
	TPU:			+/-165						
Cesium-137	6090			6290	pCi/L		103	(80%-120%)		
	Uncert:			+/-261						
	TPU:			+/-261						
Cobalt-60	5620			5680	pCi/L		101	(80%-120%)		
	Uncert:			+/-236						
	TPU:			+/-236						
Neptunium-237			U	-22.1	pCi/L					
	Uncert:			+/-20.6						
	TPU:			+/-20.6						
Potassium-40			U	-10.9	pCi/L					
	Uncert:			+/-46.4						
	TPU:			+/-46.4						
Sodium-22			U	-6.34	pCi/L					
	Uncert:			+/-7.07						
	TPU:			+/-7.07						
QC1202785777 MB										
Cesium-137			U	-0.72	pCi/L				KXG3	11/26/1212:48
	Uncert:			+/-1.29						
	TPU:			+/-1.29						
Cobalt-60			U	0.631	pCi/L					
	Uncert:			+/-1.36						
	TPU:			+/-1.36						
Neptunium-237			U	1.30	pCi/L					
	Uncert:			+/-2.62						
	TPU:			+/-2.62						

QC Summary

Workorder: 315545

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1265828										
Potassium-40			U	-9.35	pCi/L					
Uncert:				+/-16.0						
TPU:				+/-16.0						
Sodium-22			U	1.24	pCi/L					
Uncert:				+/-1.50						
TPU:				+/-1.50						
Rad Gas Flow										
Batch 1266694										
QC1202788013 315545001 DUP										
Strontium-90	U	-0.15	U	0.0757	pCi/L	0.411		(0-1)	VXC2	12/09/1213:32
Uncert:		+/-0.132		+/-0.142						
TPU:		+/-0.132		+/-0.142						
**Strontium Carrier	7.17	6.10		5.70	mg		79.6	(50%-105%)		
QC1202788015 LCS										
Strontium-90	24.8			24.6	pCi/L		99.3	(80%-120%)	VXC2	12/07/1216:43
Uncert:				+/-0.666						
TPU:				+/-2.09						
**Strontium Carrier	7.17			6.40	mg		89.3	(50%-105%)		
QC1202788012 MB										
Strontium-90			U	-0.139	pCi/L				VXC2	12/07/1216:42
Uncert:				+/-0.111						
TPU:				+/-0.111						
**Strontium Carrier	7.17			6.70	mg		93.5	(50%-105%)		
QC1202788014 315545001 MS										
Strontium-90	124 U	-0.15		130	pCi/L		105	(75%-125%)	VXC2	12/07/1216:43
Uncert:		+/-0.132		+/-3.56						
TPU:		+/-0.132		+/-12.1						
**Strontium Carrier	7.17	6.10		6.00	mg		83.7	(50%-105%)		
Batch 1268150										
QC1202791496 315159001 DUP										
Alpha	U	0.830	U	0.155	pCi/L	0.312		(0-1)	DYT1	12/06/1213:08
Uncert:		+/-0.612		+/-0.463						
TPU:		+/-0.616		+/-0.464						
Beta	U	1.67	U	1.12	pCi/L	0.184		(0-1)		12/05/1216:21
Uncert:		+/-0.821		+/-0.671						
TPU:		+/-0.833		+/-0.677						
QC1202791499 LCS										
Alpha	12.0			11.7	pCi/L		97.3	(80%-120%)	DYT1	12/06/1213:02
Uncert:				+/-0.616						
TPU:				+/-1.20						
Beta	49.6			51.8	pCi/L		104	(80%-120%)		12/05/1216:18
Uncert:				+/-0.934						
TPU:				+/-4.41						
QC1202791495 MB										
Alpha			U	-0.0368	pCi/L				DYT1	12/06/1213:07
Uncert:				+/-0.0451						
TPU:				+/-0.0452						
Beta			U	-0.135	pCi/L					12/05/1216:20

QC Summary

Workorder: 315545

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1268150										
	Uncert:			+/-0.106						
	TPU:			+/-0.106						
QC1202791497 315159001 MS										
Alpha	481 U	0.830		473	pCi/L		98.2	(75%-125%)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-24.9						
	TPU:	+/-0.616		+/-47.7						
Beta	1980 U	1.67		2190	pCi/L		110	(75%-125%)		12/05/1216:18
	Uncert:	+/-0.821		+/-39.0						
	TPU:	+/-0.833		+/-185						
QC1202791498 315159001 MSD										
Alpha	481 U	0.830		472	pCi/L	0.000951	98.1	(0-1)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-25.1						
	TPU:	+/-0.616		+/-48.5						
Beta	1980 U	1.67		2150	pCi/L	0.0534	108	(0-1)		12/05/1216:18
	Uncert:	+/-0.821		+/-38.8						
	TPU:	+/-0.833		+/-191						

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: **315545**

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.